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## PRELIMS



## POLITY &amp; GOVERNANCE



## ELECTORAL BONDS

**Context:** Recently, the Supreme Court flagged the possibility of **electoral bonds** being used to trade favours.

**Background:-**

- A Constitution Bench on October 31 raised the scenario of influential entities covertly setting up persons with verified accounts to purchase electoral bonds for them through the regular banking route in order to curry favour or anonymously enter into a quid pro quo with ruling political parties.

**About Electoral bonds:-**

- An Electoral Bond is **like a promissory note** that may be purchased by a person who is a citizen of India or incorporated or established in India.
- A person being **an individual can buy [Electoral Bonds](#)**, either **singly or jointly with other individuals**.
- The bonds are **like banknotes** that are payable to the bearer on demand and **are interest-free**.

**Historical Background:-**

- The electoral bonds system was **introduced in 2017** by way of a **Finance bill**.
- It was **implemented in 2018**.

**Eligibility:-**

- **Only the Political Parties registered under Section 29A of the Representation of the People Act (RPA), 1951** and which secured not less than one per cent of the votes polled in the last General Election to the House of the People or the Legislative Assembly of the State, shall be eligible to receive the Electoral Bonds.

**Salient Features:-**

- **State Bank of India (SBI)** issues the bonds in denominations of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore.
- It is payable to the bearer on **demand and interest-free**.
- It is **purchased by Indian citizens** or entities established in India.
- It can be bought **individually or jointly** with other individuals.
- It is **valid for 15 calendar days** from the date of issue.
- The State Bank of India (SBI) is the **authorized issuer**.
  - Electoral Bonds are issued through designated SBI branches.
- Electoral Bonds **can be purchased digitally** or **through cheques**.
- Encashment only through an authorized **bank account of the political party**.
  - Political Parties **must disclose** their bank account with the Election Commission of India (ECI).

**Advantages of Electoral Bonds:-**

- **Ensures Accountability:** Donations through Electoral Bonds will only be credited to the party bank account **disclosed with the ECI**.
- **Discourage Cash:** The Purchase will be possible only through a limited number of notified banks and that too through **cheque and digital payments**.
- **More Transparency:** It helps the political parties to operate in a more transparent manner with the election commission, regulatory authorities and the general public at large.

**Disadvantages of Electoral Bonds:-**

- **Hindering Right to Know:** Voters will not know which individual, company, or organisation has funded which party, and to what extent. Before the introduction of electoral bonds, political parties had to disclose details of all their donors, who have donated more than Rs 20,000.
  - The change **infringes the citizen's 'Right to Know'** and makes the political class even more unaccountable.
- **Unauthorized Donations:** In a situation where the contribution received through electoral bonds is not reported, it cannot be ascertained whether the political party has taken any donation in violation of provision under Section 29B of the RPA, 1951 which prohibits the political parties from taking donations from government companies and foreign sources.
- **Leads to Crony-Capitalism:** It could become a convenient channel for businesses to round-trip their cash parked in tax havens to political parties for a favour or advantage granted in return for something.
  - Anonymous funding might lead to an infusion of black money.

**MUST READ:** [Cohort on Election Integrity](#)

**SOURCE:** [THE HINDU](#)

## ENFORCEMENT DIRECTORATE

**Context:** The **Enforcement Directorate** is scheduled to question Delhi Chief Minister Arvind Kejriwal in the excise policy-linked money-laundering case soon.

**Background:-**

- The investigation agency will record the statement of the Delhi Chief Minister after he deposes before the investigating officer of the case in Delhi.

**About Enforcement Directorate:-**

- **Establishment: 1956.**
- **Ministry: Department of Revenue, Ministry of Finance.**
- **Headquarters: New Delhi.**
- The Enforcement Directorate is a **multi-disciplinary organization founded in**
- It is a law enforcement organization tasked with **enforcing economic laws and combating economic crime in India, such as money laundering and foreign exchange irregularities.**

**Functions:-**

- The functions of the Directorate include the enforcement of the following Acts:-
  - **The Prevention of Money Laundering Act, 2002 (PMLA)** ([Prevention of Money Laundering Act \(PMLA\) 2002](#))
  - **The Foreign Exchange Management Act, 1999 (FEMA):** A civil law under which ED conducts an investigation into suspected contraventions of foreign exchange laws and regulations. ([Foreign Exchange Management Act](#))
  - **The Foreign Exchange Regulation Act 1973**
  - **Sponsoring Organizations under the 1974 Foreign Exchange Conservation and Smuggling Activity Prevention Act**
  - **The Fugitive Economic Offenders Act, 2018 (FEOA):** A law whereby the Directorate is mandated to **attach the properties of fugitive economic offenders who have escaped from India** warranting arrest and providing for the confiscation of their properties to the Central Government. ([Fugitive Economic Offenders](#))

**Structure:-**

- **Director of Enforcement:-**

- **Appointed by the central government** on the recommendation of a committee chaired by the **Central Vigilance Commissioner** and **members comprising of Vigilance Commissioners, Home Secretary, Secretary DOPT and Revenue Secretary.**
- **Tenure:** up to 5 years.
- **Recruitment of other officers:-**
  - Other officers may be **recruited directly from other investigative agencies** or indirectly.
  - It is made up of representatives from the **police, excise, customs, and income tax departments** of the Indian Revenue Services (IRS), the Indian Police Services (**IPS**), and the Indian Administrative Services (**IAS**).

**Powers of ED:-**

- Statements recorded before an ED investigation officer (IO) **are admissible as evidence in court** under the Prevention of Money Laundering Act (PMLA).
- All offences under the PMLA, which the ED deals with, are classified as **non-bailable.**
- **Individuals in ED custody are sent to the nearest police station's** lock-up, irrespective of their status.
- Once the ED attaches properties belonging to an accused, it can be a lengthy and **challenging process to retrieve those assets.**
- Unlike regular criminal law, under the PMLA, **the burden of proof lies with the accused rather than the prosecutor.**
- **Accused individuals are required to furnish proof** in their defence, making it harder to deal with the ED's investigations.

**MUST READ:** [CBI and ED](#)**SOURCE:** [AIR](#)**COSTA SERENA**

**Context:** Union Minister of Ports, Shipping and Waterways, Sarbananda Sonowal will launch the domestic sailing of the first International Cruise Liner '**COSTA SERENA**' in India at Mumbai soon.

**Background:-**

- Costa Cruises is expected to carry approximately 45,000 passengers in its next 2 months voyages.

**About COSTA SERENA:-**

- Costa Serena is a **Concordia-class cruise ship** for the Italian cruise line, Costa Crociere.
- The name Serena was intended to **symbolize harmony and serenity.**
- Costa Serena was constructed by **Fincantieri in Sestri Ponente.**
- Costa Serena will make its debut in India and will be sailing in India **Nov & Dec 2023.** ([GREEN MARITIME SECTOR](#))
- Such cruise initiatives are part of '**Dekho Apna Desh**', launched on the Prime Minister's appeal to the middle class to prefer domestic tourism over international.

**MUST READ:** [International Maritime Exercise/ Cutlass Express 2023 \(IMX/CE-23\)](#) and [INS Trikand](#)**SOURCE:** [AIR](#)**WORLD FOOD INDIA 2023**

**Context:** Prime Minister Narendra Modi will inaugurate the second edition of the Mega food event '**World Food India 2023**'.

**Key highlights of the event:-**

- **Date: 3rd November, 2023.**



- **Venue: Bharat Mandapam in New Delhi.**
- **Organized by: Ministry of Food Processing Industries (MoFPI).**
- It will be inaugurated by **Prime Minister Narendra Modi.**
- The event aims to **showcase India as the ‘food basket of the world’** and celebrate 2023 as the **[International Year of Millets.](#)**
- The Prime Minister will **disburse Seed Capital Assistance** for over one lakh Self Help Groups SHG members.
- This support will help SHGs to improve packaging and quality manufacturing and gain better price realization in the market.
- The Prime Minister will **also inaugurate Food Street**, as part of World Food India 2023.
- It will **feature regional cuisines** and royal culinary heritage.
- Over 200 chefs will participate and present traditional Indian cuisine, making it a unique culinary experience.
- Participants from over **80 countries**, including CEOs of prominent food processing companies to attend the event.
- In this edition of World Food India, **the Netherlands** will be the ‘Partner Country,’ and Japan and Vietnam are designated as ‘Focus Countries.’

#### **About World Food India 2023:-**

- **Organized by: Ministry of Food Processing Industries (MoFPI).**
- World Food India 2023 is a gateway to the Indian food economy, **facilitating partnerships between Indian and foreign investors.**
- It is a **one-of-a-kind gathering of manufacturers, producers, food processors, investors, policymakers, and organisations** from across the global food ecosystem.
- The Ministry of Food Processing Industries launched the first edition of **World Food India in 2017** with the theme of Transforming the Food Economy.

#### **Focus Pillars:-**

- **Shree Anna (Millets):** Leveraging India’s Super Food for the World.
- **Exponential Food Processing:** Positioning India as the Global Hub.
- **Strategic Segments:** Unlocking Potentials for Growth.
- **Efficient Ecosystem** - Harnessing Opportunities with Inclusion.
- **Sustainable Development:** Processing for Prosperity.

**MUST READ:** [Food security](#)

**SOURCE:** [AIR](#)

### **CENTRAL INFORMATION COMMISSIONER**

**Context:** Recently, Information Commissioner Heeralal Samariya was sworn-in as the new Chief Information Commissioner of **the Central Information Commission.**

#### **Background:-**

- President Droupadi Murmu administered the oath of office to him at Rashtrapati Bhavan. Mr. Samariya was currently serving as the Information Commissioner in the Central Information Commission.

#### **About Central Information Commission (CIC):-**

- **Establishment:2005.**

- The CIC was constituted in 2005 under the [Right to Information Act, 2005](#).
- The **RTI Act 2005** provides for the constitution of a Central Information Commission and State Information Commissions **in each state**.
- **Jurisdiction:** the Commission extends over all Central Public Authorities.
- The **Right to Information (Amendment) Act, of 2019** amended the Right to Information Act, of 2005.
- The RTI Act, of 2005 specified the tenure, terms of service, and salaries of the Chief Information Commissioner (CIC) and Information Commissioners (ICs) at the central and state levels, in the parent law.

#### Structure:-

- The Central Information Commission shall consist of:
- **The [Chief Information Commissioner \(CIC\)](#).**
- **Members:** Such numbers of Central Information Commissioners (ICs), not exceeding ten, as may be deemed necessary.
- The members shall be persons of eminence in public life with wide knowledge and experience **in law, science and technology, social service, management, journalism, mass media or administration and Governance**.
- The CIC or IC shall **not be an MP or MLA** or **hold any other office of profit connected with any political party** carrying on any business or pursuing any profession.
- **Appointment:** The members of the commission are appointed by a committee consisting of the **PM (as Chair), the Leader of Opposition (LoP) in Lok Sabha and a Union Cabinet Minister** appointed by the **Prime Minister**.
- **Tenure:** The CIC and ICs (at the central and state level) will hold office for a **term of three years**.
- **Resignation:** The CIC or an IC may, at any time, by writing under his hand addressed to the President, resign from his office.
- **Removal:** The CIC or an IC may be removed from office only by order of the President on the grounds of proven misbehaviour or incapacity after the
- Supreme Court, on a reference made to it by the President, reports that he/she should be removed on the grounds mentioned.
  - The **President** may also remove them from office if such a person is adjudged insolvent, convicted for certain offences etc.
  - They are **not eligible for reappointment**.

#### Power and Functions:-

- To receive and inquire into a complaint from any person regarding information requested under the RTI act.
- It can order an inquiry into any matter if there are reasonable grounds (suo-moto power).
- While inquiring, the Commission has the powers of a civil court in respect of summoning, requiring documents, etc.
- Adjudication in the second appeal for giving information.
- Direction for record-keeping.
- Imposition of penalties and Monitoring and Reporting including preparation of an Annual

**MUST READ:** [Its time to review the Right To Information \(RTI\) Act](#)

**SOURCE:** [AIR](#)

## PRADHANA MANTRI RASHTRIYA BAL PURASKAR

**Context:** Recently, the last date of submission for the **Pradhan Mantri Rashtriya Bal Puraskar** got extended.

### Background:-

- The Ministry of Women and Child Development has extended the last date of submission for the Pradhan Mantri Rashtriya Bal Puraskar till the 31st of August, 2023.

### About Pradhan Mantri Rashtriya Bal Puraskar:-



### IMAGE SOURCE: [noticebard.com](https://noticebard.com)

- The Awards are announced on **December 26** on 'Veer Bal Diwas'.
  - **Veer Baal Diwas:** marks a tribute to the martyrdom of Guru Gobind Singh's sons. ([UPSC CSE: Parkash Purab of Sri Guru Gobind Singh Ji](#))
- The awards are conferred by the President of India at New Delhi at a special ceremony/function to be held in **January every year**.
- **Historical Background:** It was **instituted in 1979** as the National Child Welfare Awards, renamed

in 2018 as Bal Kalyan Puraskar. ([UPSC CSE: Pravasi Bharatiya Samman Award \(PBSA\)](#))

- **Objective:** It is organized to celebrate the energy, determination, ability, zeal and enthusiasm of our children.
- **Field:** This national-level award is given in the fields of Bravery, Sports, Social Service, Science and Technology, Environment, Arts and Culture, and Innovation.
- **Awarded by: Ministry of Women and Child Development.**

### Eligibility:-

- A child who is an **Indian Citizen** and **residing in India** and is **not exceeding 18 years** (as of the last date of receipt of application/nomination).
- The act/incident/achievement should have been **within 2 years** of the last date of receipt of application/nomination for the year of consideration.
- The **applicant should not be a previous recipient of the same award earlier in any category** (including National Child Awards for Exceptional Achievement, as were awarded by the Ministry earlier)

### Nomination can be done by:-

- State Governments, Union Territory Administrations, District Collectors/District Magistrates, and Panchayati Raj Institutions.
- All Central and State School Boards, Kendriya Vidyalaya Sangathan, Navodaya Vidyalaya Sangathan, National Commission for Protection of Child Rights, State Commissions for Protection of Child Rights and National Institute of Public Cooperation and Child Development.
- Ministry of Social Justice, Department of Disabilities, Department of School Education in Ministry of Education, all state Departments of School Education, Ministry of Youth Affairs, Department of Sports, Sports Authority of India, Ministry of Culture, Ministry of Science and Technology, Ministry of Environment & Forests, Ministry of Defence, Ministry of Home Affairs, and Press Information Bureau.
- National Selection Committee.

### Selection Process

- The applications received are **first scrutinized by the Screening Committee.**
- **The final selection** is done by the **National Selection Committee.**

**Decoration:-**

- Medal
- Cash prize of Rs. 1,00,000
- Certificate and citation

**No. of Awardees**

- Number of awardees is **25.**
- However, any **relaxation to this maximum number may be permitted** at the discretion of the **National Selection Committee.**

**The Pradhan Mantri Rashtriya Bal Puraskar is given under two categories:-**

- **Bal Shakti Puraskar**
  - It is given by the Government of India every year **to recognize exceptional achievements of children in various fields** i.e., innovation, scholastic achievements, social service, arts & culture, sports and bravery.
  - **Eligibility:** A child who is an Indian Citizen residing in India and is between **5-18 years of age.**
  - **Decoration:** A medal, a cash prize of Rs. 1,00,000, book vouchers worth Rs.10,000, a certificate and a citation.
- **Bal Kalyan Puraskar**
  - It is given as **recognition to Individuals and Institutions**, who have made an **outstanding contribution towards service for children** in the field of child development, child protection and child welfare.
  - **Eligibility:** An individual who is an Indian Citizen residing in India and should have attained the age of 18 years or above (as of 31st August of the respective year).
  - S/he should have **worked for the cause** of children for **not less than 7 years.**
  - The institution should **not be entirely funded by the government** and should have been in the field of child welfare for 10 years and performing consistently in the field.
- **Three awards** are given in each of the two categories - Individual and Institution - along with cash prizes

**MUST READ:** [Padma awards](#)

**SOURCE:** [AIR](#)

**DIRECTORATE OF REVENUE INTELLIGENCE**

**Context:** Recently, the **Directorate of Revenue Intelligence** seized over 48 kg of gold paste estimated to be worth 25 crore rupees at Surat international airport.

**Background:-**

- DRI said that it has busted a smuggling syndicate by arresting the four persons.
- It said that based on specific intelligence, DRI officers **intercepted three passengers arriving from Sharjah** by an Air India Express Flight suspected to be carrying gold in paste form.

**About Directorate of Revenue Intelligence:-**

- It is the **apex anti-smuggling agency of India.** ([UPSC CSE: DRI](#))
- **Implementing Agency:** Central Board of Indirect Taxes & Customs, Ministry of Finance.
  - The Central Board of Excise and Customs (CBEC) **was renamed** as the Central Board of Indirect Taxes and Customs (CBIC) in 2018 after the rollout of Goods and Services Tax (GST). ([UPSC CSE: GST](#))
- **Established: 1957.**

- **Objective:** It is tasked with detecting and curbing the smuggling of contraband, including drug trafficking and illicit international trade in wildlife and environmentally sensitive items, as well as combating commercial frauds related to international trade and evasion of Customs duty.
- **HQ: New Delhi.**
- The DRI has also been designated as the **lead agency for Anti-Smuggling National Coordination Centre (SCord)**. ([UPSC CSE: Problem of cross border smuggling in India](#))

#### Functions of DRI:-

- **Collection of intelligence about the smuggling** of contraband goods, narcotics, under-invoicing etc.
- **Analysis and dissemination of such intelligence** to the field formations for action and working on such intelligence, where necessary.
- Keeping watch over important **seizures and investigation cases**.
- **Associating or taking over the investigations** which warrant specialized handling by the Directorate.
- **Guiding important investigation/prosecution cases**.
- **Keeping liaison with foreign countries**, Indian Missions and Enforcement agencies abroad on anti-smuggling matters.
- **To keep liaison with C.B.I.** and through them with the INTERPOL.
- To **refer cases registered under the Customs Act to the Income Tax Department** for action under the Income Tax Act.
- To **keep statistics of seizures and prices/rates** etc.
- To **study and suggest remedies for loopholes in law** and procedures to combat smuggling.

**MUST READ:** [CBI and ED](#)

**SOURCE:** [AIR](#)

### DIRECTORATE GENERAL OF CIVIL AVIATION (DGCA)

**Context:** Recently, the central government has suspended **Directorate General of Civil Aviation (DGCA)** official Anil Gill with immediate effect.

#### Background:-

- The action was taken by a vigilance committee established by the DGCA to conduct its preliminary investigation into allegations of corruption.

#### About Directorate General of Civil Aviation (DGCA):-

- The Directorate General of Civil Aviation (DGCA) is a **statutory body** of the Government of India.
  - It was formed under the **Aircraft (Amendment) Act, of 2020**.
- It comes under the **Ministry of Civil Aviation**. ([New Director General of Bureau Of Civil Aviation Security \(BCAS\) appointed](#))
- It aims to **regulate civil aviation in India**.
- It primarily **deals with safety issues in civil aviation**.
- Its **headquarters** are located in **New Delhi**.
  - It has **regional offices** in various parts of India.
- **Mandate:** DGCA is responsible for the **regulation of air transport services to/from/within India** and for **enforcement of civil air regulations, air safety, and airworthiness standards**. ([Reforms In Civil Aviation Industry](#))
- **Functions:-**



- **Registration** of civil aircraft.
- **Formulation of standards** of airworthiness for civil aircraft registered in India and **grant of certificates of airworthiness** to such aircraft.
- **Licensing** of pilots, aircraft maintenance engineers and flight engineers, and **conducting examinations and checks for that purpose.**
- **Licensing** of air traffic controllers.
- Investigating **accidents/incidents.**
- Taking accident **prevention measures.**
- **Coordination at the national level** for flexible use of air space by civil and military air traffic agencies
- **Interaction with ICAO for the provision of more air routes** for civil use through Indian air space.
- **Promoting indigenous design and manufacture of aircraft.**

**MUST READ:** [International Air Connectivity Scheme \(IACS\) scheme](#)

**SOURCE:** [AIR](#)

## YOGA

**Context:** A recent, study conducted by AIIMS has revealed that practising **Yoga** can reduce felt stigma among adults suffering from epilepsy.

**Background:-**

- Dr. Manjari Tripathi, Head of the Neurology Department, AIIMS, said that the result suggested that yoga enhances the overall quality of life by reducing the burden of epilepsy and felt stigma when used as an add-on, in people with epilepsy who are on medications.

**About YOGA:-**

**IMAGE SOURCE:** [WordPress.com](#)

- The word 'yoga' is derived from Sanskrit and means to join or **to unite.**
  - It symbolizes the **union of body and consciousness.**
- Yoga is an **ancient physical, mental and spiritual practice.**
- It **originated in India.**
- It was put on the Representative **List of the Intangible Cultural Heritage of Humanity by UNESCO in 2016.**
  - **UNESCO List of the Intangible Cultural Heritage of Humanity:** includes forms of expression that demonstrate the diversity of intangible heritage and raise awareness of its importance.



- India has **13 intangible heritage** including Yoga as a part of this list. ([UNESCO Heritage Sites in Maharashtra](#))

#### Related Initiatives

##### M-Yoga App:-

- The app is a work of collaboration between the **World Health Organisation (WHO)** and the **Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (Ministry of AYUSH), Government of India.**

##### New website for International Day of Yoga (IDY):-

- This web portal **provides all the updated and relevant information** relating to the International Day of Yoga.

##### Yoga as a sport:-

- The **Ministry of Youth Affairs and Sports**, after reviewing the categorization of various Sports disciplines, recognised **Yoga as a sports** discipline and placed it in the **'Priority' category** in 2015.

##### Common Yoga Protocol:-

- It is an initiative of the **Ministry of AYUSH.**

##### Vocational Education Courses in Yoga:-

- The Beauty & Wellness Sector Skill Council (B&WSSC) has vocational education courses in Yoga for **CBSE schools.**

##### Skilling initiatives:-

- Thousands of candidates have been trained as yoga instructors and trainers through various skilling initiatives like the Pradhan Mantri Kaushal Vikas Yojana (PMKVY).
  - **PMKVY:** it is the flagship scheme of the **Ministry of Skill Development and Entrepreneurship.**

##### Fit India Movement:-

- Yoga is also a part of the Fit India Movement.
  - **Fit India Movement:** a nationwide campaign that aims at encouraging people to include physical activities and sports in their everyday lives.

**MUST READ:** [New sites added to India's tentative list of UNESCO world heritage sites](#)

**SOURCE:** [AIR](#)



## INTERNATIONAL RELATIONS



## INDIA AND PORTUGAL

**Context:** Recently, External Affairs Minister Dr S Jaishankar addressed the Indian Community in **Portugal**.

**Background:-**

- Foreign Minister of Portugal Joao Cravinho also joined Dr Jaishankar.
- In his address, the External Affairs Minister highlighted Portugal's contribution to promoting closer India-European Union ties.

**About India and Portugal:-****IMAGE SOURCE:**

[pinterest.ca](https://pinterest.ca)

- Portugal is an important country for **India in Southern Europe**. ([Indo-Portuguese Bilateral Relations](#))
- The bilateral ties have witnessed steady progress in the last 15 years.
- Portugal is **supportive of India's bid for a**

**permanent seat at the United Nations Security Council.**

- Both countries participate actively in other **multilateral forums and support each other for candidatures.**

**Historical Background:-**

- **1947:** The relations between India and Portugal **began in 1947** after India's independence.
- **1949** The diplomatic relations were **established**.
- The bilateral relations, however, **went through a troubled phase**, after **Portugal refused to surrender its enclaves of Goa, Daman and Diu and Dadra and Nagar Haveli** on India's west coast.
- The diplomatic relations had been completely **cut off by 1955**.
- Goa was liberated by the Indian military forces in 1961 through [Operation Vijay](#).
- **1974:** India and Portugal signed a treaty **recognizing the sovereignty of India over Goa, Daman & Diu and Dadra & Nagar Haveli**.
- The signing of the treaty was a **watershed moment for bilateral relations** between India and Portugal.
- **1977:** The **India-Portugal Joint Commission on Economic Matters** was instituted and it has met four times so far.
- **2017-18:** bilateral trade reached a total value of USD 937 million. Indian exports stood at USD 747 million and Portuguese exports at USD 190 million.

**Significance:-**

- India and Portugal have signed seven agreements to boost cooperation in areas including maritime transport, port development, audio-visual co-production, and industrial and intellectual property rights in recent times.
- The trade balance has consistently been **in India's favour**.

**MUST READ:** [Russia-Ukraine war](#)

**SOURCE:** [AIR](#)

### International Criminal Court

**Context:** The UN General Assembly recently, voted against US' economic and trade embargo against Cuba.

**Background:-**

- A total of **187 states voted for the resolution put forward against the embargo** with only the US and Israel voting against and Ukraine abstaining.
- The UN General Assembly **voiced concern that despite its resolutions dating back to 1992 the economic, commercial and financial embargo against Cuba is still in place and that the adverse effects of such measures are on the Cuban people and on Cuban nationals living in other countries.**
- The US Representative said the nation recognizes the challenges the Cuban people face, explaining that **sanctions include exemptions and authorizations relating to exports of food, medicines, and other humanitarian goods to Cuba.**
- The General Assembly reiterated its call for all states to refrain from promulgating and applying **such restrictive laws and measures, in line with their obligations under the UN Charter and international law.**
- The United States embargo against Cuba **prevents US businesses, and businesses organized under US law or majority-owned by US citizens, from conducting trade with Cuban interests.**
- The US' economic and trade embargo against Cuba was **first imposed in 1960.** ([US – Cuba Relations](#))

**About Cuba:-**



**IMAGE SOURCE:**

[WorldAtlas](#)

- **Continent:** North America.
- **Capital:** Havana.
- **Neighboring Countries:** Jamaica, Haiti, Bahamas, Dominican Republic.
- Cuba, a country in the **West Indies.**
- It is the **largest single island** of the archipelago.
- **Spanish** is the principal language of Cuba.
- Cuba is a multicultural,

largely urban nation.

- Groups of **mountains and hills cover about one-fourth** of the island of Cuba.

- The plains covering about **two-thirds of the main island** have been used extensively for **sugarcane and tobacco cultivation and livestock raising**.
- Cuban topography and geology have produced **at least 13 distinct groups of soils**, the majority of which are fertile and cultivated throughout the year.
- The annual mean temperature is 79 °F (26 °C).
- Tropical plant life includes thousands of **flowering plant species**, half of which may be **endemic to the archipelago**.
- **Animal life is abundant** and varied in Cuba, which is the habitat of numerous small mammals and reptiles, more than 7,000 insect species, and 4,000 species of land, river, and sea molluscs.

#### **About India-Cuba relations:-**

- India-Cuba relations have been **traditionally warm and friendly**.
- India was amongst the **first countries to recognize Cuba after the 1959 Revolution**.
- Both countries have maintained close contacts with each other in **various international fora, such as the UN, NAM, WTO, etc.**
- **India supports resolutions** in the UN General Assembly **calling for the lifting of US sanctions against Cuba**.
- Cuba **supports India's inclusion as a permanent member** in the restructured UN Security Council.
- India and Cuba have signed **agreements on Bilateral Trade, Cultural, S&T, Standardization, Sports, Renewable Energy and Consumer Protection and Cultural Exchange Program**.

#### **Commercial Relations:-**

- India-Cuba two-way trade which used to be around USD 300 million annually in the 1980s, saw a steep fall following the demise of the former USSR and changes in India's economic policies in the 1990s.

#### **Economic Relations:-**

- **India's major export items** to Cuba are **pharmaceutical products, organic chemicals, plastic & rubber articles**, machinery and mechanical appliances, etc., while major import items from Cuba are pharmaceutical products, tobacco items, raw hides and skins, leather, etc.

#### **Cultural Relations:-**

- Yoga and Vipassana meditation are practised and the former forms part of the health curriculum of the Government.

**MUST READ:** [Indo-Pacific Relations](#)

**SOURCE:** [AIR](#)

## **INDIA & AUSTRALIA**

**Context:** Recently, **India and Australia** exchanged views on deepening multifaceted ties in several areas in two-plus two dialogues in New Delhi.

#### **Background:-**

- The second India-Australia Two plus Two Dialogue was held in New Delhi .

#### **About India and Australia:-**

- The Australia-India relationship was upgraded to a Comprehensive Strategic Partnership (CSP) in June 2020. ([India-Australia relations](#))
- It is based on mutual understanding, trust, close connections and a shared vision of a stable, open and prosperous Indo-Pacific.



**Diplomatic Relationship:-**

- Australia and India **established diplomatic relations in 1943** when Lieutenant-General Sir Iven Mackay was appointed Australia's first High Commissioner to India.
- **India's first High Commissioner to Australia, Sir Raghunath P Paranjpe** arrived in Canberra in 1945.
- Australia is **one of only three countries** with which India **holds annual leader-level summits**.
- The Prime Ministers of Australia and India also **regularly interact** at major international meetings, including through the **Quad, G20 and East Asia Summit**.
- In addition, Australian and Indian Foreign and Defence Ministers meet every second year to discuss strategic issues in a '2+2' format.

**People-to-people Relationship:-**

- The **Indian community is Australia's second-largest**, and fastest-growing, overseas-born group.
- In the 2021 Census, the number of people reporting Indian heritage was 976,000.
- Of these, there were 673,000 Indian-born Australians, **representing 2.6 per cent of the Australian population**.
- India remains Australia's largest source of **skilled migrants**.
- India is also the **second-largest source of international students**.

**Economic relationship:-**

- According to the International Monetary Fund (IMF), **India is the world's fifth-largest economy** in nominal terms and third-largest by Purchasing Power Parity.
- The IMF estimates **India's GDP will grow by 5.9 per cent** in 2023 and 6.2 per cent in 2025.
- In 2022, India was **Australia's sixth-largest two-way goods and services trading partner** and **fourth-largest goods and services export market**.
- **Two-way goods and services trade** with India was \$48.4 billion in 2022.
- **Australia's exports to India totalled \$34.8 billion** and imports from India totalled \$13.5 billion in 2022.
- Australia's stock of **investment in India was \$17.6 billion in 2022**.
- **India's total investment** in Australia was **\$34.5 billion**.

**Environmental Relationship:-**

- During Prime Minister Modi's visit to Sydney in May 2023, Australia and India agreed on Terms of Reference for the Australia-India **Green Hydrogen Taskforce**.
- The task force will be comprised of **Australian and Indian experts in green hydrogen production** and deployment.
- It complements the work of the **India-Australia Solar Taskforce** welcomed by the Prime Ministers of Australia and India in March 2023.
- The Solar Taskforce will provide advice on **opportunities to accelerate solar PV deployment** and enhance supply chains.
- The **Australia-India Green Steel Partnership** is helping India meet growing steel requirements while supporting the commercialization of innovative technologies that improve efficiencies and environmental outcomes in steel production.

**Education Relationship:-**

- Education is Australia's largest service export to India, valued at **\$4.4 billion in 2022**.
- As of May 2023, almost **88,000 Indian visa holders** were studying in Australia.

#### Defence Relationship:-

- Australia's defence engagement with **India gathered significant momentum in 2022** and has continued to grow.
- Since signing our CSP in 2020 and the Mutual Logistics Support Agreement in 2021.
- For the first time in 2023, **Australia will host Exercise Malabar** – a joint training initiative with India, the US and Japan.
- They regularly exercise together during Exercise **AUSTRAHIND and AUSINDEX**, bilateral army and navy exercises.
- They conduct **Maritime Patrol Aircraft deployments** to enhance maritime domain awareness.

**MUST READ:** [India-Australia Economic Co-operation and Trade Agreement](#)

**SOURCE:** [AIR](#)

### Asia-Pacific Institute for Broadcasting Development (AIBD)

**Context:** India re-elected the **Asia-Pacific Institute for Broadcasting Development (AIBD)** General Conference (GC) president for the third successive term recently.

#### Background:-

- The Information & Broadcasting Ministry Secretary, Apurva Chandra, said this was a first in the history of AIBD.
- The move showed the confidence broadcasting organizations across the Asia Pacific and the world reposed in India.

#### About Asia-Pacific Institute for Broadcasting Development (AIBD):-

- **Established:1977**
- **Host: Government of Malaysia**
- **Secretariat: Kuala Lumpur.**
- **Objective:** to achieve a vibrant and cohesive electronic media environment in the Asia Pacific region through policy and resource development.
- **Membership:** It has **92 member organizations** from across 44 countries, including 26 government members (countries) represented by 48 broadcasting authorities and broadcasters.
- It also has 44 affiliates (organizations) represented by 28 countries and regions in Asia, the Pacific, Europe, Africa, Arab States, and North America.
- **India** is one of the founding members of this organization.
- **Representative body:** The **Prasar Bharati** is the representative body of the Ministry of Information & Broadcasting, Government of India, at AIBD.
- It was established under the auspices of the **United Nations Educational, Scientific and Cultural Organization (UNESCO)**.
- It is a **unique regional inter-governmental organization** servicing countries of the **United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP)** in the field of electronic media development.
- The Institute seeks to fulfill this mandate by **mobilizing the intellectual and technological** resources available within the national broadcasting organizations of its member countries as well as regional and international bodies.

- It does it through a well-established **infrastructure and networking mechanism** which includes government agencies, non-governmental organizations, institutions of higher learning, the private sector, and individual professionals.

**MUST READ:** [Broadcasting Infrastructure and Network Development \(BIND\) scheme](#)

**SOURCE:** [THE HINDU](#)

## ISRAEL-PALESTINE CONFLICT

**Context:** Recently, Palestine-based Hamas militants launched a barrage of rockets on Israel on Saturday infiltrating the towns near the Gaza Strip through land, air, and sea.

- **Hamas or the Islamic Resistance Movement:** is a militant group that governs the Gaza Strip.
  - It emerged in 1987 as an offshoot of the Muslim Brotherhood during the first Palestinian intifada, or uprising, against the Israeli occupation of Gaza and the West Bank.
  - It was founded by **Sheikh Ahmed Yassin**, a Palestinian cleric.
  - Its military wing, **the Izzedine al-Qassam Brigades**, was established around 1991.

**About ISRAEL-PALESTINE CONFLICT:-**

**Background of the war:-**

**IMAGE SOURCE:** [express.co.uk](#)



- Both Israelis and Palestinians have been in a struggle for **self-determination and sovereignty over the territory**, developing respective movements for their causes.

- Both Palestinians and Israelis see the territory between the Jordan River and the Mediterranean Sea as their own, and Christians, Jews, and Muslims all hold parts of the land as sacred.

- The past seven decades have brought war and uprisings. [\(15th India-Israel Joint Working Group\)](#)

**Historic Timeline:-**

- **Ottoman Empire:** The **Ottoman Empire** had controlled that part of the Middle East from the early 16th century until control of most of the region was granted to the British after World War I.
- **In 1916:** the **Sykes-Picot Agreement** secretly negotiated between Britain and France planned to carve up the Middle East into spheres of influence, and determined that the land in **question was to be internationalized**.
- **In 1917:** Britain's foreign secretary, Lord Arthur Balfour, expressed his government's support for "the establishment in Palestine of a national home for the Jewish people."

**1947: UN resolution**

- **1947:** After World War II, nearing the end of the British Mandate for Palestine, the **United Nations General Assembly in 1947 passed Resolution 181**, urging the partition of the land into two independent states — one Arab and one Jewish.
- Religiously significant **Jerusalem** is to be **under special international administration**.
- The plan is not implemented after the **Arab side rejects** it, arguing that it is unfavorable to their majority population.
- Violence in the regional conflict grows.

**1948: Israel declares independence.**

- Israel declared independence in May 1948.
- The next day, a coalition of Arab states, allied with Palestinian factions, attacked Israeli forces in what became the first of several Arab-Israeli wars.
- In the end, **Israel gains control of an even larger portion** of territory — not including the areas of the West Bank and Gaza Strip.

**1967: the Six-Day War**

- In June of 1967, a war known as the “**Six-Day War**” or the 1967 Arab-Israeli War broke out amid lingering conflicts, including **Egypt’s continued blockade of shipping into the Gulf of Aqaba**.
- Israel ultimately took control of the **Gaza Strip, Sinai, the West Bank, the Golan Heights**, and predominantly **Palestinian East Jerusalem**.
- The Arab armies suffered massive losses.

**1987: First intifada**

- A Palestinian uprising, or intifada, brings largely spontaneous clashes, protests, and civil disobedience against Israeli occupation in the **West Bank, Gaza, and Israel**, leading to harsh Israeli military crackdowns.
- Unrest continues for years, with many killed or injured on both sides.

**1993: Oslo Accords**

- The first of two pacts, known as the Oslo Accords, was signed between Israel and the Palestine Liberation Organization (PLO).
- It set out a **peace process based on previous U.N. resolutions**.
- It charted out the **expansion of a limited Palestinian self-rule** in the West Bank and Gaza Strip.
- A follow-up accord was signed in **1995**.
- However, **key issues** such as **Israeli settlements in the West Bank and the status of Jerusalem**, were left unresolved.

**2006: Hamas elected in Gaza**

- Israel withdrew its troops from Gaza in 2005.
- The Palestinian militant group Hamas wins legislative elections the next year, leading to political strains with the more moderate Fatah party controlling the West Bank.

**2017: U.S. recognizes Jerusalem as capital**

- The **Donald Trump administration recognizes Jerusalem as the capital of Israel** and announces that it plans to shift the U.S. Embassy from Tel Aviv, stirring outrage from Palestinians.

**2023: Recent events:-**

- **January 2023:** Israeli forces raid the Palestinian city of Jenin, killing nine people in a shootout.
- **Summer 2023:** Retaliatory attacks flare
- Israel launches surprise airstrikes across the Gaza Strip in May.
- **October 2023:** Israel is attacked by Hamas.
- Prime Minister of Israel, Netanyahu formally declared war on Hamas on Oct. 8 following a surprise assault by Hamas militants that came a day after the 50th anniversary of the start of the 1973 Yom Kippur War.

**MUST READ:** [India-Israel Industrial R&D & Technological Innovation Fund \(I4F\)](#)

**SOURCE:** [HINDUSTAN TIMES](#)

**INDIA & BHUTAN**

**Context:** The King of **Bhutan** Jigme Khesar Namgyel Wangchuck arrived in Guwahati today on eight day official visit to India recently.

**Background:-**

- Chief Minister of Assam, Himanta Biswa Sarma welcomed the Bhutanese King at Gopinath Bordoloi Airport this morning. Assam Governor, Jagdish Mukhi and the Chief Minister will meet the visiting dignitary.

**About India and Bhutan:-**

IMAGE SOURCE: [WorldAtlas](https://www.worldatlas.com)

- India and Bhutan share cordial relations based on a **shared cultural heritage from the historical past.**

- **Geographical Significance:** Bhutan shares a border with four Indian States: **Assam, Arunachal Pradesh, West Bengal and Sikkim.**

**Historical Background:-**

- **1910:** Bhutan signed a treaty with British India.
  - According to this treaty, the **British guided the defence and foreign affairs of Bhutan**
- **1947:** Bhutan was the first country to recognize India's independence.
- **1968:** The **diplomatic relations** between India and Bhutan **were established in 1968** with the establishment of a special office of **India in Thimphu.**
- **1949:** The basic framework of India-Bhutan bilateral relations is the **Treaty of Friendship and Cooperation signed in 1949** between the two countries.
- **2007:** It was **revised in February 2007.**
- **2018:** The **Golden Jubilee** of the establishment of formal diplomatic relations between India and Bhutan was celebrated.

**Indo-Bhutan Treaty of Peace and Friendship, 1949:-**

- The Treaty provides for, among other things, **perpetual peace and friendship, free trade and commerce and equal justice to each other's citizens.**
- In 2007 the treaty was **re-negotiated**, and provisions were included to **encourage Bhutan's sovereignty**, abolishing the need to take India's guidance on foreign policy.
- The updated treaty, besides providing close cooperation on national issues, provides for **stronger cooperation in cultural and economic fields.**

**Diplomatic Relations:-**

- **Regular visits** between the highest level Government functionaries of both countries have become a tradition.

**Security Relations:-**

- Both countries have **conducted joint military operations against insurgents.**
- The most notable was in 2004, the Royal Bhutanese army conducted operations against ULFA (United Liberation Front of Assam)

**Economic Cooperation:-**

- The currency of Bhutan is the **Indian Rupee.**
- India remains the **single largest trading partner of Bhutan.**
- In 2016 a new trade agreement was signed.
- This agreement aims at **cutting down the documentation related to trade** and establishing additional trading points in Bhutan.
- India has provided **large-scale financial assistance** to Bhutan for its Five Year Plans.



- In the **hydropower sector**, many hydropower projects in Bhutan have been developed with India's assistance
- India imports around 1540 MW of hydropower from Bhutan.
- India has provided a **standby credit facility of Rs 1000 crores** to help Bhutan overcome the rupee liquidity crunch

#### **Cultural and Educational Cooperation:-**

- India has provided **scholarships for Bhutanese students** studying in Undergraduate and Postgraduate courses in Indian institutions

#### **Environment Cooperation:-**

- India is considering involving **Bhutan in the National Mission for Sustaining the Himalayas**.
- The project aims to protect the Himalayan ecosystem which has been endangered by numerous ecological problems.

#### **Challenges:-**

- There have been instances when India has meddled in Bhutan's internal affairs.
  - This has led to a **negative perception of India in the minds of Bhutanese**.
- Bhutan's concern **regarding the profitability of its Hydropower projects** in the wake of India's shift to renewable sources of energy like wind, solar etc.
- From an internal security perspective, the **illicit establishment of camps by militant outfits** in the dense jungles of south-east Bhutan is a cause of concern for both nations.
- **China's continuous claims** to important border areas such as **Chumbi Valley** and Doklam and its continuous efforts to establish strong diplomatic and economic relations with Bhutan have been a continuous source of concern for India.

**MUST READ:** [India-Bhutan: Kholongchu project](#)

**SOURCE:** [AIR](#)

## AURORA

**Context:** Recently, NASA recently shared an incredible picture of an **aurora** captured from the International Space Station.

#### **Background:-**

- The National Aeronautics and Space Administration (NASA) on Tuesday shared a remarkably beautiful image of an aurora taken from the International Space Station as it flew above the American state of Utah.

#### **About Aurora:-**

- Auroras are a **space weather phenomenon** that occurs when electrically charged electrons and protons collide with neutral atoms in the upper atmosphere.
- An Aurora is a display of light in the sky predominantly seen in the **high-latitude regions (Arctic and Antarctic)**.
- It is also known as a **Polar light**.
- **In the Northern Hemisphere**, the phenomenon is called the northern lights (**aurora borealis**), **while in the Southern Hemisphere**; it's called the southern lights (**aurora australis**).
- Auroras result from **emissions of photons in the Earth's upper atmosphere (above 80 km)**, from ionized nitrogen atoms regaining an electron, and from electrons from oxygen and nitrogen atoms returning from an excited state to the ground state.
- **The solar wind coming from the sun is the origin** of the charged protons and electrons that excite oxygen and nitrogen and cause auroras.

- The **aurora's colour depends on the type of atom that is excited** and how its electrons return from those excited states to the ground state.
- High-energy electrons cause oxygen to emit green light (the most familiar colour of the aurora), while low-energy electrons cause **red light**.
- Nitrogen generally gives off a blue light.
- The **blending of these colours** can also lead to purples, pinks, and whites.
- The **oxygen and nitrogen also emit ultraviolet light**, which can be detected by special cameras on satellites.
- Auroras are not just something that happens on Earth.
- If a planet has an atmosphere and magnetic field, they probably have auroras.
  - **Discrete Auroras on Mars:** Unlike auroras on Earth, which are seen only near the north and south poles, Discrete Auroras (DA) on Mars are seen all around the planet at night time. ([Discrete Auroras of Mars](#))
  - Auroras have been observed on **Saturn and Jupiter**.

**MUST READ:** [Aditya-L1 Mission](#)

**SOURCE:** [THE INDIAN EXPRESS](#)

## ASEAN

**Context:** Recently, Defence Minister Rajnath Singh attended the 10th **ASEAN** Defence Ministers' Meeting-Plus (ADMM Plus).

**Background:-**

- It will be held in Jakarta, Indonesia, from the 16th of November to the 17th of November, 2023.
- Since 2017, the ADMM-Plus Ministers have been meeting annually to bolster cooperation between ASEAN and the Plus countries.

**About ASEAN:-**

- **Establishment: 8 August 1967.**
- **Secretariat: Jakarta, Indonesia.**
- **Members:** Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei, Vietnam, Laos, Myanmar, and Cambodia.
- **Bangkok Declaration, 1967**, formally established the ASEAN.
- **The first ASEAN Summit was in 1976.**
- The Association of Southeast Asian Nations (ASEAN) is a regional association that was founded to **maintain social stability and political equilibrium among Asia's post-colonial states amid escalating conflicts.**
- **"One Vision, One Identity, One Community"** is its motto.
- The 8th of August is celebrated as the **ASEAN Day**.

**Institutional mechanism of ASEAN:-**

- **ASEAN Summit:** It meets annually to discuss regional issues and set policy directions.
- **ASEAN Coordinating Council (ACC):** It oversees the implementation of ASEAN agreements and decisions.
- **ASEAN Secretariat:** It supports and facilitates ASEAN's activities and initiatives.

- **ASEAN Regional Forum (ARF):** It is a platform for dialogue and cooperation on political and security issues among ASEAN member countries and their partners.
- **Decision Making:** It is done through consultation and consensus.

#### Significance of ASEAN for India:-

- India needs a close diplomatic relationship with ASEAN nations both for **economic and security reasons**.
- **Connectivity** with the ASEAN nations can allow India to improve its presence in the region. ([India-ASEAN conclave](#))
- These connectivity projects keep Northeast India at the centre, ensuring the economic growth of the northeastern states.
- Improved trade ties with the ASEAN nations would mean a **counter to China's presence in the region** and economic growth and development for India.
- ASEAN occupies a centralized position in the rules-based security architecture in the Indo-Pacific, which is vital for India since most of its trade is dependent on **maritime security**.
- Collaboration with the ASEAN nations is necessary to **counter insurgency in the Northeast, combat terrorism, tax evasion etc.**

**MUST READ:** [India-ASEAN FTA](#)

**SOURCE:** [AIR](#)

### ASIA-PACIFIC ECONOMIC COOPERATION

**Context:** Asia-Pacific Economic Cooperation CEO Summit took place recently.

#### Background:-

- Speaking at the Asia-Pacific Economic Cooperation CEO summit in San Francisco yesterday, President Biden stressed the importance of working together with India, Japan, the Republic of Korea, and Singapore to strengthen the critical semiconductor industry.

#### About APEC:-

- **Established: 1989**
- **HQ: Singapore.**
- **Members: 21**
- **Member Nations:** Australia, Brunei, Canada, Chile, China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russia, Singapore, Chinese Taipei, Thailand, Vietnam and the United States.
- India is **not a Member**.
- It is an inter-governmental forum that promotes free trade throughout the Asia-Pacific region. ([APEC virtual meet held](#))
- It was started in 1989 in response to the growing interdependence of Asia-Pacific economies and the advent of regional trade blocs in other parts of the world.
- It aimed to establish new markets for agricultural products and raw materials beyond Europe.

#### Functions of Asia Pacific Economic Cooperation (APEC):-

- APEC works to help all residents of the Asia-Pacific participate in the growing economy.

- APEC projects provide digital skills training for rural communities and help indigenous women export their products abroad.
- Recognizing the impacts of climate change, APEC members also implement initiatives to increase energy efficiency and promote sustainable management of forest and marine resources.

#### India and APEC:-

- India has been an important destination for APEC members' foreign investment over the past 25 years, with three APEC economies—Singapore, Japan, and the United States—among the top five countries providing FDI inflows into India.
- India was denied APEC membership in 2007 on the grounds that its economy was not integrated into the global system.
- India is the region's third-largest and now fastest-growing major economy.
- APEC economies, which account for 60 per cent of global GDP, are experiencing sluggish growth and must look for opportunities to bring new markets
- India is also projected to be the world's third-largest economy by 2030 and will need well over \$1 trillion of investment in infrastructure over the next decade.

**MUST READ:** [APEC summit, 2021](#)

**SOURCE:** [AIR](#)

## ZIMBABWE

**Context:** Recently, **Zimbabwe** announced the construction of its first utility geothermal power plant.

#### Background:-

- The project aims to reduce Zimbabwe's reliance on hydropower energy sources, which are under threat due to climate change.

#### About Zimbabwe:-

**IMAGE SOURCE:** [WorldAtlas](#)



- **Location:** Southern Africa.
- **Capital:** Harare.
- Zimbabwe is a **landlocked country**.
- Zimbabwe shares its borders with **Zambia, Mozambique, South Africa, and Botswana**.
- The country boasts diverse landscapes, including savannas, mountains (such as the Eastern Highlands), and plateaus.
- It has the iconic **Victoria Falls** on the Zambezi River.
- Zimbabwe, lies to the north of the Tropic of Capricorn.

- It is completely within the tropics but **enjoys subtropical conditions.**
- It is dominated by **Savannah grasslands.**

#### Major Rivers:-

- Zambezi River: The Zambezi, one of Africa's largest rivers, flows through Zimbabwe, creating the iconic Victoria Falls, one of the world's largest waterfalls.
- Limpopo River: Forms part of Zimbabwe's southern border with South Africa and serves as a vital water source for the region.
- Save River: A major river in southeastern Zimbabwe, it is a key waterway supporting agriculture and wildlife in the region.

#### Mountains and Highlands:-

- Eastern Highlands: This mountainous region, bordering Mozambique, features high peaks, lush forests, and fertile valleys. Mount Nyangani is the highest peak in Zimbabwe, part of the Eastern Highlands.
- Chimanimani Mountains: A subrange of the Eastern Highlands, known for its scenic beauty, diverse flora, and popular hiking trails.
- Matobo Hills: Located in the southwest, these granite hills are renowned for their unique rock formations, ancient rock art, and spiritual significance to the local communities.

**MUST READ:** [India-Africa Relationship](#)

**SOURCE:** [DOWN TO EARTH](#)

## FINLAND

**Context:** Recently, **Finland** announced that it will close its last remaining road border with Russia due to its concerns over migration.

#### Background:-

- Finnish Prime Minister Petteri Orpo has said, that Finland will close its last remaining road border with Russia due to its concerns over migration, as the country accused Moscow of undermining Finland's national security.

#### About Finland:-

**IMAGE SOURCE:** [BRITANNICA](#)

- **Capital: Helsinki**
- Finland, a country located in **northern Europe.**
- Finland is **one of the world's most northern and geographically remote countries.**
- It is subject to a **severe climate.**
- Finland forms a **symbolic northern border between Western and Eastern Europe.**

#### Bilateral relations:-

- Finland has excellent relations with India.
- Finland **established diplomatic relations with India in 1949**, after the country had gained independence in 1947.



- In recent years, the consolidation of the political and economic cooperation between the countries has been reflected in an **increase in joint initiatives and the active exchange of delegations.**

#### Trade and economic relations:-



- Finland's trade and economic relations with India rely **on the export of paper, machinery, equipment and industry services from Finland to India.**
- India's exports to Finland are correspondingly centred on **pharmaceutical, chemical and textile products.**
- Services – particularly in the area of **ICT and digital solutions** also have a significant role in Indian

exports to Finland. ([Finland gets world's youngest PM](#))

**MUST READ:** [Finlandization](#)

**SOURCE:** [AIR](#)



## Economy



### PREVENTION OF MONEY LAUNDERING ACT

**Context:** Recently, the Enforcement Directorate (ED) began searching properties of top Rajasthan bureaucrats in connection with the PHED scam under the provisions of the **Prevention of Money Laundering Act, 2002 (PMLA)**.

**Background:-**

- According to the FIR, Padamchand Jain, proprietor of Shree Shyam Tubewell Company, and Mahesh Mittal, proprietor of Shree Ganpati Tubewell Company, and others were involved in bribing public servants “in order to obtain illegal protection, obtaining tenders, getting bills sanctioned and covering up irregularities in respect of work executed by them in respect of various tenders received by them from PHED department.

**About the Prevention of Money Laundering Act (PMLA):-**

- **Enacted: January 2003.**
- The Act along with the Rules framed thereunder has come into force with **effect from 1st July 2005**. ([Corruption](#))
- **Objective:** aims to prevent instances of money laundering and prohibits the use of the ‘proceeds of crime’ in India.
- It is a **criminal law**.
- It was introduced due to **India’s commitment at the Vienna Convention** to combat money laundering.
- It aims to sternly deal with the menace of money laundering of proceeds of a crime having transnational consequences on the financial systems of the countries.
  - **Money laundering:** concealing or disguising the identity of illegally obtained proceeds so that they appear to have originated from legitimate sources.
- It forms the **core of the legal framework in India to combat Money Laundering**.
- The provisions of this act are **applicable to all financial institutions, banks (Including RBI), mutual funds, insurance companies, and their financial intermediaries**.
- It has **provided for provisional attachment and confiscation of property** of any person involved in such activities.
- The act provides for **provisional attachment and confiscation of property** of any person (for a period not exceeding 180 days).
- The act has **delegated the powers upon the Director** to call for records of transactions or any additional information that may be required for the purposes of investigation.
- **PMLA (Amendment) Act, 2012**
  - Added the concept of ‘**reporting entity**’ which would include a banking company, financial institution, intermediary etc.
  - [PMLA, 2002](#) levied a fine up to Rs 5 lakh, but the amendment act has **removed this upper limit**.

**MUST READ:** [Supreme Court verdict on PMLA](#)

**SOURCE:** [THE INDIAN EXPRESS](#)

### NITI AAYOG

**Context:** Recently, NITI Aayog organised a workshop on the theme “Inclusive Trade for Prosperity”.

**Background:-**

- NITI Aayog organized a one-day workshop on the theme “Inclusive Trade for Prosperity”.
- **Date: 6th November 2023.**
- **Venue: Hotel Taj Mahal, New Delhi.**
- This workshop is part of a series of 10 feeder thematic workshops being held on varied themes discussed in the G20 New Delhi Leaders' Declaration (NDLD).

**About NITI Aayog:-**

- **Establishment: 2015.**
- **Ministry:**
- **HQ: New Delhi.**
- [NITI Aayog](#) was established on 1st Jan 2015.
- Before NITI Aayog, there was a Planning Commission formed on 15 March 1950.
- The Planning Commission was **non-constitutional**.
- It serves as an **advisory Think Tank**.
- It focuses upon a '**Bottom-Up**' approach to Planning.
- It **does not** possess mandate to impose policies.

**Objectives NITI Aayog:-**

- Shared vision and participation of **both central and state governments** for the national development of sectors.
- Cooperative federalism.
- Credible Planning
- Focusing on the weaker sections
- Making Strategies and long-term policies
- Innovation for creating knowledge.
- Technology up-gradation

**Composition of NITI Aayog:-**

- **Chairperson:** Prime Minister.
- **Vice-Chairperson:** To be appointed by the Prime Minister.
- **Governing Council:** Chief Ministers of all states and Lt. Governors of Union Territories.
- **Regional Council:** To address specific regional issues, Comprising Chief Ministers and Lt. Governors Chaired by the Prime Minister or his nominee.
- **Adhoc Membership:** 2 members in ex-officio capacity from leading Research institutions on a rotational basis.
- **Ex-Officio membership:** Maximum four from the Union Council of ministers to be nominated by the Prime minister.
- **Chief Executive Officer:** Appointed by the Prime Minister for a fixed tenure, in the rank of Secretary to the Government of India.
- **Special Invitees:** Experts and specialists with domain knowledge nominated by the Prime-minister.

**Functions:-**

- Policy Formulation

- Monitoring and Evaluation
- Inter-governmental Coordination
- Promoting Reforms
- Research and Knowledge Sharing

**MUST READ:** [NITI AAYOG -TRIFED join hands for successful implementation](#)

**SOURCE:** [AIR](#)

## INDEX OF INDUSTRIAL PRODUCTION (IIP)

**Context:** Recently, **Index of Industrial Production (IIP)** growth fell to a 3-month low, rising year-on-year.

**Background:-**

- The data released by the National Statistical Office (NSO) showed that the manufacturing sector's output grew by 4.5 per cent in September 2023.

**About the Index of Industrial Production (IIP):-**

- **Publication time:** monthly. ([IIP](#))
- **Published by:** National Statistical Office (NSO).
- **Ministry:** Ministry of Statistics and Programme Implementation.
- **Base Year:** 2011-2012.
- IIP is an indicator that **measures the changes in the volume of production of industrial products** during a given period.
- It is a **composite indicator** that measures the growth rate of industry groups classified under:
  - **Broad sectors:** Mining, Manufacturing, and Electricity.
  - The relative weights of these three sectors are **77.6% (manufacturing), 14.4% (mining) and 8% (electricity)**.
  - **Eight core industries:** Electricity, crude oil, coal, cement, steel, refinery products, natural gas, and fertilizers.
  - They comprise about **40 per cent** of the weight of items included in the IIP.
  - **The eight core sector industries in decreasing order of their weightage:** Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers.
  - **Use-based sectors:** Basic Goods, Capital Goods, and Intermediate Goods.

**Significance of IIP:-**

- The index **indicates the relative change over time** in the volume of production in the industrial sector.
- It is an effective tool to **measure the trend of current industrial production**.
- It is used by government agencies including the Ministry of Finance, the Reserve Bank of India, etc, for **policy-making purposes**. ([Draft New Industrial Policy](#))

**MUST READ:** [Industrial Revolution 4.0](#)

**SOURCE:** [THE INDIAN EXPRESS](#)

## INFLATION

**Context:** The Retail **inflation** eased to 4.87% in October 2023 compared to 5.02 % in September 2023.

**Background:-**

- Retail inflation, based on the Consumer Price Index (CPI), eased to 4.87 per cent in October compared to 5.02 per cent in September this year.

#### About Inflation:-

- **Inflation** refers to a **sustained increase in the general price level of goods and services in an economy** over a period of time.
- It is the rise in the prices of most goods and services of daily or common use, such as **food, clothing, housing, recreation, transport, consumer staples, etc.**
- Inflation **measures the average price change** in a basket of commodities and services over time.
- The opposite and rare fall in the price index of this basket of items is called '**deflation**'.
- Inflation is **indicative of the decrease in the purchasing power** of a unit of a country's currency.
- This is **measured in percentage**.

#### Measures of Inflation in India:-

- In India, the **Ministry of Statistics and Programme Implementation** measures inflation.
- There **are two main sets** of inflation indices for measuring price level changes in India
  - the **Wholesale Price Index (WPI)** and the **Consumer Price Index (CPI)**.
- **GDP deflator** is also used to measure inflation.

#### Impacts of inflation:-

- Reduces people's purchasing power
- Reduces overall demand
- Harms savers and helps borrowers
- Helps the government meet debt obligations: In the short term, the government, which is the single largest borrower in the economy, benefits from high inflation.
- In the short term, corporates, especially the large and dominant ones, could enjoy higher profitability because they might be in a position to pass on the prices to consumers.
- Worsens the exchange rate.

**MUST READ:** [Inflation Targeting as Monetary Policy](#)

**SOURCE:** [AIR](#)

## G-20 SUMMIT

**Context:** External Affairs Minister Dr S Jaishankar recently, said that the New Delhi Leaders' Declaration adopted during the **G20 Summit** will be remembered.

#### Background:-

- He said this in his opening remarks at the Foreign Ministers' Session of the second Voice of Global South Summit.
- The External Affairs Minister reaffirmed India's commitment to the Global South through an extensive range of development projects in 78 countries.
- He said these projects are demand-driven, outcome-oriented, transparent and sustainable.
- He stressed that as India embraces digital delivery, promotes green growth and ensures affordable health access, it will always have the Global South at the centre of its international partnerships.

#### About G20 Summit:-

- **Establishment: 1999.** [\(G20\)](#)



- **Historical Background:** The G20 forum was established by the finance ministers and central bank governors of seven countries – Canada, France, Germany, Italy, Japan, the U.K., and the U.S. after a meeting in Washington DC.
- **Members:** Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, the Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the U.K., the U.S. and the European Union.
- **Presidency of the G20:** it **rotates every year** among members.
  - The country holding the presidency, together with the previous and next presidency-holder, forms the '**Troika**'.
  - **India** assumed the presidency of the G20 grouping from Indonesia, in 2022 and will hold the post for a year.
  - During India's presidency, **India, Indonesia and Brazil** will form the troika.
- The G20 **does not have a permanent secretariat or Headquarters.**

**MUST READ:** [G20 Presidency](#)

**SOURCE:** [AIR](#)

## EPFO

**Context:** Recent data shows that the **Employees' Provident Fund Organisation (EPFO)** added 17.21 lakh net members during September 2023.

**Background:-**

- This is an increase of 21 thousand 475 net members over the previous month of August.

**About Employees' Provident Fund Organisation (EPFO):-**

- The EPFO is under the administrative control of the **Ministry of Labour and Employment, Government of India.**
- It is one of the **World's largest Social Security Organisations** in terms of clientele and the volume of financial transactions undertaken.
- It came into existence with the promulgation of the **Employees' Provident Funds Ordinance** on the **15th of November 1951.**
- It was replaced by the **Employees' Provident Funds Act, of 1952.**
- The Employees' Provident Funds Bill was introduced in the Parliament in the year 1952 as a Bill to provide for the institution of provident funds for employees in factories and other establishments.
- The Act is now referred to as the **Employees' Provident Funds & Miscellaneous Provisions Act, 1952** which **extends to the whole of India.**
- The Act and Schemes framed there under are administered by a **tri-partite Board** known as the **Central Board of Trustees, Employees' Provident Fund.**
- **The Central Board of Trustees :**
  - It consists of **representatives of Government (Both Central and State), Employers, and Employees.**
  - It administers a contributory provident fund, a pension scheme and an insurance scheme for the workforce engaged in the **organized sector in India.**
  - It is assisted by the **Employees' PF Organization (EPFO)**, consisting of offices at 138 locations across the country.

- The Organization has a well-equipped training set-up where officers and employees of the Organization as well as Representatives of the Employers and Employees attend sessions for **training and seminars**.
- **Vision:** An innovation-driven social security organisation aiming to extend universal coverage and ensure Nirbadh (Seamless and uninterrupted) service delivery to its stakeholders through state-of-the-art technology.

#### Schemes under EPFO:-

- **EPF Scheme 1952**
  - It provides for the **accumulation plus interest** upon retirement and death.
  - **Partial withdrawals** are allowed for education, marriage, illness and house construction. ([Nidhi Aapke Nikat 2.0](#))
- **Pension Scheme 1995 (EPS)**
  - It provides **monthly benefits for superannuation/retirement**, disability, survivor, widow(er) and children.
  - It provides a **minimum pension on disablement**.
  - It provides **past service benefits** to participants of the erstwhile Family Pension Scheme, 1971.
- **Insurance Scheme 1976 (EDLI)**
  - It provides the **benefit in case of the death of an employee** who was a member of the scheme at the time of death.
  - It provides the benefit amount **20 times the wages**.
    - Maximum benefit is 6 lakhs.

**MUST READ:** [EPFO's New Facility on UMANG App started](#)

**SOURCE:** [AIR](#)



## GEOGRAPHY

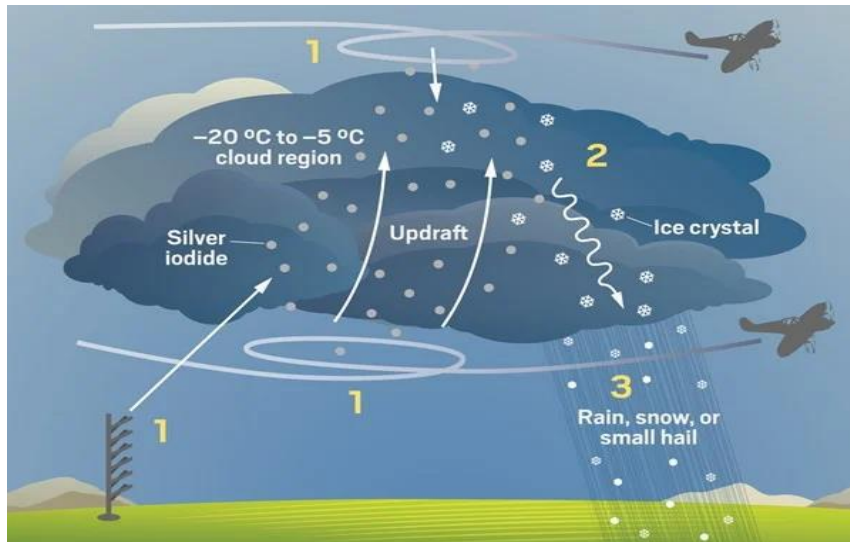


## CLOUD SEEDING

**Context:** Recently, IITM Pune demonstrated that **cloud seeding** can produce rainfall.

**Background:-**

- A cloud seeding experiment was carried out in Solapur city, which falls on the leeward side of the Western Ghats.

**About Cloud seeding:-**

**IMAGE SOURCE:** [IASBABA](#)

- Cloud seeding is a kind of **weather modification technology** to create artificial rainfall.

- The goal of this work is to **change the amount of precipitation** that falls from the sky or to alter the type that would reach the ground.

**Mechanism:-**

- It is a way of changing the amount or type of precipitation that falls from clouds, by dispersing substances into the air that serve as

cloud condensation.

- Drones are **charged into the clouds** and cause an electric shock due to which they clump together and cause rainfall.
- **Silver iodide, dry ice, and potassium iodide** are the most common items used to initiate the cloud-seeding process.

**Types:-**

There are three cloud seeding methods: static, dynamic and hygroscopic.

- **Static cloud seeding:** involves spreading a chemical like silver iodide into clouds.
- **Dynamic cloud seeding:** aims to boost vertical air currents, which encourages more water to pass through the clouds, translating into more rain.
- **Hygroscopic cloud seeding:** disperses salts through flares or explosives in the lower portions of clouds.

**Advantages of Cloud Seeding:-**

- Cloud seeding can help to produce more precipitation. ([Cloudbursts](#))
- It can make the land more suitable for living.
- It helps to regulate weather patterns in specific locations.

**Disadvantages of Cloud Seeding:-**

- Specific atmospheric conditions must exist for cloud seeding to work: It works only when there are **enough pre-existing clouds** in the atmosphere.
- The effectiveness of cloud seeding is still under review.
- It is an expensive venture.

**MUST READ:** [Cloud Wars](#)

**SOURCE:** [THE HINDU](#)

## DEEP OCEAN MISSION

**Context:** Recent studies suggest that India's 'Deep Ocean Mission' may have to face a challenge harder than going to space.

### Background:-

- It is a Central Sector Scheme of the Ministry of Earth Sciences.

### About Deep Ocean Mission:-

- **Launched: 2021.**
- **Ministry: Ministry of Earth Sciences.**
- The Deep Ocean Mission (DOM) is India's ambitious **quest to explore and harness the depths of the ocean.**
- As part of this initiative, **India will, for the first time, embark on a journey to a depth of 6,000 metres** in the ocean using an indigenously developed submersible with a three-member crew.
- The mission will require technologies to access and **transport tonnes of valuable minerals from the ocean bed in an environmentally safe manner.**
- DOM is a mission-mode project to support the **Blue Economy** Initiatives of the Government of India.
  - **Blue Economy:** sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.
- It is India's ambitious programme and was **approved by the Union Cabinet in 2021** at a cost of nearly Rs 4,077 crore over a **five-year period** in a phased manner.

### 6 Pillars:-

The mission has six pillars:-

- **Development of technologies** for deep-sea mining and a manned submersible to carry three people to a depth of 6,000 metres in the ocean. The submersible will be equipped with a suite of scientific sensors, tools and an integrated system for mining polymetallic nodules from the central Indian Ocean.
- **Development of ocean climate change advisory services**, involving an array of ocean observations and models to understand and provide future climate projections.
- **Technological innovations** for the exploration and conservation of deep-sea biodiversity.
- **Deep-ocean survey and exploration** aimed at identifying potential sites of multi-metal hydrothermal sulphides mineralisation along the Indian Ocean mid-oceanic ridges.
- **Harnessing energy and fresh water** from the ocean.
- **Establishing an advanced Marine Station for Ocean Biology**, as a hub for nurturing talent and driving new opportunities in ocean biology and blue biotechnology.
- The '**New India 2030**' document outlines a blue economy as the sixth core objective for India's growth. The years 2021-2030 have been designated by the United Nations as the 'Decade of Ocean Science'.
- DOM is **one of nine missions** under the Prime Minister's Science, Technology, and Innovation Advisory Council (PMSTIAC).
- It is imperative that DOM supports the **blue economy priority area, blue trade, and blue manufacturing in India.**

### Significance:-

- Leveraging Ocean Resources.
- The technology and expertise needed in such missions are now available in only five countries - the US, Russia, France, Japan and China.
  - India will now be the **sixth country** to have it.

**MUST READ:** [Deep-Sea Mining](#)

**SOURCE:** [THE HINDU](#)

## EARTHQUAKE

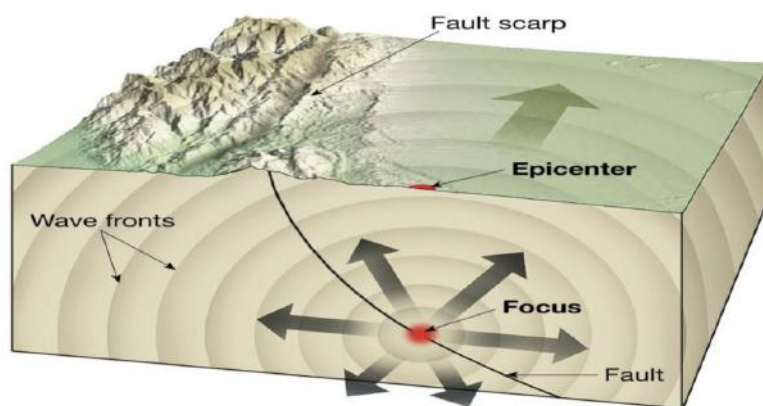
**Context:** Recently, a magnitude-6.4 **earthquake** was witnessed in Nepal.

**Background:-**

- In Nepal, at least 128 people were killed and 140 injured when a magnitude-6.4 earthquake shook the northwestern part of the country late last night, officials said.

**About Earthquake:-**

### *Earthquake focus and epicenter*



**IMAGE SOURCE:**

[SlideServe](#)

- An earthquake is the **shaking or trembling of the earth's surface.**

- It is caused by **the seismic waves or earthquake waves** that are generated due to a sudden movement (sudden release of energy) in the earth's crust (shallow-focus earthquakes) or upper

mantle (some shallow-focus and all intermediate and deep-focus earthquakes).

- A **seismograph, or seismometer**, is an instrument used to detect and record earthquakes.
- **Hypocentre/Focus:** The point where the energy is released.
- **Epicentre:** The point on the surface directly above the focus.
- **Isoseismic line:** A line connecting all points on the surface where the intensity is the same.

**Causes of Earthquakes:-**

- Fault Zones
- Plate tectonics
- Volcanic activity
- Human-Induced Earthquakes

**Types of Earthquakes:-**

**Tectonic Earthquakes**

- The **most common ones** are tectonic earthquakes.
- The Earth is made of four basic layers (generally three): **a solid crust, a hot, nearly solid mantle, a liquid outer core and a solid inner core.**
- Tectonic plates (Lithospheric plates) are **constantly shifting** as they drift around on the viscous, or slowly flowing, mantle layer below.
- When tectonic plates move, it also causes movements at the **faults**. ([Anatolian Plate](#))
- Thus, the slipping of land along the faultline along convergent, divergent and transform boundaries **causes earthquakes.**

**Volcanic Earthquake**



- Earthquakes produced by stress changes in solid rock due to the **injection or withdrawal of magma** (molten rock) are called volcano earthquakes. **Human Induced Earthquakes**
- In areas of intense mining activity, sometimes the roofs of underground mines collapse causing minor tremors. These are called **collapse earthquakes**.
- Ground shaking may also occur due to the explosion of chemical or nuclear devices. Such tremors are called **explosion earthquakes**.

**MUST READ:** [\(Volcano\)](#)

**SOURCE:** [AIR](#)

## KHARIF CROPS

**Context:** Recently, the **Kharif crops** took a severe hit by intense and unprecedented rainfall across India.

**Background:-**

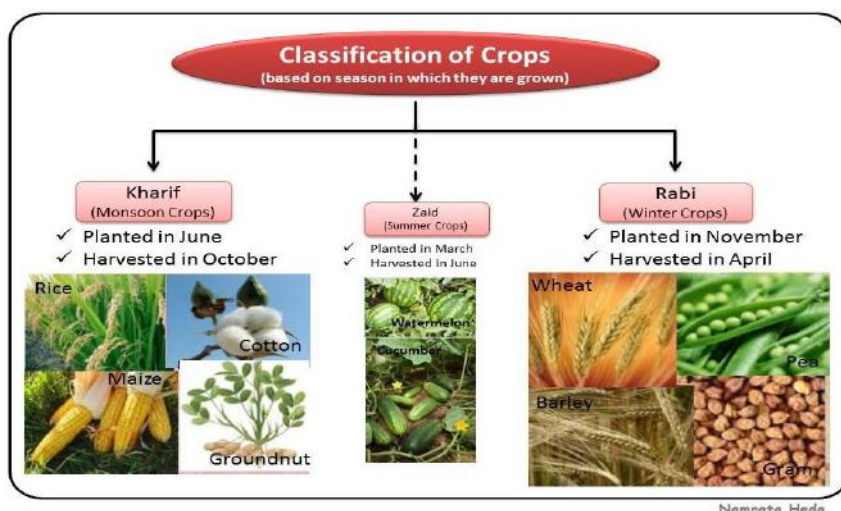
- Record-breaking, heavy to extremely heavy rainfall in different regions, especially in the northwestern states of Himachal Pradesh, Uttarakhand, Punjab, Haryana and Uttar Pradesh, has now dealt a crushing blow by inundating the fields of already sown crops.
- The **India Meteorological Department (IMD)** has advised farmers to drain out excess water from their fields so that standing crops are saved from rotting.

**About India Meteorological Department**

- **Established:1875.**
- **Ministry: Ministry of Earth Sciences.**
- **HQ: New Delhi.**
- It is the principal agency responsible for **meteorological observations, weather forecasting and seismology.**
- IMD is also **one of the six Regional Specialized Meteorological Centres** of the World Meteorological Organization.
  - **Regional Specialized Meteorological Centre (RSMC)** of Tropical Cyclones in New Delhi is responsible for **naming the cyclones** in the **northern Indian Ocean region.**

**About Kharif crops:-**

**IMAGE SOURCE:** [blogspot.com](#)



• India is a peninsular country where the **climate is mostly driven by monsoon.** [\(UPSC CSE: North East Monsoon\)](#)

- Due to this reason, India is **endowed with a variety of seasons.**
- These seasons, in turn, provide **different weather conditions to crops**, which eventually lead to different cropping patterns.
- Based on seasons, crops are classified into the following:

- **Kharif crops**

- **Rabi crops**

- **Zaid crops**

- Kharif crops, are **cultivated and harvested in the monsoon season.**

- **Naming:** The word “Kharif” is Arabic for autumn since the season coincides with the beginning of autumn or winter.
- **Sowing and Harvesting:** These are sown at the **beginning of a monsoon season** and farmers harvest them at the end of the season.
- **Time Period:** The Kharif season differs in every state of the country but is generally from **June to September**.
- One of the important features of Kharif crops is that **they need a lot of water and hot weather** for proper growth.
- **Kharif crops examples:** Rice, Cotton, Maize etc. ([UPSC CSE: Government announces hike in MSP for Kharif season](#))
  - India is the **second-largest producer of rice** in the world after China.
  - India accounts for approximately **20% of the world’s rice production**.

**MUST READ:** [Agriculture Insurance Company of India \(AIC\)](#)

**SOURCE:** [DOWN TO EARTH](#)

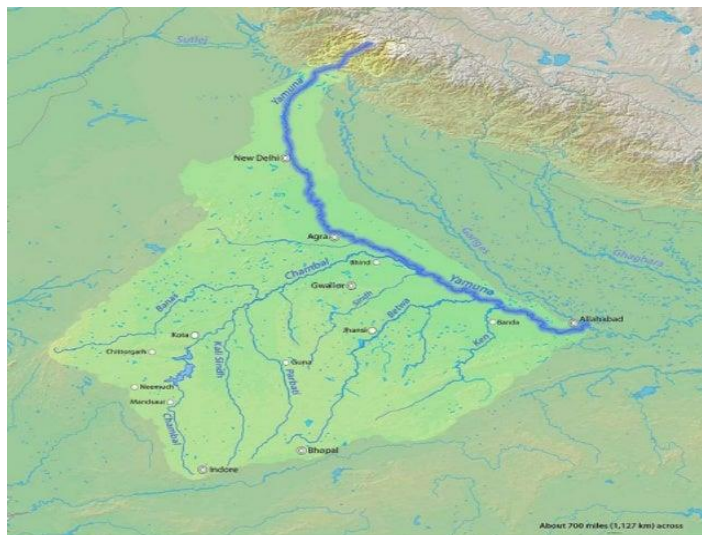
## YAMUNA

**Context:** As per recent reports, evacuation of people from low-lying areas around the river **Yamuna** is to start soon.

**Background:-**

- Delhi Chief Minister Arvind Kejriwal announced that evacuation of people from low-lying areas around Yamuna will start once the river touches the 206-metre mark.

**About Yamuna:-**



**IMAGE SOURCE:** [SlideShare](#)

- **Origin:** It originates from the **Yamunotri Glacier**.
  - **Yamunotri Glacier:** it lies on the southwestern slopes or Banderpoonch Peak, in the **Uttarkashi district of Uttarakhand**.
- **End:** Yamuna joins the Ganges (Ganga) River near Prayagraj (Allahabad).
- **Drainage Basin:** it flows along the states of **Uttarakhand, Himachal Pradesh, and Haryana** and enters **Delhi and Uttar Pradesh**.
- It is the **largest tributary of the Ganga** in the northern plains. ([UPSC CSE: Cleaning of River Ganga](#))
- **Total length:** from its origin till Allahabad is **1,376 km**.
- It creates the highly fertile alluvial, Yamuna-Ganges Doab region between itself and the Ganges in the Indo-Gangetic plain.
- **Important Cities:** The cities of Bhagpat, Delhi, Noida, Mathura, Agra, Firozabad, Etawah, Hamirpur, and Allahabad lie on its banks. ([UPSC CSE: Sutlej-Yamuna Link Canal Project](#))
- **Tributaries of Yamuna:-**
  - Yamuna is joined by its biggest tributary, the **Tons River** near Dehradun, Uttarakhand.
  - **Right bank tributaries:** Chambal, Hindon, Sarda and Giri rivers.
  - **Chambal River** is Yamuna’s biggest tributary right bank tributary. ([UPSC CSE: National Chambal Sanctuary](#))

- **Left bank tributaries:** Betwa and Sindh.

**MUST READ:** [Yamuna Pollution](#)

**SOURCE:** [THE HINDU](#)

## HORN OF AFRICA

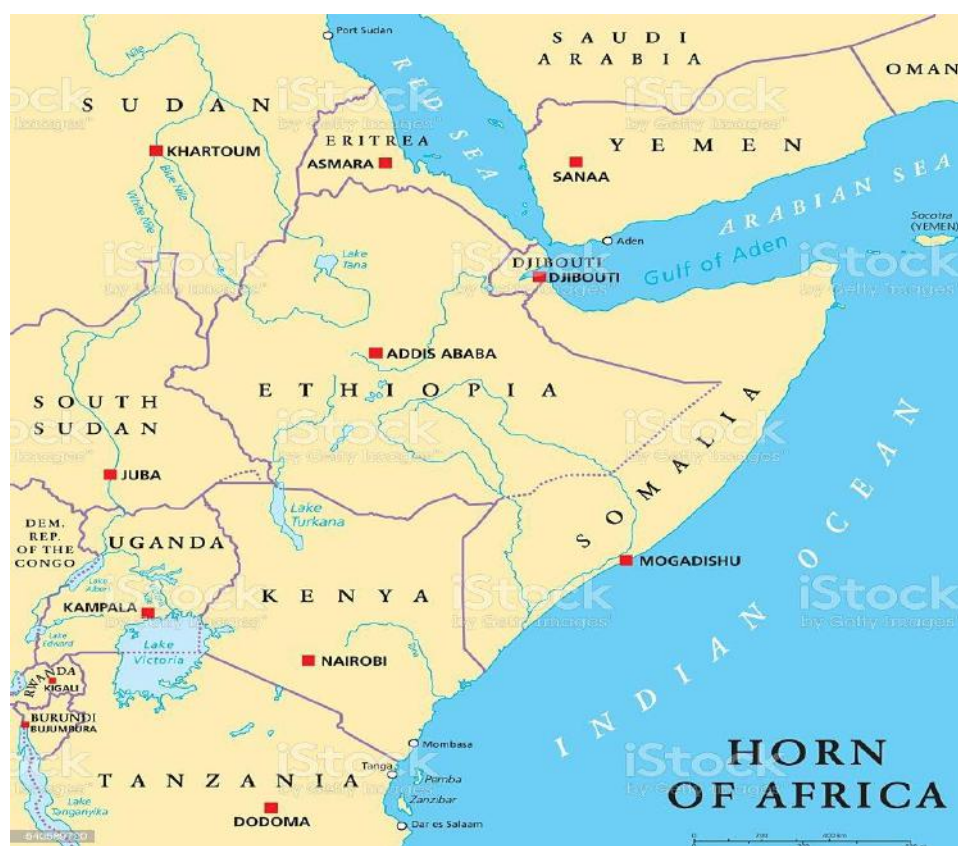
**Context:** Recently, **Horn of Africa** faced deadly floods due to El Nino-linked 'above average' rains.

**Background:-**

- Several people in the Greater Horn of Africa are feared dead, property worth millions destroyed and populations displaced due to heavy rainfall in the region, according to officials.

**About Horn of Africa:-**

**IMAGE SOURCE:** [iStock](#)



- **Countries:** Somalia, Ethiopia, Eritrea and Djibouti.

- **Location:** northeast of the African continent.

- It lies along the southern boundary of the Red Sea.

- It extends hundreds of kilometers into the Guardafui Channel, the Gulf of Aden, and the Indian Ocean.

- It is **equidistant** from the equator and the Tropic of Cancer.

- It extends out into the Arabian Sea for hundreds of kilometres.

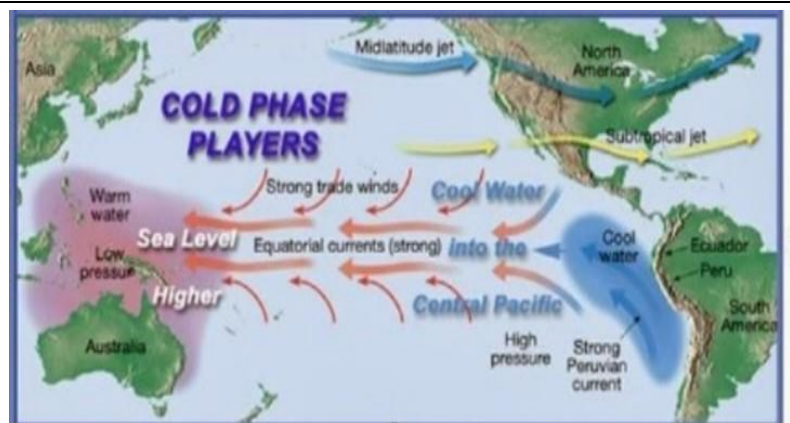
- It is located along the south of the Gulf of Aden.

- The Horn of Africa is a **UNESCO Biodiversity Hotspot** and one of the two entirely arid ones.
  - **Biodiversity Hotspot:** To qualify as a biodiversity hotspot, an area must meet two strict criteria:-
  - Contain **at least 1,500 species of vascular plants** found **nowhere else** on Earth (known as "endemic" species).
  - Have lost **at least 70 per cent** of its primary native vegetation.
- **The Greater Horn of Africa** region includes Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania, and Uganda.

**About the El Nino:-**

**IMAGE SOURCE:** [IASBABA](#)





Normal Situation



El Niño Situation

- El Niño is the **warming of seawater in the central-east Equatorial Pacific** that occurs every few years.
- During El Niño, **surface temperatures in the equatorial Pacific rise**, and trade winds, east-west winds that blow near the Equator weaken.
- Normally, **easterly trade winds blow from the Americas towards Asia**.
- Due to El Niño, they falter and change direction to turn into westerlies, bringing warm water from the western Pacific towards the Americas.
- It occurs **every 3-6**

years.

- It lasts for about **9-12 months**.
- It can **cause droughts, flooding, and changes in temperature**.
- It can **lead to below-normal rainfall**, which affects India’s agricultural sector.

**Impacts of El Niño:-**

- Disruptions in the food chain
- Disruptions in the overall ecosystem
- Warm waters also carry tropical species towards colder areas, disrupting multiple ecosystems.
- Alterations in wind and weather patterns

**MUST READ:** [India-Africa: Challenges & Way Ahead](#)

**SOURCE:** [DOWN TO EARTH](#)

**EL NIÑO**

**Context:** The Food and Agriculture Organization (FAO) has launched a plan to reduce the projected impacts of the climate phenomenon **El Niño** on agricultural livelihoods and food security of the most at-risk and vulnerable populations recently.

**Background:-**

- It released an anticipatory action plan after WMO forecasts El Niño to stay till April 2024.

**About El Niño:-**

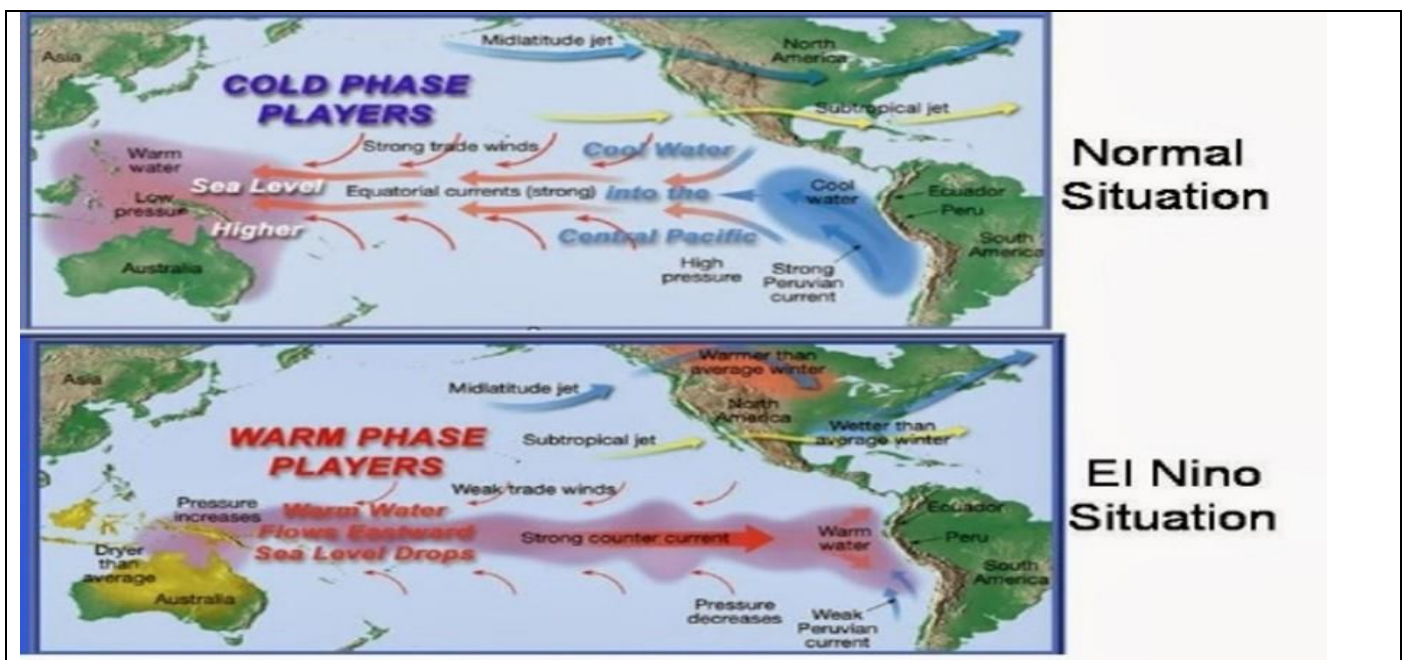


IMAGE SOURCE: [IASBABA](#)

- [El Niño](#) is the warming of seawater in the **central-east Equatorial Pacific** that occurs every few years.
- During El Niño, surface temperatures in the **equatorial Pacific rise**, and trade winds — east-west winds that blow near the Equator — weaken.
- Normally, easterly trade winds blow from the **Americas towards Asia**.
- Due to El Niño, they falter and change direction to turn into westerlies, bringing warm water from the western Pacific towards the Americas.
- It occurs **every 3-6 years** and lasts for about **9-12 months**.
- It can cause **droughts, flooding, and changes in temperature**.
- It can lead to **below-normal rainfall**, which affects India's agricultural sector.

#### Outcomes of El Niño:-

- **Disruptions in the food chain:** The phenomena of upwelling, where nutrient-rich waters rise towards the surface, is reduced under El Niño.
- This in turn reduces phytoplankton.
- Thus, fish that eat phytoplankton are affected, followed by other organisms higher up the food chain.
- **Disruptions in the overall ecosystem:** Warm waters also carry tropical species towards colder areas, disrupting multiple ecosystems.
- **Alterations in wind and weather patterns:** Since the Pacific covers almost one-third of the earth, changes in its temperature and subsequent alteration of wind patterns disrupt global weather patterns.
- El Niño causes dry, warm winters in the Northern U.S. and Canada and increases the risk of flooding in the U.S. Gulf Coast and southeastern U.S.
- It also brings drought to Indonesia and Australia.

**MUST READ:** [Monsoon trough](#)

**SOURCE:** [DOWN TO EARTH](#)



## NIOBIUM

**Context:** Recently, The Union Cabinet recently approved royalty rates in respect of 3 critical and strategic minerals, including **niobium**, and Rare Earth Elements.

**Background:-**

- The other two were lithium and Rare Earth Elements.

**About Niobium:-**

- Niobium is a beautiful, **white metal** that **changes to varying shades of blue, yellow and green** when exposed to the air and the elements.
- It is a rare, **soft, malleable, ductile, grey-white metal**.
- It has a **relatively high melting point**, and in its elemental form, its melting point can go up to 2,468 °C.
- Niobium has a **density that is lower than most other refractory metals**. ([Rare Earth Metals](#))
- It is **anti-corrosive**.
- It has **high superconductivity properties**.
- It usually **forms layers of dielectric oxides** when exposed to air.
- It is almost identical in terms of size, to **tantalum** atoms and **exhibits Lanthanide contractions**.
- It is **not found free in nature** but in minerals such as **columbite and tantalite**.
- Commercially, niobium is **extracted by first forming the oxide (Nb<sub>2</sub>O<sub>5</sub>)**.
- The oxide is then reduced using carbon or hydrogen.
- **Brazil** is the world's largest supplier, with **Canada** trailing far behind.

**Applications:-**

- It is utilized in the manufacture of **high-temperature-resistant alloys** and specific stainless steels.
- It is also utilized to **construct superconducting accelerating** structures for particle accelerators in their pure form.
- Because they do not react with human tissue, niobium alloys are employed in **surgical implants**.
- Niobium carbide is used in the **manufacture of cutting tools**.
- As **wires for superconducting magnets** capable of producing extremely powerful magnetic fields, niobium-tin, and **niobium-titanium alloys** are utilized.

**MUST READ:** [Indian Bureau of Mines](#)

**SOURCE:** [THE NEW INDIAN EXPRESS](#)

## VANUATU ISLANDS

**Context:** A Magnitude 6.7 Earthquake Jolted the **Vanuatu Islands** Near Australia recently.

**About Vanuatu Islands:-**

**IMAGE SOURCE:** [BRITANNICA](#)



- Vanuatu, a country in the **southwestern Pacific Ocean**.
- It consists of a **chain of 13 principal and many smaller islands** located about 500 miles (800 km) west of Fiji and 1,100 miles (1,770 km) east of Australia.
- Vanuatu (officially, the Republic of Vanuatu) is **divided into 6 provinces**.
- These provinces are **Malampa, Penama, Sanma, Shefa, Tafea and Torba**.
- These provinces are further subdivided into municipalities.

- The indigenous population, called **ni-Vanuatu**, is overwhelmingly Melanesian, though some of the outlying islands have Polynesian populations.
- Subsistence agriculture has traditionally been the economic base of Vanuatu, together with an elaborate exchange network within and between islands.
- Since independence, Vanuatu's tourism and offshore financial services have emerged as the largest earners of foreign income.
- **The Lapita sites** became Vanuatu's first **UNESCO World Heritage Site in 2008**.

**MUST READ:** [\(Volcano\)](#)

**SOURCE:** [TIMES NOW](#)

## PAVANA RIVER

**Context:** Recently, a laundry owner was booked for polluting the **Pavana River**.

**Background:-**

- A laundry owner from Tathawade was booked for allegedly discharging untreated contaminated water in the Pavana River.

**About Pavana River:-**

- **Location: Pune District, Maharashtra.**
- The river is a prominent river that runs through Pune City.
- It separates it from the **Pimpri-Chinchwad district**.
- It comes from the Western Ghats, around 6 kilometres **south of Lonavala**.
- It is a tributary of the **Bhima River** that joins the **Mula River in Pune**.
- Flowing eastward at first, it turns south and travels through the suburbs of **Dehu, Chinchwad, Pimpri, and Dapodi** before joining the Mula River.
- The "Pavana Nagar Dam" is being built on this river at **Pavana Nagar**.
- It is a **gravity earthfill**. ([River Cities Alliance](#))

- It has a total storage capacity of 30,500.00 km<sup>3</sup> and measures 1,329 m (4,360 ft) long and 42.37 m (139.0 ft) high.

**MUST READ:** [Teesta River](#)

**SOURCE:** [HINDUSTAN TIMES](#)

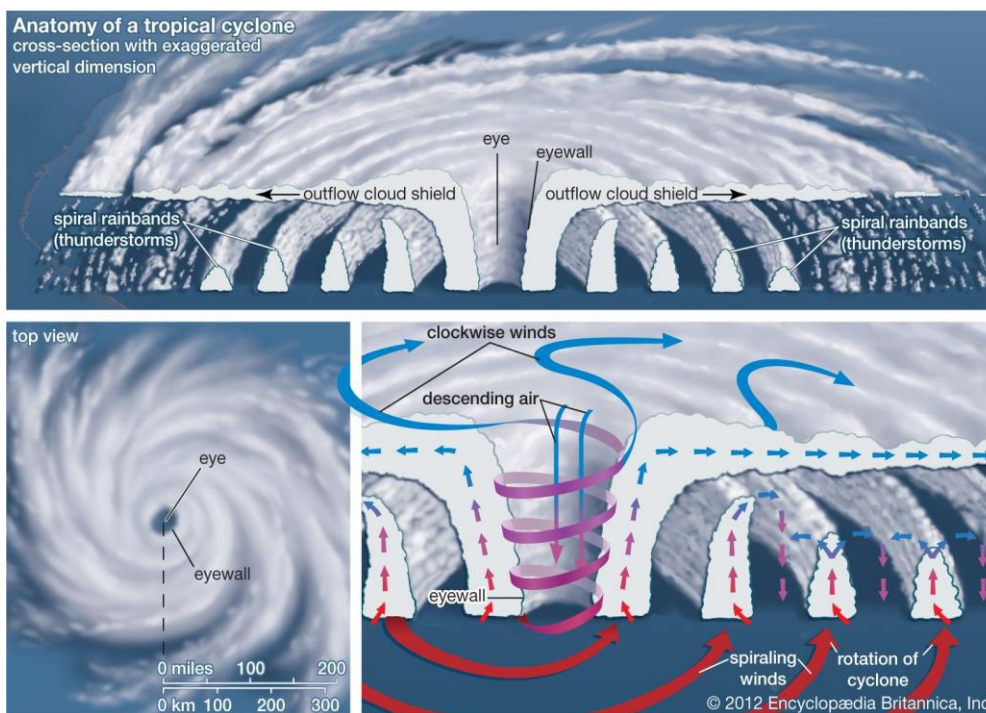
## TROPICAL CYCLONES

**Context:** Recent studies suggest that **Tropical cyclones** cause more damage than we think.

**Background:-**

- India is among the countries facing a high social cost of carbon.

**About Tropical cyclones:-**



**IMAGE SOURCE:**

[Britannica](#)

- A cyclone is a pattern of winds (or air mass) that circulates a **low-pressure system**.

- It rotates **counterclockwise in the Northern Hemisphere** and **clockwise in the Southern Hemisphere**.

[\(Naming of Cyclone\)](#)

- It is an **intense circular storm** that originates over **warm tropical oceans**.

- It is characterized by **low atmospheric**

**pressure, high winds, and heavy rain.**

- These are formed over **slightly warm ocean waters**.
- The temperature of the top layer of the sea, up to a depth of about 60 meters, needs to be **at least 28°C** to support the formation of a cyclone.
- **April-May and October-December** periods are conducive for cyclones. ( [Bomb Cyclone](#) )
- Then, the low level of air above the waters needs to have an '**anticlockwise**' rotation (in the northern hemisphere; clockwise in the southern hemisphere).
- During these periods, there was an **ITCZ in the Bay of Bengal**.

**MUST READ:** ( [Colour Coded Weather Warning](#) )

**SOURCE:** [DOWN TO EARTH](#)

## MOUNT ETNA

**Context:** Recently, Italy's **Mount Etna** eruption was captured from space as ash, and lava spews out of it recently.

**Background:-**

- The event was so significant that it was observed from space by the Copernicus Sentinel-2 mission, which used shortwave-infrared bands to highlight the lava flow at the time of acquisition.

**About Mount Etna:-**

**IMAGE SOURCE:** [BRITANNICA](#)



- Mount Etna is the **highest Mediterranean island mountain.**
- It is about **3,326 metres high.**
- It is on the **eastern coast of Sicily.**
- It is the highest peak in Italy **South of the Alps.**
- It is also the **most active stratovolcano** in the world.
- Its recorded volcanic activity dates back to 1500 B.C. Since then, it has erupted more than

200 times.

- A stratovolcano is also called a **composite volcano.** ([Volcano](#))
- This volcanic landform is characterized by a conical shape formed by layers of volcanic material deposited during successive volcanic eruptions.
- The volcano also supports important terrestrial ecosystems **including endemic flora and fauna.**
- Etna has erupted in a variety of modes, including tremendous **explosions and massive lava flows.**

**MUST READ:** [Mt. Mauna Loa](#)

**SOURCE:** [BBC](#)

### SILKYARA TUNNEL

**Context:** Recently, Silkyara tunnel rescue operations entered their 16<sup>th</sup> day.

**Background:-**

- The accident when the workers were trapped in the Silkyara Tunnel located on the Uttarkashi-Yamnotri Road.
- The collapse happened about 270m from the entrance of the Silkyara side.
- The National Disaster Response Force (NDRF), the State Disaster Relief Force (SDRF) and the police are among the main figures in the multi-agency rescue operations.

**About Silkyara Tunnel:-**



- **Location: Uttarakhand.**
- The total length of the tunnel is **4.5 km.**
- It is meant to **connect Silkyara to Dandal gaon** in Uttarkashi district.
- The double-lane tunnel is pegged as **one of the longest tunnels** under the Char Dham all-weather road project. ([The significance of the Char Dham board verdict](#))
- It aims to **reduce the journey from Uttarkashi to Yamunotri Dham by 26 kilometres.**
- From the Silkyara side, 2.3km of tunnel has been constructed, while 1.6km of tunnelling work has been completed from the Barkot end.
- Approximately, a 400m stretch of the tunnel is yet to be constructed.
- The Silkyara tunnel is part of the ongoing construction between **Silkyara and Dandalgaon on the Brahmakhal-Yamunotri stretch** of the National Highway under the Char Dham project.
  - Char Dham Project: Launched in December 2016, it aims to enhance connectivity between the four pilgrimage sites of Char Dham—Kedarnath, Badrinath, Yamunotri, and Gangotri.

**MUST READ:** [Char Dham Highways](#)

**SOURCE:** [TIMES OF INDIA](#)

## NEW ZEALAND

**Context:** Recently, Christopher Luxon sworn in as **New Zealand's** prime minister.

**Background:-**

- The swearing-in ceremony was presided over by Governor-General Cindy Kiro.

**About New Zealand:-**

**IMAGE SOURCE:** [Nations Online](#)

- New Zealand, an island country in the South Pacific Ocean, the southwesternmost part of Polynesia.
- It lies more than 1,000 miles (1,600 km) southeast of Australia, its nearest neighbour.
- The country comprises two main islands—the **North and the South Island**—and a number of small islands, some of them hundreds of miles from the main group.
- The capital city is **Wellington**.
- The largest urban area in **Auckland**.
- The North Island of New Zealand has a 'spine' of mountain ranges running through the middle, with gentle rolling farmland on both sides.
- The **central North Island** is dominated by the Volcanic Plateau, an active volcanic and thermal area.
- The massive **Southern Alps** form the backbone of the South Island. To the east of the Southern Alps is the rolling farmland of





Otago and Southland, and the vast, flat Canterbury Plains.

#### India-New Zealand Relations:-

- **Historical Relations:** India and New Zealand have a longstanding, friendly and growing relationship. Our ties go back to the 1800s, with Indians settling in Christchurch as early as the 1850s.
- **Political Relations:** India and New Zealand have cordial and friendly relations rooted in the linkages of the Commonwealth, parliamentary democracy, and the English language.
- **Economic relations:** India NZ Business Council (INZBC) and India NZ Trade Alliance (INZTA) are the two prominent organizations working to promote India-NZ trade and investment relations. ([India and RCEP](#))
- **Cultural Relations:** All Indian festivals including Diwali, Holi, Rakshabandhan, Baisakhi, Guruparv, Onam, Pongal, etc. are celebrated with much enthusiasm all over NZ.

**MUST READ:** [India-Australia relations](#)

**SOURCE:** [AIR](#)

### DEAD SEA

**Context:** Recently, A new school for 400 children evacuated from the Gaza area opened near the **Dead Sea**.

#### Background:-

- One month after the start of the war in Gaza, Israel's Minister of Education Yoav Kish held the official opening ceremony of the first school established in the Tamar Regional Council (by the Dead Sea) for students from first to twelfth grades who were evacuated from their homes.

#### About Dead Sea:-

- The Dead Sea is a landlocked salt lake between **Israel and Jordan in southwestern Asia**.
- The Dead Sea, also known as **the Salt Sea**.
- It has the **lowest elevation** on land and is the world's lowest body of water. ([Global Sea-level Rise and Implications](#))
- The water in the Dead Sea is roughly **ten times saltier than ocean water** in general.
- This salinity makes for a **harsh environment** in which animals cannot flourish, hence its name.
- It lies to the east of the **Mediterranean Sea and south of the Sea of Galilee**.
- It lies in the **Jordan Rift Valley**.
- It is fed mainly by the **Jordan River**, which enters the lake from the north.
- It is 306 m deep, the **deepest hypersaline lake** in the world.
- Clinical studies have shown that the **high mineral concentration** of its water and mud, zinc, and oxygen-rich air can treat a variety of ailments, including psoriasis and other skin conditions, asthma, rheumatism, high blood pressure, and more.

**MUST READ:** [Deep-Sea Mining](#)

**SOURCE:** [NEWSX](#)



## Environment and Ecology



### ARALAM WILDLIFE SANCTUARY

**Context:** Recently, suspected Maoists open fired at forest watchers in **Aralam Wildlife Sanctuary**.

**Background:-**

- According to forest officials, a group of five suspected Maoists fired towards the skies upon seeing the watchers who then ran and took cover.
- No casualties were reported

**About Aralam Wildlife Sanctuary:-**

- **Area:** approximately 55 square kilometers.
- **Location:** northern part of Kerala.
- It is situated in the **Western Ghats**.
- It is a **UNESCO World Heritage Site** known for its rich biodiversity.
- The Aralam Wildlife Sanctuary was **officially established in 1984**.
- The sanctuary was created with the primary objective of **conserving the diverse flora and fauna of the Western Ghats region**.
- The sanctuary is home to a wide variety of plant and animal species, including several **endemic and rare species**.
- **Vegetation:** West Coast tropical evergreen forests, West Coast semi-evergreen forests, South Indian moist deciduous forests, Southern hilltop evergreen forests, and even plantations.
- **Flora:** Artocarpus heterophyllus (Jackfruit), Bischofia javanica (Bischofia Tree), Calophyllum elatum (Maramanjil), Canarium strictum (Black Dammar) etc.
- **Fauna:** elephants, tigers, leopards, Malabar giant squirrels, barking deer, and various bird species. ([Wildlife Protection](#))
  - The sanctuary is known for its butterfly diversity and the butterfly migration that can be witnessed in December.

**MUST READ:** [Mudumalai Tiger Reserve](#)

**SOURCE:** [THE HINDU](#)

### ELEPHANT CORRIDORS

**Context:** Experts have flagged multiple inconsistencies in the recently published report on **elephant corridors** of India by the central government.

**Background:-**

- Elephant corridor report plagued with inconsistencies, could escalate conflict with humans, says expert.

**About Elephant Corridors:-**

- Elephant corridors are **narrow and often linear passageways** that enable an elephant to move across suitable and secure natural habitats.
- Due to the **long-ranging nature of Asian elephants**, they have an **extensive nutritional requirement necessitating connectivity** to suitable habitats.
- Additionally, the population biology and genetics of the species warrant **unimpeded gene flow across populations for the long-term viability of the species**.
- In the fragmented landscapes of **most elephant habitats in Asia today, corridors play a pivotal role** in meeting nutritional, demographic, and genetic needs.

- These corridors are often **surrounded by human settlements, which can lead to human-elephant conflicts** when elephants traverse through these areas.

#### Significance:-

- The significance of these corridors lies in the fact that **69.3% of them are regularly used by elephants**, either throughout the year or seasonally, and 24.7% are used occasionally.
- Many of these corridors are of **high ecological importance**, as they facilitate elephant movement and help to sustain a healthy population of these mammals.

#### Methods To Safeguard Elephant Corridors:-

- To ensure the protection and preservation of elephant corridors, **legal safeguards are essential** to prevent further habitat fragmentation and an increase in human-elephant conflicts.
- **State governments can take the lead in demarcating and designating these corridors** as State Elephant Corridors, thereby subjecting them to legal protection under relevant laws such as the **Wild Life (Protection) Act, 1972**, and the **Environment Protection Act**.
- In addition, it is necessary to engage with local communities and governments to reduce local dependency on corridor land, potentially transforming them into Village Reserve Forests or Community Reserves.

#### About Elephants:-

- Elephants are **keystone species**.
- They are the **Natural Heritage Animal of India**.
- India has the **largest number of wild Asian Elephants**.
- **Karnataka** has the highest elephant population in India.

#### Protection Status:-

- **IUCN Red List of threatened species:-**
  - Asian Elephant: Endangered ([Elephant Conservation](#))
  - African Forest Elephant: Critically Endangered
  - African Savanna Elephant: Endangered
- **Convention of the Migratory Species (CMS):** Appendix I
- **Wildlife (Protection) Act, 1972:** Schedule

**MUST READ:** ([Endangered Asian elephant in Nilgiri Biosphere Reserve](#))

**SOURCE:** [DOWN TO EARTH](#)

### CENTRAL POLLUTION CONTROL BOARD

**Context:** Recently, the **Central Pollution Control Board (CPCB)** stated that prolonged exposure to air pollution in Delhi can cause children to suffer from respiratory diseases.

#### Background:-

- PM10, and PM2.5 levels cross 5 times the normal levels in the national capital.

#### About Central Pollution Control Board (CPCB) :-

- **Established: 1974.**
- **Ministry: Ministry of Environment, Forest and Climate Change.**
- The Central Pollution Control Board (CPCB) is a **statutory organization** established under the **Water (Prevention and Control of Pollution) Act 1974**.
- It was **given powers and functions under the Air (Prevention and Control of Pollution) Act 1981**. ([Air pollution](#))
- The CPCB functions as a field formation and offers technical services to the **Ministry of Environment and Forests in line with the Environment (Protection) Act, 1986 provisions**.

- Its primary roles, as defined in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, include: ([Initiatives and Measures for the Prevention of Air Pollution](#))
  - Promoting the cleanliness of streams and wells in various regions by preventing, controlling, and mitigating water pollution.
  - Enhancing air quality and preventing, controlling, or mitigating air pollution nationwide.

#### Functions of the Central Board at the National Level:-

- **Advise the Central Government** on any matter concerning the prevention and control of water and air pollution and improvement of the quality of air.
- **Co-ordinate the activities of the State Board** and resolve disputes among them.
- **Provide technical assistance** and guidance to the State Boards, carry out and sponsor investigation and research.
- Plan and organize **training of persons engaged in the programme** on the prevention, control or abatement of water and air pollution.
- Organize through mass media, a **comprehensive mass awareness programme** on the prevention, control or abatement of water and air pollution;

#### Functions of the Central Board as State Board for the Union Territories:-

- **Advise the Governments of Union Territories** with respect to the suitability of any premises or location for carrying on any industry which is likely to pollute a stream or well or cause air pollution.
- Lay down **standards for the treatment of sewage and trade effluents** and for emissions from automobiles, industrial plants, and any other polluting source.
- Evolve efficient **methods for disposal of sewage** and trade effluents on land; develop reliable and economically viable methods of treatment of sewage, trade effluent and air pollution control equipment.
- **Identify any area or areas** within Union Territories as air pollution control areas or areas to be notified under the Air (Prevention and Control of Pollution) Act, 1981.
- **Assess the quality of ambient water and air**, and inspect wastewater treatment installations, air pollution control equipment, industrial plants or manufacturing processes to evaluate their performance and to take steps for the prevention, control and abatement of air and water pollution.

**MUST READ:** [Commission for Air Quality Management \(CAQM\)](#)

**SOURCE:** [THE HINDU](#)

### ADAPTION GAP REPORT 2023

**Context:** Recently, **Adaptation Gap Report 2023** was released.

#### Key Findings of the Report:-

- **Climate adaptation finance flows** from public multilateral (like the World Bank) and bilateral sources (from a developed to a developing nation) **declined by 15 per cent to around \$21 billion in 2021.** ([UNEP's Emission Gap Report 2022](#))
- This is **despite pledges that were made at the 26th Conference of Parties** to the United Nations Framework Convention on Climate Change in Glasgow to double 2019 adaptation finance support to around \$40 billion per year by 2025.
- The **adaptation finance gap is widening.**
- Adaptation finance needs are **10–18 times as great as current international public adaptation finance flows.**

- Estimated adaptation costs and needs for developing countries are significantly higher than previous estimates, with a plausible central range of **US\$215 billion to US\$387 billion per year this decade.**
- **Five out of six Parties to the United Nations Framework Convention on Climate Change (UNFCCC)** have established at least one national adaptation plan, strategy or policy, and just under **half of them have two or more national instruments, that serve to replace or update the initial ones.**
- Adaptation planning and **implementation appear to be plateauing.**

#### About Adaptation Gap Report 2023:-

- **Published by: UNEP.**
- It is an **annual UNEP flagship publication.**
- It has been **published each year since 2014.**
- **Objective:** to inform the negotiators of the UNFCCC Member States, and the broader UNFCCC constituency, about the status and trends within climate adaptation at global and regional levels.
- It explores **options for ramping up these climate adaptation efforts.**
- The AGR is **co-produced by UNEP, the UNEP Copenhagen Climate Centre (UNEP-CCC) and the World Adaptation Science Programme (WASP).**
- **Other Major Report of UNEP:-**
  - Emissions Gap Report, Global Environment Outlook.

**MUST READ:** [National Action Plan for Climate Change](#)

**SOURCE:** [DOWN TO EARTH](#)

### PANCORIUS SEBASTIANI

**Context:** Recently, a new species of jumping spiders' *Pancorius sebastiani*' has been discovered.

**Background:-**

- It has been discovered from the Western Ghats.

**About *Pancorius sebastiani*:-**

- **Naming:** It has been named *Pancorius sebastiani* after the late **spider taxonomist P.A. Sebastian.**
- **Distribution:** southeast Asia.
  - Its distribution was hitherto limited to the east and northeastern regions in India.
- The new species is the **first to be reported from the south.**
- The males and the females exhibit **reddish brown carapace.**
- They have **yellowish abdomen with black patches** and chevron-shaped markings posteromedially.
- It belongs to the jumping spider **genus *Pancorius* Simon**, and Salticidae family.
- Only two States, **West Bengal and Tamil Nadu**, have reported high numbers of Salticidae species, while the others including those harbouring biodiversity hotspots like the Western Ghats and northeastern India have relatively few numbers of species.

**MUST READ:** [Six spider species discovered](#)

**SOURCE:** [THE HINDU](#)

### AWAOUS MOTLA

**Context:** Researchers discover new freshwater fish species '*Awaous Motla*' in Odisha's Mahanadi River.

**Background:-**



- A group of scientists has discovered that an edible freshwater fish, available in the markets of western Odisha, is actually an unregistered species.
- The new species was named 'Awaous Motla', said Prof Jaya Kishor Seth, the principal investigator of a project undertaken by the zoology department of Berhampur University and Zoological Survey of India (ZSI), Gopalpur.

#### About Awaous Motla:-

- The species belongs to the **family 'Awaous' (Oxudercidae)**.
- It is thus named **Awaous motla**.
- The fish has a vibrant yellow-coloured body and a fleshy upper lip.
- Fishermen of the Sonepur region have christened the fish 'motla'.
- The zoologist said the fish is **consumed both fresh and dried**.
- Local fishermen **sell 'motla' at Rs 600 per kg, and Rs 800 per kg when dried**.
- Long-term research is needed to find out, among others, its **migration pattern and nutritional value** because of which it costs more than several other locally available fishes.
- It was discovered from the **Mahanadi River**.
- It is one of the **major east-flowing peninsular** rivers in India.
- The river originates from the **Sihawa range of hills** in the Dhamtari district of Chhattisgarh state.

**MUST READ:** [Zebrafish](#)

**SOURCE:** [TIMES OF INDIA](#)

### ALACALUS FONTINALIS

**Context:** Researchers have discovered a new species, **Alcalus fontinalis** in the northeast Indian state of Arunachal Pradesh recently.

#### Background:-

- The identification of the new species is based on molecular, morphological, and osteological characteristics.

#### About Alcalus fontinalis:-

- The frog was formally named *Alcalus fontinalis*, meaning "**spring or fountain**," referencing the tiny streams or brooks where the frog was found in **Arunachal Pradesh**.
- It was discovered in the **Namdapha Tiger Reserve, Arunachal Pradesh**.
- The new species stands out from its congeners due to a **unique combination of morphological features**.
- These include a **snout-vent length of 27–28 mm in males** and 29.9–36.2 mm in females.
- It has a **disc on the fingers and toes** with a horizontal/transverse groove on the dorsal surface.
- It has **wrinkled dorsal skin**.
- It has a **pair of faint dorsolateral stripes** on the back.
- The new species also exhibits a **DNA sequence divergence of 7.6–25.4%** in the mitochondrial gene fragment 12S-tVal-16S rRNA (1533 base pairs), further distinguishing it from its congeners.

- The frog appeared to be a **mix of a bush frog and a water frog.**

**Significance:-**

- The discovery of *Alcalus fontinalis* contributes significantly to our understanding of biodiversity in the Indo-Burma region.
- The finding reports a species new to science and a new genus from India. ([Morphological Phenotypic Plasticity in Kalinga Frog](#))

**MUST READ:** [New Species of frog in Andaman found](#)

**SOURCE:** [GROUND REPORT](#)

## INDIAN PORCUPINE

**Context:** Recently, an **Indian Porcupine** killed an adult male Tiger in Tamil Nadu.

**Background:-**

- The male tiger was recently found dead at Kazhudhakatti stream in the Tirupur forest division located in Tamil Nadu.

**About Indian Porcupine:-**

- **Scientific Name: *Hystrix indica*.**
- Porcupines are large, **thorny rodents.**
- Their coats with **sharp spines or quills protect** them against predation.
- They are the **longest-living rodent.**
- Defensive behaviour displays in a porcupine depend on sight, scent and sound.
- The Indian Crested Porcupine is the **largest rodent in India** and is widely distributed in the Indian Subcontinent.
- It is found throughout southeast and **central Asia and in parts of the Middle East**, including such countries as India, Nepal, Bhutan, Bangladesh, Sri Lanka, Pakistan, Israel, Iran, and Saudi Arabia.
- It mainly occurs on rocky hillsides but is also found in **tropical and temperate scrublands, grasslands, and forests.**

**Protection status:-**

- IUCN Red List: **least concern**
- Wildlife Protection Act 1972: **Schedule IV**

**MUST READ:** [Atelopus or harlequin frogs](#)

**SOURCE:** [ECONOMIC TIMES](#)

## TIGER

**Context:** Recently, a 60% increase in the overall **tiger** population was seen.

**Background:-**

- The habitat & biodiversity loss is threatening Southeast Asian big cats.

**About Tiger:-**

- **Scientific Name: Panthera tigris.**
- **Indian Sub Species: Panthera tigris tigris.**
- **WEIGHT:** 220–660 pounds.
- **LENGTH:** 6–10 feet.
- **HABITATS:** Tropical rainforests, evergreen forests, temperate forests, mangrove swamps, grasslands, and savannas.
- It is the **largest cat species** and a member of the genus Panthera.
- **Distribution:** Its habitat stretches from Siberian temperate forests to subtropical and tropical forests on the Indian subcontinent and Sumatra.
- Traditionally eight subspecies of tigers have been recognised, out of which three are extinct.
  - Bengal Tigers: Indian Subcontinent
  - Caspian tiger: Turkey through central and west Asia (extinct).
  - Amur tiger: Amur Rivers region of Russia China, and North Korea
  - Javan tiger: Java, Indonesia (extinct).
  - South China tiger: South central China.
  - Bali tiger: Bali, Indonesia (extinct).
  - Sumatran tiger: Sumatra, Indonesia.
  - Indo-Chinese tiger: Continental south-east Asia.
- Tigers are **mostly solitary**, apart from associations between mother and offspring.
- Tigers eat large prey animals like deer and wild pigs, though they make exceptions for some small animals, including porcupines.

**Threats:-**

- Habitat destruction
- Habitat fragmentation and
- Poaching.

**Conservation Status:-**

- **International Union for Conservation of Nature (IUCN) Red List: Endangered.**
- **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix I.**
- **Indian Wildlife (Protection) Act, 1972: Schedule I**

**MUST READ:** [Tiger Estimation](#)

**SOURCE:** [DOWN TO EARTH](#)

**THE WORD ORGANISATION FOR ANIMAL HEALTH**

**Context:** New Delhi to host the 33rd Conference on World Animal Health by **the World Organisation for Animal Health (WOAH).**

**Background:-**

- The delegates from 36 member countries including India, senior officers from regional and international organizations and representatives from the private sector and private veterinary organizations will participate in the conference.

**About World Organisation for Animal Health (WOAH):-**

- **Establishment: 1924.**
- **HQ: Paris.**
- **Members: in 2018 a total of 182 member states.**
- **Objective:** to control epizootic diseases and thus prevent their spread.

- Other objectives consist of transparency, scientific information, international solidarity, sanitary safety, the promotion of Veterinary Services, food safety, and animal welfare.
- The World Organization for Animal Health (WOAH), is an **inter-governmental organization** coordinating, supporting, and promoting animal disease control.
- It was formerly the **Office International des Epizooties (OIE)**.
- It is recognized as a reference organization by the **World Trade Organization (WTO)**.
- The WOAH does not depend on the UN system, its autonomy is both institutional and financial, and its activities are **governed by its own constitutional texts**.
- WOAH is recognized as a reference organization by the **World Trade Organization (WTO)** and in 2022 counted a total of 182 member states.
- Its newest member state is **Saint Lucia**.
- WOAH maintains **permanent relations** with 45 other international and regional organizations and has **Regional and sub-regional Offices on every continent**.

#### Functions:-

- **Setting international standards:** The organization develops and updates international standards and guidelines for the control and prevention of various animal diseases. ([World Antimicrobial Awareness Week 2022](#))
- **Information exchange:** The OIE serves as a global reference point for information on animal diseases, providing a platform for member countries to share information on disease outbreaks and surveillance.
- **Capacity building:** The OIE supports member countries in building their capacity to manage and control animal diseases. This includes training programs, technical assistance, and the establishment of veterinary services.
- **Veterinary education and research:** The organization promotes research and education in the field of animal health and veterinary sciences to improve the understanding and management of animal diseases.
- **Emergency response:** The OIE assists member countries in managing and responding to animal disease outbreaks, including providing guidance on disease control measures and crisis management.
- **International cooperation:** The OIE collaborates with other international organizations, such as the World Health Organization (WHO) and the Food and Agriculture Organization (FAO) of the United Nations, to address global health and food safety issues.

**MUST READ:** [National Surveillance Programme for Aquatic Animal Diseases](#)

**SOURCE:** [AIR](#)

### PAINTBRUSH SWIFT BUTTERFLY

**Context:** Recently, a **Paintbrush swift butterfly** was photographed for the first time in Himachal Pradesh.

#### Background:-

- The State is home to 25% of the butterfly species found in India; 120 species of butterflies have been documented by the Wild Bhattiyat Project initiated by the State Forest Department in 2022

#### About Paintbrush Swift Butterfly:-

- Its scientific name is **Baoris Farri**.
- It is from the **Hesperiidae family**.
- The species' larvae feed on bamboo and some other **grass species**.
- Its habitat is distributed in **northeast, central and south India**.

- It is identified based on **two separated spots** in the upper forewing cell.
- The **species' larvae feed on bamboo** and some other grass species.
- Habitat loss and scarcity of larval host plants are **major causes of the decline** in the butterfly population.
- **Conservation status:-**
  - **Wildlife (Protection) Act, 1972: Schedule IV**
- The paintbrush swift (*Baoris farri*), a butterfly species of the HesperIIDae family, was sighted and photographed during a field survey conducted under the Wild Bhattiyat Project initiated by the Bhattiyat Forest Range of the Dalhousie Forest Division of the Himachal Pradesh Forest Department in 2022. ([Atapaka Bird Sanctuary](#))

**MUST READ:** [Kerala Bird Atlas \(KBA\)](#)

**SOURCE:** [THE HINDU](#)

### ATTENBOROUGH ECHIDNA

**Context:** Recently, an elusive **Attenborough echidna** was rediscovered in Indonesia.

**Background:-**

- An elusive echidna feared extinct after disappearing for six decades has been rediscovered in a remote part of Indonesia, on an expedition that also found a new kind of tree-dwelling shrimp.

**About Attenborough echidna:-**

- It is a long-beaked echidna named for famed **British naturalist David Attenborough**.
- It had last been **seen in 1961**.
- Echidnas are **nocturnal and shy**, making them difficult to find at the best of times.
- The Attenborough long-beaked echidna **has never been recorded outside** the extremely remote Cyclops Mountains of Indonesia's Papua region.
- They are the **last vestiges of an ancient animal line**.
- It is a **monotreme**: an evolutionarily distinct group of egg-laying mammals that includes the platypus.
- This echidna species is so special because **it is one of only five remaining species of monotremes**, the sole guardians of this remarkable branch of the tree of life.

**Conservation status:-**

- **IUCN: Critically Endangered.**

**MUST READ:** [H5N1 virus/Bird Flue](#)

**SOURCE:** [THE HINDU](#)

### ODONATA SPECIES

**Context:** A recent Survey in Mudumalai Tiger Reserve has identified 50 **Odonata species**.

**Background:-**

- Around 50 Odonata (the insect order comprising dragonflies) species were identified on the first day of the two-day Odonata survey that commenced in Mudumalai Tiger Reserve (MTR) recently.

**About Odonata Species:-**

- Odonata is an order of **flying insects** that includes the dragonflies and damselflies.



- They are globally distributed, from the tropics, where they are most numerous and varied, to the boreal forests of **Siberia and North America**.
- It is **one of the ancient orders** of insects.
- Odonata is a diverse group, with over **6,000 known species**.
- All Odonata have **aquatic larvae called naiads (nymphs)**.
- All of them, larvae and adults, are **carnivorous**.
- The **adults can land but rarely walk**.
- Their legs are **specialized for catching prey**.
- They are almost entirely **insectivorous**.
- The largest living odonate is the giant Central American helicopter damselfly **Megaloprepus coerulatus**.
- The **abdomen is almost always longer** than any of the wings.
- More than 80% of their brain is devoted to analyzing visual information.
- Large, active by day, and often strikingly coloured, they are usually seen flying near water.  
([Wildlife Institute of India \(WII\)](#))

**MUST READ:** [Blackbuck](#)

**SOURCE:** [THE NEW INDIAN EXPRESS](#)

### MYCENA CHLOROPHOS

**Context:** Rare bioluminescent mushroom, **Mycena chlorophos** was spotted recently.

**Background:-**

- **Decoding the Context:** A team of researchers and the forest department have found a rare bioluminescent mushroom in the Kanyakumari Wildlife Sanctuary (KKWLS).

**About Mycena chlorophos:-**

- Mycena chlorophos is a species of agaric fungus in the **family Mycenaceae**.
- It was first described in **1860**.
- The fungus is found in subtropical Asia, including **India, Japan, Taiwan, Polynesia, Indonesia, Sri Lanka, Australia, and Brazil**.
- In Japan, the mushroom is known as yakoh-take, or "night-light mushroom".
- In the Bonin Islands, it is called "**Green Pepe**".
- Cap is **conical or flat**.
- It is **saprotrophic**.
- It is a **bioluminescent fungus**.
- There are around **103 species of bioluminescent fungi in the world**, of which seven are found in India.

**MUST READ:** [Medicinal Fungi](#)

**SOURCE:** [THE NEW INDIAN EXPRESS](#)

### LEMUR ELEPHANT CORRIDOR (LEC)

**Context:** The Union coal ministry recently said that Coal India Limited's (CIL) 40 coal blocks in and around the **Lemru Elephant Corridor (LEC)** will not be auctioned on the request of the Chhattisgarh government.

**Background:-**

- The ministry said areas beyond the LEC have also been considered for exemption from mining at the request of the state government.

**About Lemru Elephant Reserve:-**

- **Location:** Korba district of Chhattisgarh.
- The reserve is aimed at **reducing human-animal conflict** and **destruction of property**.
- In addition it aims at **providing a permanent habitat to the elephants**.
- Earlier, the state government notified the reserve (Conservation Reserve) in October 2020 under **Section 36A of the Wild Life (Protection) Act, 1972 (WLPA)**.
- The reserve is part of an elephant corridor that connects **Lemru (Korba), Badalkhol (Jashpur), and Tamorpingla (Surguja)**.

**Elephant reserves in India:-**

- There are **33 notified Elephant Reserves (ERs)** in the country, spread over 14 states. ([Elephant Conservation](#))

**Significance:-**

- **North Chhattisgarh** alone is home to over 240 elephants.
- More than 150 elephants have died in the state over the last 20 years, including 16 between June and October 2020.

**MUST READ:** [Endangered Asian elephant in Nilgiri Biosphere Reserve](#)

**SOURCE:** [HINDUSTAN TIMES](#)

### LAODRACON CARSTICOLA

**Context:** Recently, a New 'dragon lizard' species (**Laodracon carsticola**) with impressive camouflage capabilities was found in Southeast Asia.

**Background:-**

- An international team of biologists, animal management specialists, geneticists and forestry managers has discovered a new species of "dragon lizard" in Laos—one with very impressive camouflage capabilities.

**About Laodracon carsticola:-**

- The name of this newly discovered species is Laodracon carsticola or the **Khammouane Karst dragon**.
- It was **first discovered in August 2022**, when a botanist team conducting a plant survey spotted an "unusual" looking lizard on the karst rocks nearby.
- The **Khammouane karst dragon is considered "medium-sized,"** reaching about 1 foot (about 30 centimetres) in length.

- It has a **triangular head, long and slender appendages**, as well as bluish-grey eyes and roughly textured scales.
- Its body is black with a **few larger white bands on its back and speckles** of white across the rest of its head and limbs.
- Its belly and a spot under its throat are **tinged blue**.
- The lizards are suspected to have a **diet of ants**.
- It possesses **extraordinary camouflage abilities**.
- It belongs to the mainland Asian **subfamily Draconinae**.
- This subfamily contains around **256 species that all live across Asia**. ([Animal Welfare Board of India \(AWBI\)](#))
- Locals described the lizards as **“rare,” most active** in the afternoon and entirely restricted to the rocks.

**MUST READ:** [Wildlife Institute of India \(WII\)](#)

**SOURCE:** [PHYS.ORG](#)

## OZONE

**Context:** Recent reports suggest that the **ozone** Hole May Not Be Recovering After all.

**Background:-**

- The hole in the Antarctic ozone layer has been getting deeper in mid-spring over the last two decades, despite a global ban on chemicals that deplete Earth's shield from deadly solar radiation, new research suggested.

**About Ozone:-**

- Ozone is a gas **composed of three atoms of oxygen**.
- It is both a **natural and a man-made product**.
- It occurs in the Earth's **Stratosphere** and the **troposphere**.
- Stratospheric ozone is formed naturally through the **interaction of solar ultraviolet (UV) radiation with molecular oxygen (O<sub>2</sub>)**.
- Ozone is produced naturally in the stratosphere.
- But this ozone is **gradually being destroyed by man-made chemicals** referred to as ozone-depleting substances (ODS), including **chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, and methyl chloroform**.

**Effects of Ozone Layer Depletion:-**

- Humans may have severe health problems as a result, including skin conditions, cancer, sunburns, cataracts, rapid ageing, and weakened immune systems.
- Animals that are directly exposed to UV light develop skin and eye cancer.
- Strong UV radiation may prevent plants from growing, blooming, or performing photosynthesis.
- Planktons are greatly affected by exposure to harmful ultraviolet rays. ([Ozone Levels Exceeding Permitted Levels](#))

**Efforts taken to control ground-level ozone pollution:-**

- Adoption of BS-VI standards
- **The Graded Response Action Plan (GRAP) for Delhi** was prepared by the Ministry of Environment, Forests & Climate Change (MoEFCC) after the order of the Supreme Court in December 2016.

- The **Environmental Pollution (Prevention and Control) Authority (EPCA)** is responsible for its implementation.
- It aims to prevent the worsening of the Air Quality of Delhi-NCR including Ozone pollution. ([Ozone Hole Recovery](#))
- **National Clean Air Programme (NCAP)**: The government launched this campaign to reduce air pollution in 102 non-attainment cities including Ozone pollution.

**MUST READ:** [Preservation of Ozone Hole](#)

**SOURCE:** [SCIENCE ALERT](#)

### NIDIRANA NOADIHING

**Context:** Recently, scientists have discovered a new species of 'music frog' **Nidirana noadihing** in Arunachal Pradesh.

**Background:-**

- The scientists, Bitupan Boruah, V Deepak, and Abhijit Das, detailed their findings in an article published in the November 15 edition of the journal Zootaxa

**About Nidirana noadihing:-**

- The Noa-Dihing Music Frog boasts a '**robust**' body.
- The males measure **approximately 1.8 to 2.3 inches** and **females** ranging from **about 2.4 to 2.6 inches**. ([New Species of frog in Andaman found](#))
- It received its name, Nidirana noadihing, as a homage to the **Noa-Dihing River**, the vicinity where these unique specimens were encountered and collected.
- They have '**rounded**' snouts and '**smooth**' skin, adorned with bony protrusions on their backs.
- They showcase a **striking colour palette**, featuring a '**pale cream**' line bordered with **dark brown along the centre** of their bodies.
- **Light brown limbs, adorned with dark stripes**, further enhance their visual distinctiveness.
- The speciality of this new species of frog, Nidirana noadihing, is that **both the male and female are vocal**.
- Noa-Dihing Music Frogs are distinguished not only by their size but also by their oval toe tips, the tubercles on their backs, and a distinctive call.
- The irregularly shaped and sized spots on their eyelids, along with dark stripes around their moderately large eyes, contribute to their unique visual features.

**Significance of the Discovery:-**

- This discovery marks the first confirmation of the Nidirana genus's presence in India, expanding its known habitat beyond regions in Japan, Taiwan, China, Vietnam, Laos, and Thailand.

**MUST READ:** [Atelopus or harlequin frogs](#)

**SOURCE:** [THE HINDU](#)

### DEBRIGARH SANCTUARY

**Context:** Recently, a rare grey wolf was sighted in **Debrigarh Sanctuary** recently.

**Background:-**

- Wolf, a schedule-1 endangered species in India, has been sighted at Debrigarh Wildlife Sanctuary for the first time in the recent past.

#### About Debrigarh Sanctuary:-

- **Location:** Bargarh district, Odisha.
- The **Hirakud reservoir** on the east and north boundaries of the sanctuary attracts migratory waterfowl during the winter months.
- Debrigarh Wildlife Sanctuary is characterized by a **variety of vegetation types, including dry deciduous forests, mixed forests, and grasslands.**
- The sanctuary is known for its **rich biodiversity** and is home to numerous wildlife species.
- It was **declared as a wildlife sanctuary on 8th February 1985.**
- It is an **important site for in situ conservation** of wildlife and its habitat in the state of Odisha.
- It finds a special mention because of noted **freedom fighter Veer Surendra Sai.**
- During his rebellion against the British, Veer Surendra Sai made his base at 'Barapathara,' located within the sanctuary.
- **Flora:-**
  - Dry deciduous forests.
- **Fauna:-**
  - Four-horned antelope, Indian leopard, Indian elephant, sambar, chital, gaur, etc.

**MUST READ:** [Sanctuary](#)

**SOURCE:** [TIMES OF INDIA](#)

### BLACK STORK

**Context:** Recently, **Black Stork** was spotted for the first time in Hastinapur.

#### Background:-

- A Black Stork, a species rarely seen, has been spotted in the Hastinapur Wildlife Sanctuary in Uttar Pradesh, India.

#### About Black Stork:-

- **Scientific Name:** *Ciconia nigra*.
- **FAMILY:** Ciconiidae.
- The black stork is a **large bird in the stork family Ciconiidae.** ([Blackbuck](#))
- It was **first described by Carl Linnaeus** in the 10th edition of his Systema Naturae.
- Measuring on **average 95 to 100 cm (37 to 39 in)** from beak tip to end of tail with a 145-to-155 cm (57-to-61 in) wingspan.
- The adult black stork has **mainly black plumage, with white underparts**, long red legs and a long pointed red beak.
- It is a widespread but **uncommon species.**
- It breeds in **scattered locations across Europe** (predominantly in Portugal and Spain, and central and eastern parts), and **east across** the Palearctic to the Pacific Ocean.



- It is a **long-distance migrant**, with European populations wintering in tropical **Sub-Saharan Africa, and Asian populations in the Indian subcontinent.**
- When migrating between Europe and Africa, it **avoids crossing the Mediterranean Sea** and detours via the Levant in the east or the Strait of Gibraltar in the west.
- An isolated, non-migratory, population **occurs in Southern Africa.**
- **Conservation status:-**
  - IUCN: Least concern

**MUST READ:** [Atapaka Bird Sanctuary](#)

**SOURCE:** [TIMES OF INDIA](#)

### HYBRID PUFFINS

**Context:** Recent studies show that, **Hybrid puffins** may have emerged in the 20th century due to warming.

**Background:-**

- Two distinct subspecies of Atlantic puffins are now interbreeding in Norway, possibly as a result of Arctic warming forcing some birds away from their usual habitat.

**About Hybrid Puffins:-**

- **Scientific Name:** *Fratercula arctica*.

**Habitat:-**

- During the breeding season they roost on **rocky cliffsides.**
- Outside the breeding season the Atlantic puffins spend all their time at **sea.**

**Distribution:-**

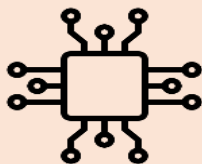
- Atlantic puffins are the only species of puffin to live on the **Atlantic Ocean.**
- The other three puffin species live in the **Pacific Ocean.**
- They are spread around the **coast of Europe from Russia's northwest to France** and all around the UK coastline.

**Physical Appearance:-**

- The Atlantic puffin is a **short creature.**
- Its face is **white with a black stripe** running along the bottom of the eye.
- Their **bill is as tall as their face** and is triangular in shape when viewed from the side.
- Atlantic puffins are **carnivores.**
- Most of their diet is fish with some **shrimp, crustaceans, molluscs and polychaete worms** also being taken on occasion.
- **Reproduction:** These monogamous birds lay their eggs.

**MUST READ:** [Kerala Bird Atlas \(KBA\)](#)

**SOURCE:** [NEW SCIENTIST](#)



## SCIENCE &amp; TECHNOLOGY



## CARBON NANO FLORETS

**Context:** Recently, IIT Bombay researchers discovered that Carbon nanoflorets can convert incident sunlight to heat .

**Background:-**

- Carbon nanoflorets made by IIT Bombay researchers can convert incident sunlight to heat with 87% efficiency.

**About Carbon nanoflorets:-**

- Carbon nanoflorets are like tiny marigold flowers **made only of carbon**.
- They have an unprecedented ability to **absorb sunlight at multiple frequencies** and **convert it into heat** with exceptional efficiency.
- The carbon nanoflorets' high efficiency comes from **three properties**:-
  - They can **absorb infrared, visible, and ultraviolet light**, unlike traditional solar-thermal conversion materials that only absorb visible and ultraviolet light.
  - As light falls on the material, the **carbon cones** ensure that very little is reflected back.
  - Parts of the structure at some distance from each other possess different physical properties. As a result, **heat waves in the material aren't carried over long distances, reducing the amount of heat dissipated away**.

**Making:-**

- To create the carbon nanoflorets, the **DFNS powder was heated in a furnace** and introduced acetylene gas into the chamber.
- The **white powder turned black**, indicating that carbon had been deposited on the DFNS.
- After dissolving the DFNS with a strong chemical, **what remained were spherical nanostructures** made of carbon cones.
- The nanoflorets **resemble tiny marigold flowers**.

**Advantages:-**

- Carbon is **inexpensive** and the nanoflorets can **generate heat sustainably**, without having to burn fossil fuels. ([Carbon Trading](#))
- They can offer a **sustainable solution for heating homes**.
- They offer **sterilizing surfaces in hospitals** without relying on fossil fuels. ([Climate Change](#))

**MUST READ:** [Mitigating Climate Change](#)

**SOURCE:** [THE HINDU](#)

## DIABETES

**Context:** Recent studies show that Air pollution increases the **diabetes** risk in Chennai and Delhi.

**Background:-**

- Two studies published in international journals have reported a worrying link between air pollution levels and the incidence of type 2 diabetes in Chennai and Delhi.
- The study is notable not because the findings are new, they are not unprecedented but because they have found that the link, which has been indicated in Western countries and more recently in China as well, also holds in urban India.

**About Diabetes:-**

- Diabetes mellitus refers to a **group of diseases that affect how the body uses blood sugar (glucose)**.
- Glucose is an **important source of energy for the cells** that make up the muscles and tissues.
- It is a condition that happens when the **blood sugar (glucose) is too high**.
- It develops when your **pancreas doesn't make enough insulin** or any at all, or when the body isn't responding to the effects of insulin properly.
- Diabetes affects people of **all ages**.

#### Types of diabetes:-

- There are several types of diabetes. The most common forms include:-
- **Type 2 diabetes:** With this type, the body doesn't make enough insulin, and/or the body's cells don't respond normally to the insulin (insulin resistance).
- This is the **most common type** of diabetes.
- **Prediabetes:** The blood glucose levels are higher than normal but not high enough to be officially diagnosed with Type 2 diabetes.
- **Type 1 diabetes:** This type is an **autoimmune disease** in which your immune system attacks and destroys insulin-producing cells in your pancreas for unknown reasons.
- **Gestational diabetes:** This type develops in some people during pregnancy.

#### Symptoms:-

- feeling very thirsty
- needing to urinate more often than usual
- blurred vision
- feeling tired
- losing weight unintentionally

#### Management and Treatment:-

- Blood sugar monitoring. ([Disease Surveillance System](#))
- Oral diabetes medications.
- Insulin injections.
- Diet management.
- Exercise.

#### Prevention:-

- Keeping a healthy body weight.
- Staying physically active with at least 30 minutes of moderate exercise each day.
- Eating a healthy diet and avoiding sugar and saturated fat.
- Avoid smoking tobacco.
- Avoiding stress. ([Mental Health](#))

#### About Air Pollution:-

- Air pollution is the presence of substances in the atmosphere that are harmful to the health of humans and other living beings, or cause damage to the climate or materials. ([Delhi and Air Pollution](#))
- Different types of air pollutants include—
  - **Gases:** such as ammonia, carbon monoxide, sulphur dioxide, nitrous oxides, methane, carbon dioxide and chlorofluorocarbons.
  - **Particulates:** both organic and inorganic.
  - **Biological molecules.**

#### Harmful Impacts of Air Pollution:-

- It may cause **diseases, allergies and even death in humans**.

- It can cause harm to other living organisms such as **animals and food crops**.
- Can lead to **climate change** and may damage the natural environment
- **Ozone depletion** or habitat degradation
- Built **hazardous environments** (for example, acid rain).

**MUST READ:** [National Clean Air Campaign](#)

**SOURCE:** [THE HINDU](#)

## JAMES WEBB SPACE TELESCOPE

**Context:** Recently, NASA's **James Webb Space Telescope (JWST)** has captured new views of a stunning nebula, revealing never-before-seen details.

**Background:-**

- A nebula is a cloud of gas and dust often formed from the debris of dying or exploding stars.
- These clouds are also cradles of new stars, with the gas and dust providing the building blocks for stellar formation.

**About James Webb Space Telescope (JWST):-**

- **Launched: 2021.**
- **Type: Orbiter.**
- **Launched by:** National Aeronautics and Space Administration (NASA).
- **Launch Vehicle:** Ariane 5 rocket, provided by the European Space Agency (ESA).
- **Launch site:** French Guiana.
- **Objective:** to find the first galaxies that formed in the early universe and to see stars forming planetary systems.
- The James Webb Space Telescope is the **world's largest, most powerful, and most complex** space science telescope ever built.
- It is an **infrared observatory orbiting the Sun.** ([International Space Station \(ISS\)](#))
- It is NASA's **largest and most powerful** space science telescope.

**Functions of the telescope:-**

- It will study **every phase in the history of our universe**, ranging from the **first luminous glows after the big bang, to the formation of solar systems** capable of supporting life on planets like Earth, to the evolution of our own solar system.
- It will **build on the Hubble Space Telescope's** discoveries. ([ISRO's hybrid propulsion system](#))
  - **NASA's Hubble Space Telescope:** it is the first astronomical observatory placed into orbit around Earth with the ability to record images in wavelengths of light spanning from ultraviolet to near-infrared.
- It will look deeper into the cosmos and thus further back in time than is possible with Hubble.
- It will attempt to **detect the light from the very first population of stars** in the Universe to switch on more than 13.5 billion years ago.

**MUST READ:** [Exoplanets](#)

**SOURCE:** [SCIENCE ALERT](#)

## VENUS

**Context:** Recently, Astronomers peering at the atmosphere of **Venus** have detected clear signs of atomic oxygen in daylight.

**Background:-**

- Atomic oxygen is known to exist in the planet's atmosphere, according to theoretical models, and has even been directly detected on Venus' nightside but the dayside detection means we have new insight into the dynamics of the Venusian atmosphere.

#### About Venus:-

- **Surface Temperature: 462 °C**
- **Number of Moons: None**
- **First Recorded: 17th century BCE by Babylon astronomers**
- It is one of the four inner, **terrestrial (or rocky) planets**.
- It is the **only planet named after a female**.
- It is named after the **Roman goddess of love and beauty**.
- It is the **second planet from the Sun**.
- It is the **sixth in the solar system in size and mass**.
- It is the **brightest planet**.
- It is the hottest planet in the solar system because of the high concentration of carbon dioxide which works to produce an intense greenhouse effect.
- Unlike the other planets in our solar system, **Venus and Uranus spin clockwise on their axis**.
- Venus has been called **Earth's twin** because of the similarities in their masses, sizes, and densities and their similar relative locations in the solar system.

#### Venus Missions:-

- **US: Mariner series 1962-1974, Pioneer Venus 1 and Pioneer Venus 2 in 1978, Magellan in 1989. ([NASA-ISRO Synthetic Aperture Radar \(NISAR\)](#))**
- **Russia: Venera series of space crafts 1967-1983, Vegas 1 and 2 in 1985.**
- **Japan: Akatsuki in 2015.**
- **Europe: Venus Express in 2005.**
- **India: Shukrayaan (to be launched in 2024.)**

**MUST READ:** [Exoplanets](#)

**SOURCE:** [SCIENCE ALERT](#)

## SCABIES

**Context:** Recent reports suggest that Malawi is battling an outbreak of **scabies**.

#### Background:-

- Hospitals register thousands of people with infectious skin disease, months after a wave of cholera swept African country.

#### About Scabies:-

- Scabies is a **skin disease caused by a parasite** named **Sarcoptes scabie** which is a tiny insect about 0.3 mm long called a mite.
- The **female parasite burrows under the skin**.
- It begins laying eggs within 2-3 hours of infection and generally lays 2-3 eggs daily.
- The eggs hatch and become adult mites (a term referring to this parasite) within 10 days.
- Scabies is a relatively contagious infection caused by a tiny mite (*Sarcoptes scabie*).
- Transmission is from person to person more **by close skin contact**.



**Symptoms:-**

- severe itch
- itchy lines and bumps on the fingers, wrists, arms, legs, and belt area
- larger rash in infants and small children, including on the palms, soles of the feet, ankles, and scalp.
- A more severe type of scabies, called crusted scabies, makes the skin crusty and scaly and affects large areas of the body.

**Treatment:-**

- Several types of lotions (usually containing 5% permethrin) can be applied to the body and left on for 12-24 hours.
- One topical application is usually sufficient, although the scabicide may be reapplied after a week if mites remain.
- Itching can be lessened by the use of calamine lotion or antihistamine medications.

**Prevention:-**

- Good hygiene is essential in the prevention of scabies. ([Non-Communicable Diseases \(NCDs\)](#))

**MUST READ:** [Type 1 diabetes](#)

**SOURCE:** [THE GUARDIAN](#)

## BLACK HOLE

**Context:** Recently, Physicists Simulated a **Black Hole** in the Lab.

**Background:-**

- Using a chain of atoms in a single file to simulate the event horizon of a black hole, a team of physicists in 2022 observed the equivalent of what we call Hawking radiation.
- Hawking radiation: particles born from disturbances in the quantum fluctuations caused by the black hole's break in spacetime.

**About Black Hole:-**

- A black hole is such an **astronomical object** with such a powerful gravitational field, that nothing not even light can escape from the gravitational effect.
- It is a region of space having a gravitational field so intense that no **matter or radiation can escape**.
- No other things, including light, can be returned after a point called **Event Horizon around the Black hole**.
- It is called "black" because it also **absorbs all the light that falls on it and does not reflect anything**.

**Formation:-**

- A **stellar-mass black hole** forms when a star with more than 20 solar masses exhausts the nuclear fuel in its core and collapses under its own weight.
- The collapse triggers a supernova explosion that **blows off the star's outer layers**.
- But if the crushed core contains more than three times the Sun's mass, no known force can stop its collapse into a black hole.

- The origin of **supermassive black holes** is **poorly understood**, but we know they exist from the very earliest days of a galaxy's lifetime.
- It is exactly like a **perfect black body in thermodynamics**.
- **Two main classes** of black holes have been extensively observed.
- **Stellar-mass black holes** with three to dozens of times the Sun's mass is spread throughout our Milky Way galaxy while supermassive monsters weighing 100,000 to billions of solar masses are found in the centres of most big galaxies.

**MUST READ:** [International Space Station \(ISS\)](#)

**SOURCE:** [SCIENCE ALERT](#)

## DEVIL COMET

**Context:** The mysterious 'Devil Comet' is approaching Earth for the first time in decades.

**Background:-**

- The 12P/Pons-Brooks comet is passing by Earth for the **first time in the 21st century**.

**About Devil Comet:-**

- The so-called Devil Comet is scientifically named **Comet 12P/Pons-Brooks**. ([Bernardinelli-Bernstein comet](#))
- It is **larger than typical comets** and has been dubbed the "Devil Comet" for **appearing to have horns**.
- Its "horns" are actually **tails of gas and dust formed** by an odd series of explosive outbursts that scientists still do not understand.
- An "outburst," is where **comets suddenly get much more active**, throwing off tons of gas and dust in a short period of time.
- When this happens, the **comet brightens really rapidly and then sort of fades back** to the brightness it had before.
- In Pons-Brooks, these are really, really large outbursts which makes this comet interesting to scientists.
- This short-period comet **orbits the Sun once every 71.2 years**, similar to the famous Halley's Comet.
- This comet is **not a newcomer** to the solar system scene.
- Scientists have known about **Pons-Brooks ever since 1812**.
- Comet hunter **Jean-Louis Pons** spotted it at 4th magnitude.
- However, observations of the comet weren't precise enough to predict exactly when or where it would return, so it was **rediscovered in 1883 by William Brooks**.
- Judging by its brightness, astronomers have estimated that the **solid part of the comet, or its nucleus**, is about 12.4 miles across — roughly twice the size of Mount Everest.
- It might be **bright enough to be** seen with naked eyes or with binoculars.

**MUST READ:** [IN-SPACE](#)

**SOURCE:** [LIVE SCIENCE](#)

## HELICOBACTER PYLORI

**Context:** The National Institute of Cholera and Enteric Diseases has made quick detection of drug-resistant '**Helicobacter pylori**' possible recently.

### Background:-

- A two-step PCR-based assay of a small region of the *Helicobacter pylori* (*H. pylori*) bacteria can help detect *H. pylori* infection and also identify clarithromycin-resistant bacteria and those that are drug-sensitive in six-seven hours has been developed by a team of researchers from the National Institute of Cholera and Enteric Diseases (ICMR-NICED), Kolkata.

### About *Helicobacter pylori*:-

- *H. pylori* is a bacterium that **infects the stomach lining**.
- It is linked to **gastrointestinal issues** like peptic ulcers and stomach cancer.
- About **two-thirds of the world's population** has it in their bodies.
- For most people, **it never causes any symptoms**.
- In India, *H. pylori* infection affects 60-70% of the population.
- This usually happens during childhood and remains in the stomach throughout their life if not treated with antibiotics effectively.

### Symptoms:-

- An ache or burning pain in your stomach (abdomen)
- Stomach pain that may be worse when your stomach is empty
- Nausea
- Loss of appetite
- Frequent burping
- Bloating
- Unintentional weight loss

### Treatment:-

- **Clarithromycin is an antibiotic** commonly used to treat *H. pylori* infections, but drug-resistant strains in India have raised concerns about its effectiveness.

### Diagnosis:-

- **Traditional *H. pylori* infection diagnosis** and antibiotic sensitivity testing involved time-consuming bacterial culture, taking weeks.
- **Delayed diagnosis and sensitivity** testing can result in ineffective treatment and antibiotic resistance.
- The National Institute of Cholera and Enteric Diseases (ICMR-NICED) in Kolkata created a **two-step PCR-based assay** for diagnosing *H. pylori* infection.
- This assay amplifies a specific DNA segment, targeting a critical **mutation linked to clarithromycin resistance**.

### Significance of discovery:-

- The PCR-based assay offers a **faster and more accurate** alternative to traditional culturing methods, aiding in prompt diagnosis and effective treatment.
- The assay has **demonstrated 100% sensitivity and specificity.** ([Non-Communicable Diseases \(NCDs\)](#))

**MUST READ:** [Rare Diseases](#)

**SOURCE:** [THE HINDU](#)

### ORIONID METEOR SHOWER

**Context:** Recently, the **Orionid Meteor Shower** was seen.

**About Orionid Meteor Shower:-**

- October month every year, Earth passes through the tail of debris left behind by **Halley's comet**.
- This comet orbits the sun approximately **every 76 years**.
- The Orionid meteor shower, an **annual phenomenon** that lights up the night sky every October.
- It is produced when **Earth passes through the debris** left behind by Halley's Comet.
- The result is what NASA calls "one of the most beautiful showers of the year": **the Orionid meteor shower.** ([Bernardinelli-Bernstein comet](#))
- This shower lasts **until November 22**, but don't wait to get out there and look up, because it's about to peak this weekend.
- Halley's Comet was predicted, by the calculations by English astronomer **Edmond Halley**.
- Interestingly, the comet is named after its orbit calculator rather than its discoverer.
- Halley's Comet measures about **five by nine miles** in size and loses between three to ten feet of material on each passage through the inner solar system.
- Halley's Comet has a unique history of predictable returns and has been observed throughout history, with recorded sightings dating back to 240 CE.

**MUST READ:** [Exoplanets](#)

**SOURCE:** [CNN](#)

### CRAB NEBULA

**Context:** Recently, NASA's James Webb Space Telescope (JWST) has captured new views of a stunning nebula, the **Crab Nebula**.

**Background:-**

- NASA released a new image of the Crab Nebula, clearly showing a small white dot at its centre.

**About Crab Nebula:-**

- Crab Nebula is a supernova remnant **located 6,500 light-years away**.
- It is located in the **constellation Taurus.** ([SpaceTech Innovation Network \(SpIN\)](#))
- A nebula is a formation in space which is constituted mostly of **helium, dust, and other gases in various concentrations.**

- The shape and size of a nebula vary, and as such there can be various types of formations **having different sizes.**
- The Crab Nebula has continued to draw attention and additional study as scientists seek to understand the conditions, behaviour, and after-effects of supernovae through a thorough study of the Crab, a relatively nearby example.
- The discovery of the object as a nebula is attributed to the English physician and amateur astronomer **John Bevis in about 1731.**
- It is one of the few astronomical objects from which radiation has been detected over the entire measurable spectrum, from **radio waves through infrared and visible wavelengths to ultraviolet, X-rays, and gamma rays.**

**MUST READ:** [IN-SPACE](#)

**SOURCE:** [SCIENTIFIC AMERICAN](#)

## SATURN

**Context:** Recently, astronomers explained the possibility of the disappearance of rings around **Saturn.**

**About Saturn:-**

- Saturn is the **sixth planet from the Sun.**
- It is the **second largest planet** in our solar system.
- Adorned with a **dazzling system of icy rings**, Saturn is unique among the planets.
- Saturn is a massive ball **made mostly of hydrogen and helium.**
- The farthest planet from Earth discovered by the unaided human eye, Saturn has been **known since ancient times.**
- The planet is **named for the Roman god of agriculture and wealth**, who was also the father of Jupiter.
- Saturn **isn't the only planet to have rings.**
- The rings we see are made of groups of tiny ringlets that surround Saturn.
- They're made of chunks of **ice and rock.**
- Saturn has a **thick atmosphere.**
- One day on Saturn goes by in just **10.7 hours.**
- **One year on Saturn** is 29 Earth years.
- Saturn has been known since ancient times because it can be seen without advanced telescopes.
- Four robotic spacecraft have visited Saturn, including **Pioneer 11, Cassini, and Voyager 1 and 2.**  
([Exoplanets](#))

**MUST READ:** [New Study on Ninth Planet](#)

**SOURCE:** [THE HINDU](#)

## NISAR

**Context:** Recently, NASA, ISRO completed key tests ahead of **NISAR's** launch early next year.

**Background:-**

- The mission, which has three-year duration, aims to survey all of Earth's land and ice-covered surfaces every 12 days.



**About NISAR:-**

- **Launch year :2024.**
- **Agency: NASA and ISRO.**
- The NASA-ISRO SAR ([NISAR](#)) Mission will **measure Earth's changing ecosystems, dynamic surfaces, and ice masses providing information about biomass, natural hazards, sea level rise, and groundwater.**
- It will support a host of other applications.
- NISAR will **observe Earth's land and ice-covered** surfaces globally with 12-day regularity on ascending and descending passes, sampling Earth on average every 6 days for a baseline 3-year mission.
- The National Aeronautics and Space Administration **will provide one of the radars for the satellite, a high-rate communication subsystem for science data, GPS receivers and a payload data subsystem.**
- NISAR will be equipped with the largest reflector antenna ever launched by NASA.
- The Indian Space and Research Organisation (ISRO) will **provide the spacecraft bus, the second type of radar (called the S-band radar), the launch vehicle and associated launch services.**

**Objectives:-**

- Tracking subtle changes in the Earth's surface,
- Spotting warning signs of imminent volcanic eruptions,
- Helping to monitor groundwater supplies, and
- Tracking the rate at which ice sheets are melting.

**Significance:-**

- NISAR's data can help people worldwide better manage natural resources and hazards, as well as provide information for scientists to better understand the effects and pace of climate change.

**MUST READ:** [India - USA space cooperation](#)

**SOURCE:** [THE HINDU](#)

**CHANDRAYAAN-3**

**Context:** Recently, Cryogenic upper stage of **Chandrayaan-3's** launch vehicle makes uncontrolled re-entry into the Earth's atmosphere.

**Background:-**

- The probable impact point was predicted over the North Pacific Ocean, says ISRO

**About Chandrayaan-3's:-**

- Chandrayaan-3 is the **successor to the Chandrayaan-2 mission.** ([CHANDRAYAAN-2](#))
- **Launched by:** Launch Vehicle Mark-III (LVM3).
- **Launched from:** Satish Dhawan Space Centre (SDSC) SHAR , Sriharikota.
- It consists of an **indigenous Lander module (LM), a Propulsion module (PM) and a Rover.**

- **Lander:** a spacecraft that descends towards and comes to rest on, the surface of an astronomical body.
- **Propulsion module:** a box-like structure, mounted with a large solar panel on one side and a large cylinder on top.
- **Rover:** a small vehicle that can move over rough ground, often used on the surface of other planets, sometimes controlled from the earth.
- The Lander and the Rover have scientific payloads **to carry out experiments on the lunar surface.**
- The main function of the PM is to **carry the LM from launch vehicle injection to the final lunar 100 km circular polar orbit and separate the LM from the PM.**
- **There won't be any orbiters** like Chandrayaan 2 in it.

#### Objectives of Chandrayaan-3 mission:-

- To demonstrate a **Safe and Soft Landing** on Lunar Surface ([Chandrayaan-3](#))
- To demonstrate **Rover roving** on the moon and
- To conduct **in-situ scientific experiments.**

#### Lander payloads:-

- **Chandra's Surface Thermophysical Experiment (ChaSTE):** to measure the thermal conductivity and temperature
- **Instrument for Lunar Seismic Activity (ILSA)** for measuring the seismicity around the landing site
- **Langmuir Probe (LP):** to estimate the plasma density and its variations.
- A passive Laser Retroreflector Array from NASA is accommodated for lunar laser ranging studies.

#### Rover payloads:-

- **Alpha Particle X-ray Spectrometer (APXS)** and **Laser Induced Breakdown Spectroscopy (LIBS)** for deriving the **elemental composition** in the vicinity of the landing site.

#### Propulsion Module Payload:-

- **Spectro-polarimetry of Habitable Planet Earth (SHAPE):** Future discoveries of smaller planets in reflected light would allow us to probe into a variety of Exo-planets which would qualify for habitability or for the presence of life.

#### GSLV-Mk III

- It is also known as the **Launch Vehicle Mark 3 (LVM3).**
- It is a **three-stage vehicle with two solid motor strap-ons, a liquid propellant core stage and a cryogenic stage.**
- It is the heaviest and the shortest among India's operational launch vehicles.
- **Weights: 641 tonnes**, which is equal to the weight of five fully loaded passenger planes.
- **Capacity:** GSLV can take 10,000-kg satellites to lower earth orbits.

**MUST READ:** [Gaganyaan](#)

**SOURCE:** [THE HINDU](#)

### EUCLID SPACE TELESCOPE

**Context:** Recently, European astronomers recently released the first images from the newly launched **Euclid space telescope.**

#### Background:-

- The release of the images in Darmstadt, Germany, coincided with the second of two days of European space talks in Spain dominated by Europe's continued dependency on foreign launches.

#### About Euclid Space Telescope:-

- **Launched: July 1, 2023.**
- **Launched from Cape Canaveral in Florida.**
- **Launch Vehicle: SpaceX Falcon 9 rocket.**
- **Launched by: European Space Agency (ESA).**
- **Duration: The mission is expected to have a nominal operational lifetime of 6 years.**
- **Objective:** to study the nature and properties of dark energy and dark matter, which together constitute a significant portion of the Universe.
- Dark energy was **discovered in 1998** and it explains the unexpected acceleration of the universe's expansion.
- Euclid's mission aims to provide a more precise measurement of this acceleration, potentially uncovering variations throughout cosmic history.
- The telescope will travel to **Lagrange point L2** which is about 1 million miles away from Earth.
- The Lagrange point is **a location where the gravitational pull of two large masses, the sun and Earth in this case, precisely equals the force required for a small object**, to maintain a relatively stationary position behind Earth as seen from the sun.
- It will **create a 3D map of the universe** by observing billions of galaxies up to 10 billion light-years away, which will be useful in studying dark matter closely.

**MUST READ:** [India - USA space cooperation](#)

**SOURCE:** [NDTV](#)

### INFUSE

**Context:** Recently, NASA launched the 'INFUSE' payload mission.

**Background:-**

- INFUSE stands for Integral Field Ultraviolet Spectroscopy Experiment (INFUSE) mission.
- NASA's INFUSE Probes Sizzling Supernova Secrets.

**About INFUSE Mission:-**

- **Launched by: NASA. ([India - USA space cooperation](#))**
- **Objective:** to study the Cygnus Loop, a 20,000-year-old supernova remnant located 2,600 light-years away from Earth.
- The Cygnus Loop is a **favourite spot for both amateur astronomers and scientists** due to its prominent location near the constellation Cygnus, often referred to as the "swan."
- The **remnants** of this colossal supernova, known as the Cygnus Loop or the Veil Nebula, continue to intrigue researchers.
- The INFUSE mission, **led by Brian Fleming** from the University of Colorado Boulder, seeks to delve into the life cycle of stars.
- The INFUSE mission involves **collecting crucial data about the Cygnus Loop** from an altitude of 150 miles (240 km) for a few minutes. The **mission's instrument will capture far-ultraviolet wavelengths** of light emanating from the Cygnus Loop.
- One of the primary objectives is to **understand how the supernova releases energy** into our Milky Way galaxy.

- It will **observe the release of light as the supernova's blast** wave collides with pockets of cold gas dispersed throughout the galaxy.
- By studying the Cygnus Loop and its remnants, the INFUSE mission **contributes to our understanding of the intricate processes involved in the life cycle of stars and their profound impact on the evolution of galaxies.**

**MUST READ:** [International Space Station \(ISS\)](#)

**SOURCE:** [SCITECHDAILY](#)

### LUCY MISSION

**Context:** Recently, the **Lucy spacecraft** successfully completed its first flyby of an asteroid named Dinkinesh.

**Background:-**

- It is a mission by NASA.

**About Lucy Mission:-**

- It was successfully launched on **Oct. 16, 2021, from the Kennedy Space Center in Florida, US.**
- The spacecraft was launched on an **Atlas V 401 rocket.**
- It is a **NASA space probe.**
- It is on a **twelve-year journey** to ten different asteroids.
- It is the **first solar-powered spacecraft** to venture so far from the Sun. ([Aditya-L1 Mission](#))
- It will observe more asteroids than any probe before it — eight in all.
- It includes Jupiter's **Trojan asteroids.**
- They orbit the Sun in two loose groups: one group leading ahead of Jupiter in its orbit, the other trailing behind at the same distance from the Sun as Jupiter.
- Asteroids sharing an orbit with a planet, but which are located at the leading (L4) and trailing (L5) Lagrangian points, are known as Trojan asteroids.
- The mission is named after '**Lucy**', a 3.2 million-year-old ancestor who belonged to a species of hominins (which include humans and their ancestors).
- The spacecraft carries two infrared spectrometers and four cameras.

**MUST READ:** [IN-SPACE](#)

**SOURCE:** [MSN](#)

### WASP-107B

**Context:** Recently, a Jupiter-sized exoplanet "**Wasp-107b**" discovered by NASA.

**Background:-**

- NASA's James Webb Telescope has discovered a new exoplanet, which is the size of Jupiter.

**About Wasp-107b:-**

- WASP-107b is an [exoplanet](#).
- It was **discovered in 2017.**
- It orbits the **star WASP-107.**

- It is **200 light years** away from the Earth.
- It is located in the **constellation Virg**.
- Earlier, scientists believed that **the planet was huge in size** due to the huge gas envelope that surrounded the planet.
- Also, the scientists believed that such huge gas envelopes are possible only with massive and dense cores.
- However, a recent study says that the cores of WASP-107b are not as dense as thought earlier.
- It orbits the star WASP-107.
- It is 200 light years away from the Earth.
- It is located in the **constellation Virg**

**MUST READ:** [Space sustainability](#)

**SOURCE:** [TIMES OF INDIA](#)

## PIROLA

**Context:** Pirola, has seen a threefold increase in cases over a two-week period.

**Background:-**

- Pirola is predominantly circulating in the US northeast, where it ranks as the second most prevalent variant (13%) following HV.1.

**About Pirola:-**

- Pirola or **BA.2.86 Variant** is a new strain of COVID-19 with 35 mutations, causing concerns about immune evasion and vaccine efficacy.
- It demonstrates distinct symptoms like **rashes, conjunctivitis, and diarrhoea**. ([Second Wave of COVID-19](#))
- The Pirola variant has been **detected in several countries, including the US, the UK, and others**.
- The fact that these cases are unrelated suggests some degree of international transmission, which is concerning.
- The concern with such **mutations is that they could potentially make the virus more transmissible or resistant to immunity gained** from previous infections or vaccinations.
- The WHO has classified BA.2.86 as a **variant under monitoring**.
- The **spike protein of the Pirola variant has over 30 mutations**, which is the protein that the virus utilizes to bind to human cells.
- This indicates that the Pirola variant **could be more contagious or evade vaccines more than other Omicron subvariants**.

**MUST READ:** [INCOVACC](#)

**SOURCE:** [TIMES OF INDIA](#)



## HEALTH

### DIARRHEA

**Context:** Recently, severe Diarrhea Cases are surging across the UK.

**Background:-**

- Infections from a parasite which can cause long-lasting, severe diarrhoea have seen an "unprecedented and ongoing" surge across the UK.
- This increase in infections has been ongoing since mid-August.

**About Diarrhea:-**

- Diarrhea, or "the runs," is when one experience **loose, watery stools** and feel the urgent need to have a bowel movement multiple times a day.
- Diarrhea can be **acute or chronic**.
- **Acute diarrhoea** occurs when the condition lasts for **1 to 2 days**.
- **Chronic diarrhoea** refers to having diarrhoea on most days for longer than 3 to 4 weeks.

**Causes:-**

- viral infections including rotavirus, norovirus, and viral gastroenteritis ([Disease Surveillance System](#))
- bacterial infections, including Salmonella and E. coli
- parasitic infections
- intestinal diseases
- a food intolerance, such as lactose intolerance
- an adverse reaction to a medication
- gallbladder or stomach surgery

**Symptoms:-**

- nausea
- abdominal pain
- cramping
- bloating
- dehydration
- a frequent urge to evacuate your bowels
- a large volume of stools
- dehydration

**Prevention:-**

- Washing hands frequently
- drinking bottled water only while on vacation
- eating cooked food only while on vacation

**MUST READ:** [Non communicable and communicable diseases](#)

**SOURCE:** [SCIENCE ALERT](#)

### TUBERCULOSIS

**Context:** Recent reports suggest that India, Indonesia and the Philippines account for over 60% drop in tuberculosis reporting in 2020 and 2021.

**Background:-**

- TB remained the world's second leading cause of death from a single infectious agent in 2022, after COVID-19 and caused almost twice as many deaths as human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS), being the leading cause of death among people with HIV.

#### About Tuberculosis:-

- [Tuberculosis \(TB\)](#) is an **infectious disease** that most often **affects the lungs**.
- TB is caused by bacteria (**Mycobacterium tuberculosis**) that most often **affect the lungs but may also affect other parts**.
- Tuberculosis is **preventable and curable**.
- About **a quarter of the global population** is estimated to have been infected with TB bacteria.
- About **5–10% of people infected with TB** will eventually get symptoms and develop TB disease.
- **Risk factors:** The most common risk factor associated with TB is HIV and other conditions that impair the immune system.

#### Symptoms:-

- prolonged cough (sometimes with blood)
- chest pain
- weakness
- fatigue
- weight loss
- fever
- night sweats

#### Transmission:-

- Bacteria are spread through the **air, just like a cold or the flu**.
- It spreads through the air when infected people **cough, sneeze or spit**.
- Those who are infected but not (yet) ill with the disease **cannot transmit it**.

#### Treatment:-

- TB disease is usually **treated with antibiotics** and can be fatal without treatment.
- In certain countries, the **Bacille Calmette-Guérin (BCG) vaccine** is given to babies or small children to prevent TB.
  - The **vaccine prevents TB outside** of the lungs but not in the lungs.

#### Prevention:-

- Seeking medical attention if you have symptoms like prolonged cough, fever and unexplained weight loss as early treatment for TB can help stop the spread of the disease and improve your chances of recovery.
- Getting tested for TB infection if you are at increased risk, such as if you have HIV or are in contact with people who have TB in your household or your workplace.
- Practicing good hygiene when coughing, including avoiding contact with other people and wearing a mask, covering your mouth and nose when coughing or sneezing, and disposing of sputum and used tissues properly.

**MUST READ:** [India's TB Elimination Programme](#)

**SOURCE:** [DOWN TO EARTH](#)

## PARKINSON'S DISEASE

**Context:** Recently, Scientists discovered a link between air pollution and **Parkinson's disease**.

**About Parkinson's disease:-**

- Parkinson's disease is a progressive disorder that **affects the nervous system and the parts of the body controlled by the nerves.** ([Mental Health](#))
- Symptoms **start slowly.**
- The risk of developing it **increases with age.**

#### Symptoms:-

- uncontrollable shaking and tremors
- slowed movement (bradykinesia)
- balance difficulties and eventual problems standing up
- stiffness in limbs
- Speech changes
- Writing changes
- Loss of automatic movements

#### Causes:-

- Genes
- Environmental triggers
- The presence of Lewy bodies. Clumps of specific substances within brain cells are microscopic markers of Parkinson's disease. These are called Lewy bodies.

Parkinson's disease is often accompanied by these **additional problems** like:-

- Thinking difficulties
- Depression and emotional changes
- Swallowing problems.
- Chewing and eating problems.
- Sleep problems and sleep disorders
- People also may experience rapid eye movement sleep behaviour disorder, which involves acting out dreams. Medicines may improve your sleep.
- Bladder problems.
- Constipation.

#### Treatments:-

- Although there is **no cure for Parkinson's disease, medicines, surgical treatment, and other therapies** can often relieve some symptoms.
- Medicines: Medicines can help treat the symptoms of Parkinson's by:
  - Increasing the level of dopamine in the brain
  - Having an effect on other brain chemicals, such as neurotransmitters, which transfer information between brain cells
  - Helping control non-movement symptoms
- Therapy: the main therapy for Parkinson's is levodopa.
  - Nerve cells use levodopa to make dopamine to replenish the brain's dwindling supply.

- Deep brain stimulation: For people with Parkinson's disease who do not respond well to medications, the doctor may recommend deep brain stimulation.

**MUST READ:** [Rare Diseases](#)

**SOURCE:** [TIMES OF INDIA](#)

## ALZHEIMERS

**Context:** Recently, the World's Leading Theory on **Alzheimer's** in Crisis fail After Major Drug Trials.

**Background:-**

- In two trials, a drug designed to eradicate the sticky plaques has failed to preserve the cognitive abilities of people with early Alzheimer's disease compared to people given a placebo.
- The monoclonal antibody gantenerumab did significantly reduce the amount of amyloid beta in the brain as intended, but this did not translate into improvements in cognitive function.

**About Alzheimer's Disease:-**

- Alzheimer's disease is a **neurological disorder**.
- It causes **brain cells to degenerate and die**.
- This leads to loss of memory, problems with words in **speaking or writing, poor judgment, changes in mood and personality, confusion with time or place, etc.**
- It is a brain disorder that **gets worse over time**.
- [Alzheimer's is](#) the most **common cause of dementia among older adults**.
- Alzheimer's is an incurable disease, as the death of brain cells **cannot be reversed**.
- **Women have a higher risk** of having Alzheimer's disease than men.

**Causes:-**

- Alzheimer's disease is thought to be caused by the **abnormal build-up of proteins** in and around brain cells.
- One of the proteins involved is called amyloid, deposits of which form plaques around brain cells and the other protein is called tau.
- **Tau** is a protein that when it occurs in tangled formations in the brain of Alzheimer patients, disrupts the ability of neurons to communicate with one another in the brain.

**Symptoms:-**

A gradual decline in some, most or all of the following:-

- Memory.
- Reasoning and handling of complex tasks.
- Language.
- Understanding visual form and space relationship.

**Management and Treatment:-**

**Medication:**

- There's no cure for Alzheimer's disease, but certain medications can temporarily slow the worsening of dementia symptoms.
- The U.S. Food and Drug Administration (FDA) has approved two types of drugs to treat the symptoms of Alzheimer's disease:
  - Cholinesterase inhibitors.
  - NMDA antagonists.

**Managing behaviour changes:-**

- Maintaining a familiar environment for them.
- Monitoring patients' comfort.
- Providing comfort objects, such as a favourite stuffed animal or blanket.

**MUST READ:** [Need for stronger mental health strategy](#)

**SOURCE:** [SCIENCE ALERT](#)

## MEASLES

**Context:** As per recent reports there was a 43% increase in **measles** deaths from 2021-2022.

**Background:-**

- The number of measles deaths worldwide increased by 43 per cent from 2021-2022, following years of falling vaccination rates, according to a new assessment by the World Health Organization (WHO) and the United States Centers for Disease Control and Prevention (CDC).

**About Measles:-**

- [Measles](#) is a **highly contagious**, serious airborne disease caused by a virus that can lead to severe complications and death.
- Measles is caused by a **virus** found in the nose and throat of an infected child or adult.
- It spreads easily when an infected person **breathes, coughs or sneezes**.
- It can cause severe disease, complications, and even death.
- **Measles can affect anyone** but is most common in children.
- Measles **infects the respiratory tract** and then spreads throughout the body.
- Symptoms include a **high fever, cough, runny nose and a rash all over the body**.
- Measles vaccination averted 56 million deaths between 2000 and 2021.
- Even though a safe and cost-effective vaccine is available, in 2021, there were an estimated 128,000 measles deaths globally, mostly among unvaccinated or under-vaccinated children under the age of 5 years.
- In 2022, about 83% of the world's children received one dose of measles vaccine by their first birthday through routine health services – the lowest since 2008.

**Risk factors:-**

- Being unvaccinated.
- Traveling internationally.
- Having a vitamin A deficiency. ([India's plan to eradicate measles, rubella](#))

**MUST READ:** [Ni-kshay Mitra](#)

**SOURCE:** [DOWN TO EARTH](#)

## CHICKENPOX

**Context:** Recently, U.S. data underscored the benefits of **chickenpox** vaccination.

**Background:-**

- On November 14, the U.K. government announced that the Joint Committee on Vaccination and Immunization (JCVI) had recommended a vaccine against chickenpox (varicella) should be added to the routine childhood immunization programme.
- The vaccine is to be offered to all children in two doses, at 12 and 18 months of age.



- A final decision to introduce the vaccine has not been taken yet.

#### About Chickenpox:-

- Chickenpox is an illness **caused by the varicella-zoster virus**.
- It brings on an **itchy rash with small, fluid-filled blisters**. ([Delta Variant as contagious as Chicken Pox](#))
- Chickenpox spreads very easily to people who haven't had the disease or haven't gotten the chickenpox vaccine.

#### Symptoms:-

- Rash: The rash caused by chickenpox **appears 10 to 21 days after you're exposed** to the varicella-zoster virus.
  - The rash often lasts about 5 to 10 days.
  - Other symptoms that may appear 1 to 2 days before the rash include:-
- Fever.
- Loss of appetite.
- Headache.
- Tiredness and a general feeling of being unwell.
- **Causes:** A virus called varicella-zoster causes chickenpox.

#### Transmission:-

- It can spread through direct contact with the rash.
- It also can spread when a person with chickenpox coughs or sneezes and you breathe in the air droplets.

#### Treatment:-

- Most people diagnosed with chickenpox will be advised to **manage their symptoms** while they wait for the virus to pass through their system.
- The doctor may prescribe **antihistamine medications or topical ointments**, or you may purchase these over the counter to help relieve itching.
- The **chickenpox vaccine** prevents chickenpox in 98 per cent of people who receive the two recommended doses. ([Approaches to Vaccine Making](#))

**MUST READ:** [Ramsay Hunt Syndrome](#)

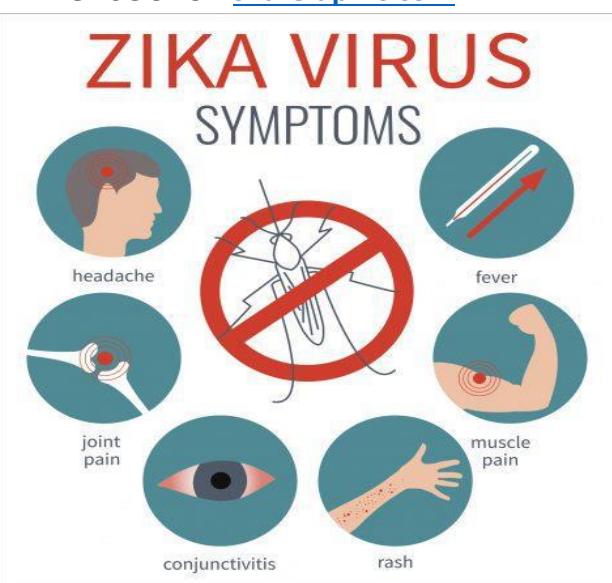
**SOURCE:** [THE HINDU](#)

## ZIKA

**Context:** Recently, a 64-year-old woman in Pune was found to be infected with **Zika**.

#### Background:-

- A 64-year-old woman in the Yerawada area of Pune has been found to be infected with Zika, a mosquito-borne disease.
- Co-director of the Epidemiology Department Dr. Pratap Singh Saranikar met the patient and instructed her regarding taking care of her health.

**About Zika:-**IMAGE SOURCE: [share.upmc.com](https://share.upmc.com)

- The [Zika virus](#) is a **mosquito-borne flavivirus**.
- It was first identified in **Uganda in 1947 in monkeys**.
- It was later identified in humans in **1952 in Uganda and the United Republic of Tanzania**.
- Most infections in humans are **asymptomatic or with mild symptoms**, including **fever, rash, and joint pain**.

**Transmission:-**

- It is primarily transmitted to humans through the bite of infected **Aedes** mosquitoes, particularly **Aedes aegypti and Aedes albopictus**.
- It can also spread through **sexual contact, blood transfusion**, and from an infected mother to her baby during pregnancy or childbirth.
- The Zika virus became notorious during the **2015-**

**2018 outbreak** that swept through the Americas.

- The outbreak was characterized by an alarming increase in the number of microcephaly cases in newborns, prompting the World Health Organization to declare it a public health emergency of international concern in early 2016.

**Treatment:-**

- There is no vaccine or medicine for Zika.

Instead, the focus is on relieving symptoms and includes rest, rehydration and acetaminophen for **fever and pain**.

**MUST READ:** [Controlling Dengue Using Wolbachia Bacteria](#)SOURCE: [AIR](#)**MALARIA**

**Context:** Recently, experts say that East Africa may experience a surge in El Nino-related **malaria** infections.

**Background:-**

- Impending outbreaks of new infections can wipe away gains in malaria control, they say.

**About Malaria:-**

- It is a life-threatening **mosquito-borne blood disease**.
- It is caused by **Plasmodium parasites**.
- It is predominantly found in the tropical and subtropical areas of **Africa, South America as well and Asia**.
- It is **preventable as well as curable**.

**Symptoms:-**

- Symptoms usually **begin ten to fifteen days after being bitten** by an infected mosquito.
- Symptoms include **fever, tiredness, vomiting, and headaches**.
- **In severe cases, it can cause jaundice, seizures, coma, or death**.

**Transmission:-**

- The parasites spread through the bites of infected **female Anopheles mosquitoes**.
- In the human body, parasites initially multiply in liver cells and then attack the Red Blood Cells (RBCs).
- There are **5 parasite species** that cause Malaria in humans and 2 of these species (Plasmodium falciparum and Plasmodium vivax) pose the greatest threat.

**Prevention:-**

- Using mosquito nets when sleeping in places where malaria is present
- Using mosquito repellents (containing DEET, IR3535 or Icaridin) after dusk
- Using coils and vaporizers.
- Wearing protective clothing.
- Using window screens.

**Treatment:-**

- **Artemisinin-based combination therapy** medicines like artemether-lumefantrine are usually the most effective medicines.
- **Chloroquine** is recommended for the treatment of infection with the P. vivax parasite only in places where it is still sensitive to this medicine.
- **Primaquine** should be added to the main treatment to prevent relapses of infection with the P. vivax and P. ovale parasites.
- Most medicines used are in pill form.
- Some people may need to go to a health centre or hospital for injectable medicines. ([Malaria Vaccine](#))

**India's status:-**

- In India, malaria elimination efforts were initiated in **2015**.
- These were intensified after the launch of the **National Framework for Malaria Elimination (NFME)** in 2016.
- It is an initiative under the **Ministry of Health and Family Welfare**.
- NFME is in line with **WHO's 2016-2030 Malaria Strategy**. ([World Malaria Report 2021](#))
  - **WHO's 2016-2030 Malaria Strategy**: guides the WHO Global Malaria Programme (GMP).
- **Status on elimination**: India continues to show a **sustained decline in overall malaria** but faces several challenges in its malaria elimination journey.

**MUST READ:** [New hope for malaria vaccine](#)

**SOURCE:** [DOWN TO EARTH](#)

**SWINE FLU**

**Context:** Recently, a new **Swine Flu** Strain has been discovered in a Human in the UK For the First Time.

**Background:-**

- The UK Health Security Agency (UKHSA) verified that a person tested positive for Influenza A H1N2v, a distinct but similar virus to the flu viruses spreading in pigs across the country.

**About Swine Flu:-**

- The H1N1 flu, sometimes called swine flu, is a type of **influenza A virus**.
- Influenza viruses such as **H1N1 infect the cells that line your nose, throat and lungs**.

- The virus **spreads through the air in droplets released** when someone with the virus **coughs, sneezes, breathes or talks.**
- The virus enters your body when you breathe in contaminated droplets. ([Disease Surveillance System](#))

#### Symptoms:-

- Fever, but not always.
- Aching muscles.
- Chills and sweats.
- Cough.
- Sore throat.
- Runny or stuffy nose.
- Watery, red eyes.
- Eye pain.
- Body aches.
- Headache.
- Tiredness and weakness.
- Diarrhea.
- Feeling sick to the stomach, vomiting, but this is more common in children than adults.

#### Preventions:-

- Wash hands often.
- Cover the coughs and sneezes.
- Avoid touching face.
- Avoid touching eyes, nose and mouth.
- Clean and disinfect surfaces.

**MUST READ:** [African Swine Fever](#)

**SOURCE:** [SCIENCE DIRECT](#)

## PNEUMONIA

**Context:** Recently, amid reports of a surge in **Pneumonia** among children in China, the Karnataka government's health department has placed its healthcare infrastructure on alert statewide.

#### Background:-

- The advisory emphasizes seasonal flu, an infectious disease lasting five to seven days, known for its low morbidity and mortality rates.

#### About Pneumonia:-

- Pneumonia is an infection that inflames the **air sacs in one or both lungs.**
- The air sacs may fill with fluid or pus (purulent material), **causing cough with phlegm or pus, fever, chills, and difficulty breathing.**
- A variety of organisms, including **bacteria, viruses and fungi**, can cause pneumonia.

#### Symptoms:-

- Chest pain when you breathe or cough

- Confusion or changes in mental awareness (in adults age 65 and older)
- Cough, which may produce phlegm
- Fatigue
- Fever, sweating and shaking chills
- Lower than normal body temperature (in adults older than age 65 and people with weak immune systems)
- Nausea, vomiting or diarrhoea
- Shortness of breath

**Risk factors:-**

- Being hospitalized.
- Chronic disease.
- Smoking.
- Weakened or suppressed immune system.

**Prevention:-**

- Get vaccinated. ([Disease Surveillance System](#))
- Make sure children get vaccinated.
- Practice good hygiene.
- Don't smoke.

**Treatment:-**

- **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 a nationwide rollout of PCV under the [Universal Immunisation Programme \(UIP\)](#).

**MUST READ:** [National Centres for Disease Control \(NCDC\)](#)

**SOURCE:** [HINDUSTAN TIMES](#)



## HISTORY AND ART & CULTURE



### KERALA PIRAVI

**Context:** Recently, Prime Minister Narendra Modi greeted people of Kerala on the occasion of Kerala Piravi.

**Background:-**

- Greeting people on the occasion, the Prime Minister said, known for their diligence and the rich tapestry of their cultural heritage, the people of Kerala embody resilience and determination.

**About Kerala Piravi:-**

- Kerala Piravi is celebrated in the Indian state of Kerala on **November 1st every year**.
- It is a day that **marks the establishment of the state of Kerala** as a separate entity on November 1, 1956.
- The state of Kerala was **formed by combining the former states of Travancore-Cochin with the Malabar** district and Kasaragod taluk of South Canara district.
- This significant event marked the **end of the political and administrative system of the feudal kingdoms in Kerala** and the beginning of a new era of **democratic governance**.
- The term “Kerala Piravi” translates to “**the birth of Kerala,**” which connotes the significance of the day.
- Kerala Piravi is an **opportunity for Keralites to revisit their rich cultural heritage** and reflect on their history, culture, and traditions.
- The day is celebrated with great pomp and show, and various cultural programs are organized to showcase the state’s art, music, dance, literature, and cuisine.
- The day is also marked by **numerous commemorative events**, including **cultural parades, folk dances, and exhibitions showcasing the state’s history, culture, and traditions.** ([Mohiniyattam](#))
- One of the main attractions of the festival is the famous **President’s Trophy Boat Race** competition held in Kovalam.
- It is a time for people to come together to celebrate their shared history and to look forward to a bright and prosperous future.

**MUST READ:** [Kerala and National Education Policy \(NEP\) 2020](#)

**SOURCE:** [AIR](#)

### PRADHANAMATRI SANGRAHALAYA

**Context:** Recently, Shuttle Bus service began from Metro Stations to Pradhanmantri Sangrahalaya.

**Background:-**

- The visitors were experiencing issues with connectivity between metro stations and Sangrahalaya.

**About Pradhanmantri Sangrahalaya:-**

- **Location: Teen Murti, New Delhi.**
- The Pradhanmantri Sangrahalaya is a **tribute to every Prime Minister** of India since Independence.
- It is a **narrative record of how each one has contributed** to the development of our nation over the last 75 years.
- It is a **history of collective effort** and powerful evidence of the creative success of India’s democracy.



- The **Teen Murti Estate**, home to India's first Prime Minister Shri Jawaharlal Nehru for 16 years, was the natural environment for Pradhanmantri Sangrahalaya, because this is a story of continuity. [Nehru Memorial Museum & Library \(NMML\)](#)
- The Sangrahalaya is a seamless **blend which begins at the renovated and refurbished Nehru Museum building**, now completely updated and technologically advanced displays on the life and contribution of Shri Jawaharlal Nehru.
- The new panorama includes a section which exhibits a **large number of rare gifts received by him from all over**.
- The saga of modern India starts with the **freedom struggle** and the **making of a great Constitution**.
- The Sangrahalaya goes on to tell the story of how our Prime Ministers navigated the nation through various challenges and ensured the all-round progress of the country.

#### Significance:-

- Our Prime Ministers came from every class and tier of society, it shows us **the gates of democracy were equally open to all**.

**MUST READ:** [National Council of Science Museums \(NCSM\)](#)

**SOURCE:** [PIB](#)

## BADRINATH DHAM

**Context:** Recently, President Draupadi Murmu visited the **Badrinath Dham**.

#### Background:-

- The president is scheduled to address the 11th convocation of Hemvati Nandan Bahuguna Garhwal University in Srinagar.
- The president will also attend a program organized in Dehradun tomorrow to celebrate Uttarakhand State Foundation Day.

#### About Badrinath Dham:-

- **Location: Uttarakhand, India.**
- Badrinath or Badrinarayan Temple is a **Hindu temple**.
- It is situated in the **town of Badrinath**.
- It is dedicated to **lord Vishnu**.
- It **forms one of the four Char Dham** and Chota Char Dham pilgrimage sites. ([Srisailam Temple](#))
- The four char dhams include:-
  - **Badrinath**
  - **Kedarnath**
  - **Gangotri**
  - **Yamunotri**
- The temple is located on **Garhwal hill tracks in Chamoli district**.
- It is along the banks of the **Alaknanda River**.
- The temple has **three structures: the Garbhagriha (sanctum), the Darshan Mandap (worship hall), and Sabha Mandap (convention hall)**.
- **The Tapt Kund**, a group of hot sulphur springs just below the temple, are considered to be medicinal.
- The Badrinath Dham, which **symbolizes a synthesis of religious, cultural and spiritual mystic beauty**, is undergoing reconstruction and beautification.

**MUST READ:** [Khajuraho temples](#)

**SOURCE:** [AIR](#)

### RABHINDRA BHAVAN

**Context:** Veteran artist Jatin Das inaugurated two curated Exhibitions at **Rabhindra Bhavan** recently.

**Background:-**

- Lalit Kala Akademi, the apex cultural body under Ministry of Culture, Government of India, presents two exhibitions, namely 'Imag(in)ing the Immediate- Curating from a National Collection' and 'The Afghan Journal', both curated by Akademi's Assistant Editor and renowned curator and art historian, JohnnyML.

**About Rabhindra Bhavan:-**

- **Architect: Ar. Habib Rahman.**
- **Location: Feroz Shah Marg, Mandi House, New Delhi**
- **Area: 3.5 Acres**
- **Project year: 1961**
- **Idea:** building that would mark the birth centenary of Rabindranath Tagore.
- Rabindra Bhavan was built **to mark the birth centenary of Tagore**, who in addition to being a poet and novelist, was an artist, playwright and composer.
- The building is thus the home of **three National Academies: Lalit Kala (Plastic Arts), [Sangeet Natak](#) (Dance, Drama and Music) and Sahitya (Literature).**
- The building is divided into three major blocks- **administrative building, exhibition gallery and theatre.**
- The **administrative block**, which is the biggest of all, occupies prominent amount of space on the site.
- The Y - shape is chosen very thoughtfully to cover the maximum area on the site Reinterpreted form of chajjas in continuous horizontal louvers.
- **Lighting through natural means.**
- This building also serves as a memorial museum for studies on Tagore.
- It is also the **hub for research studies on Rabindranath Tagore.**
- These include old photographs which show his lifestyle.
- The wider range of artefacts and personal items of Shri Rabindranath Tagore attracts a large number of visitors.

**MUST READ:** [Visva-Bharati University](#)

**SOURCE:** [PIB](#)

### TAMIL LAMBADI EMBROIDERY

**Context:** Recently, The Porgai Artisan Association Society have been trying to keep the intriguing Tamil Lambadi art of embroidery alive.

**Background:-**

- The Porgai Artisan Association Society, with 60 plus women, has been making and selling embroidered clothes to ensure that there is awareness about the art form and that it is passed on to the next generation.

**About Tamil Lambadi embroidery:-**

- **Origin:** Tamil Nadu. ([Tamil-Brahmi script](#))
- It is rooted in the **cultural practices and traditions** of the Lambadi community.
- Several hundred years ago, the Lambadi tribals **migrated from North Western India** to South for a living.
- They were a nomadic tribe but ended up settling down in **Madhya Pradesh, Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu**.
- Sittilingi Valley (Tamil Nadu) is the **second southernmost settlement** of Lambadis in India.
- **Vibrant colour schemes** with a focus on bold and contrasting hues.
- **Intricate embroidery and mirror work** that embellish textiles and clothing.
- Symbolic representations of **nature, folklore, and traditional beliefs**.
- The traditional Tamil Lambadi embroidery designs are all geometrical patterns with **squares, rectangles, and circles**.
- They have also been **influenced by the local forests, birds, fruits and flowers**.
- A majority of Porgai's products are made from **organic cotton** grown in their own villages.

**Significance:-**

- It reflects the **rich cultural heritage** and identity of the **Lambadi community**.
- It serves as a medium for storytelling and **preserving cultural narratives**.

**MUST READ:** [50 iconic Indian heritage textiles by UNESCO](#)

**SOURCE:** [THE HINDU](#)

**SANT MIRABAI**

**Context:** Recently, Prime Minister Narendra Modi visited Mathura in Uttar Pradesh today to take part in **Sant Mirabai Janmotsav**.

**Background:-**

- The programme is being organized to mark the 525th Birth Anniversary of Sant Mirabai. During the event, the Prime Minister will also release a commemorative stamp and a coin in honour of Sant Mira Bai.

**About Sant Mirabai:-**

- Mirabai was born into a Rajput royal family in **Kudki, Rajasthan's Pali region**, and spent her youth in Merta.
- By around 1600 CE, she was **referenced in Bhaktamal**, indicating that she was a well-known and revered figure in the Bhakti movement.
- Mirabai was a **Rajput princess** who married a prince from the royal family.
- She **became a follower of Ravidas**, a saint who was said to be untouchable. ([Sant Ravidas](#))
- She committed her life to **Lord Krishna's devotion**.
- She was the **first to introduce the Giridhara Gopala cult** of Brindavan and also the first to introduce Bhajan in the Bhakti movement
- Her bhajans were composed in the language of **Vraj Bhasha**.
- **Meerabai's five teachings are:-**
  - She did not believe in the caste hierarchy and instead attacked higher caste standards.

- She fled the kingdom because of her great devotion to Lord Krishna.
- She was not a follower of kingly traditions.
- She preached love while avoiding hatred.
- Despite being from the royal family, she became a follower of Ravidas, who was considered untouchable.

**MUST READ:** [The Sant Tukaram temple](#)

**SOURCE:** [AIR](#)

## DEFENCE

### PRACHAND

**Context:** Army's Light Combat Helicopter **Prachand** successfully carried out its inaugural firing recently.

**Background:-**

- In an exclusive interview with All India Radio, the Director General of the Army Aviation Corps Lt Gen AK Suri underscored that with each passing year Army Aviation Corps is setting new milestones in terms of capability building and increasing its sphere of influence.
- One of the youngest corps of the Indian Army, Army Aviation was created as a separate arm on 1st November 1986.

**About Prachand:-**

- **Designed and manufactured by: Hindustan Aeronautics Limited (HAL).**
- It is **multi-role** and can perform roles of **Combat Search and Rescue (CSAR), Destruction of Enemy Air Defence (DEAD) and Counter Insurgency (CI) operations.**
- The LCH has been **designed as a twin-engine.** ([Chetak Helicopters](#))
- It is a dedicated **combat helicopter** of 5.8-ton class, thus categorized as light.
- It features a narrow fuselage and tandem one-behind-the-other configuration for the pilot and co-pilot.
  - The co-pilot is also the **Weapon Systems Operator (WSO).**
- It has a **maximum take-off weight of 5.8 tonnes**, a maximum speed of 268 kilometres per hour, range of 550 kilometres.
- It has an **endurance of over three hours** and a service ceiling the maximum density altitude to which it can fly of 6.5 kilometres.
- LCH is **powered by two French-origin Shakti engines** manufactured by the HAL.
- The helicopter **uses radar-absorbing material** to lower radar signature and has a significantly crash-proof structure and landing gear.
- A pressurized cabin offers **protection from nuclear, biological and chemical (NBC) contingencies.**
- The LCH is the **only attack helicopter** in the world that can land and take off at an altitude of 5,000 metres (16,400 ft), which makes it ideal to operate in the **high-altitude areas of the Siachen glacier.**

**MUST READ:** [Asia's largest helicopter manufacturing facility](#)

**SOURCE:** [AIR](#)

### MINUTEMAN 3

**Context:** Recently, the US tested Nuclear Missile **Minuteman III.**

**About Minuteman III:-**

- **Weight: 79,432 pounds (36,030 kilograms)**
- **Diameter: 5 feet (1.67 meters)**
- **Range: Over 6,000 miles (5,218 nautical miles)**
- **Speed: Goes very fast, around 15,000 mph**
- **Can go up very high, about 700 miles.**
- The Minuteman missile system started in the late 1950s when they began using **Minuteman I in the early 1960s.**
- The Minuteman III missile system is a very **advanced and strong weapon.**
- The Minuteman III is an **intercontinental ballistic missile (ICBM).**

- It's kept in underground silos to **protect it from attacks**.
- It's connected to a hidden control centre by strong cables.
- Its design makes it **very hard to stop**.
- The recent test of the missile shows that the United States has a **strong and powerful weapon**.

**MUST READ:** [Exercise Varuna](#)

**SOURCE:** [HINDUSTAN TIMES](#)

## SURAT WARSHIP

**Context:** Recently, the Crest unveiling ceremony of the Indian Navy's **Warship "SURAT"**.

**Background:-**

- The Crest of Indian Navy's latest, indigenous under-construction, guided missile destroyer, 'Surat', is scheduled to be unveiled by Shri Bhupendra Patel, the Chief Minister of Gujarat in the presence of Adm R Hari Kumar, the Chief of the Naval Staff, at a ceremony to be held in the city of Surat on 06 November 2023.

**About SURAT:-**

- **Constructed by:** Mazagon Docks Shipbuilders Ltd. Mumbai.
- **Naming:** The Destroyer has been named after **Gujarat's commercial capital- Surat**, which has a rich maritime and ship-building history.
- INS Surat is the **fourth and the last ship** of the **Project 15B** Indian Navy Destroyers.
- These are called the **Visakhapatnam class** after the lead vessel INS Visakhapatnam.
- The **Indian Naval Destroyers** are named after Indian cities as per the naval tradition.
- It began with **Project 15**, under which three destroyers were built: **INS Delhi in 1997, INS Mysore in 1999 and INS Mumbai** in 2001.
- Project 15 was followed by the **three-destroyer Project 15A**, under which INS Kolkata was commissioned in 2014, INS Kochi in 2015 and INS Chennai in 2016.
- It was followed by the **'Project 15B' programme** involves the construction of **four next-generation stealth-guided missile destroyers**, of which **'Surat' is the fourth** and the last ship.
- Under project 15-B:-
  - **The first:** INS Visakhapatnam.
  - **The second:** [INS Mormugao](#).
  - **The third:** INS Imphal.
  - **The fourth:** INS Surat.
- While INS Morm-ugao will be commissioned in 2022, INS Imphal will be commissioned in 2023 and INS Surat is likely to be commissioned in 2024, all at one-year intervals.
- INS Surat has been built using **Block construction methodology** that involves hull construction in two different locations and then joined together at one hub.
- It is a **Guided-missile destroyer**.
- This is the first capital warship to be named after the city of Gujarat.

**Significance:-**

- Construction of this warship **testifies to the nation's dedication to indigenous** cutting-edge warship-building technology and commitment to strategic military advancements.



**MUST READ:** [Dunagiri, a Project 17A Frigate](#)

**SOURCE:** [PIB](#)

### INS UTKROSH

**Context:** Recently, LRMR Hangar & Dispersal was inaugurated at Naval Air Station, **INS Utkrosh**, in Port Blair.

**Background:-**

- The Chief of Defense Staff, CDS, General Anil Chauhan inaugurated LRMR Hangar & Dispersal at Naval Air Station, INS Utkrosh today in Port Blair.
- The twin hangar spread over 6000 sq. mt. can accommodate a combination of P8I aircraft with Dronier & Advanced Light Helicopters.
- It will help in strengthening the security of the Indian Oceans Region.

**About INS Utkrosh:-**

- It is an **Indian naval air station** under the **joint-services Andaman and Nicobar Command** of the Indian Armed Forces. ([UPSC CSE: SLBM launch by INS Arihant](#))
  - **Naval air station:** a military air base, which consists of permanent land-based operations locations for the military aviation division of the relevant branch of the navy.
- **Location: Port Blair, Andaman & Nicobar Islands.**
- **Commissioning:** It was commissioned in **1985**.
- **Historical Background:-**
  - The airfield at Port Blair was transferred from the Directorate General of Civil Aviation to the Indian Navy in **1984**.
  - It was **initially commissioned as INS Jarawa II**.
  - In 1985, **the air station was formally commissioned as INS Utkrosh** by then Defence Minister of India, P. V. Narasimha Rao, making it the **first naval air station in Andaman & Nicobar Islands**. ([UPSC CSE: INS Vikrant](#))
- This station operates **the Do-228 maritime patrol aircraft** and a **SAR (Search & Rescue) flight** of HAL Chetak helicopters.
  - **Maritime patrol aircraft (MPA):** a fixed-wing aircraft designed to operate for long durations over water in maritime patrol roles.
  - **Search and rescue (SAR) service:** provided to the survivors of aircraft accidents as well as aircraft in distress (and their occupants) regardless of their nationality.

**Significance:-**

- The station handles courier **flights from the mainland and civil flights to and from Port Blair**.
  - It **shares airside facilities with Veer Savarkar International Airport** which handles civilian traffic.
- The facilities at INS Utkrosh have been significantly upgraded.
- The runway has **been lengthened to almost 11,000 feet (3,400 m)**.
- Except for the civilian terminal operated by the Airports Authority of India, **all other air traffic operations over Port Blair are undertaken by INS Utkrosh**.

**MUST READ:** [Kalvari-Class Submarine INS Vagir](#)

**SOURCE:** [AIR](#)

### JERICHO MISSILE SYSTEM

**Context:** Recently, a call was given by an Israeli lawmaker suggesting deploying a ' **Jericho Missile System**' against Hamas and Palestine in the ongoing war.

**Background:-**

- This has once again put the spotlight on nuclear weapons in West Asia, particularly the Jericho missile system.

#### About Jericho Missile System:-

- Jericho is Israel's original ballistic missile programme, **initiated in the 1960s**.
- It was named after the **biblical city** located in the West Bank.
- This programme was **initially a collaboration with the French aerospace company Dassault**, but when France withdrew in 1969, Israel continued its development.

#### Jericho-1 Missile System:-

- The Jericho-1 missile system, **retired in the 1990s**.
- It had a **weight of 6.5 tons, a length of 13.4 meters, and a diameter of 0.8 meters**.
- Jericho-1 missile system had a **range of 500 kilometres**.
- It could **carry a 1,000-kilogram payload**, though it had a 50 per cent chance of hitting within a 1,000-meter radius of its target.

#### Jericho-2 Missile System:-

- It was **developed in the late 1980s**.
- It has a **length of 15 metres and a diameter of 1.35 metres** while maintaining the same payload capacity and range between 1,500 and 3,500 kilometres.
- It has the **same payload capacity as Jericho-1**.

#### Jericho-3 Missile System:-

- It is the **first Israeli Intercontinental [Missile](#) (ICBM)**.
- It was first tested in 2008 and **entered service in 2011**.
- The payload capacity extended to about **1,300 kilograms**.
- It has a **range of 4,800 to 6,500 kilometres**.

**MUST READ:** [BrahMos Missiles](#)

**SOURCE:** [MSN](#)

### INS SUMEDHA

**Context:** Recently, **INS Sumedha** made a port call at Walvis Bay, Namibia.

#### Background:-

- INS Sumedha in continuation with Indian Navy's mission-based deployment to West Africa and Atlantic made a port call at Walvis Bay, Namibia from 10-13 November 23.
- This port call is a manifestation of India's warm ties with Namibia, its commitment to enhance maritime security and demonstrate solidarity with friendly nations.

#### About INS SUMEDHA:-

- **Built by: Goa Shipyard Limited.**

- INS Sumedha is an **indigenously built** Naval Offshore Patrol Vessel.
- It is part of the Indian **Navy's Eastern Fleet based at Visakhapatnam**.
- It is the **third ship of the indigenous Naval Offshore Patrol Vessel (NOPV) Project** to be inducted into the Indian Navy.
- It is deployed for **multiple roles independently** and in support of Fleet Operations.
- Its primary role is to undertake **EEZ surveillance, anti-piracy patrols, fleet support operations, providing maritime security to offshore assets and carry out escort operations for high value assets**.

**Significance:-**

- It is a highly potent platform that can be deployed for a variety of operational missions.
- It bears testimony to the capabilities of the Indian ship building industry. ([INS Mormugao](#))

**MUST READ:** [Dunagiri, a Project 17A Frigate](#)

**SOURCE:** [PIB](#)

**OHIO-CLASS SUBMARINE**

**Context:** Recently, a U.S. nuclear-powered **Ohio-class submarine**, equipped for precision missile strikes over considerable distances, has joined a fleet of Navy ships in the waters of the Middle East.

**Background:-**

- In an unusual public announcement on November 5, the U.S. Central Command confirmed the arrival of an Ohio-class submarine in its designated area of responsibility.
- CENTCOM, responsible for directing U.S. military operations in the Middle East, shared this information succinctly through social media.

**About Ohio-class Submarine:-**

- The Ohio class submarine is a class of **nuclear-powered submarines**.
- They are currently in service with the **United States Navy**. ([India, Israel and Palestine](#))
- They are the **largest submarines** ever built for the U.S. Navy.
- The Ohio class submarines were developed during the **Cold War** to provide the United States with a robust and survivable sea-based strategic deterrent.
- The **first Ohio class submarine, USS Ohio (SSBN-726)**, was commissioned in 1981.
- A total of 18 submarines were built between **1976 and 1997**.
- These submarines are designed for **extended underwater operations**.
- They are **equipped with advanced technology** to support various missions, including strategic deterrence, surveillance, and special operations.
- Each of these submarines is provided with two **complete crews, called the Blue Crew and the Gold Crew, with each crew serving typically on 70- to 90-day deterrent patrols**.
- They can travel at speeds of **30+ knots**.
- They can remain **submerged indefinitely**.

**Significance:-**

- Ohio class submarines play a crucial role in the **United States' nuclear triad**, serving as a platform for submarine-launched ballistic missiles (SLBMs) armed with nuclear warheads.
- Ohio-class submarines provide the Navy with unprecedented strike and special operation mission capabilities from a stealthy, clandestine platform, and they play a crucial role in the nation's defences.

**MUST READ:** [Submarine Vagir](#)

**SOURCE:** [ECONOMIC TIMES](#)

### 243TH CORPS OF ENGINEERS DAY.

**Context:** Recently, the Indian Army celebrated the **243th Corps of Engineers Day**.

**Background:-**

- Chief of the Army Staff Gen Manoj Pande has conveyed best wishes to all ranks, veterans and families of the Corps on the occasion.

**About 243th Corps of Engineers Day:-**

- The Indian Army Corps of Engineers is a **combat support arm**. ([Armed Forces Tribunal \(AFT\)](#))
- It provides combat engineering support and develops infrastructure for armed forces and other defence organizations.
- It maintains **connectivity along the borders**, besides helping the civil authorities during natural disasters.
- These tasks are executed through four pillars of the Corps - **Combat Engineers, Military Engineer Service, Border Road Organization and Military Survey**.
- The Corps of Engineers had **three groups, i.e. Madras Sappers, Bengal Sappers and Bombay Sappers**.
- These were amalgamated into the Corps on the 18th of November 1932.
- Since its inception, history is replete with colossal exemplary contributions of the Corps of Engineers both in war and peace.

**MUST READ:** [The new defence systems handed over to Army](#)

**SOURCE:** [AIR](#)

### IGLA-S

**Context:** Recently, India announced the procurement of **Igla-S**, a powerful air defence system from Russia.

**Background:-**

- India is all set to procure a powerful anti-aircraft missile system from Russia — its top weapons supplier which will help boost its defence capabilities along the China and Pakistan borders.

**About Igla-S:-**

- Igla-S is a prominent and **highly effective man-portable air defence system (MANPADS)** developed by Russia.

- The Iгла-S is developed and manufactured by the Russian state-owned defence company, **KBM (Design Bureau of Machine Building)**, which specializes in designing missile systems.
- It entered service with the **Russian Army in 2004**. ([Ballistic missiles](#))
- It can be fired by **an individual or crew** to bring down an enemy aircraft.
- It is a next-generation surface-to-air missile designed for engaging low-flying aircraft, helicopters, drones, and cruise missiles.
- It offers superior performance over earlier supplied **SA-18 missiles** to India.
- It is designed for use against visible aerial targets at **short ranges** such as tactical **aircraft, helicopters, unmanned aerial vehicles (UAVs), and cruise missiles**, head-on or receding, in the presence of natural (background) clutter and countermeasures.
- The Iгла-S system consists of the **9M342 missile**, which is a part of combat equipment.

**MUST READ:** [Intercontinental Ballistic Missile](#)

**SOURCE:** [THE TIMES OF INDIA](#)

### HINDUSTAN AERONAUTICS LIMITED

**Context:** Recently, Prime Minister Narendra Modi visited the **Hindustan Aeronautics Limited** site in Bengaluru.

**Background:-**

- The visit has come at a crucial time as the Indian Air Force recently issued a tender to HAL for the purchase of 12 advanced Su-30MKI fighter jets.

**About Hindustan Aeronautics Limited:-**

- **HQ: Bangalore, India.**
- **MINISTRY: Ministry of Defense.**
- HAL is a state-owned Indian aerospace and defense firm.
- **VISION:** To be a global leader in the Aerospace & Defense Industry.
- The Company which had its origin as Hindustan Aircraft Limited was incorporated on 23 Dec 1940 at Bangalore by **Shri Walchand Hirachand** in association with the then Government of Mysore, with the **aim of manufacturing aircraft in India**.
- In March 1941, the Government of India became one of the shareholders in the Company and subsequently took over its management in 1942.
- In collaboration with the **Inter Continental Aircraft Company of USA**, the Company commenced its business of manufacturing Harlow Trainer, Curtiss Hawk Fighter and Vultee Bomber Aircraft.
- In January **1951**, Hindustan Aircraft Limited was placed under the administrative control of the Ministry of Defence, Government of India.
- It mainly engages in aerospace activities and is presently involved in the **fabrication & production of aircraft, design, helicopters, jet engines & their replacement parts**. ([Dornier aircraft](#))
- It has many facilities scattered throughout India, including **Bangalore, Kanpur, Nasik, Koraput, Korwa, Lucknow, Kasaragod and Hyderabad**.

**MUST READ:** [Advanced Medium Combat Aircraft \(AMCA\)](#)

**SOURCE:** [AIR](#)

## VAJRA PRAHAR

**Context:** Recently, Indo-US Special Forces Exercise **Vajra Prahar** Began.

**Background:-**

- Indian and US special forces on Tuesday started joint exercise "Vajra Prahar" at the Joint Training Node, in Umroi, Meghalaya.

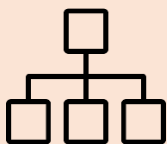
**About VAJRA PRAHAR:-**

- **Date: November 21 to December 11, 2023.**
- **Time period: it is conducted annually.**
- **Venue: Umroi Cantonment, Meghalaya.**
- Vajra Prahar is an annual exercise **alternately hosted by** the Special Forces of **India and the United States.**

**MUST READ:** [India-USA relations](#)

**SOURCE:** [TIMES OF INDIA](#)





## GOVT. INITIATIVES, SCHEMES AND POLICIES, ORGANISATION



## AGRICULTURAL &amp; PROCESSED FOOD PRODUCTS EXPORT DEVELOPMENT AUTHORITY

**Context:** Agricultural and Processed Food Products Export Development Authority (APEDA) facilitated the export of the first trial shipment of fresh bananas to the Netherlands.

**Background:-**

- The trial shipment of bananas to Europe was carried out by the APEDA-registered 'INI Farms - a top exporter of fruits and vegetables from India.
- The first export consignment of bananas to the Netherlands was flagged off by APEDA Chairman Abhishek Dev from Baramati, Maharashtra.

**About APEDA:-**

- **Ministry:** Ministry of Commerce and Industry.
- **HQ:** New Delhi.
- It is a **statutory body** established by the Government of India under the **Agricultural and Processed Food Products Export Development Authority Act** passed by the Parliament in **1985**.
- The Authority replaced the **Processed Food Export Promotion Council (PFEPIC)**.
- APEDA has been entrusted with the responsibility of monitoring the **import of sugar** as well.
- APEDA also functions as the **Secretariat to the National Accreditation Board (NAB)** for the implementation of accreditation of the Certification Bodies under the **National Programme for Organic Production (NPOP)** for organic exports.
- **Chairman** - appointed by the Central Government ([APEDA inks MoU with NAFED](#))

**Functions:-**

- **Development of industries** relating to the scheduled products for export by way of providing financial assistance.
- **Registration of persons as exporters** of the scheduled products on payment of such fees as may be prescribed.
- Fixing **standards and specifications** for the scheduled products for the purpose of exports;
- Carrying out inspection of meat and meat products in slaughterhouses, processing plants, storage premises, conveyances, or other places
- Improving **packaging** of the Scheduled products.
- Improving **marketing** of the Scheduled products outside India.
- Promotion of **export-oriented production** and development of the Scheduled products.

APEDA is mandated with the responsibility of export promotion and development of the following scheduled products:

- Fruits, Vegetables and their Products.
- Meat and Meat Products.
- Poultry and Poultry Products.
- Dairy Products.
- Confectionery, Biscuits, and Bakery Products.
- Honey, Jaggery, and Sugar Products.
- Cocoa and its products, chocolates of all kinds.
- Alcoholic and Non-Alcoholic Beverages.
- Cereal and Cereal Products.
- Groundnuts, Peanuts, and Walnuts.
- Pickles, Papads, and Chutneys.
- Guar Gum.
- Floriculture and Floriculture Products.
- Herbal and Medicinal Plants.
- De-oiled rice bran.
- Green pepper in brine.
- Cashew Nuts and Its Products.
- **Basmati Rice** has been included in the Second Schedule of the APEDA Act.

**MUST READ:** [Agriculture Infrastructure Fund \(AIF\)](#)

**SOURCE:** [AIR](#)

## CBI

**Context:** Recently, the **Central Bureau of Investigation (CBI)** arrested the three accused, and busted an illegal job racket allegedly operating in multiple states.

**Background:-**

- A case was registered against six accused and unknown public servants and others.
- It was alleged that the organized syndicate consisting of private persons were taking a huge amount of money in the camouflage of processing fees or security deposits from prospective job seekers in various Central Government departments and Public Sector Undertakings.

**About the Central Bureau of Investigation (CBI):-**

- It was established as the **Special Police Establishment in 1941**.
- **Objective:** to investigate cases of corruption in procurement during the Second World War.
- Later, **the Santhanam Committee on Prevention of Corruption** recommended the establishment of the CBI.
  - As a result, it was **set up in 1963 by a resolution of the Union Home Ministry**.
- **The Special Police Establishment (which looked into vigilance cases) set in 1941** was also merged with the CBI
- Later, it was transferred to **the Ministry of Personnel** and now it enjoys the status of **an attached office**.
- The CBI is **not a statutory body**.
- It **derives its powers from the Delhi Special Police Establishment Act, of 1946**.

- The CBI is the **main investigating agency of the Central Government**.
- The CBI investigates the crime of **corruption, economic offences and serious and organized crime other than terrorism**.
- The CBI is **headed by a Director who is assisted by a special/additional director**.
  - The Director of CBI has been provided security of **two-year tenure** by the **CVC Act, 2003**.
  - As per the CVC Act of 2003, the Central Government shall appoint the Director of CBI on the recommendation of a **three-member committee** consisting of the
    - Prime Minister as Chairperson,
    - Leader of Opposition in the Lok Sabha
    - Chief Justice of India or Judge of the Supreme Court nominated by him.
    - If there is no recognized leader of the opposition in the Lok Sabha, then the leader of the single largest opposition party in the Lok Sabha would be a member of that committee.
- The **CBI Academy is located in Ghaziabad, UP** and started functioning in 1996.
- It also has three regional training centres at **Kolkata, Mumbai & Chennai**.
- The **superintendence of CBI** related to the investigation of offences under the **Prevention of Corruption Act, 1988** lies with the **Central Vigilance Commission (CVC)**.
- Other matters with **the Department of Personnel & Training (DOPT) in the Ministry of Personnel, Pension & Grievances of the Government of India**

#### Functions:-

- Investigating cases of **corruption, bribery and misconduct of Union govt employees**
- Investigating cases relating to **infringement of fiscal and economic laws**
- Investigating **serious crimes**, having national and international ramifications, committed by organised gangs of professional criminals.
- **Coordinating activities of the anticorruption agencies** and various state police forces
- **Taking up, on the request of a state government**, any case of public importance for investigation.
  - The **Central Government can authorize CBI to investigate such a crime in a State but only** with the consent of the concerned State Government.
- It takes up investigation of **conventional crimes** like murder, kidnapping, rape etc., on reference from the state governments or when directed by the Supreme Court/High Courts.
- **Maintaining crime statistics** and disseminating criminal information.
- The CBI acts as the **“National Central Bureau” of Interpol in India**, ([CBI and its troubles](#))

**MUST READ:** [CBI and ED](#)

**SOURCE:** [AIR](#)

### OECD

**Context:** Globally, 21 million tonnes of plastics leaked into the environment last year as per a recent **Organisation for Economic Co-operation and Development (OECD)** report.

#### Background:-

- Report released two days before Intergovernmental Negotiating Committee on Plastic Pollution for an international treaty on plastics.

### About the Organisation for Economic Co-operation and Development (OECD):-

- **Establishment: 1961.**
- **HQ: Paris, France.**
- **Total Members: 38.**
- The 38 Member Countries consist of Australia, Austria, Belgium, Canada, Chile, Colombia, Costa Rica, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, South Korea, Latvia, Lithuania, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.
  - **India is not** a member, but a key economic partner.
- The Organization for Economic Co-operation and Development (OECD) is an international organization that works **to build better policies for better lives.**
- It formulates policies to **promote prosperity, equality, opportunity and prosperity for all.**
- Its goal is to **shape policies** that foster prosperity, equality, opportunity and well-being for all.

### Organisational structure:-

- COUNCIL: Oversight and strategic direction.
- COMMITTEES: Discussion and review.
- SECRETARIAT: Evidence and analysis.

### Objectives:-

- The OECD's main objective is to enhance the world economy and promote **international trade.**
- It offers the governments of various countries the **opportunity to work jointly** to find solutions to common problems.
- It includes **working with democratic countries** that share a commitment to enhance the general population's economy and well-being.
- The main objective of the OECD is to support governments throughout the world:
  - Increase confidence in the functioning of markets and institutions.
  - To achieve future sustainable economic growth, obtain healthy public finances.
  - To achieve growth through innovation, sustainable strategies and developing economies' sustainability.
  - Provide resources to enhance people's productive skills.

### Reports and Indices by OECD:-

- Government at a Glance 2017 report.
- International Migration Outlook.
- OECD Better Life Index.

**MUST READ:** [Digital taxation & OECD: On a weak pillar](#)

**SOURCE:** [DOWN TO EARTH](#)

### PM PVTG (PARTICULARLY VULNERABLE TRIBAL GROUPS) DEVELOPMENT MISSION

**Context:** Prime Minister Narendra Modi will launch the **PM PVTG (Particularly Vulnerable Tribal Groups) Development Mission** soon.

### Background:-

- Sources said the Modi Government will launch a 24 thousand crore rupee scheme to ensure holistic development of the Particularly Vulnerable Tribal Groups on the occasion of JanJaatiya Gaurav Divas.

### About PM PVTG (Particularly Vulnerable Tribal Groups) Development Mission:-

- **Expected Launch: 2023.**
- **Ministry: Ministry of Social Justice & Empowerment.**
- The launch of Pradhan Mantri PVTG Development Mission was announced in the budget of this year.
- **Objective:** to improve the socio-economic conditions of the Particularly Vulnerable Tribal Groups.
- There are **75 PVTGs in 18 States and Union Territories** living in 22 thousand 544 villages having a population of around 28 lakhs.
- These tribes stay in scattered, remote and inaccessible habitations, often in forest areas.

#### Salient Features:-

- The Mission plans to **saturate PVTG families and habitations with basic facilities.**
- These include **road and telecom connectivity, electricity, safe housing, clean drinking water and sanitation**, improved access to education, health and nutrition and sustainable livelihood opportunities. ([Significance of Tribal Culture in Sustainable Development](#))
- A **fund of Rs 15,000 crore** for the next three years has been allocated for the socio-economic development of the group.
- It will be launched as part of **'Reaching The Last Mile'**, one of the seven Saptarishi priorities enlisted in this year's Budget.
- The Mission will be implemented through the **convergence of 11 interventions of nine Ministries.**
- In addition, saturation will be ensured for schemes such as **aper Centradhan Mantri Jan Arogya Yojna, Sickle Cell Disease Elimination, TB Elimination, 100 percent immunisation, PM Surakshit Matritva Yojana, PM Matru Vandana Yojana, PM Poshan, and PM Jan Dhan Yojana.**
- **Implementation:** Among the ministries that are expected to be roped in to implement the PM-PVTG Mission are the Rural Development Ministry, the Water Resources Ministry, the Education Ministry, the Health Ministry and the Women and Child Development Ministry.

**MUST READ:** [National Commission for Scheduled Tribes \(NCST\)](#)

**SOURCE:** [AIR](#)

#### 'VOICE OF GLOBAL SOUTH SUMMIT-2023'.

**Context:** Recently, Prime Minister Narendra Modi led the inaugural session of the second **'Voice of Global South Summit-2023'**.

**About Voice of Global South Summit-2023:-**

- **Date: 12-13 January 2023.**
- The "Voice of Global South Summit" is a platform for generating ideas from the developing world for achieving energy security, which is affordable, accessible and sustainable.
- India is hosting the Summit in a **virtual format.**
- The inaugural session will be followed **by four parallel Ministerial sessions.**
- These include the **sessions by** Ministers of External Affairs, Education, Finance and Environment.
- **Four more** parallel Ministerial sessions will be held in the afternoon.
- The theme of the inaugural Leaders' Session: **"Together, for Everyone's Growth, with Everyone's Trust"** and that of the Concluding Leaders' Session is **"Global South: Together for One Future"**.
- Akashvani correspondent reports that the Summit will focus on **sharing with the countries of the Global South**, the key outcomes achieved in various G20 meetings over the course of India's Presidency.
- India hosted a **two-day** Voice of Global South Summit on 12-13 January 2023.
- The Summit was held in a **virtual format**, with 10 sessions in total.

- It saw the **participation of Leaders and Ministers from 125 countries** of the Global South. India convened this one-of-a-kind Summit to focus international attention on the priorities, perspectives and concerns of the developing world.
- This is particularly relevant as the world passes through a difficult period marked by challenges to **health, food security, affordable access to energy, climate finance and technologies, and economic growth.** ([Climate Change Performance Index\(CCPI\) 2023](#))

#### Significance:-

- This Summit is a timely reminder of what is at stake for over three-fourths of the planet's population that is most vulnerable to the deleterious impact of the several interlinked risks we confront.

**MUST READ:** [India and G20 Presidency](#)

**SOURCE:** [AIR](#)

### EKLAVYA MODEL RESIDENTIAL SCHOOL

**Context:** Recently, President Droupadi Murmu inaugurated an **Eklavya Model Residential School** at Kuliana in the Mayurbhanj district.

#### Background:-

- Out of 87 new Eklavya Model Residential Schools sanctioned in Odisha, Mayurbhanj district alone has 19 schools, one in every block, the largest for any district in India.

#### About Eklavya Model Residential School:-

- [Eklavya Model Residential School](#) is a Government of India scheme for model residential schools for Indian tribals (Scheduled Tribes, ST) across India.

#### Objectives of EMRS:-

- Comprehensive physical, mental and socially relevant development of all students enrolled in each and every EMRS.
- Students will be empowered to be change agents, beginning in their school, in their homes, in their village and finally in a larger context.
- Focus differentially on the educational support to be made available to those in Standards XI and XII, and those in Standards VI to X, so that their distinctive needs can be met,
- Support the construction of infrastructure that provides **education, physical, environmental and cultural** needs of student life.

#### Salient Features:-

- EMRS started in the year **1997-98**.
- It is one of the flagship interventions of the **Ministry of Tribal Affairs**.
- The schools focus not only on academic education but on the all-round development of the students.
- Each school has a capacity of 480 students, catering to students from **Class VI to XII**.
- Eklavya Model Residential Schools (EMRSs) for **ST students are set up in States/UTs** with provisioning of funds through "**Grants under Article 275(1)** of the Constitution".



- The establishment of EMRSs is based on the **demand of the concerned States/UTs** with the availability of land as an essential attribute.
- There will be an **autonomous society** under the ministry of tribal affairs — similar to Navodaya Vidyalaya Samiti — to run the EMRSs.
- Apart from school building, including hostels and staff quarters, playgrounds, computer labs and teacher resource rooms are also included in the scheme.

**Significance:-**

- EMRS can impact quality education for Scheduled Tribes (ST) children.

**MUST READ:** [Integrating tribal knowledge systems](#)

**SOURCE:** [AIR](#)

**DR SS BADRINATH**

**Context:** Recently, PM, condoles the death of Sankara Nethralaya founder **Dr SS Badrinath**.

**Background:-**

- The founder of Sankara Netralaya Dr.S.S Badrinath passed away in Chennai.

**About Dr SS Badrinath:-**

- He was the founder of **Sankara Netralaya**.
- He was 83 due to illness.
- Born on February,24,1940.
- Dr. S.S. Badrinath graduated from Madras Medical College in 1962.
- He pursued his post-graduation in the United States.
- After returning to India in 1970, he worked with the Voluntary Health Services in Adyar.
- He was closely associated with the Sankara Mutt as he performed cataract surgery on his spiritual guru Chandrasekara Saraswathi Swamigal.
- He founded the Sankara Nethralaya as a unit of the **Medical Research Foundation in 1978**.
- The institution which he founded has become iconic, a symbol of the progress of modern medicine.

**Achievements:-**

- He was a recipient of:-
  - **Padma Shri:1983**
  - **Padma Bhushan: 1999.** ([Padma awards](#))

**MUST READ:** [Padma awardee Shanti Devi](#)

**SOURCE:** [THE NEW INDIAN EXPRESS](#)

**CONSTITUTION DAY**

**Context:** Recently, Vice President Jagdeep Dhankhar addressed a gathering in New Delhi on the occasion of **Constitution Day**.

**Background:-**

- Vice President Jagdeep Dhankhar has said that the Constitutional Day is a befitting occasion to remember the visionary leaders who framed the Indian constitution which is the spine of democracy.

#### About Constitution Day:-

- The Constitution of India is the **supreme law of India**.
- It was adopted by the Constituent Assembly of India on **26 November 1949**.
- [Constitution Day](#) marks the **ratification of the Constitution**, whereas Republic Day, on January 26th, commemorates the establishment of the Constitution of India.
- The adoption of the constitution marked the **transition to full independence from Britain as it ended Lord Mountbatten's role as governor-general of India**.
- After gaining independence, the Constituent Assembly, **comprised of 299 elected members**, played a pivotal role in shaping the destiny of the nation.
- Until 2015, this day was recognized as **Law Day in India**.
- In 2015, on the occasion of the 125th birth anniversary of B.R. Ambedkar, the Union government declared November 26 as Constitution Day.
- **Objective:** to encourage citizens to uphold and follow the constitutional values in their daily lives, fostering a deeper understanding of the principles that guide the nation.

#### Timeline:-

- On December 6, 1949, the Constitution Assembly was formed and its first meeting was held on December 9. Rajendra Prasad was appointed its President and H C Mukherjee its vice-chairman.
- On August 29, 1947, the drafting committee appointed Ambedkar as its chairman and six other members — Munshi N Gopalaswami Ayyangar, Khaitan, Mitter, Muhammed Sadulla, Alladi Krishnaswamy Iyer.
- The members of the Constituent Assembly signed two hand-written copies of the document (one each in Hindi and English) on January 24, 1950.
- On November 26, 1949, the Constitution of India was adopted by the Assembly.
- On January 26, 1950, the Constitution was enforced.

**MUST READ:** [International Mother Language Day](#)

**SOURCE:** [AIR](#)

### VIKSIT BHARAT SANKALP YATRA

**Context:** Recently, **Viksit Bharat Sankalp Yatra** received a warm welcome.

#### Background:-

- Prime Minister Narendra Modi today virtually interacted with beneficiaries of the central government's welfare schemes under the outreach programme Viksit Bharat Sankalp Yatra.

#### About Viksit Bharat Sankalp Yatra:-

- **Launched: 2023.**

#### Objectives:-

- **Reaching the unreached** - reach out to the vulnerable who are eligible under various schemes but have not availed of benefits so far.

- **Dissemination of information** and generating awareness about schemes.
- **Learning from the citizens** - Interaction with beneficiaries of government schemes through personal stories/experience sharing.
- **Enrolment of potential beneficiaries** through details ascertained during the Yatra.

#### Salient Features:-

- It aims to promote and **publicize government welfare schemes**.
- The schemes that will be publicized through the yatra include [Ayushman Bharat](#); PMJAY PM Garib Kalyan Anna Yojana; [Deendayal Antyodaya Yojana](#) among others.
- Five **pecially designed IEC (Information, Education and Communication) Vans** will carry the message of the Government's flagship welfare programmes.
- The target is to **cover over 2.55 lakh Gram Panchayats** and over 3,600 urban local bodies by 25th January 2024.
- In order to have synergy, the **Ministry of Agriculture and Farmers' Welfare, the Ministry of Rural Development and the Ministry of Tribal Affairs** will be the nodal Ministries for rural areas with significant Scheduled Tribe populations.
- For urban areas, the **Ministry of Information & Broadcasting and the Ministry of Housing and Urban Affairs** will be the Nodal Ministries. Government of India proposes to appoint Nodal Officers at States/ Districts for effective coordination

**MUST READ:** [Digital India Programme](#)

**SOURCE:** [AIR](#)

### Meri Maati Mera Desh campaign

**Context:** Prime Minister Narendra Modi will participate in the programme marking the culmination of the Meri Maati Mera Desh campaign's Amrit Kalash Yatra at Kartavya Path.

#### About Meri Maati Mera Desh campaign:-

- **Amrit Kalash Yatra: 1st September to 31st October 2023.**
- The Union government has launched the 'Meri Maati Mera Desh' campaign as a grand culmination of the 'Azadi Ka Amrit Mahotsav,' celebrating **75 years of Indian Independence**.
- Under this campaign soil collected from different parts of the country in August will be used to **develop a garden along the Kartavya Path in Delhi**.
- The 'Mitti Kalash' are to be brought ceremoniously to the larger municipalities/corporations and transported to Kartavya Path
- This initiative aims to honour and **commemorate the sacrifices of martyrs**.
- It includes freedom fighters, defence personnel, and members of the **Central Armed Police Forces (CAPF) and State Police, who laid down their lives in the line of duty.** ([Self-reliance in defence](#))

#### Five-Point Agenda:-

- **Shilaphalakam Installation:** Memorials will be erected, adorned with the names of those who made the supreme sacrifice for the nation.
- **Pledge of Commitment:** A solemn pledge will be taken by people at the memorial sites.
- **Vasudha Vandhan:** Every gram panchayat or village will participate in 'Vasudha Vandhan' by planting 75 saplings of indigenous species.

- **Veeron Ka Vandan:** Freedom fighters and the families of deceased freedom fighters will be honoured and felicitated.
- **National Flag Hoisting:** The National Flag will be proudly hoisted, and the National Anthem will resonate in unison.

**MUST READ:** [Defence Acquisition Council](#)

**SOURCE:** [AIR](#)

## SPORTS

### ASIAN CHAMPIONS TROPHY

**Context:** India recently beat Korea by 5-0 at the **Asian Champions Trophy 2023** to enter the semi-finals.

**Background:-**

- Salima Tete (6', 36'), Navneet Kaur (36'), Vandana Katariya (49') and Neha (60') were the scorers for India.

**About Asian Champions Trophy 2023:-**

- **Date: 27<sup>th</sup> October – 5<sup>th</sup> November, 2023.**
- **Venue: Ranchi, Jharkhand.**
- All matches in the seventh edition of the Women's Asian Champions Trophy will be played at the **Marang Gomke Jaipal Singh Astro turf Hockey Stadium.**
- The Indian hockey team will compete against **the People's Republic of China, the Republic of Korea, Japan, Malaysia and Thailand** for the Women's Asian Champions Trophy 2023 title.
- The Indian women's hockey team, **world No. 7**, is the best-ranked team at the Asian hockey championships. ([Sports Code](#))
- The Women's Asian Champions Trophy was held in **2010 and 2011 and then in 2013.**
- It was made into a **biennial event in 2016.**
- India has **made it to the finals three times - 2013, 2016 and 2018** but won it just once in 2016, defeating China in the final.

**Team India:-**

- **Goalkeepers:** Savita Punia (Captain), Bichu Devi Kharibam
- **Defenders:** Nikki Pradhan, Udit, Ishika Chaudhary, Deep Grace Ekka (Vice-captain)
- **Midfielders:** Nisha, Salima Tete, Neha, Navneet Kaur, Sonika, Monika, Jyoti, Baljeet Kau
- **Forwards:** Lalremsiami, Sangita Kumari, Deepika, Vandana Katariya
- **Reserves:** Sharmila Devi, Vaishnavi Vitthal Phalke
- **Goalkeeper Savita Punia** will lead the Indian team at the Asian Champions Trophy 2023, while defender **Deep Grace Ekka** will serve as her deputy.

**MUST READ:** [Chess Olympiad](#)

**SOURCE:** [THE INDIAN EXPRESS](#)

### ICC CRICKET WORLD CUP 2023

**Context:** Recently, the Australian cricket team lifted the ICC Cricket World Cup 2023 trophy after defeating India in the finals in Ahmedabad on November 19, 2023.

**Background:-**

- Travis Head and Marnus Labuschagne stitched a 192-run partnership for the fourth wicket.

**About ICC Cricket World Cup 2023:-**

- **Date: 5th October 2023 - 19th November 2023.**
- The Cricket World Cup was **held entirely in India for the first time** .
- Ten participating nations vie for 50-over supremacy.
- It was the **13th edition** of the quadrennial One Day International (ODI) competition.
- It was contested in the same format as the last edition, with **48 matches to be played.**

- Originally scheduled for early in 2023, the COVID pandemic forced a delay as qualification tournaments were pushed back amid cricket's congested calendar.
- It was initially expected to take place between February and March 2023 but officials announced in July 2020 that it would be pushed back due to COVID restrictions wreaking havoc with the qualification process.
- **Competing countries:** India (hosts), England, Australia, Afghanistan, Pakistan, New Zealand, Bangladesh, Netherlands, Sri Lanka and South Africa.
- Cities in which the tournament be held:-
  - Ahmedabad, Kolkata, Mumbai, Bengaluru, Pune, Delhi, Lucknow, Dharamsala, Chennai, Hyderabad

**MUST READ:** [Sports Code](#)

**SOURCE:** [THE HINDU](#)

### ISSF WORLD CUP FINAL 2023

**Context:** Recently, the competitive phase of the **ISSF World Cup Final 2023** began.

**Background:-**

- The ISSF World Cup Final 2023 began with 10m Air Pistol Men and women events.

**About ISSF World Cup Final 2023:-**

- **Date: November 18th, to 26th November, 2023.**
- **Venue: Doha, Qatar.**
- The competition will witness **13 Indian shooters** competing for top honours across various shooting disciplines.
- This season finale will showcase the **top 15 shooters** from this year's World Cup circuit across 12 shooting events. ([Grand Slam](#))
- **India currently holds the third position** in the World Cup medal standings with three gold, one silver and five bronze medals.
- **China** is leading the table with seven gold medals.
- **Serbia** is in second spot with the same number of golds as India and an additional silver medal.
- Leading the Indian contingent will be **Aishwarya Pratap Singh Tomar**, a multiple medal-winner at the Asian Games 2022 and Rudranksh Balasaheb Patil, a former world number one.
- Apart from these two, the team comprises the Paris Olympics 2024 quota holders **Mehuli Ghosh, Akhil Sheoran, Sarabjot Singh, Anish Bhanwala, and Asian Games 2022** bronze medalist Ramita Jindal.
- Tokyo Olympian **Elavenil Valarivan** is another key member of the team.

**MUST READ:** [Sports Code](#)

**SOURCE:** [AIR](#)



## MISCELLANEOUS

### RASHTRIYA VIGYAN PURASKAR.

**Context:** Recently, the Union government instituted the **Rashtriya Vigyan Puraskar**.

**About Rashtriya Vigyan Puraskar:-**

- Rashtriya Vigyan Puraskar **includes 56 prizes** to felicitate **scientists, technologists and innovators**.
- The 56 proposed awards are a stark **reduction from the almost 300 science prizes** that used to be given by Union Ministries.
- The awards will **commence in 2024**.
- The awards will be announced annually on May 11, which is **National Technology Day**.
- They will be awarded on **National Space Day, August 23**.
- They will be given by the **President or the Vice President**.

**Eligibility:-**

- Scientists/ technologists/innovators working in government, private sector organizations or any individual working outside any organization, who have made distinguished contributions in terms of path-breaking research or innovation or discovery in any field of science, technology, or technology-led- led innovation shall be eligible for the awards.
- **People of Indian Origin** staying abroad with exceptional contributions benefiting the Indian communities or society shall also be eligible for the awards.

**Categories:-**

**Categories: 3 Vigyan Ratna, 25 Vigyan Shri, 25 Vigyan Yuva–Shanti Swarup Bhatnagar, and 3 Vigyan Team.**

- **Vigyan Ratna:** will recognize the lifetime achievement of scientists.
- **Vigyan Shri:** will recognize distinguished contributions to a field.
- **Vigyan Yuva Shanti Swarup Bhatnagar:** will encourage young scientists who have made exceptional contributions in their field, and the Vigyan Team will recognize teams of three or more.

**Decoration:-**

- All Awards will have a Sanad & a medal. (**Padma awards**)

**MUST READ:** [Padma awardee Shanti Devi](#)

**SOURCE:** [THE HINDU](#)

### SHARJAH INTERNATIONAL BOOK FAIR

**Context:** The 42nd edition of the **Sharjah International Book Fair (SIBF)** is currently underway.

**Background:-**

- The current edition of SIBF features an impressive participation of 2,033 publishers representing 109 countries.
- The India Pavilion is a vibrant and bustling hub at the book fair, representing the rich literary diversity of the country

**About Sharjah International Book Fair 2023:-**

- **Date:** 1- 12<sup>th</sup> ,November,2023.
- **Organized by:** Sharjah Book Authority (SBA).
- **Venue:** Sharjah Expo Centre, UAE. ([CEPA between India and the UAE](#))
- **Theme:** "We Speak Books"

- The **12-day agenda** is a comprehensive cultural, creative, and entertaining extravaganza.
- Over 1,700 activities are being led by 215 guests hailing from 69 countries, catering to a wide range of interests and age groups.
- A highlight of the event is the participation of 600 authors who are present to sign their latest works.
- **South Korea is taking centre stage** as the **Guest of Honour at SIBF this year.**
- The festival is shining a spotlight on South Korea's unique knowledge and cultural landscape, covering literature, art, technology, and culture.

#### Historical Background:-

- The **10-day event which started in 1982** under the patronage of His Highness Dr Sheikh Sultan bin Muhammad Al-Qasimi, is a leading literary event that profiles the written work throughout the Middle East, Asia and Africa.
- The book fair is considered to be the **3rd largest fair** in the world and saw 2.4 million visitors attend in 2021.
- The event also features a lineup of **book signings, workshops and panel discussions.**

#### Significance:-

- It has been reported that UK and European publishers who attended past Sharjah International Book Fairs, said the fair had brought **in new business opportunities for them.**

**MUST READ:** [India-UAE relations](#)

**SOURCE:** [AIR](#)

### DIRCTORATE GENERAL OF CIVIL AVIATION

**Context:** Recently, the **Directorate General of Civil Aviation (DGCA)** has issued a show cause notice to Air India.

#### Background:-

- In order to ensure compliance of passenger-centric CARs, DGCA has been carrying out inspections of scheduled domestic airlines, at various major airports since May this year.
- During the inspections, it was found that Air India was not complying with the provisions of the relevant CAR.

#### About Directorate General of Civil Aviation (DGCA):-

- **Establishment:**
- **Ministry:** Ministry of Civil Aviation.
- **HQ:** New Delhi
- The [Directorate General of Civil Aviation](#) is an **attached office of the Ministry of Civil Aviation.**
- It has **regional offices in various parts of India.**

#### Functions of the DGCA:-

- It is the **regulatory body** in the field of Civil Aviation primarily dealing with safety issues.
- It is responsible for the **regulation of air transport services** to/from/within India and for the enforcement of civil air regulations, air safety and airworthiness standards.

- It is responsible for the **Registration of civil aircraft.**
- It is responsible for **the Certification of airports.**
- It is responsible for the **Licensing of pilots, aircraft maintenance engineers**, air traffic controllers and flight engineers, and conducting examinations and checks for that purpose.
- It is responsible for promoting indigenous design and manufacture of aircraft and aircraft components by **acting as a catalytic agent.**
- It is responsible for approving training programmes of operators for carriage of dangerous goods, issuing authorizations for carriage of dangerous goods, etc.
- It also coordinates all regulatory functions with the **International Civil Aviation Organization.**

#### Aviation Safety Ranking:-

- In 2022, the DGCA made a significant leap in the International Civil Aviation Organization's coordinated validation mission (or audit) that was conducted in November 2022.
- As a result, **India's effective implementation score has risen from the previous 69.95%** to nearly 85.49%, thereby changing India's Safety Oversight rank from 102 to 48, among the 193 contracting states.

**MUST READ:** [Reforms in the Civil Aviation Industry](#)

**SOURCE:** [AIR](#)

### INDIAN TECHNICAL & ECONOMICAL COOPERATION DAY

**Context:** Indian Technical and Economic Cooperation Day was celebrated recently.

#### Key highlights of the event:-

- **Date: 07 November, 2023**
- **Venue: Dhaka, Bangladesh.**
- **Organized by:** High Commission of India in Dhaka in collaboration with the ITEC Alumni Association of Bangladesh (IAAB).
- The High Commission of India in Dhaka organized a function in collaboration with the ITEC Alumni Association of Bangladesh (IAAB), to celebrate ITEC Day.
- **September 15** has been designated as ITEC Day.
- Bangladesh's Agriculture Minister Dr. Muhammad Abdur Razzaque graced the occasion as the Chief Guest.
- Around **180 ITEC alumni from all walks of life**, besides distinguished guests, attended the event.
- Some of the **distinguished ITEC alumni** also shared their training experiences with the audience.
- A small cultural event culminated in the programme.

#### About Indian Technical and Economic Cooperation Day:-

- **Institution: 1964.**
- ITEC is a **flagship programme** of the Government of India.
- It was instituted in 1964 as part of **India's Development Assistance Programme.**
- The Indian Technical and Economic Cooperation (ITEC) Programme was instituted by a decision of the Indian Cabinet on 15 September 1964 as a **bilateral programme of assistance of the Government of India.**

#### Features:-

- The ITEC Programme is **essentially bilateral in nature**.
- However, in recent years, ITEC resources have also been used for cooperation programmes conceived in regional and inter-regional contexts such as **the Economic Commission for Africa, Commonwealth Secretariat, UNIDO, Group of 77 and G-15**.
- It has been **offering the benefit of India's development experience and technological progress** to more than 160 countries across the globe.
- **Every year, more than 10,000 training slots** are offered to ITEC partner countries for training courses in premier Indian Institutes in various areas like Agriculture, Accounts, Audit, Good Governance Practices, Management, Small and Medium Enterprises, Rural Development, Public Health, Parliamentary Affairs, Judiciary, Election Management, IT, Data Analytics, Remote Sensing, Renewable Energy etc.
- To date, more than 5,000 young Bangladeshi professionals have undergone such courses in India under the ITEC programmes.

#### Components of the ITEC/SCAAP Programme:-

- Training (civilian and defence) in India of nominees from ITEC partner countries
- Projects and project-related activities such as feasibility studies and consultancy services ([India's cyber infrastructure](#))
- Deputation of Indian experts abroad
- Study Tours
- Gifts/Donations of equipment at the request of ITEC partner countries and
- Aid for Disaster Relief.

#### Significance:-

- The decision regarding setting up the ITEC programme was predicated on the underlying belief that "it was necessary to establish relations of mutual concern and **inter-dependence** based not only on commonly held ideals and aspirations but also on solid economic foundations.
- **Technical and economic cooperation** was considered to be one of the essential functions of an integrated and imaginative foreign policy."

**MUST READ:** [International Solar Alliance](#)

**SOURCE:** [AIR](#)

### NATIONAL AYURVEDA DAY

**Context:** Recently, the Ayush Ministry celebrated the 8th **National Ayurveda Day** at Panchkula.

#### Background:-

- Union AYUSH Minister Sarbanand Sonowal said that ayurvedic medicine is part of a thousands-year-old culture and has been present in the society, education, service and lifestyle of India since ancient times.

#### About National Ayurveda Day:-

- The National Ayurveda Day is celebrated every year on **Dhanteras** which is the Birth Anniversary of **Lord Dhanwantri**.

- It is believed that Lord Dhanwantari is the **Hindu God for Medicine** and is an avatar of Lord Vishnu.
- It is celebrated to **promote and globalize Ayurveda as one of the most ancient** and holistic approaches to medicine globally.
- The theme of the 8th National Ayurveda Day 2023 celebration is “**Ayurveda for One Health**” with the tagline “**Ayurveda for everyone on every day**’.
- National Ayurveda Day was first celebrated in India on **October 28, 2016**.

#### Objectives of National Ayurveda Day:-

- Celebration of National Ayurveda Day is an initiative to further **promote Ayurveda into the mainstream**.
- Its motives also includes a **focus on the strengths of Ayurveda** for the well-being of human and its unique treatment principle.
- Ayurveda also **reduces the burden of disease morbidity and mortality**.
- This also explores the potential of Ayurveda to contribute towards National Health Policy and Programs.
- This also aims to create a sense of awareness among the general masses and promote Ayurvedic principles of healing in society for the well-being of all living creatures.

#### Significance:-

- National Ayurveda Day is an opportunity to learn more about Ayurveda and its benefits and to promote its use as a complementary and alternative medicine system. ([WHO and Traditional Medicine](#))
- Various events are held across India on this day, including free health camps, seminars, and exhibitions.

**MUST READ:** [Central Council for Research in Ayurvedic Sciences](#)

**SOURCE:** [AIR](#)

### INTERNATIONAL TRADE FAIR-2023

**Context:** The 42nd edition of the India **International Trade Fair -2023** began recently.

#### Background:-

- Union Minister of State for Commerce and Industry Anupriya Patel will inaugurate the fair which will continue till the 27th of this month.

#### About International Trade Fair:-

- **Date:** 14<sup>th</sup> – 27<sup>th</sup> **November 2023**.
- **Timings:** The timings of the fair will be from 10 A.M. to 7.30 PM.
- **Venue:** **Pragati Maidan in New Delhi**.
- The 42 edition of the India International Trade Fair(IITF) will be held in the newly built halls of **the International Exhibitioncum Convention Centre (IECC)**.
- It is a **fourteen-day fair**.
- **Theme:** The theme is **Vasudhaiva Kutumbakam**.
- The theme emphasizes the **significance of interconnectedness and cooperation in trade** for achieving sustainable growth and well-being.

- In line with the **G20, the theme** shares India's ancient wisdom and strength in diverse sectors, perspectives and opinions on key socio-economic issues and to participate in shaping global economic policies.
- **Participants:** Over **three thousand exhibitors** from both India and abroad will participate in the fair.
- Representatives from **13 countries including Afghanistan, Bangladesh, Oman, Egypt, Nepal, Thailand, Turkiye, Vietnam, Tunisia, Kyrgyzstan, Lebanon, Iran and UAE** are participating in the event from overseas.
- The **First five days** of the Trade Fair will be reserved for the business category and for the general public, it will be open from the 19th of this month.
- **Bihar and Kerala** are the Partner States while Delhi, Jammu and Kashmir, Jharkhand, Maharashtra and Uttar Pradesh are the Focus States.
- Visitors can purchase the trade fair tickets online and also from select 55 metro stations. For Divyang and Senior citizens, entry into the fair will be free.
- It has a wide spectrum of **Business, Social, Cultural and Educational Dimensions** that are weaved together where visitors and exhibitors, media persons, marketing professionals, social activists, NGOs etc. source their needs and objectives.

#### Significance:-

- A number of Government Organizations use this **platform to spread awareness about their programmes** and policies among the public.
- Almost **all States and Union Territories of the Federal Government** of India participate in this mega event. IITF 2023 will feature the country's latest export potential in diverse fields especially when we are celebrating India's presidency of the G20. ([Free Trade Agreements regime](#))

**MUST READ:** [New Foreign Trade Policy](#)

**SOURCE:** [AIR](#)

### SEA BUCKTHORN

**Context:** Ladakh is eyeing more production of **sea buckthorn** post GI tag.

#### Background:-

- As per official records, at least 600 tonnes of sea buckthorn berries are harvested in Ladakh annually.

#### About Sea buckthorn:-

- **Scientific Name: Hippophae rhamnoides**
- It is a shrub which produces an **orange-yellow coloured edible berry**.
- In India, it is found above the tree line in the Himalayan region, generally in dry areas such as the cold deserts of **Ladakh and Spiti**.
- In Himachal Pradesh, it is locally called **chharma**.

#### Uses:-

- Treating stomach, heart and skin problems
- Its fruit and leaves are rich in vitamins, carotenoids and omega fatty acids
- Helps troops in acclimatizing to high-altitude



- Important source of fuelwood and fodder
- Prevents soil-erosion
- Checks siltation in rivers
- Helps preserve floral biodiversity ([Invasive Species](#))
- Used in making juices, jams, nutritional capsules etc.

**MUST READ:** [Water Hyacinth](#)

**SOURCE:** [THE TRIBUNE](#)

## NATIONAL PRESS DAY

**Context:** Recently, **National Press Day** was celebrated.

**Background:-**

- The day is observed on 16th November every year to commemorate a free and responsible press.

**About National Press Day:-**

- It is observed in honour of the **Press Council of India (PCI)**.
- **Press Council of India (PCI)** was established by the Parliament **On 4 July 1966**.
- The day is meant to mark the presence of the free and responsible press in India.
- Evolution of authority of maintaining the ethics of journalism:
- **First Press Commission, 1956:**
- In the year 1956, the First Press Commission decided to form a body bestowed with statutory authority, meant to fulfill the responsibility of maintaining the ethics of journalism.
- In 1966, on 16th November, the PCI was formed.
- The [National Press Day](#) has been celebrated ever since on 16th November, every year to commemorate the establishment of the council.
- Various seminars and workshops are organized to raise multiple issues faced by the Indian press.

**MUST READ:** [Asia-Pacific Broadcasting Union](#)

**SOURCE:** [AIR](#)

## NATIONAL CHILDREN'S DAY

**Context:** President Droupadi Murmu stressed the need to inspire children from childhood to help others and have a feeling of love and respect for the environment on **National Children's Day**.

**Background:-**

- The President stated this while addressing the children from various schools and organisations at Rashtrapati Bhavan on Children's Day.

**About National Children's Day:-**

- Children's Day is also known as '**Bal Diwas**' in India.
- Children's Day is the annual celebration in the country that falls **on the birthday of India's first Prime Minister Pandit Jawaharlal Nehru, on November 14**.
- Its celebrations **date back to 1956**, when the day was observed as 'Universal Children's Day' on November 20, keeping with the United Nations.

- But, after Pt Nehru died in 1964, it was decided the celebrations be moved to **commemorate his birth anniversary**.
- Pt Nehru's love for children was well-known.
- He was hailed as '**Chacha Nehru**' owing to his popularity among children.
- It is said that **he considered them to be the future assets** of the country, for whom an all-rounded education would be of importance for their career, and for the country. (**Early Childhood Care and Education (ECCE)**)
- Thus, Pt Nehru became a **role model for many future generations**.
- He also established pioneer scientific institutions like the **All India Institute of Medical Sciences (AIIMS), the Indian Institutes of Technology (IIT), the Indian Institutes of Management (IIM), and the National Institutes of Technology (NIT)**.

#### Significance:-

- The day stands for the **rights of children** and prioritizes their needs and voices. (**The Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021**)
- It also raises awareness of **the need for the education of children to enable them to be better citizens** of the country in the coming years.

**MUST READ:** [Child Marriage in India](#)

**SOURCE:** [AIR](#)

### MANOHAR PARRIKAR YUVA SCIENTIST AWARD

**Context:** Recently, ISRO's Dr. Mathavaraj was selected for Goa Govt.'s first '**Manohar Parrikar Yuva Scientist Award**'.

#### Background:-

- Dr Mathavaraj had designed the powered descent trajectory of the Chandrayana 3 Mission that had successfully landed on the South Pole of the moon.
- As many as 106 applications were received by the government for the award, and former Atomic Energy Commission of India Chairman Dr Anil Kakodkar, who chaired the Expert Committee of Selection of Yuva Scientist, shortlisted 14 applicants.

#### About Manohar Parrikar Yuva Scientist Award:-

- **Award presentation date: 13th December 2023 .**
- It is the **birth anniversary of Dr. Manohar Parrikar**.
- "The award will be presented at Manohar Parrikar Vigyan Mahotsav at NIO.
- The selection committee headed by Dr Anil Kakodkar selected Dr Mathavaraj, who designed the powered descent trajectory of the Chandrayaan-3 Mission, for the award.

#### Decoration:-

- The award comprises of:-
  - ₹5 lakh and
  - a citation.
- It is the highest cash prize in science and technology.

**MUST READ:** [Pravasi Bharatiya Samman Award \(PBSA\)](#)

**SOURCE:** [THE HINDU](#)

### BRITISH ACADEMY BOOK PRIZE

**Context:** Recently, India-born author Nandini Das has been named the winner of the **British Academy Book Prize 2023**.

**Background:-**

- Nandini Das won the prize for her book 'Courting India: England, Mughal India and the Origins of Empire'.

**About British Academy Book Prize 2023:-**

- **Established:** 2013.
- **Given by:** The British Academy
- **Prize Money:** £25,000
- **Objective:** To reward and celebrate the best works of non-fiction books.
- It was formerly known as **Nayef Al-Rodhan Prize**. ([Nobel Peace Prize 2022](#))
- Nandini Das, a 49-year-old Indian-born author and Professor in the English faculty at the University of Oxford won the 2023 British Academy Book Prize for Global Cultural Understanding.
- Her winning book is titled "**Courting India: England, Mughal India, and the Origins of Empire**," which explores the origins of the British Empire by focusing on the first English ambassador in India, Sir Thomas Roe, in the early 17th century.
- **Other Shortlisted Work:** The shortlist for the prize also included a work titled "Black Ghost of Empire: The Long Death of Slavery and the Failure of Emancipation" by Kris Manjapra.

**MUST READ:** [Padma awards](#)

**SOURCE:** [THE NEW INDIAN EXPRESS](#)

# IAS BABA



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## MAINS

## PAPER 1

## SOCIETY THROUGH CINEMA'S LENS

## GS I - CULTURE

**Context:** Movies are powerful cultural artifacts that both reflect and influence society. Indian cinema is not only a source of entertainment but also a reflection of Indian society, culture, and values. They serve as mirrors that reflect the values, beliefs, and norms of a particular culture or time period.

## MOVIES AND SOCIETY

## Reflection of Culture and Values

- **Cultural Representation:** Movies often reflect the culture of a society, showcasing its traditions, customs, and societal norms. Ex – Kantara
- **Values and Beliefs:** Filmmakers use movies to explore and challenge societal values, presenting different perspectives on issues such as morality, ethics, and social justice. Ex – Jai Bhim

## Social Issues and Awareness

- **Social Commentary:** Movies can serve as a platform for social commentary, addressing and raising awareness about various social issues like discrimination, inequality, poverty, and environmental concerns. Ex- The Great Indian Kitchen
- **Advocacy and Activism:** Some movies are explicitly made to advocate for social change, inspiring viewers to take action or think critically about certain topics. Ex - Thapad

## Cultural Trends and Fashion

- **Influence on Fashion:** Movie characters and their styles often influence fashion trends, impacting the way people dress and present themselves in society.
- **Cultural Icons:** Movie stars can become cultural icons, shaping trends not only in fashion but also in lifestyle choices and behaviors.

## Cultural Diversity and Representation

- **Diverse Perspectives:** Movies have the power to showcase diverse perspectives and cultures, fostering understanding and appreciation for different backgrounds.
- **Representation:** The film industry's efforts (or lack thereof) in representing various demographic groups influence societal perceptions and attitudes toward those groups.

## Formation of Stereotypes

- **Stereotypes in Media:** Movies can perpetuate stereotypes, shaping public perceptions of certain groups based on race, gender, ethnicity, or other characteristics.
- **Challenging Stereotypes:** Conversely, movies can also challenge and break stereotypes, offering more nuanced and authentic portrayals of individuals and communities.

## Impact on Behavior and Attitudes

- **Cultural Impact:** Popular movies can have a significant impact on societal attitudes and behaviors, influencing the way people think and act.
- **Social Movements:** Movies can contribute to or reflect social movements, amplifying the voices of marginalized communities and advocating for change.

## Escapism and Entertainment

- **Entertainment Value:** Movies provide a form of escapism, allowing people to temporarily disconnect from the challenges of real life and immerse themselves in fictional worlds.

**Cultural Trends in Entertainment:** Changing trends in movie genres and storytelling often align with broader societal shifts in preferences and interests.

## EVOLUTION OF INDIAN CINEMAS

## Silent Era (1896-1930s)

- The journey of Indian cinema began with the Lumière Brothers' first screening in Mumbai in 1896. Early films were short, silent, and often depicted mythological stories.
- Dadasaheb Phalke is considered the father of Indian cinema for his film "Raja Harishchandra" (1913), marking the beginning of feature films in India.
- Silent films were accompanied by live music, and the storytelling was heavily influenced by Indian mythology.

**Pre-Independence and Early Talkies (1930s-1947):**

- The 1930s saw the advent of sound in Indian cinema with the release of "Alam Ara" in 1931.
- The industry expanded, and films started addressing social issues. The 1930s and 1940s were marked by the emergence of prominent studios like Bombay Talkies and New Theatres.

**Golden Age (1950s-1960s)**

- The post-independence era witnessed the "Golden Age" of Indian cinema. Filmmakers like Satyajit Ray, Bimal Roy, and Guru Dutt introduced a new wave of realistic and socially relevant cinema.
- Satyajit Ray's "Pather Panchali" (1955) brought international acclaim to Indian cinema.

**Masala Films and Parallel Cinema (1970s-1980s)**

- The 1970s and 1980s marked the dominance of masala films commercial movies with a mix of action, drama, romance, and music. Amitabh Bachchan emerged as a megastar during this era.
- The 1980s also saw the emergence of regional cinemas, with filmmakers like K. Balachander (Tamil cinema) and Adoor Gopalakrishnan (Malayalam cinema) making significant contributions.

**Globalization and Modern Era (1990s-Present)**

- The 1990s witnessed the liberalization of the Indian economy, leading to changes in film financing, production, and distribution.
- Bollywood gained global recognition, and Indian films started participating in international film festivals.
- Filmmakers like Mani Ratnam, Ram Gopal Varma, and Karan Johar brought a modern and stylized approach to storytelling.
- The 2000s and beyond saw the rise of independent cinema, with filmmakers experimenting with new genres and narratives.

**Digital Age and Streaming Platforms (2010s-Present)**

- The advent of digital technology and streaming platforms has transformed the way films are produced, distributed, and consumed.
- A diverse range of films, including content-driven and small-budget films, found success on streaming platforms.
- The line between Bollywood and regional cinema has blurred, with films from various industries gaining national and international recognition.



## PAPER 2

### COPYRIGHTS LAWS

#### GS II – INDIAN CONSTITUTION

**Context:** Copyright refers to the legal right of the owner of intellectual property. In simpler terms, copyright is the right to copy. This means that the original creators of products and anyone they give authorization to are the only ones with the exclusive right to reproduce the work.

Copyright law gives creators of original material the exclusive right to further use and duplicate that material for a given amount of time. Once a copyright expires, the copyrighted item becomes public domain.

#### LEGAL PROVISION AVAILABLE REGARDING COPYRIGHT INFRINGEMENT

- Copyright ensures certain minimum safeguards of the rights of authors over their creations, thereby protecting and rewarding creativity.
- Copyright Act of 1957, protects original literary, dramatic, musical and artistic works and cinematograph films and sound recordings from unauthorized uses.
- Literary, dramatic, musical or artistic works enjoy protection for the life time of the author plus 60 years beyond i.e. 60 years after his death.
- In case of joint authorship, the term of copyright is to be construed as a reference to the author who dies at last.
- It gives broadcasting reproduction right to every broadcaster which is valid for 25 years from the beginning of the calendar year next following the year in the broadcast has been done.
- Copyright Board Act provides for the establishment of the Copyright Board and empowers Central Government to constitute the same for settlement of disputes, granting of licenses, etc.
- The copyright infringement is punishable with imprisonment for a term which may extend up to 3 years.

#### ISSUES WITH THE ACT

- A copyright is created the moment a piece of art or music or literature is fixed on a medium, provided it is original.
- Unlike trademark law, it is not mandatory under the Copyright Act to register copyrights as a necessary precondition in order to enforce the same.
- Whether the piece of art or music or literature is original or not is another complicated question of law.
- There is the question of whether the use of the copyrighted work is permissible under all the provisions in Section 52 of the Copyright Act outlining the exceptions to copyright infringement.
- For example, if a work is qualified for protection under the Designs Act of 2000, it can no longer claim protection under the Copyright Act once it is reproduced beyond a certain threshold.
- Determining the copyright infringement would require the court to apply the test of substantial similarity on a case-by-case basis.

#### SUPREME COURT JUDGEMENTS

- In the *Knit Pro International v. The State of NCT*, the SC held that the offence of copyright infringement under Section 63 of the Copyright Act is a cognizable and non-bailable offence.
- The bench held that if the offence is punishable with imprisonment for three years and onwards but not more than seven years (3-7 years), the offence is a cognizable offence.
- As a result, it takes away the right of the accused to post a bail bond with the police and shifts the responsibility on to the courts for judicial determination on a case-by-case basis.

Cr.P.C. defines cognizable offence as an offence for which the police officer can arrest the convict without a warrant and can start investigation without the due permission of the court. These are the offences that are usually very serious and generally heinous in nature such as rape, murder, kidnapping, dowry death etc.

#### CONCLUSION

The copyright law is considered as an essential law of protection for a country because it enriches its national cultural heritage of it. However, higher the level of protection given to literary, dramatic, musical or artistic work

in any country, automatically higher is the number of intelligent creation, i.e. higher it's renown. Thus, in the final analysis, we can say for economic, cultural and social development, it is the basic perquisites.

## HUMANITARIAN AID

### GS II – INTERNATIONAL RELATIONS

**Context:** Humanitarian aid is the help given to people in crisis, such as a war, famine or natural disaster. It can be provided by Governments, NGOs and Multilateral institutions like United Nations.

#### THE NEED OF HUMANITARIAN AID

- To save lives
- To achieve equitable development all over the world
- To achieve sustainable development

#### CHALLENGES

- The distribution of aid can be a complex and time-consuming process. It can be difficult to reach all the people in need, especially in conflict zones or remote areas
- Sanctions imposed and anti-terrorism regulations can render humanitarian aid impossible in practice or make it a criminal act.
- Lack of community trust in aid organizations versus the excessive trust they have in celebrities and renowned persons is one of the main challenges

#### ISSUES

- Humanitarian aid can provide resources that armed groups can use to sustain their operations or recruit new fighters. This can prolong conflict and make it more difficult to achieve peace.
- When aid is delivered in a way that bypasses local markets, it can undermine local businesses and lead to price inflation. This can make it difficult for people to afford basic necessities and can lead to resentment against aid agencies.
- If aid is not well-targeted or managed, it can create a culture of dependency among the people it is intended to help. This can make it difficult for people to rebuild their lives and livelihoods after a crisis.
- Humanitarian aid can be a target for corruption, both by governments and by aid agencies themselves. This can divert aid away from those who need it most and can undermine the public's trust in aid.

If aid is not distributed fairly, it can exacerbate existing inequalities within a community. This can lead to resentment and conflict.

#### INTERNATIONAL ORGANIZATIONS INVOLVED ARE

- UNDP is involved in humanitarian aid and disaster relief efforts
- UNHCR is a United Nations program that provides protection and assistance to refugees, asylum seekers, and stateless persons worldwide.
- UNICEF is a United Nations program that provides humanitarian and developmental assistance to children and mothers in developing countries

#### INDIA POSITION ON HUMANITARIAN AID

- With its principle of Vasudiva KUTUMBUM India has always been a first responder to provide help in the Indian Ocean region.
- EX: Its help in Nepal Earthquake. Its role in giving aid to Sri Lanka During pandemic. Its work in protecting the Maldives when its presidential palace is under cease
- Although India is a first responder when it comes to accepting the aid from foreign nations it usually does not. Ex it rejecting the aid offered by UAE during Kerala Floods

## EFFECTIVENESS OF UN TO GET CEASEFIRE

### GS II – INTERNATIONAL RELATIONS

#### IMPORTANCE OF UN FOR PEACE

- The UN serves as a platform for diplomatic negotiations and conflict resolution. Through its various bodies, such as the Security Council, General Assembly, and specialized agencies like the United Nations Office for Disarmament Affairs, it facilitates dialogue and negotiations between conflicting parties to find peaceful solutions to disputes.
- The UN deploys peacekeeping missions to conflict zones around the world. These missions aim to maintain or restore peace by monitoring ceasefires, separating warring factions, and providing a secure environment for the delivery of humanitarian aid. Peacekeepers play a critical role in preventing the escalation of conflicts and helping countries transition from war to peace.
- The UN's mediators and special envoys work to prevent conflicts from escalating by engaging with parties in dispute, facilitating dialogue, and promoting peaceful settlements. Preventive diplomacy efforts are crucial in addressing underlying tensions before they erupt into full-blown conflicts.
- The UN, through agencies like the United Nations High Commissioner for Refugees (UNHCR) and the World Food Programme (WFP), provides vital humanitarian aid to populations affected by conflict. This assistance includes food, shelter, healthcare, and protection for displaced people, helping to alleviate suffering and promote stability.
- The UN promotes the rule of law and justice in post-conflict societies. It helps countries establish and strengthen legal and judicial institutions, which are essential for resolving grievances and preventing the rekindling of conflicts.
- The UN works on disarmament and non-proliferation efforts to reduce the availability of weapons and prevent conflicts from escalating. Treaties such as the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the Convention on the Prohibition of the Use, Stockpiling, Production, and Transfer of Anti-Personnel Mines and on Their Destruction (the Ottawa Treaty) are examples of UN-backed initiatives to reduce the impact of warfare.
- The UN upholds and enforces international laws and conventions that govern the conduct of states during conflicts. This includes the Geneva Conventions, which provide protections for civilians and combatants during armed conflicts.

#### **WHY IS THE UN INEFFECTIVENESS IN BRINGING CEASEFIRE?**

- A global order must reflect two criteria: one, convergence of views among the major powers of the day and two, it must also seek to provide a global public good, i.e. it must have salability for the rest of the world.
- However, the equations of power are not permanent, they change. Eventually, that is how legitimacy gets eroded.
- Post the Cold War, we saw a gradual decline in the ability of the UN to undertake any kind of meaningful roles (in resolving conflicts). The Israel crisis is just one of them.
- With the major powers developing severe differences, they have made it impossible for the UN with its frozen membership of decision-making bodies, such as the UNSC, to be able to undertake any meaningful action.

The UNSC, in its present shape, as long as the vetoes are there, does not provide any hope for addressing any international issue, where the national interests of the permanent five are in conflict.

#### **HISTORY OF UNITED NATIONS ESTABLISHMENT**

- 1920: The League of Nations was an international organisation founded on January 10, 1920, as a result of the Paris Peace Conference that ended World War I.
- 1941: during World War II, representatives from 26 countries signed the Atlantic Charter, which called for the establishment of a post-war organization to promote international cooperation and prevent future wars.
- 1945: the UN was founded after the signing of the UN Charter by 51 countries on June 26th. The headquarters of the UN is located in New York City.
- The UN officially came into existence on October 24, 1945, after the ratification of the UN Charter by the majority of its founding members.
- 1946: The first meeting of the UN General Assembly was held in London in January 1946. The Assembly is the main policymaking and representative body of the UN.
- 1947: the UN established the International Court of Justice, which is the principal judicial organ of the UN.

- 1948: the UN adopted the Universal Declaration of Human Rights, which outlines fundamental human rights that should be protected around the world.
- Over the years, the UN has grown to include 193 member states and has played a key role in many global issues, including peacekeeping, humanitarian aid, and human rights.

### CONCLUSION

It is essential to acknowledge that UN effectiveness can be limited by the willingness of member states to cooperate and the inherent complexities of international diplomacy. To bring peace in the conflict regions either major powers should be at consensus or there is a need for reforming the pattern of voting in the major bodies of UN.

## INDIAN INSTITUTE OF TECHNOLOGY (IIT) AND HIGHER EDUCATION

### GS II – EDUCATION

**Context:** The Indian Institutes of Technology (IIT) are globally recognized as the crown jewels in India's higher education system. Indeed, they are often the only Indian higher education institutions known internationally at all. They have produced leaders in high tech and related fields in India and abroad.

#### STATUS OF INDIAN HIGHER EDUCATION SYSTEM

- India has the largest population in the world in the age bracket of 5-24 years with 580 million people, presenting a huge opportunity in the education sector.
- India is the world's 2nd largest higher education system, with around 38 million students in 50,000 academic institutions (including 1,057 universities).
- It has a goal of doubling gross enrolment rates from the current 26.3% to 50% by 2035.
- India is the 2nd largest source of international students (after China) globally.

#### ISSUES AND CHALLENGES IN INDIA'S HIGHER EDUCATION SECTOR

- **Enrolment:** The Gross Enrolment Ratio (GER) of India in higher education is only 25.2% which is quite low as compared to the developed and other major developing countries. There is no equity in GER among different sections of society. GER for males (26.3%), females (25.4%), SC (21.8%) and ST (15.9%).
- **Lack of Access:** A significant portion of India's population, especially in rural areas, lacks access to quality higher education institutions. This leads to a stark urban-rural divide in educational opportunities.
- **Faculty Shortages:** There is a shortage of qualified and experienced faculty members in many higher education institutions. The Pupil-to-teacher ratio in the country has been (30:1), in comparable to USA (12.5:1), China (19.5:1) and Brazil (19:1).
- **Outdated Curriculum:** The curriculum in many institutions is often outdated and not aligned with industry requirements, leading to a gap between what students learn and what they need to succeed in the job market.
- **Lack of Research and Innovation:** India's investment in R&D has remained constant at around 0.6% to 0.7% of India's GDP. This is below the expenditure of countries like the US (2.8), China (2.1), Israel (4.3) and Korea (4.2). While India has made progress in research and innovation, there is still a need for more investment and a greater research focus in higher education institutions to remain competitive on the global stage.

**Regulatory issues:** Management of the Indian education faces challenges of over-centralization, bureaucratic structures and lack of accountability, transparency, and professionalism. As a result of the increase in a number of affiliated colleges and students, the burden of administrative functions of universities has significantly increased and the core focus on academics and research is diluted.

#### HISTORY OF IIT'S

- The concept of IITs was conceived by India's first Prime Minister, Jawaharlal Nehru, and the first Chairman of the University Grants Commission, Sir Jogendra Singh.
- Nehru envisioned a network of institutions that could provide world-class education in engineering and technology to fuel India's industrial and technological development.
- The first Indian Institute of Technology (IIT) was established in Kharagpur, West Bengal, in 1951. It was founded with the assistance of the Soviet Union.

- Kharagpur served as a model for future IITs and started with degree programs in a variety of engineering disciplines.
- Over the years, IITs have evolved and diversified their academic programs. In addition to undergraduate B.Tech programs, they introduced postgraduate M.Tech, M.Sc, and Ph.D. programs.
- IITs have also placed a strong emphasis on research and innovation, making significant contributions to various fields of science and engineering.

#### RECENT INITIATIVES TAKEN BY THE GOVERNMENT

- Education Quality Upgradation and Inclusion Programme (EQUIP) has been recently launched with a five-year vision plan to improve the quality and accessibility of higher education over the next five years (2019-2024).
- Revitalising Infrastructure and Systems in Education (RISE) by 2022, is to make India into an education hub by making available high-quality research infrastructure in Indian higher educational institutions.
- UGC's Learning Outcome-based Curriculum Framework (LOCF) guidelines, issued in 2018, aims to specify what graduates are expected to know, understand and be able to do at the end of their programme of study. This is to make student active learner and teacher a good facilitator.

Global Initiative for Academics Network (GIAN), programme seeks to invite distinguished academicians, entrepreneurs, scientists, experts from premier institutions from across the world, to teach in the higher educational institutions in India.

#### CONCLUSION

Efforts are being made by the Indian government and various stakeholders to address these issues, including initiatives to expand access to education, improve the quality of institutions, and enhance research and innovation. However, addressing these challenges will require sustained commitment, policy reforms, and increased investment in higher education.

### STATES IN COURT AGAINST THEIR GOVERNORS

#### GS II – INDIA CONSTITUTION

**Context:** A battery of non-BJP ruled States have approached the Supreme Court accusing their Governors of using a non-existent discretion to unreasonably delay the passing of crucial Bills into law. The Bills in limbo cover sectors such as public health, higher education, Lokayukta and cooperative societies.

#### GOVERNOR'S POWER OVER STATE BILLS

##### ARTICLE 200

- Article 200 of the Indian Constitution outlines the process for a Bill passed by the Legislative Assembly of a State to be presented to the Governor for assent, who may either assent, withhold assent or reserve the Bill for consideration by the President.
- The Governor may also return the Bill with a message requesting reconsideration by the House or Houses.

##### ARTICLE 201

- It states that when a Bill is reserved for the consideration of the President, the President may assent to or withhold assent from the Bill.
- The President may also direct the Governor to return the Bill to the House or Houses of the Legislature of the State for reconsideration.

#### Options Available with the Governor

- He may give assent, or he can send it back to the Assembly requesting it to reconsider some provisions of the Bill, or the Bill itself.
- He may reserve the bill for the consideration of the president.
- The reservation is obligatory where the bill passed by the state legislature endangers the position of the state high court. However, the governor can also reserve the bill if it is of the following nature:
  - Against the provisions of the Constitution
  - Opposed to the DPSP
  - Against the larger interest of the country
  - Of grave national importance
  - Deals with compulsory acquisition of property under Article 31A of the Constitution.

- Another option is to withhold the assent, this is the accusation being made by various state governments. Example in Kerala Governor withhold his assent for over eight bills passed by its Legislative Assembly not for months, but years. Of the eight, three Bills were waiting for the Governor's word for over two years.

### SUPREME COURT STAND

- In 1972 judgment in Durga Pada Ghosh versus State of West Bengal, the Supreme Court has interpreted "as soon as possible" in Article 200 to mean "as early as practicable without avoidable delay."
- SC in recent petition filed by the Punjab government accusing the Governor of sitting on seven key Bills related to subjects including fiscal and State-affiliated colleges, has noted that The Governors should not be oblivious of the fact that they are not elected by the people."
- The 1988 Sarkaria Commission report on Centre-State relations had suggested consultation with the Governor while drafting the Bill and fixing a deadline for its disposal.

### GOVERNORS DISCRETION POWER

The Supreme Court in the Shamsheer Singh case verdict has held that as a formal head of the State a "Governor exercises all his powers and functions conferred on him by or under the Constitution on the aid and advice of his Council of Ministers save in spheres where the Governor is required by or under the Constitution to exercise his functions in his discretion." The assent or return of the Bill does not involve the discretion of individuals occupying the Governor's post.

### CONSTITUTIONAL DISCRETION

- When they have to reserve the bill for the consideration of the President of India, Governors can decide on their own without the advice of the Council of Ministers
- When he has to recommend for the President's rule in the state, he can act at his own discretion
- When he is given an additional charge as the administrator of the Union Territory, he can take actions at his own discretion
- When he has to determine the amount payable by the Government of Assam, Meghalaya, Tripura, and Mizoram to an autonomous Tribal District Council as royalty accruing from licenses for mineral exploration
- When he calls upon the Chief Minister to seek information regarding administrative and legislative affairs

### SITUATIONAL DISCRETION

- When he has to appoint a Chief Minister after no party has a clear majority in the election or when the incumbent dies in the office
- When he dismisses the council of ministers on an inability to prove confidence in the state legislative assembly
- When he dissolves the state legislative assembly on time when it loses its majority

### CONCLUSION

The framers of the Constitution did not anticipate Governors sitting on Bills indefinitely without taking any action under Article 200. Gubernatorial Procrastination is a new phenomenon that requires a new solution within the framework of the Constitution. Therefore, the Supreme Court should set a reasonable time frame for Governors to make a decision on a Bill passed by the Assembly in the interest of federalism in the country.

## FORCED DISPLACEMENT

### GS II – HUMAN RESOURCES

### GS III – INTERNAL SECURITY

**Context:** The UN defines refugees as those individuals that have fled their own countries because of persecution, war or violence. A refugee has a well-founded fear of persecution for reasons of race, religion, nationality, political opinion or membership in a particular social group. Most likely, they cannot return home or are afraid to do so. War and ethnic, tribal and religious violence are leading causes of refugees fleeing their countries.

### CAUSES OF DISPLACEMENT

- **Conflict and War:** People often flee their homes when violence and warfare break out in their region, as they fear for their safety and the safety of their families. Ukrainians displacement is an example for it.



- **Persecution:** Persecution based on factors such as political beliefs, religion, ethnicity, race, nationality, or membership in a particular social group can force people to become refugees. For Example – Rohingya Muslims
- **Human Rights Violations:** Gross human rights violations, including torture, discrimination, and denial of basic freedoms, can lead individuals or communities to seek refuge in other countries. Example Afghanian people displacement after Taliban takeover
- **Environmental Disasters:** Natural disasters, such as earthquakes, hurricanes, floods, and droughts, can displace people from their homes. This is often referred to as "environmental displacement" or "climate refugees."
- **Economic Hardship:** Economic instability and extreme poverty can also drive people to become refugees. They may leave their home countries in search of better economic opportunities and living conditions.
- **Political Instability:** Political instability, including coup, government oppression, and a lack of democratic governance, can lead to refugee crises as people seek more stable environments. Example Congo refugees.

### IMPACT OF FORCED DISPLACEMENT ON HOST COUNTRIES

- **Strain on Resources and Services:** The sudden influx of refugees can place significant pressure on host communities' resources and can overburden existing infrastructure, leading to shortages and reduced access for both refugees and host community members.
- **Social Cohesion and Cultural Dynamics:** The arrival of refugees may create social tensions and cultural dynamics within host communities. Differences in language, religion, and customs can generate misunderstandings and conflicts.
- **Increased Competition for Jobs:** The presence of refugees can lead to competition for employment opportunities in host communities. Some host community members may perceive refugees as taking away jobs or driving down wages, leading to tension and resentment.

### CURRENT REFUGEE SITUATION IN INDIA

- India is home to diverse groups of refugees, ranging from Buddhist Chakmas from the Chittagong Hill Tracts of Bangladesh, to Bhutanese from Nepal, Muslim Rohingyas from Myanmar and small populations from Somalia, Sudan and other sub Saharan African countries.
- According to the UNHCR, there were 204,600 refugees, asylum seekers and 'others of concern' in India in 2011.
- They were made up of 13,200 people from Afghanistan, 16,300 from Myanmar, 2,100 from various other countries and the two older populations of around 100,000 Tibetans and 73,000 Sri Lankan Tamils. The UNHCR financially assisted 31,600 of them.
- In late 2011, the Rohingya started to arrive in India's Northeast following stepped-up persecution by the Myanmar's armed forces.
- According to the Home Ministry, there are roughly 14,000 Rohingya refugees in
- Other refugees include Ahmadiyya, Shia, Hazaras from Pakistan and Afghanistan.

### STATISTICS ABOUT DISPLACEMENT

- According to UNHCR's statistics on forced displacement, the number of people who were forced to flee their homes due to persecution, conflict, violence, human rights violations and events seriously disturbing public order reached a record 108.4 million by the end of 2022, and 30% of them were children.
- The main driver of displacement in 2022 was the full-scale war in Ukraine, which erupted in February 2022 and created the fastest and one of the largest displacement crises since World War II.
- By the end of 2022, a total of 11.6 million Ukrainians remained displaced, including 5.9 million within their country and 5.7 million who fled to neighbouring countries and beyond.
- In addition to conflict and violence, climate change and natural disasters also triggered displacement and exacerbated the vulnerability of displaced populations.
- Climate disasters caused 32.6 million internal displacements throughout 2022 and 8.7 million of the people did not manage to return home by the end of the year.

Disaster related internal displacement accounted for more than half (54%) of all new displacements in 2022.

## CONCLUSION

Addressing the root causes of forced displacement requires efforts to resolve conflicts and promote peace. Diplomatic negotiations, mediation, and peace building initiatives can help prevent further displacement by resolving the underlying issues.

## IMPORTANCE OF CAG

### GS II – GOVERNANCE AND SOCIAL ISSUES

**Context:** Comptroller and Auditor General (CAG) of India plays a crucial role in the democratic framework by ensuring transparency, accountability, and financial integrity in government's functioning. CAG helps to maintain the separation of powers between legislature and executive by ensuring that the government's financial activities align with legislative intentions. Through its audit findings and recommendations, the CAG's promotes good governance practices and helps government streamline their operations, reduce inefficiencies and adhere financial discipline.

### FUNCTIONS, DUTIES AND POWERS OF COMPTROLLER AND AUDITOR GENERAL OF INDIA

The Comptroller and Auditor General (CAG) is a constitutional functionary, independent of Parliament/legislature and executives. The CAG is responsible for

- Audit of Ministries and departments of Government of India and the State Governments.
- Audit of Central and State Government Public Sector Undertakings and other autonomous bodies and authorities which are financed from Government funds.
- Audit of receipts of Union or of States.
- Audit of accounts stores and stock.
- Audit of companies and corporations.

The Comptroller and Auditor General is also responsible of compilation of accounts of the State Government, authorization of pensioners benefits of selected categories of employees, maintenance of provident funds accounts of State Government employees of most State Governments.

These audit and accounting functions are carried out by the Indian Audit and Accounts Department (IA & AD) which functions under the Comptroller and Auditor General of India.

### LIMITATIONS ON THE POWER OF CAG

- **Report is post-facto:** i.e. after the expenditure is incurred and has only prospective value in improving systems and procedures.
- **Secret service expenditure:** such expenditure is outside the purview of the CAG and he cannot call for particulars of expenditure incurred by the executive agencies, but has to accept a certificate from the competent administrative authority that the expenditure has been so incurred.
- **Rising PPP investments:** Since the legislation, the government has increased its participation with the private sector through the PPT (public-private-transfer) and BOT (build-own-transfer) models. However, the rules have not undergone a significant change and CAG does not have the power to audit PPP (Public Private Partnership) investments.
- **NGO's, PRI and ULB's out of audit ambit:** There is no provision for auditing of funds that are given to an NGO and elected local bodies. Also, CAG presently does not have the full authority to audit the PRIs and ULBs. In most states, the Examiners functioning under the Finance Department audit the accounts of local bodies.
- **DRDAs also not auditable:** (District Rural Development Authority) today are managing large sums of money for rural development yet they also are outside the purview of CAG audits.
- **Denial of documents:** the path to obtain the relevant documents to carry out their tasks and make a report on its basis has never been easy for audit department. It has also been involved in several cases where the necessary documents were denied to the CAG and the powers of the CAG had to be reinstated by the Judiciary. In the past, almost 30% of the documents demanded by CAG officials have been denied to them.
- **Mode of Appointment:** The present selection process for the CAG is entirely internal to the Government machinery; no one outside has any knowledge of what criteria are applied, how names are shortlisted and how a final selection is made. There is a lack of clarity on the criterion, the definition of the field of choice, and the procedures for the selection of this high constitutional functionary.

**Word audit not defined:** The word 'audit' has not been defined in either the Constitution or in the CAG Act, 1971. We have so far been going by 150 years of history, tradition, existing provisions and international practice. The CAG has not formulated its own policy in the above reports and has only gone by policy prescriptions recommended internally at various levels within the government.

#### **Constitutional provisions related to CAG**

- **Art. 148:** broadly speaks of the CAG, his appointment, oath and conditions of service
- **Art. 149:** broadly speaks of the Duties and Powers of the CAG
- **Art. 150:** The accounts of the Union and the States shall be kept in such form as the President may, on the advice of the CAG, prescribe.
- **Art. 151:** Audit Reports: The reports of the Comptroller and Auditor-General of India relating to the accounts of the Union shall be submitted to the president, who shall cause them to be laid before each House of Parliament.

#### **BROAD OBJECTIVES OF AUDIT**

The broad objectives of audit are to ensure legality, regularity, economy, efficiency and effectiveness of financial management and public administration mainly through assessment as to:

- whether the financial statements are properly prepared, are complete in all respects and are presented with adequate disclosures (financial audit);
- whether the provisions of the Constitution, the applicable laws, rules and regulations made thereunder and various orders and instructions issued by competent authority are being complied with (compliance audit); and
- The extent to which an activity, programme or Organisation operates economically, efficiently and effectively (performance audit).

#### **TYPES OF AUDIT PERFORMED BY CAG**

- **Regulatory Audit:** It is an audit to ascertain whether the money spent was authorized for the purpose for which they were spent and also that the expenditure incurred was in conformity with the laws, rules and regulations.
- **Supplementary Audit:** CAG takes up supplementary audits in PSUs, even after the commercial audits are done by the auditors appointed by the CAG, for the detection of leakages.
- **Propriety Audit:** It focuses on whether the expenditure made is in the public interest or not i.e. it moves beyond mere scrutiny of expenditure to question its wisdom and economy to identify cases of improper expenditure and waste of public money.
- **Efficiency Audit:** Efficiency audit as the name suggests answers the question of whether the money invested yields optimum results. The main purpose of the efficiency audit is to ensure that the investment is prioritized and channeled into its most profitable utilization.
- **Performance Audit:** Performance audit answers whether the government programs such as NREGA have achieved the desired objectives at the lowest cost and given the intended benefits. It generally does not get into the merits-demerits of a particular policy/scheme but rather looks into the effectiveness with which the scheme is implemented and any deficiencies thereof.
- **Environmental Audit:** This is a relatively new area of concern for the CAG keeping in mind the challenges facing India with respect to the conservation and management of the environment. More than 100 audits on environmental issues like bio-diversity, pollution of rivers, waste management have been conducted by the CAG to identify critical issues and suggest possible solutions by involving all stakeholders.

#### **CONCLUSION**

The Comptroller and Auditor General plays a crucial role in maintaining the financial integrity of government operations, promoting transparency and accountability, and safeguarding public funds. It contributes to better governance and ensures that public resources are used efficiently and effectively for the benefit of citizens.

### **14<sup>TH</sup> NOVEMBER - WORLD DIABETES DAY**

#### **GS II – HEALTH**

**Context:** World Diabetes Day provides an opportunity to raise awareness of diabetes as a global public health issue and what needs to be done, collectively and individually, for better prevention, diagnosis and management

of the condition. According to the World Health Organisation, diabetes is a major cause of blindness, kidney failure, heart attacks, stroke, and lower-limb amputation.

#### WHAT IS DIABETES?

- Diabetes is a Non-Communicable Disease (NCD) that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces.
- Diabetes affects the five major organs namely, Kidney, Heart, Blood vessels, Nervous System, and Eyes (retina).

#### REASONS FOR PREVALENCE OF DIABETES

- **Lifestyle changes:** The rapid change in dietary patterns, physical inactivity, and increased body weight, especially the accumulation of abdominal fat, are some of the primary reasons for increased prevalence.
- **Genetic Factors:** Genetic predisposition plays a role in the development of diabetes. Individuals with a family history of diabetes may have a higher risk of developing the condition.
- **Obesity:** There is a strong link between obesity and type 2 diabetes. Excess body weight, particularly abdominal or visceral fat, contributes to insulin resistance, making it harder for the body to regulate blood sugar levels.
- **Urbanization:** Urbanization is associated with changes in lifestyle, including altered dietary patterns and decreased physical activity. As more people move to urban areas, there is often an increase in the prevalence of sedentary jobs, reliance on processed foods, and decreased opportunities for physical activity.
- **Aging Population:** The global population is aging, and age is a significant risk factor for diabetes. As people get older, the risk of developing type 2 diabetes increases.
- **Environmental Factors:** Exposure to certain environmental factors, such as pollutants and endocrine-disrupting chemicals, may contribute to the development of diabetes. These factors can potentially influence insulin resistance and disrupt metabolic processes.

#### CAN DIABETES CAN BE REVERSED?

- The term 'reversal' of diabetes is scientifically incorrect; the appropriate term is 'remission' of diabetes.
- Reversal implies that the condition has permanently reverted to normal and a cure has been achieved. 'Remission' implies that diabetes has only gone away temporarily.
- There are certain individuals with type 2 diabetes who are more likely to achieve remission. This can be identified by the letters ABCDE.
  - A refers to A1c (glycated haemoglobin) which should not be very high
  - B refers to Body Mass Index (BMI) or body weight. If it is high, you are more likely to achieve remission due to weight loss
  - C stands for C-Peptide, a measure of insulin secretion. If it is good, you can achieve remission more easily
  - D stands for Duration of diabetes; the shorter the duration, the greater the chances of remission
  - E stands for an Enthusiastic individual who is keen to achieve remission.
- One should remember that even if one achieves remission of diabetes only for a few months or years, it is still worthwhile because it leads to a good 'legacy effect' which provides protection from complications caused by diabetes.

#### TYPES OF DIABETES

- **Type I diabetes:** It is also known as juvenile diabetes (as it mostly affects children of age 14-16 years), this type occurs when the body fails to produce sufficient insulin. People with type I diabetes are insulin-dependent, which means they must take artificial insulin daily to stay alive.
- **Type 2 diabetes:** It affects the way the body uses insulin. While the body still makes insulin, unlike in type I, the cells in the body do not respond to it as effectively as they once did. The population with 45 and above age group is the most affected with it.
- **Gestational diabetes:** This type occurs in women during pregnancy when the body sometimes becomes less sensitive to insulin.

**Urban vs rural**

Non-communicable diseases (NCDs)	National prevalence	Estimated number of people in India, in millions (Burden)	State with highest prevalence	State with lowest prevalence
Diabetes	11.4%	101.3	Goa (26.4%)	Uttar Pradesh (4.8%)
Pre-diabetes	15.3%	136.0	Sikkim (31.3%)	Mizoram (6.8%)
Hypertension	35.5%	315.5	Punjab (51.8%)	Meghalaya (24.3%)
Generalized Obesity	28.6%	254.2	Puducherry (53.3%)	Jharkhand (11.6%)
Abdominal Obesity	39.5%	351.1	Puducherry (61.2%)	Jharkhand (18.4%)
Hypercholesterolemia	24.0%	213.3	Kerala (50.3%)	Jharkhand (4.6%)
High LDL cholesterol	20.9%	185.7	Kerala (52.1%)	Jharkhand (3.2%)

Source: The Hindu

**STATISTICS ABOUT PREVALENCE OF DIABETES**

- Globally, an estimated 422 million adults were living with diabetes in 2019, compared to 108 million in 1980.
- The global prevalence of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population.
- The National estimates for diabetes and other Non-Communicable Diseases:
  - In 2021, in India there are 101 million people with diabetes and 136 million people with prediabetes.
  - 315 million people had high blood pressure, 254 million had generalized obesity, and 351 million had abdominal obesity.
  - Additionally, 213 million people had hypercholesterolaemia and 185 million had high LDL cholesterol.
- The prevalence of diabetes in India stands at 11.4%, while 35.5% of Indians suffer from

hypertension, additionally abdominal obesity stands at 40% across the population and female abdominal obesity is 50%.

**Conclusion:** Addressing the rising prevalence of diabetes requires a comprehensive approach that includes public health initiatives, education, policy changes, and individual lifestyle modifications. Strategies for prevention and management often involve promoting healthy eating habits, encouraging regular physical activity, and increasing awareness about the risk factors associated with diabetes.

**SKILLING INDIA FOR THE WORLD**

**GS II – HUMAN RESOURCES**

**GS III – GROWTH AND DEVELOPMENT**

**Context:** Recently, Prime Minister Narendra Modi asserted India’s capability to emerge as the leading supplier of skilled workforce across the world. India’s journey towards becoming Global economic powerhouse hinges on tapping the potential of its skilled manpower. It will not only help India in taking advantage of demographic dividend but will also accelerate its economic growth as it moves towards becoming the third largest economy in world by the end of the decade. Technological transformation and innovation have brought about a huge change in the nature of the jobs and the skills that these demand. India Vision to make itself the Skill Capital of the world

**WHY INDIA CAN BECOME SKILL CAPITAL OF WORLD?**

- **Demographic Dividend:** 65% of India’s population is in the age group of 15 to 59 years, and India’s mean working age is 28 years, which is the youngest in the world, and it is supposed to be remained youngest until 2050. At the same time other countries population is ageing average working age in EU is 44-48years. Hence, India can take advantage of its demographic dividend
- **Diverse Workforce:** India’s diverse cultural and educational background results in a workforce with a wide range of skills and perspectives. In World Skills competition, skill set of Indian workforce is ranked at 11<sup>th</sup> in the world.
- **Language adaptability:** Indian have good language adaptability. English is widely spoken and understood in India, making it easier for the workforce to communicate and collaborate with global businesses.

**STRUCTURAL REFORMS NEEDED TO ACHIEVE THE VISION**

- **NSDC issue:** It has been noted that NSDC programs are providing merely 12% employments for those who’ve completed its short-term courses. This is because the training period is too short and there is a regulatory deficit, both of which mandate that better engaging the private sector is needed.



- **Industry Lead Academic curriculum:** The Google statement that 85% of graduates in India are not employable shows, the gap between the academic knowledge and the skill needed in the practical Industry atmosphere. Hence, curriculum should be modified regularly according to the industrial evolution.
- **Private and Government coordination in skilling:** While corporate are the key benefactors of a skilled labour force, only 36% of India's organized sector firms conduct in-firm training (mostly large ones). Hence, it needs to be recognized that a publicly funded but industry drive model works best as the companies realize demands better than governments.

### INITIATIVES TAKEN BY GOVERNMENT FOR SKILL DEVELOPMENT

#### Pradhan Mantri Kaushal Vikas Yojana

- The flagship Pradhan Mantri Kaushal Vikas Yojana (PMKVY) scheme was launched in 2015 to provide short-term training, skilling through ITIs and under the apprenticeship scheme.
- Since 2015, the government has trained over 10 million youth under this scheme.

#### SANKALP and STRIVE

- The SANKALP programme which focuses on district-level skilling ecosystem and the STRIVE project which aims to improve the performance of ITIs are other significant skilling interventions.

#### Mandatory CSR Expenditure in Skilling

- Since the implementation of the mandatory CSR spending under the Companies Act, 2013, corporations in India have invested over ₹100,000 crore in diverse social projects.
- Of these, about ₹6,877 crore was spent in skilling and livelihood enhancement projects. Maharashtra, Tamil Nadu, Odisha, Karnataka, and Gujarat were the top five recipient States.

#### TEJAS Initiative for Skilling:

- Recently, TEJAS (Training for Emirates Jobs And Skills), a Skill India International Project to train overseas Indians was launched at the Dubai Expo, 2020.

The project aims at skilling, certification and overseas employment of Indians and creating pathways to enable the Indian workforce to get equipped for skill and market requirements in the UAE.

### CONCLUSION

While India has the potential, it's crucial for sustained efforts in education, training, and infrastructure development to fully realize this potential and maintain a competitive edge in the global skill landscape. Ongoing collaboration between the government, educational institutions, and the private sector is essential for achieving and sustaining this goal.

## CAPITAL PUNISHMENT

### GS II – JUDICIARY

**Context:** Capital punishment, also known as the death penalty, is the state-sanctioned execution of a person as a punishment for a crime. The death penalty is seen as the most suitable punishment and effective deterrent for the worst crimes. Those who oppose it, however, see it as inhumane. Thus, the morality of the death penalty is debatable and many criminologists and socialists all across the globe, have been long demanding abolition of the death penalty. With the reforms in Criminal Justice system judicial activists were demanding for abolishing the death penalty.

### PROVISIONS FOR CAPITAL PUNISHMENT

- Section 194 of the IPC mentions about capital punishment
- Section 354(5) in The Code of Criminal Procedure, 1973 states that when any person is sentenced to death, the sentence shall direct that he be hanged by the neck till he is dead.
- Crimes punishable under capital punishment are
  1. Exacerbated murder
  2. Offences performing in death
  3. Disloyalty, spying
  4. Terrorism related crimes, resulting in death
  5. Military offences, not resulting in death



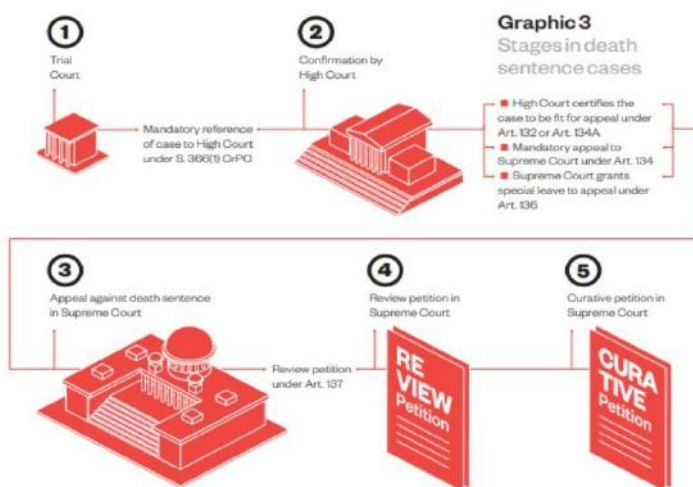
**ARGUMENTS IN FAVOR OF CAPITAL PUNISHMENT**

- **Deterrence:** Supporters argue that the death penalty serves as a deterrent to potential offenders. The idea is that the fear of facing the ultimate punishment may discourage individuals from committing serious crimes.
- **Retribution:** Advocates often view capital punishment as a just response to heinous crimes. They believe that the punishment should fit the crime, and in cases of murder or other grave offenses, the death penalty is seen as a proportional retribution.
- **Public Opinion:** In some jurisdictions, there is public support for the death penalty, and policymakers may reflect the will of the people in their legislative decisions.

**ARGUMENTS AGAINST CAPITAL PUNISHMENT**

- **Human Rights:** Critics argue that the death penalty violates the right to life, as proclaimed in the Universal Declaration of Human Rights. They believe that the state should not have the power to take a person's life, regardless of the crime committed.
- **Risk of Wrongful Execution:** There is a concern that the justice system is not infallible, and there have been cases where individuals on death row were later found to be innocent. The irreversible nature of the death penalty means that there is a risk of executing innocent people.
- **Ethical and Moral Concerns:** Opponents often raise ethical and moral objections, questioning the morality of intentionally taking a human life, even in response to a heinous crime. They argue that a more humane society should seek alternatives to punishment that do not involve killing.
- **Ineffectiveness as a Deterrent:** Death has been prescribed in rape cases since 2013 (Sec. 376A of IPC), still, rapes continue to happen and in fact, the brutality of rapes has increased manifold. This compels one to think of the death penalty is an effective deterrent to crime.

**INDIAN GOVERNMENT STANCE**



- In its 187th report in 2003, the Law Commission of India recommended that Section 354 (5) of the CrPC should be amended by providing an alternative mode of execution of death sentence by “lethal injection” until the accused is dead.
- The 35th Report of the Law Commission (1967) had noted that while electrocution, use of a gas chamber and lethal injection were considered by some to be less painful. In 2018 the union government had argued that death by hanging was the only viable option to execute a death warrant.

**SUPREME COURT JUDGMENTS REGARDING**

**CAPITAL PUNISHMENT**

- In Deena Vs. Union of India the court held that section 354(5) of the Indian penal code prescribed hanging as mode of execution as fair, just and reasonable procedure within the meaning of Art- 21 and hence is constitutional.
- The judgments in Santa Singh (1976) and Mohd Mannan (2019) have recognized that it is important to collect this complex interplay of information sentencing. It requires professionals other than lawyers to collect such information. The criminal justice system needs to ensure that systems are created for procedural fairness.
- In ‘Bachan Singh v State of Punjab’, Supreme Court upheld the constitutional validity of the death sentence and laid down that death penalty must be surrounded only in the “rarest of rare cases”.
- Machhi Singh Vs. State of Punjab case provided exceptions to the rarest of rare rule and death penalty can be invoked when

1. Murder is committed in extremely brutal manner so as to arouse extreme indignation of the community
2. Murder is committed by a motive which shows total depravity and meanness
3. The crime is enormous in proportion

### PROTECTION GUARANTEE UNDER THE CONSTITUTION

#### Article 21

- The Maneka Gandhi case held that Article 21 affords protection not only against executive actions but also against legislations.
- Thus, a person can be deprived of his life under capital punishment, only if there is a law which is just, fair and reasonable.

#### Article 72

- The President can pardon even death sentence, while the governor cannot under Article 161.
- Even when the pardon was denied to a death row convict, there is scope for judicial review if the presidential decision is arbitrary, irrational and discriminatory.

#### Article 134

- Right of appeal was provided from the High Court verdict to Supreme Court in any case where capital punishment was imposed on an accused in reversal of acquittal order.

### CONCLUSION

The stance on capital punishment varies globally, with some countries actively practicing it, some having abolished it, and others maintaining a moratorium or not using it in practice. Public opinion, cultural factors, and evolving ethical standards play a significant role in shaping the policies surrounding the death penalty.

## ALCOHOL POLICY OF INDIA

### GS II – Government policies

**Context:** Recent newspaper reports showed a record breaking sale of alcohol around Diwali this year. Medically, alcohol is considered harmful based on its risk factor for heart disease and its impact on the liver. However, for a long time medical professionals and the WHO held that moderate alcohol use is good for health, based on Western data.

#### ALCOHOL REGULATION IN INDIA

- Alcohol is a subject in the State List under the Seventh Schedule of the Constitution of India.
- Therefore, the legal drinking age in India and the laws which regulate the sale and consumption of alcohol vary significantly from state to state.
- In India, consumption of alcohol is prohibited in the states of Bihar, Gujarat, Nagaland and Mizoram.
- There is partial ban on alcohol in some districts of Manipur.
- Liquor in India is generally sold at liquor stores, restaurants, hotels, bars, pubs, clubs and discos but not online.
- Some states, like Kerala and Tamil Nadu, prohibit private parties from owning liquor stores making the state government the sole retailer of alcohol in those states.
- In some states, liquor may be sold at groceries, departmental stores, banquet halls and/or farm houses.
- Some tourist areas have special laws allowing the sale of alcohol on beaches and houseboats.

#### TAXATION ON ALCOHOL

- Alcohol is not under the ambit of GST. Hence, most states levy either Value added Tax (VAT) or Excise duty or both.
- Excise duty is a tax levied to discourage the consumption of a product.
- Andhra Pradesh, Telangana, Kerala, Karnataka, and Tamil Nadu consume as much as 45 percent of the liquor sold in the country.
- Nationally, Maharashtra charges the highest rate but draws only a portion of its revenue from its sales.
- Taxes from alcohol sales roughly form a quarter of state revenues.

#### EFFECTS OF PROHIBITING ALCOHOL IN INDIA

- **Illicit Trade and Bootlegging:** Prohibition has the potential to create a black market for alcohol, leading to illicit trade and bootlegging. This can result in the circulation of unsafe and unregulated alcohol, posing health risks to consumers. It is seen in Bihar after it was banned for a year.
- **Economic Impact:** The alcohol industry contributes significantly to state revenues through taxes and excise duties. Prohibition could lead to a loss of revenue for the government, impacting public finances. The economic impact would also extend to businesses involved in the production, distribution, and sale of alcohol.
- **Disproportionate effect:** prohibition disproportionately affects poorer sections of society with upper classes still being able to procure expensive (and safe) alcohol.

**Gandhi wrote,** “Alcohol makes a man forget himself and while its effects last, he becomes utterly incapable of doing anything useful. Those who take to drinking, ruin themselves and ruin their people.”

### INDIAN CONSTITUTION VIES ON ALCOHOL

#### DPSP

- India has a long history of banning alcohol, with prohibition a part of the Directive Principles of State Policy (DPSP) in the Constitution.
- The DPSP mentions that “the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health.”

#### Article 19(1)(g) - Right to Trade Liquor

- Article 19(1)(g) of the Fundamental rights of the Indian Constitution states, ‘All citizens shall have the right to practice any profession, or to carry on any occupation, trade or business.’
- Supporters of consumption say that the right to trade liquor is included in Article 19(1)(g).

## SUB-CATEGORIZATION AMONG SCs

### GS II – GOVERNANCE

**Context:** In India, the Scheduled Castes (SC) are officially recognized as socially and educationally disadvantaged communities, and they are given certain constitutional safeguards and affirmative action measures to uplift them. Over the past two decades, several states, including Punjab, Bihar, and Tamil Nadu, have attempted to introduce reservation laws to sub-categorize SCs within their territories. These efforts have been held up in courts, awaiting a Supreme Court Constitution Bench’s decision.

#### WHAT IS SUB-CATEGORISATION OF SCs?

- States have argued that among the SCs, there are some that remain under-represented despite reservation in comparison to other SCs.
- This inequality within the SCs is underlined in many reports.
- This has been addressed by framing special quotas for the under-represented.
- In 2000, the Andhra Pradesh legislature passed a law reorganising 57 SCs into sub-groups.
- It split the 15% SC quota in educational institutions and government jobs in proportion to their population.
- However, this law was declared unconstitutional in the 2005 Supreme Court ruling.
- This ruling held that the states did not have the power to tinker with the Presidential list that identifies SCs and STs.
- As per Article 341 of the Constitution, those castes notified by the President are called SCs and STs. This is called the Presidential list of the SCs and STs. A caste notified as SC in one state may not be a SC in another state.
- No community has been specified as SC in Arunachal Pradesh and Nagaland, and Andaman & Nicobar Islands and Lakshadweep.

#### ARGUMENTS AGAINST SUB-CATEGORISATION

- **Untouchability** - The argument is that the test of social and educational backwardness cannot be applied to SCs. The special treatment is given to the SCs due to untouchability with which they suffer.

- **Vote-bank** - The petitioner's argument against allowing states to change the proportion of reservation is based on the fact that such decision would be taken to appease vote-banks. A President's list was envisaged to protect from such arbitrary change.
- **Jarnail Singh case** - The court held that the objective of reservation is to ensure that all backward classes march hand in hand. It added that this objective will not be ensured if only a select few get all the coveted services of the government. The court ruled that the constitutional goal of social transformation cannot be achieved without taking into account changing social realities.

#### IMPORTANCE OF SUB-CATEGORIZATION

- **Addressing Internal Disparities:** The Scheduled Caste population is not homogeneous, and there are significant variations in terms of education, economic status, and social standing within the community. Sub-categorization allows for a more nuanced approach to affirmative action policies, ensuring that benefits reach the most marginalized sections.
- **Equitable Distribution of Resources:** Sub-categorization helps in the targeted allocation of resources and benefits. By identifying specific sub-groups within Scheduled Castes, policymakers can design programs and policies that cater to the unique needs and challenges faced by different sections of the community.
- **Optimizing the Impact of Reservations:** Reservation policies are a key tool for social upliftment. Sub-categorization ensures that reservation benefits are not concentrated within a few relatively advantaged groups within Scheduled Castes but are distributed more effectively to those who need them the most.
- **Promoting Inclusive Development:** By recognizing and addressing internal disparities, sub-categorization contributes to a more inclusive development approach. It helps in breaking down the barriers that may exist within the Scheduled Caste community and promotes a more equitable distribution of opportunities and resources.

**Preventing Dominance of Certain Groups:** Without sub-categorization, there is a risk that a few relatively more privileged groups within Scheduled Castes may disproportionately benefit from reservation policies, leaving the most marginalized groups at a continued disadvantage. Sub-categorization helps prevent the dominance of certain sub-groups and ensures a more just distribution of benefits.

#### CONSTITUTIONAL PROVISIONS FOR STATE TO GRANT RESERVATION

- **Article 16 (4)** provides that the State can make any provision for the reservation of appointments or posts and in matters of promotion in favor of any backward class of citizens who, in the opinion of the state, are not adequately represented in the services under the State.
- **Article 15(4)** empowers the state to create special arrangements for promoting the interests and welfare of socially and educationally backward classes of the society such as SC and STs.
- As per the **Articles 341(1) and 342(1)**, the President of India, after consultation with the Governor, may specify, the castes, races, tribes or parts of groups within castes or races, which shall be deemed to be Scheduled Castes and Scheduled tribes.

#### SUPREME COURT RULINGS

- In the **Indra Sawhney v. Union of India 1992** case, the Supreme Court held that it would be perfectly legal for the state to categorize backward classes as backward and more backward.
- It also upheld the concept of 'creamy layer' within OBC to those who have overcome their backwardness. However, the concept of creamy layer in SCs and STs has been in debate since then.
- In the **E V Chinnaiah v State of Andhra Pradesh and Others 2005** case, the Supreme Court ruled that only the President has the power to notify the inclusion or exclusion of a caste as a Scheduled Caste, and states cannot tinker with the list.
- In the **M.Nagaraj & Others vs Union Of India, 2006** case, the Supreme Court said that the government had to collect quantifiable data showing backwardness of the class and inadequacy of representation of that class in public employment.
- However, in **Jarnail Singh vs Lachhmi Narain Gupta, 2018** Supreme Court held that the government need not collect quantifiable data to demonstrate backwardness of public employees belonging to the SC/STs to provide reservations for them in promotions.
- It also observed that certain caste groups or subgroups have "come out of untouchability or backwardness by virtue of belonging to the creamy layer".

- Recently, the Supreme Court has ruled that reservation in the matter of promotions in public posts is not a fundamental right, and a state cannot be compelled to offer the quota if it chooses not to.

### CONCLUSION

Dr B.R. Ambedkar described the Indian society as a gradation of castes forming an ascending scale of reverence and a descending scale of contempt. As is the nature of any hierarchical structure, no two castes are equal. The ones at the bottom of the ladder, those who have been most severely ostracised and subjugated, have not yet received the benefits of reservations as a tool to ensure their representation in society and government.

## DECRIMINILIZATION OF ADULTERY

### GS II – JUDICIARY

#### Context: WHAT IS ADULTERY?

- Adultery is a voluntary sexual relationship between a married person and someone who is not their spouse.
- In India, prior to the Supreme Court's judgment in 2018, adultery was considered a criminal offence under Section 497 of the Indian Penal Code.
- The decriminalization of adultery in India was a significant legal development that occurred in September 2018.
- Before that adultery was considered a criminal offense under Section 497 of the Indian Penal Code (IPC).
- Section 497 stated that a man could be punished for having consensual sexual relations with the wife of another man, without the husband's consent.
- However, the law did not consider women as offenders or hold them criminally liable for adultery.
- The Supreme Court of India, in a landmark judgment, declared Section 497 of the IPC unconstitutional and struck it down.
- The court observed that the law treated women as the property of their husbands and violated the principles of equality and dignity enshrined in the Indian Constitution.

#### CHALLENGES WITH DECRIMINILIZATION OF ADULTERY

- **Civil Implications Remain:** Even though adultery is no longer a criminal offense, it may still have civil implications, particularly in divorce proceedings. Adultery can be considered as a ground for divorce under certain matrimonial laws, and the decriminalization does not affect this aspect.
- **Impact on Marital Relations:** The decriminalization of adultery has raised questions about the impact on marital relations. While proponents argue that it upholds the principles of individual freedom and privacy, critics express concerns about potential social implications and the sanctity of marriage.
- **Gender Dynamics:** Some critics argue that the decriminalization might not have completely addressed gender biases. The earlier law only held men criminally liable for adultery, while the decriminalization did not introduce gender-neutral provisions. Critics argue that this could perpetuate stereotypes about women's fidelity.
- **Social Stigma:** Despite being decriminalized, adultery may still carry social stigma and moral judgment. Society's perceptions and attitudes towards extramarital relationships may not change immediately, and individuals may continue to face social consequences.
- **Legal Recognition of Same-Sex Relationships:** The decriminalization of adultery did not address the legal recognition of same-sex relationships. As of my last knowledge update in January 2022, same-sex relationships were not legally recognized under certain personal laws in India. This raised questions about equality and the need for comprehensive legal reforms.
- **Continued Legal Debates:** The decriminalization of adultery sparked debates on the scope and limits of legal intervention in personal relationships. Some legal experts and scholars argued for a broader reconsideration of laws governing personal matters, while others emphasized the need to balance individual rights with societal interests.

#### IMPORTANT JUDGEMENTS ON ADULTERY

- **The Indian Penal Code, 1860:** Section 497 of the IPC dealt with adultery until it was struck down by the Supreme Court in 2018.



- **Yusuf Aziz v. State of Bombay (1954):** The case upheld the constitutional validity of Section 497 of the IPC, stating that the law did not discriminate against men and that the adultery law protected the sanctity of marriage.
- **Sowmithri Vishnu v. Union of India (1985):** The Supreme Court held that Section 497 of the IPC was violative of Articles 14 and 15 of the Constitution of India, as it only criminalized sexual intercourse with a married woman without the consent of her husband and did not punish women for adultery.
- **V. Revathi v. Union of India (1988):** In this case, the Supreme Court held that Section 497 of the IPC was discriminatory against women and violated the Constitution of India and observed that adultery is a private matter between adults and the state has no business to interfere.
- **Joseph Shine v. Union of India (2018):** The Supreme Court in this case declared Section 497 of the IPC unconstitutional and struck it down holding that the provision was archaic and violated the fundamental right to equality and personal liberty enshrined in the Constitution.

#### Conclusion:

The judgment was a significant step towards recognizing the autonomy and agency of women in matters of personal relationships. The decriminalization of adultery emphasized the need for gender-neutral laws and acknowledged the right to privacy and individual freedom within a marital relationship.

## STATE FUNDING OF ELECTION

### GS II – ELECTION

**Context:** State funding of elections refers to a system in which the government provides financial support to political parties and candidates to facilitate their participation in the electoral process. This funding is typically derived from public resources and aims to reduce the reliance on private donations, minimizing the potential influence of vested interests in political campaigns. The objective is to promote transparency, fairness, and equal opportunities for all participants in the electoral arena.

#### NEED FOR STATE FUNDING OF ELECTION

- **Lack of Transparency in electoral funding-** Large proportion of electoral funding comes from unknown sources. The electoral bonds, also, do not disclose the donor's details to the public. This violates the basic transparency principles, as the electorate has a right to know whether the funds are being raised through legitimate means.
- **Corruption and Crony capitalism-** The current system of funding by 'unknown donors' which include large corporate houses has led to corporate lobbying, crony capitalism and has institutionalised political corruption.
- **Lack of Fairness-** Supreme court, in Kanwar Lal Gupta v Amar Nath Chawla case, observed that access to large financial resources translates into electoral advantage. Richer candidates and parties have a greater chance of winning elections, which distorts the level playing field.
- **Contravention of Laws and guidelines-** The non-disclosure of sources of electoral funding goes against the ECI guidelines, Central Information Commission's (CIC) rulings and SC's ruling in the PUCL vs Union of India case. The political parties have refused to submit themselves to the transparency that comes with Right to Information.

#### ADVANTAGES OF STATE FUNDING OF ELECTION

- **Reduced Influence and create a level playing field:** State funding can help level the playing field by reducing the disproportionate influence of wealthy individuals or corporations in the electoral process. Candidates who lack personal wealth or corporate backing may find it easier to compete.
- **Enhanced Fairness and Equality:** Public funding promotes fairness and equality by providing all qualified candidates with a baseline level of financial support. This can help ensure that individuals from diverse backgrounds have an equal opportunity to run for office and convey their messages to the electorate.
- **Minimization of Corruption:** Public funding can help minimize the potential for corruption by reducing candidates' dependence on private donations. When candidates are less reliant on large contributions from special interests, there may be fewer opportunities for quid pro quo arrangements or the perception of corruption.



- **Transparency and Accountability:** Publicly funded campaigns often come with transparency and accountability measures. This can include disclosure requirements for campaign finances, making it easier for the public to understand where candidates' funding comes from and how it is spent.

#### ARGUMENTS AGAINST STATE FUNDING OF ELECTION

- **The Burden on Taxpayers:** Using public funds for elections places an additional burden on taxpayers, who may not want their money allocated to political activities. India has limited financial resources, and allocating funds for state-funded elections may divert resources from other essential public services.
- **Potential for Misuse:** Skeptics express concerns about the potential misuse of state funds, emphasizing the need for stringent regulations and accountability measures to prevent misuse or diversion of public resources.
- **Risk of Dependency:** The state funding may lead to political parties becoming overly dependent on public funds, potentially stifling financial independence and innovation in fundraising. Opponents contend that state funding may diminish the incentives for political parties to engage in grassroots fundraising and connect with their constituencies on a local level.
- **Challenges in Implementation:** Critics highlight the practical challenges in implementing state funding, such as determining eligibility criteria, distributing funds equitably, and establishing effective monitoring mechanisms. Some argue that state-funded initiatives may lack efficiency and accountability compared to private funding, as public institutions may not be as responsive or transparent.

#### RECOMMENDATION ON STATE FUNDING

##### The Indrajit Gupta Committee (1998)

- The committee endorsed state funding of elections, seeing “full justification constitutional, legal as well as on ground of public interest” in order to establish a fair playing field for parties with less money.
- The Committee recommended two limitations to state funding.
  - Firstly, that state funds should be given only to national and state parties allotted a symbol and not to independent candidates.
  - Secondly, that in the short-term state funding should only be given in kind, in the form of certain facilities to the recognised political parties and their candidates.
- The Committee noted that at the time of the report the economic situation of the country only suited partial and not full state funding of elections.

##### The Law Commission of India report, 1999

- The report concluded that total state funding of elections is “desirable” so long as political parties are prohibited from taking funds from other sources.
- The Commission concurred with the Indrajit Gupta Committee that only partial state funding was possible given the economic conditions of the country at that time.
- Additionally, it strongly recommended that the appropriate regulatory framework be put in place with regard to political parties (provisions ensuring internal democracy, internal structures and maintenance of accounts, their auditing and submission to Election Commission) before state funding of elections is attempted.

##### “Ethics in Governance”, a report of the Second Administrative Reforms Commission (2008)

- This also recommended partial state funding of elections for the purpose of reducing “illegitimate and unnecessary funding” of elections expenses.

##### The National Commission to Review the Working of the Constitution, 2001

- This did not endorse state funding of elections but concurred with the 1999 Law Commission report that the appropriate framework for regulation of political parties would need to be implemented before state funding is considered.

#### WAY FORWARD

- There are 34 countries in the world where state funding of elections is available in some form or the other. The highest proportion of state funding is in Norway, which is about 74% of the total expenses on the election. But there are different models of state funding. In some countries, only parties get the fund and the candidates do not.

- In India, the main reason for the prevalence of black money in election spending is the unrealistically low limits set by the Election Commission of India on campaign spending by political parties and candidates. More realistic campaign spending limits should be set. Part-public funding of election campaigns is a practice in some countries. e.g United States and Britain. We could have our own version.
- The strict monitoring of expenditure by political parties and their functionaries at every level, starting with the panchayat, polling booth area and municipal ward should be done. Every party should disclose its expenditure every month at every level.
- This should be open to challenge by rival parties, media, etc.
- The Election Commission could determine the actual expenditure and ask the parties to show the source of income.
- Parties will have to collect money in the open.

## CONCERN WITH GENERIC MEDICINE

### GS II – HEALTH

**Context:** Generic medicines are pharmaceutical products that are equivalent to brand-name or innovator medicines in terms of quality, safety, and efficacy. These drugs contain the same active ingredients as their brand-name counterparts and are designed to be used at the same dosage and for the same purpose. The main difference between generic and brand-name drugs lies in their names, appearance, and often, price.

### CHALLENGES ASSOCIATED WITH GENERIC MEDICINE

- **Perception and Trust:** There can be a perception among some patients that generic drugs are of lower quality or less effective than their brand-name counterparts. This perception may lead to skepticism or hesitation to use generic medications. Educating patients about the rigorous regulatory standards and demonstrating the bioequivalence of generic drugs is essential to build trust.
- **Quality Variability:** Although generic drugs must meet the same quality standards as brand-name drugs, there may be concerns about variability between different generic versions of the same drug. While the active ingredient must be the same, there can be slight differences in inactive ingredients. This variability might affect patients who are sensitive to specific formulations.
- **Switching Between Generics:** Patients may experience changes in their medication if they are switched between different generic versions of the same drug or from a brand-name drug to a generic. This switch could potentially lead to concerns about efficacy, side effects, or other factors. Communication between healthcare providers and patients is crucial in addressing these concerns.
- **Inert Ingredient Sensitivities:** Some individuals may be sensitive or allergic to certain inactive ingredients (such as fillers, binders, or dyes) present in generic drugs. Although such occurrences are rare, they can be a concern for those with specific sensitivities.
- **Regulatory Compliance:** While regulatory agencies set high standards for generic drug approval and manufacturing, there may be concerns about the adequacy of regulatory oversight, especially in cases where generic drugs are manufactured outside the country where they are sold. Ensuring international regulatory compliance and quality control is essential.
- **Lack of essential medicine:** Non essential medicines like vitamin tonics, cough syrup etc., are available in pharmacy but the rate of essential medicine is low.

### STEPS TAKEN BY INDIA TO PROMOTE GENERIC DRUGS

#### Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)

- It is implemented by Ministry of Chemicals and Fertilizers to provide quality generic medicines at affordable price
- Each batch of drug is tested at laboratories accredited by 'National Accreditation Board for Testing and Calibration Laboratories (NABL).

#### Pharmaceuticals and Medical Devices Bureau of India

- It procures medicines only from World Health Organization – Good Manufacturing Practices (WHO-GMP) certified suppliers.

#### Janaushadhi Sugam

- It is a mobile application that provides information to public about location of Jan Aushadhi Kendra's.

#### Free drug initiative

- Implemented under National Health Mission (NHM), it aims to provide essential generic drugs free of cost in public health facilities.

### **National Pharmaceutical Pricing Authority**

It fixes the ceiling price of Scheduled medicines specified in the Schedule-I (essential medicines) of the Drugs (Prices Control) Order, 2013.

### **WAY FORWARD**

- **Quality assurance:** Government must ensure the quality of medicines produced, procured, and supplied through its Universal Health Coverage system as well as the private health-care network.
- **Periodic testing:** The medicines that fail periodic quality test must be banned, with punitive action taken against manufactures.
- **Rules for generic drugs:** Government should assure that the medicines in the markets are of standard quality, this would ensure confidence in doctors.
- **Proper monitoring:** To ensure affordable medicines for all under Universal Health Care, free medicines and diagnostics are acceptable, but implementation needs to be monitored.

## **MAKING PUBLIC EDUCATION INCLUSIVE**

### **GS II – EDUCATION**

**Context:** Odisha revolutionizes public education with initiatives like Odisha Adarsha Vidyalayas, 'Mo School' Abhiyan, and 5T-High School Transformation, aiming to surpass private schools in quality. This results in a substantial shift, with 81% of students currently enrolled in government schools. The state's commitment to inclusivity, alumni engagement, and technology integration drives equality and excellence in education.

#### **Key Phrases:**

- **Quality Education:** Odisha's focus on continuous teacher education, technology integration, and maintaining a favorable teacher-pupil ratio highlights its commitment to providing quality education.
- **Alumni Community:** Mo School Abhiyan leverages the alumni community to contribute to school development, creating a unique model of collaborative efforts for educational improvement.
- **5T-High School Transformation:** The 5T concept drives the High School Transformation Programme, emphasizing transparency, technology, teamwork, and timeliness for comprehensive educational changes.

### **CHALLENGES FOR INCLUSIVE PUBLIC EDUCATION**

- **Socioeconomic Disparities:** Economic disparities can lead to unequal access to educational resources, including quality teachers, textbooks, and technology. Students from low-income families may face additional challenges, such as inadequate home environments and limited access to educational support.
- **Cultural and Linguistic Diversity:** Students from diverse cultural and linguistic backgrounds may encounter difficulties in an education system that does not adequately address their unique needs. Language barriers, cultural insensitivity, and a lack of representation in the curriculum can contribute to disparities in educational outcomes.
- **Special Education Inclusion:** Students with disabilities may face challenges in accessing inclusive education. Inclusive practices that accommodate diverse learning needs, provide necessary support services, and foster a positive and accepting environment are crucial for promoting equal educational opportunities.
- **Access to Technology:** In the digital age, access to technology is essential for educational success. However, disparities in technology access, including reliable internet connections and devices, can create a "digital divide" that disproportionately affects students from economically disadvantaged backgrounds.
- **Teacher Training and Professional Development:** Teachers need adequate training and ongoing professional development to implement inclusive practices effectively. Providing educators with the tools to address diverse learning styles, cultural differences, and the needs of students with disabilities is essential for fostering an inclusive learning environment.

**Parental Involvement and Advocacy:** Inclusive education is most effective when parents and caregivers are actively involved in their children's education. However, systemic barriers may limit parental involvement, particularly for families facing economic challenges or language barriers.

### **CONCLUSION**

Goal 4 of SDG is to ensure equitable, inclusive, and quality education along with the promotion of lifelong learning opportunities for all by 2030. It is the various education policies, charted out since Independence, which led to the historical evolution of the education system in India.

## UNHEALTHY URBAN INDIA

### GS II – HEALTH

**Context:** The urban population of India attained a value of 475 million people in 2021. India's urban population is estimated to reach 675 million in 2035, the 2<sup>nd</sup> highest in the world. However, unhealthy diets, reduced physical activity and air pollution are posing a greater risk to morbidity and mortality in urban areas.

### CHALLENGES FACED IN URBAN INDIA

- **Overcrowding and Population Density:** High population density in urban areas is leading to issues such as traffic congestion, strain on public services, and inadequate housing, posing challenges for overall urban planning and management.
- **Infrastructure Strain:** Rapid urbanization often outpaces the development of infrastructure, resulting in strained public services, inadequate transportation systems, insufficient water supply, and inadequate waste management facilities.
- **Air Pollution:** Urban areas in India often experience high levels of air pollution due to industrial activities, vehicular emissions, and construction. This contributes to respiratory problems and other health issues among residents.

### Healthy cities – key to SDG attainment

Action in cities can drive progress towards multiple SDGs:

■ Reduce air pollution (SDGs 3.9 and 11.6)

■ Combat noncommunicable diseases (NCDs) and related risks like obesity (SDG 3.4)

■ Access to public transport with special attention to women, children, persons with disabilities and older persons (SDG 11.2)

■ Sanitation and waste management (SDGs 3.9 and 11.6)

■ Equity (SDG 10)

■ Access to safe public and green spaces, particularly for women, children, older persons and persons with disabilities (SDG 11.7)

■ Climate action – climate resilience (SDG 13)



- **Water Scarcity and Quality:** Urban areas face challenges related to both water scarcity and water quality. Rapid urbanization can lead to over-extraction of groundwater, while pollution of water bodies affects the availability of clean water.

- **Waste Management:** The generation of solid waste in urban areas is often higher than the capacity to manage and dispose of it properly. Inadequate waste management can lead to environmental degradation and health hazards.

- **Public Health Challenges:** Urban areas face public health challenges, including the spread of infectious diseases, inadequate healthcare infrastructure, and issues related to sanitation and hygiene.

These challenges along with climate change are affecting urban population in a severe way.

### MEASURES TAKEN TO COMBAT UNHEALTHY URBAN INDIA

- **Green investments-** Investments on clean energy and electric mobility will offer a lifetime opportunity to improve health, while helping meet India's climate and equity goals.

- **Triple duty interventions-** Studies show that even small changes in the urban systems may have a large catalytic effect on health and productivity and serve as double-duty or triple duty interventions. For example, making way for safe walking and biking lanes, and pavements, can help not only improve physical activity but also reduce the risk from air pollution.

- **Physical exercise-** Regular physical exercise effectively mitigates the impact of other risk factors such as poor diet, particularly those rich in calories and saturated fats.
- **Non-motorized modes of transport-** Walking and cycling has much greater positive effects on health and wealth than just switching to electric vehicle.



- **Holistic urban policy-** Policies that encourage fresh fruits and vegetables and limit sugars and salt in beverages may help contribute to better health outcomes. Urban policies are powerful public health interventions that can serve to promote population health.

## INCLUSION OF TRANSGENDER IN ARMED FORCES

### GS II

**Context:** The report presented by the Standing Committee on Personnel, Public Grievances, Law and Justice to Rajya Sabha proposes that the Union Ministry of Home Affairs (MHA) should consider extending reservation benefits to transgender people in the Central Armed Police Forces (CAPFs) and implement measures to facilitate their recruitment. The trans community has faced societal discrimination and marginalization in many ways, including access to social equality, social rights, education, and employment opportunities. The proposed inclusion of transgender individuals in the armed forces has ignited a discussion regarding the preparedness of the Indian forces to integrate them.

### NEED TO INCLUDE TRANSGENDER INTO ARMED FORCES

- **Equality and Non-Discrimination:** Denying transgender individuals the right to serve in the armed forces is a form of discrimination based on gender identity. Promoting equality is a fundamental principle that contributes to the fair and just treatment of all individuals, regardless of their gender identity.
- **Professionalism and Meritocracy:** Military organizations benefit from diversity and a meritocratic approach. Inclusion of transgender individuals allows armed forces to draw from a broader pool of talent, skills, and experiences, contributing to the overall professionalism and effectiveness of the military.
- **Social Progress and Cultural Shift:** Inclusion of transgender individuals in the armed forces reflects broader social progress and cultural shifts towards recognizing and respecting diverse identities. It contributes to a more inclusive and tolerant society.
- **Employment opportunity:** As per National Human Rights Commission study in 2018, it was found that 96% of transgender individuals face employment discrimination, resulting in their limited access to decent career opportunities.
- **Limited accessibility:** The 1st ever study on the rights of transgender unveiled that around 92% of transgender individuals lack access to engage in economic activities within the nation, with even qualified individuals being denied employment opportunities.

### CHALLENGES IN INCLUDING THEM IN ARMED FORCES

- **Distinct recruitment:** Central Armed Police Forces (CAPF), as well as the army and police forces, employ a distinct psychological approach to administration. Recruitment of transgenders in the CAPF may encounter challenges due to practical considerations related to unconventional command philosophy.
- **Training prerequisite:** Following a period of familiarization and pre-induction training alongside soldiers will be challenging for the transgender.
- **Conservative outlook:** Indian Army as an institution has not undergone significant modernization with respect to LGBTQ communities.
- **Differential rights:** Supreme Court ruling in 2014 and 2018 with respect to transgender person may not be applicable to Indian Army as certain rights afforded to civilians may not extend to members of the armed forces.
- **Article 33:** Fundamental rights of armed forces personnel may be subject to limitations as determined by legislation enacted by the Parliament. This implies that the Army Act, Navy Act, and Air Force Act have the capacity to curtail various liberties that are typically afforded to non-military individuals.
- **Administrative constraints-** Indian Army may face difficulties such as housing and other infrastructure of transgender people.

### STEPS TAKEN REGARDING INCLUSION OF TRANSGENDER

- **Gender identity:** In 2014, Supreme Court in the National Legal Services Authority (NALSA) case acknowledged transgender as third gender within the framework of Indian Constitution.
- **Yogyakarta Principles:** Quoted in 2014 Supreme Court ruling, it provides a comprehensive framework for understanding and promoting human rights in relation to gender.
- **Struck Section 377 of IPC:** In 2018, Supreme Court rendered Section 377 of Indian Penal Code as null and void, therefore eliminating the criminalization of homosexuality.

**Progressive approach:** Kerala High Court upheld the rights of transgender persons to self-determination and non-discrimination, and directed the army to amend the National Cadet Corps Act, (NCCA) 1948 to include transgender persons within 6 months in NCC.

#### WAY FORWARD

- Advocating wider discussions and debates within the armed forces can ensure that everyone's perspective is considered.
- Gradual expansion of roles based on abilities and merit can ensure that everyone gets opportunities based on their skills.
- The transgender community should be part of decision-making to make sure their views are central to the integration process.

Emphasizing the need for a strategy to make the armed forces more aware so that everyone understands and accepts the need for change.

## MEDIA REGULATION

### GS II – GOVERNMENT POLICIES

**Context:** Traditionally print media played a crucial role in making citizens aware of the global happenings. For example Tilak's Kesari, Gandhi's Young India encouraged Indian to fight against Britishers. On later stages Electronic media took a boom and reached many more households, but today social media has taken a front foot. In the era of information, misinformation and disinformation it is important to regulate media.

#### NEED FOR REGULATING MEDIA

- **Protecting Public Interest:** Media regulation helps protect the public from harmful content, misinformation, and potentially offensive material. It ensures that media outlets do not disseminate content that could be detrimental to the well-being of individuals or society as a whole.
- **Ensuring Accuracy and Truthfulness:** Regulations can establish standards for accuracy and truthfulness in reporting. This helps prevent the spread of false information and ensures that the public receives reliable and fact-based news and information.
- **Preventing Monopoly and Concentration of Power:** Regulations can prevent the concentration of media ownership in the hands of a few entities, which could lead to a monopoly on information. Diverse ownership helps ensure a plurality of voices and perspectives in the media landscape.
- **Protecting Privacy and Dignity:** Regulations can establish guidelines to protect individuals' privacy and dignity. This includes rules against invasion of privacy, harassment, and the dissemination of sensitive personal information without consent.
- **Controlling Hate Speech and Incitement:** Media regulations can address issues related to hate speech and incitement to violence. This helps prevent the spread of content that promotes discrimination, hostility, or harm towards certain individuals or groups.

#### HOW IS MEDIA REGULATED CURRENTLY?

##### Conventional Media

- Conventional media includes newspapers, magazines, TV, radio, etc. To regulate the conduct of traditional media, the government has established various statutory bodies under different statutes.
- Print media is regulated mostly through two major Acts, namely, the Press and Registration of Books Act of 1867, which provides for the registration, regulation and preservation of every copy of books and newspapers printed in India, and the Press Council Act, 1978.
- Cinema is regulated through the Cinematographic Act of 1952. The Act also establishes a regulating body named Central Board of Film Certification for the certification of cinematograph films, for the exhibition of movies, and to regulate those exhibitions.
- The telecommunication sector is regulated through the Telecom Regulatory Authority of India Act, 1997. Under this Act, Telecom Regulatory Authority of India, regulates, adjudicates disputes, disposes of appeals, and protects the interests of service providers and consumers.

##### Digital Media

- Digital media broadly includes websites, blogs, video platforms like youtube, and social media sites. As these platforms act as a medium of communication between two or more people, they are known as "intermediaries" under the governing law.



- These are regulated under the provisions of the Information Technology Act, 2000 and the rules framed therein under section 69, which are called Information Technology (Intermediary Guidelines and Digital Media Ethics Code), Rules 2021 (from now on, IT Rules, 2021).

### CHALLENGES IN REGULATING MEDIA

- **Freedom of Expression Concerns:** Balancing the need for regulation with the principles of free speech and freedom of the press can be challenging. Striking the right balance is crucial to avoid encroaching on individuals' rights to express themselves and share information.
- **Rapid Technological Changes:** The media landscape is constantly evolving, with new technologies emerging regularly. Regulators often struggle to keep up with these changes, especially in areas like online platforms, social media, and digital content distribution.
- **Global Nature of Media:** With the rise of the internet and digital platforms, media is increasingly global. Regulating content that transcends national borders becomes complex, as regulations in one country may not be applicable or enforceable in another.
- **Diversity of Media Outlets:** The media landscape is diverse, with various forms of media, including traditional print, broadcast, online news, and social media. Regulating such a diverse range of outlets with different business models and audiences poses challenges in creating effective and uniform regulations.

**Censorship Concerns:** There is a fine line between regulating harmful content and censorship. Stricter regulations aimed at preventing misinformation or offensive content can be perceived as infringing on free speech, raising concerns about censorship and government control.

### PRESS FREEDOM INDEX

- On the World Press Freedom Day (WPDF) (3rd May), the World Press Freedom Index 2023 was published by Reporters Without Borders (RSF).
- India ranked 161st among the 180 countries with a score of 36.62. In 2022, India's rank was 150.
- India's position has been consistently falling in the index since 2016 when it was ranked 133.
- The reasons behind the fall in ranking is the increased violence against journalists and a politically partisan media.
- Norway, Ireland and Denmark occupied the top three positions.

Vietnam, China and North Korea were at the bottom on the list.

## GRAVE RISKS CONFRONTING THE WORLD TODAY

### GS II – INTERNATIONAL REATIONS

**Context:** In an article written by M.K.Narayan a former Director of Intelligence Bureau, a former National security Advisor, and a former Governor of West Bengal, he discusses about the threats faced by the world in the 21<sup>st</sup> century, which includes

#### Terrorism

- With Al-Qaeda attack on twin towers in New York in 2001 terrorism gained new dimension. A few years later, we saw the rise of the demand of Islamic state.
- Meanwhile, there are still many lesser known terrorist outfits such as the Pakistan backed Lashkar-e-Taiba, which is responsible for terror attacks in different regions of the globe.
- The attack of Hamas, a Palestinian terror outfit, on Israel, which boasts of one of the most powerful armies in the world, represents a new high in the evolution of terrorism.
- The persistent threat of terrorism, including both domestic and international forms, poses risks to security and stability in various regions.

#### Border Conflicts

- The attack on Ukraine by Russia, is highly disconcerting. The prolongation of the conflict is more concerning.
- Neither Russia nor Ukraine (Including NATO) is willing to consider a pause. A plethora of new technologies and strategies have proved insufficient to sort out matters on the battlefield.
- Another battleground opened up recently in West Asia, following the terror attack by Hamas on Israel, which is turning into an all-out conflict.
- Much of the West is backing Israel, while the Arab world is left with little choice but to back Hamas.
- The Abraham Accords and other peace accords have fallen like ninepins.

- A massive United States Naval deployment, from the Mediterranean to the Gulf of Oman, in the wake of the Hamas-Israel conflict, has the potential of bringing Iran-backed Shia militant organisations (such as the Hezbollah) directly, and Iran at a later date, into the conflict.
- This kind of escalating the conflicts means peace is very far away and consequences are unpredictable.

### Uneasiness in the Indo-Pacific region

- USA and China has little cooperation in this region.
- The U.S. appears to think that with China's growth having slowed, accompanied by its inability to get advanced technology from the West, it now has the upper hand.
- China, for its part, is vigorously pursuing its two contradictory goals viz., to checkmate the 'U.S.-dominated world order' and in turn ensure the success of a China-dominated order. Issues such as Taiwan are, hence, not receiving the attention they deserve.

### Technological Risks

- As the digital threat scene has verily exploded, digital uncertainty is making a mockery of the established order.
- As growing numbers of people, cognitively and psychologically, become dependent on digital networks, many critical aspects of their thinking and functioning would be conditioned by AI.
- The real risk is that it could alter the very fabric of nation states, with truth itself becoming a casualty to be known as the deepfake syndrome.
- The use of AI, especially for military and security purposes, is cause for utmost concern.
- AI is capable of being vitiated, and subject to different types of 'adversarial attacks' viz. 'poisoning' (which typically aims to degrade a module's ability to make relevant predictions), 'backdooring' (which involves a malicious trigger input that causes the AI module into misclassifying inputs), 'evasion', etc. The need for extreme caution, hence, cannot be overemphasised.
- The world is already aware of threats such as Ransomware and Phishing, as also the Zero-day syndrome.
- Digital trackers logged more than 5.5 trillion cyber-attacks worldwide in 2021 (over 14.5 billion attacks per day).
- The twin threats from AI and cyber are thus poised to emerge as the biggest dangers we face and will be the critical elements in future wars.

### HEALTH

- As humanity advances, health has become a critical factor of everyday existence. The COVID-19 pandemic has been characterized as among the world's worst epidemics.
- The increasing impact of climate change poses severe risks, including extreme weather events, rising sea levels, disruptions to ecosystems, and threats to food and water security.
- The worsening of air quality in major cities across the world is causing a concern.

### INTERNATIONAL INITIATIVES TO COUNTER TERRORISM

- United Nations Office of Counter-Terrorism (UNOCT)
- Terrorism Prevention Branch (TPB) of United Nations Office on Drugs and Crime (UNODC)
- Financial Action Task Force (FATF)
- India's Annual Resolution on Counter-Terror

### QUAD

- It is the grouping of four democracies –India, Australia, the US, and Japan.
- All four nations find a common ground of being democratic nations and also support the common interest of unhindered maritime trade and security.
- It aims to ensure and support a "free, open and prosperous" Indo-Pacific region.

- The idea of Quad was first mooted by Japanese Prime Minister Shinzo Abe in 2007. However, the idea couldn't move ahead with Australia pulling out of it, apparently due to Chinese pressure.
- Finally in 2017, India, Australia, the US and Japan, came together and formed this "quadrilateral" coalition.

### AUKUS

- The UK, US and Australia have announced a historic security pact in the Asia-Pacific, in what's seen as an effort to counter China.
- It will let Australia build nuclear-powered submarines for the first time, using technology provided by the US.
- The creation of the AUKUS is an attempt to send a stronger message to China. However, China's description of this alliance as an "exclusionary bloc," should be food for thought for two members of the Quad/Malabar forums (India and Japan) who have been excluded from the new grouping.



### CONCLUSION

Addressing these risks requires concerted efforts at the national and international levels, including effective diplomacy, collaboration on global challenges, and the development of policies that prioritize sustainability, equality, and security. It's crucial for nations to work together to find solutions and mitigate the potential impact of these grave risks.

## SOCIAL JUSTICE

### GS II – SOCIAL JUSTICE

**Context:** Caste and gender are the deepest social cleavages in our society. The interaction of these two social identities into the life of young adults in the college lead to many conflicts. There are frequent reports in the media on the caste conflicts young adults as well as consensual sexual relationships between the young adults of different castes inviting criminal penalties and action. Education about social change and sexuality are closely related. Training young minds in critical thinking and social justice is essential to address this issue and to create a healthy society.

#### WHAT IS SOCIAL JUSTICE?

- Social justice is a concept that encompasses the idea of fair and just relations between individuals and society.
- It involves addressing and rectifying systemic inequalities and ensuring that all members of a society have equal access to opportunities, resources, and rights.
- The goal of social justice is to create a society where every individual can live with dignity, without facing discrimination based on factors such as race, gender, socioeconomic status, sexual orientation, or other characteristics.

#### HOW EDUCATION PROMOTES SOCIAL JUSTICE?

- Well-functioning democratic institutions based on equal rights for everyone is an idealistic society.
- Electoral democracy encourages and establishes affirmative action of distributing opportunities for the depressed communities.
- The idea of citizenship in a democratic society demands the empathetic understanding of the lives of fellow citizens and critical thinking about one's own life.
- Education for critical thinking requires challenging our own lives, beliefs and faith and how they affect the lives of others in a complex world. This is what education is supposed to aim and achieve.
- Children generally look to elders for help. Parents and the elderly try to keep children comfortable and in the process, children learn that they can command others.

- We should teach them that self-help and at the same time seeking help is not a sign of weakness. Weakness is something to be recognized as inevitable. When seeking help is not a shame, helping is a responsibility. That makes us more humane and sociable.
- Education should remove the narcissistic tendencies that we may develop in our desire to control others, particularly women and the weak. Thus, children develop compassion and raise a supporting and critical voice for the weak.
- Though education is initiated at home, learning abstraction and active learning begin in school. Humanities give us the intellectual training to accept ideas and also search for alternative ideas. Artists move beyond the mental confines of ideologies.
- While society may create ideas that are in conflict with the ideas imbibed from school, it is the continuous engagement of this conflict that demands critical thinking.
- Rigorous training in logical reasoning and critical thinking creates the vision that lives in a democracy are full of reasonable disagreements among citizens of different religions, cultures, wealth, class, physical impairment, gender and sexuality.
- Teachers are vital in enabling social justice education. Teachers should understand and accept that social justice education is essential for a well-functioning democracy.

#### KEY FACTORS OF SOCIAL JUSTICE INCLUDE

- **Equality and Equity:** Social justice aims to ensure that everyone has an equal opportunity to participate in and benefit from all aspects of society. This may require addressing historical and systemic inequalities through policies that promote equity.
- **Human Rights:** Social justice advocates for the recognition and protection of basic human rights for all individuals, regardless of their background. This includes rights such as freedom of speech, education, healthcare, and fair treatment under the law.
- **Diversity and Inclusion:** Embracing diversity and fostering an inclusive society are essential components of social justice. This involves respecting and valuing differences in race, ethnicity, gender, sexual orientation, disability, and other characteristics.
- **Anti-discrimination:** Social justice efforts work towards eliminating discrimination and bias in all its forms. This includes challenging and dismantling systemic structures that perpetuate inequality.
- **Access to Resources:** Ensuring equal access to resources such as education, employment, healthcare, and housing is crucial for achieving social justice. This may involve addressing economic disparities and providing opportunities for marginalized communities.
- **Advocacy and Activism:** Social justice often involves advocacy and activism to raise awareness about injustices, mobilize communities, and push for policy changes that promote equality and fairness.

#### CONCLUSION

The Government of Tamil Nadu has instituted a committee (with Justice K. Chandru as Chairperson) to recommend measures to remove discriminations based on caste and community in schools and colleges. The sustainable solution to the issues of any form of discrimination is in establishing the fact that all are equal and that empathetic understanding and an accommodation of differences are essential for a healthy democratic society.

### RELATION BETWEEN HIGHER EDUCATION AND INDUSTRY

#### GS II – EDUCATION

##### Context: BENEFITS OF LINKING THE HIGHER EDUCATION AND INDUSTRY

- **Relevance of Education in the real-world:** Integrating with industry ensures that academic programs align with the practical needs of the job market. This helps students apply theoretical knowledge to real-world situations, making their education more relevant.
- **Industry-Driven Skill development:** Collaboration with industry allows educational institutions to understand the skills and competencies that are in demand. This insight helps design curricula that focus on developing the specific skills required by employers.
- **Workforce Preparedness:** Students benefit from exposure to real-world challenges and experiences, making them more prepared for the workforce. This can enhance their employability and reduce the gap between academic learning and practical application.
- **Research and Innovation:** Collaborative research projects between academia and industry can drive innovation. Industry partners may bring practical problems for academic researchers to solve, fostering a culture of innovation and applied research.
- **Networking Opportunities:** Interaction with industry professionals, through guest lectures, workshops, and internships, provides students with valuable networking opportunities. These connections can lead to internships, job placements, and mentorship.
- **Entrepreneurship and Startups:** Collaboration with industry can facilitate the establishment of incubation centers on campuses, fostering an environment conducive to entrepreneurship. Students may have access to resources and mentorship to launch their startups.

- **Industry Experts as Educators:** Bringing in industry professionals as guest lecturers or adjunct faculty members provides students with insights into current industry practices. This enriches the learning experience and exposes students to diverse perspectives.
- **Economic Development: Regional Growth:** Integration with industry can contribute to regional economic development by producing a skilled workforce that meets the needs of local industries. This, in turn, attracts more businesses and investment to the region.

#### HURDLES IN COLLABORATING HIGHER EDUCATION WITH INDUSTRIES

- **No Shared Goals:** Higher Education institutes (HEI's) predominantly seek to educate students and conduct research. They often focus on creating theoretical knowledge. On the other hand, industries are profit-driven and pursue practical applications of knowledge to enhance productivity and innovation.
- **Funding for research:** An industrial company might be sceptical about funding a research project if it believes that the outcomes do not translate into prompt saleable applications. But HEIs may feel uneasy about the short-term focus of industrial projects.
- **Cultural difference:** HEI's concentrate on academic rigor and theoretical profoundness whereas, industry focus on practical outcome. Company may not have the time or expertise to have theoretical discussions since its immediate concern is to implement solutions in the real world by improving processes or by devising new products.
- **Intellectual Property Right:** Collaborative projects may involve the creation of intellectual property. Determining the ownership and rights related to innovations, research outcomes, or proprietary information can be a source of tension and may require careful negotiation.
- **Communication:** Indian HEIs must establish good communication channels with the industry. If a research team from a university is partnering with a pharmaceutical company, it needs to be acquainted with the industry's regulatory processes. Training programmes could be implemented so that researchers and industry professionals get familiar with the other's language and expectations.

#### VARIOUS INITIATIVES TAKEN FOR SKILL DEVELOPMENT

- **Pradhan Mantri Kaushal Vikas Yojana:** The flagship Pradhan Mantri Kaushal Vikas Yojana (PMKVY) scheme was launched in 2015 to provide short-term training, skilling through ITIs and under the apprenticeship scheme.
- **SANKALP and STRIVE:** The SANKALP programme which focuses on the district-level skilling ecosystem and the STRIVE project which aims to improve the performance of ITIs are other significant skilling interventions.

**TEJAS Initiative for Skilling:** Recently, TEJAS (Training for Emirates Jobs and Skills), a Skill India International Project to train overseas India was launched at the Dubai Expo, 2020. The project aims at skilling, certification and overseas employment of Indians and creating pathways to enable the Indian workforce to get equipped for skill and market requirements in the UAE.

#### WAY FORWARD

- Foster a culture of open dialogue and flexibility.
- Implement training programs for understanding industry processes.
- Encourage short-term collaborations for quick problem resolution.
- Promote long-term research collaborations for cutting-edge technology development.

Government funding agencies should announce research grants and encourage joint project proposals.

### REVAMPING INDIAN JUDICIARY

#### GS II – JUDICIARY

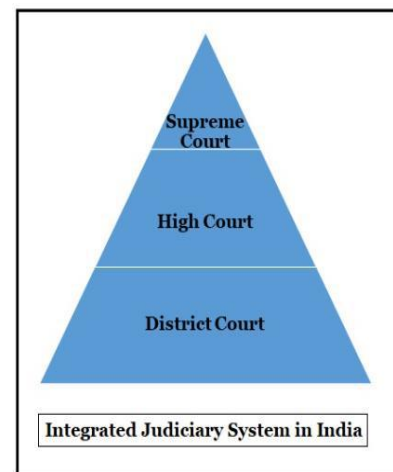
##### Context: SUPREME COURT'S STRUCTURE

- India has a single integrated system of judiciary in view of a single Constitution, it was inaugurated on January 28, 1950.
- SC succeeded the Federal Court of India and enforces both Central as well as the State laws.
- Articles 124 to 147 in Part V of the Constitution deal with the organization, independence, jurisdiction, powers, procedures etc., of the Supreme Court (SC).
- It acts as the custodian of the Indian Constitution and the protector of the Fundamental Rights.
- Supreme Court has 3 jurisdictions namely original, appellate and advisory.
- It serves as a Constitutional Court as well as a Court of Appeal.



### NEED TO REVAMP SUPREME COURT

- **Wider jurisdiction:** The Supreme Court hears matters between the Centre and the States, as well as between two or more States; rules on civil and criminal appeals; and provides legal and factual advice to the President.
- **Complexity:** Supreme Court has different types of Benches like Division Bench, Full Bench and Constitutional Bench and has diverse jurisdictions to discuss on various topics.
- **Insignificant cases:** Some cases are not very significant or urgent, thus taking up the court's time and resources.
- **Burden on courts:** Supreme Court has a huge backlog of pending cases, which affects its efficiency and quality of justice. At present, there are 79,813 cases pending before the 34 judges of the Supreme Court.
- **Delay in justice:** Justice delayed is justice denied. One of the main reasons for the delay of justice is that the institution of court cases exceeds its disposition.
- **Overburden:** The increasing number of PILs has put a burden on the judiciary, which is already struggling to handle the backlog of cases.
- **Prison overcrowding:** Much of the prisoners in Indian prisons are under trials, who are confined to the prisons until their case finds a definitive conclusion.
- **Judicial overreach:** The judiciary has also been criticized for overstepping its boundaries and interfering with the functioning of the executive and legislative branches of government.
- **Regional imbalance:** The top court receives more appeals from High Courts that are near it, such as Punjab and Haryana, Allahabad, and Delhi whereas courts that are far away had fewer appeals filed, due to difficulties in accessibility and costs.



### CONSTITUTIONAL PROVISIONS

- **Article 145:** It says that a special bench of SC that comprises of at least 5 judges and deals with matters involving substantial question of law as to interpretation of the Constitution or the power of the President to consult the Court (Article 143).
- **Article 137:** It empowers the Supreme Court with the judicial review through which it can declare any law as void when it is unconstitutional or in derogation with the Fundamental Rights.
- **Article 13:** The laws which are contrary to the Fundamental Rights are declared as void by the judiciary.

**Article 50:** It ensures the separation of Judiciary from Executive.

### WAY FORWARD

- 10<sup>th</sup> and 11<sup>th</sup> Law Commissions proposed to divide the SC into 2 divisions the Constitutional Division and the Legal Division.
- The Supreme Court suggested creating a National Court of Appeal that would handle special leave petitions thus allowing the SC to focus on constitutional and public law matters.

The 229<sup>th</sup> Law Commission Report recommended setting up 4 regional benches (Delhi, Chennai or Hyderabad, Kolkata, and Mumbai) to hear non-constitutional issues.



## PAPER 3

## CYBER ATTACKS

## GS III – INTERNAL SECURITY

**Context:** A cyber-attack can be defined as a malicious activity or planned attempt by any organization or an individual to steal or corrupt the information of the system of another organization or individual. Different methods used by criminals for cyber-attacks **malware, ransom ware, phishing, denial of service, Man in the middle attack**

## Reasons for Cyber attacks

- To gain business financial details.
- To gain customer financial information (for example- Bank details).
- To gain product design or trade secrets.
- To gain login credentials and email addresses of various customers or staff.
- To gain or steal sensitive personal information.
- To make a social or political point.

To destroy business competitor

## Recent Cyberattacks on India

- **AIIMS:** The attack on the All India Institute of Medical Sciences (AIIMS) came to light on November 23, 2022. The attack could have exposed around 40 million patient data.
- **CDSL:** India's second-largest depository, Central Depository Services Limited (CDSL) detected a malware attack on few of its systems.

**IPCA Laboratories:** One of the biggest pharmaceutical companies in India, IPCS was hit by a cybercrime and extortion group called Ransom House. The group claimed to have stolen 500 gigabytes of data from its systems.

## Challenges in tackling cyberattacks:

- Low awareness among citizens
- Poor infrastructure and lack of cybersecurity officials
- Remoteness of person committing crime is leading to jurisdictional issues

## Institutional measures

- **IT Act, 2000** is the primary law that deals with cyberattacks in India
- **National Cyber Security Policy, 2013** provides the vision and strategic direction to protect the national cyberspace
- **National Critical Information Infrastructure Protection Centre (NCIIPC)** is designated as a national nodal agency in respect of critical information infrastructure protection.
- CERT-in is a national nodal agency to respond against computer security threats as and when required.

## CONCLUSION

Data being New oil of the economy and in the present geopolitical environment India should have strong legal measures and technology support to handle the ever increasing cyberattacks.

## DEEP OCEAN MISSION (DOM)

## GS III – SCIENCE AND TECHNOLOGY

**Context:** DOM is India's ambitious programme for underwater exploration, chiefly implemented by the MoES. This mission has Six pillars ([17 June – Deep Ocean Mission - Article - eLearn - IASbaba](#)) to be implemented over a period of 5 years. It is one of the 9 missions under PMSTIAC

### IMPORTANCE OF DOM

- New India 2030 document outlines blue economy as 6<sup>th</sup> core objective of India's growth.
- To sustainably harness oceans potential for the nations growth
- It supports blue trade and blue manufacturing in India
- India will become one among the 6 countries to have technology and expertise for such missions
- To develop capabilities to exploit resources in Central Indian Ocean Basin (CIOB).

### ABOUT SAMUDRAYAAN

- Matsya6000 is deep submersible designed. It can take 3 crew members.
- It has operational endurance of 12 hours extendable to 96 hours in case of emergency.
- Its primary objective is exploration of ocean bed
- With Matsya, India will be the only country to have an entire ecosystem of underwater vehicles encompassing deepwater ROVs, polar ROVs, AUVs, deepwater coring systems, and more

### POLYMETALLIC NODULES

- Potato Shaped porous nodules found in abundance carpeting the sea floor of world oceans in the deep sea.
- A unique characteristic of deep-ocean nodules compared to terrestrial deposits is the presence of multiple commodities in one deposit; for example, nodules from the Clarion–Clipperton Zone contain Mn, Ni, Cu and Co.

### OTHER BLUE ECONOMY INITIATIVES

- **Sagarmala Project** : Strategic initiative for port led development through extensive use of IT enabled services
- **O SMART**: To regulate the use of oceans, marine resources for sustainable development.

### CONCLUSION

Data being New oil of the economy and in the present geopolitical environment India should have strong legal measures and technology support to handle the ever increasing cyberattacks.

## CART-T CELL THERAPY

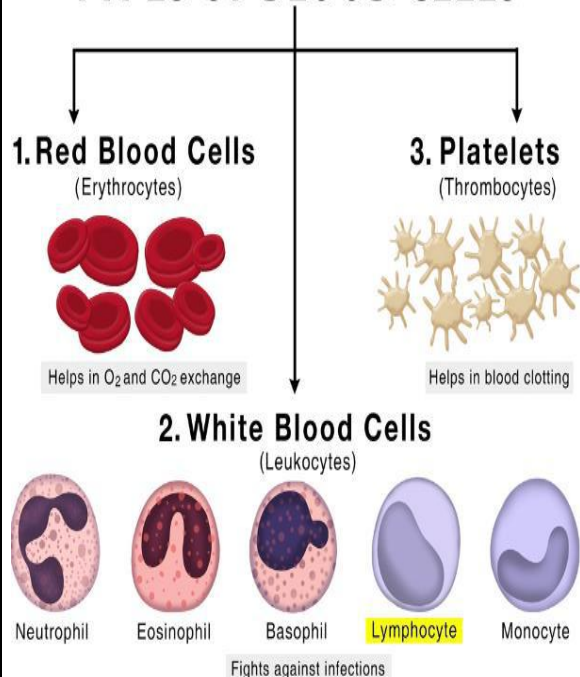
### GS III – SCIENCE AND TECHNOLOGY

**Context:** CAR-T cell therapy (Chimeric Antigen Receptor T-cell therapy) is a groundbreaking immunotherapy approach used to treat certain types of cancer, primarily hematological malignancies like B-cell lymphomas and leukemia. This therapy involves the genetic engineering of a patient's own T cells to recognize and attack cancer cells. As per the Globocan estimates, the cancer burden worldwide is expected to be 28.4 million cases in 2040, a 47% rise from 2020, due to demographic changes.

### HOW DOES IT WORK?

- T cells are white blood cells responsible for identifying and fighting illness and infection.
- Each T cell has a receptor that can recognize antigens (proteins or molecules recognized by the immune system).
- Cancer cells may have antigens that the immune system does not recognize as abnormal, allowing cancer to evade the immune response.

## TYPES OF BLOOD CELLS



- CAR-T cells are genetically engineered in the lab to express a new receptor that can bind to cancer cells and effectively kill them.
- The process involves several steps, including:
- **Collecting T Cells:** Blood is drawn from the patient's arm, and T cells are separated from the blood using an apheresis machine.
- **Engineering T Cells:** In a laboratory, the T cells are modified by adding a manufactured CAR, and they are allowed to multiply and grow.
- **Infusing CAR-T Cells:** Once enough CAR-T cells are prepared, they are injected back into the patient's arm.
- Chemotherapy may be recommended before CAR-T cell infusion to enhance treatment effectiveness.
- The process can take place in an outpatient infusion center or a hospital setting.
- CAR-T cell therapy is effective against certain types of cancer, especially when other treatments are ineffective.
- It is currently FDA-approved for treating hematological malignancies, including leukemia, lymphoma, and multiple myeloma.

### SIGNIFICANCE

- CAR T-cell therapies are even more specific than targeted agents and directly stimulate the patient's immune system to fight cancer, leading to greater clinical efficacy.
- That's why they're referred to as "living drugs."

### CHALLENGES

- **Preparation:** The difficulty of preparing CAR T-cell therapies has been a major hindrance to their widespread use. The first successful clinical trial was published a decade ago, and the first indigenously developed therapy in India was performed in 2021.
- **Side Effects:** In certain kinds of leukaemias and lymphomas, the efficacy is as high as 90%, whereas in other types of cancers it is significantly lower. The potential side-effects are also significant, associated with cytokine release syndrome (a widespread activation of the immune system and collateral damage to the body's normal cells) and neurological symptoms (severe confusion, seizures, and speech impairment).

**Affordability:** Introduction of CAR T-cell therapy in India can face challenges of cost and value. Critics argue that developing CAR T-cell therapy in India may not be cost-effective as it will still be unaffordable for most people.

### WHAT ARE T CELLS?

- T cells, also known as T lymphocytes, are a type of white blood cell that play a central role in the immune response.
- T cells are involved in cell-mediated immunity, which means they help the body recognize and respond to foreign substances, such as viruses, bacteria, and abnormal cells, such as cancer cells.
- There are two major types of T cells, the helper T cell and the cytotoxic T cell. As the names suggest, helper T cells 'help' other cells of the immune system, whilst cytotoxic T cells kill virally infected cells and tumors.

### GOVERNMENT INITIATIVES RELATED TO CANCER TREATMENT

- National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke
- National Cancer Grid
- National Cancer Awareness Day

### CONCLUSION

CAR T-cell therapy is a promising and innovative approach to treating cancer. It involves the genetic modification of a patient's T cells to create chimeric antigen receptors (CARs) that target specific cancer cells. This treatment

has shown great promise in clinical trials and has already been approved for the treatment of certain types of leukaemia and lymphoma.

## HOW AIR POLLUTION AFFECTS ECONOMY

### GS III – ENVIRONMENT & ECONOMY

**Context:** Conventional wisdom tends to dismiss air pollution as an unavoidable by-product of economic growth. However, in many researches it is found that, air pollution have direct impact on GDP growth and per capita income levels by reducing works outputs, lowering consumer footfall in consumption-led services, hampering asset productivity and triggering a surge in health expenses and welfare allocations, especially in the productive age groups.

More than 20 of the world's 30 cities with the worst air pollution are in India. Delhi has the poorest air quality among cities globally, with PM2.5 concentration levels at nearly 10 times the WHO targets.

### THE COST OF POOR AIR QUALITY

- **Health Costs:** Air pollution can lead to a range of health problems, including respiratory diseases, cardiovascular diseases, and even premature death. The healthcare costs associated with treating these illnesses can be substantial and can strain healthcare systems, leading to increased government spending and reduced productivity as a result of sick days and reduced work capacity.
- **Productivity Loss:** When workers are exposed to polluted air, they may experience health issues and discomfort, which can result in more sick days, reduced work performance, and lower overall productivity. This, in turn, can have a negative impact on economic output.
- **Decreased Tourism:** Air pollution can deter tourists from visiting polluted areas. Tourism is a significant source of income for many regions, and when air quality is poor, it can deter visitors, resulting in lower revenue for hotels, restaurants, and other tourism-related businesses.
- **Environmental Damage:** Air pollution can lead to damage to ecosystems and natural resources, which can have long-term economic consequences. For example, acid rain caused by air pollution can harm forests, lakes, and agriculture, leading to reduced agricultural yields and increased costs for land and water management.
- **Increased Energy Costs:** Polluted air can affect the energy sector by reducing the efficiency of power plants and increasing energy consumption. Inefficient energy production and consumption can lead to higher costs for businesses and households, which, in turn, can reduce disposable income and economic growth.
- **Regulations and Compliance Costs:** While the regulations are important for public health and environmental protection, they can also lead to compliance costs for businesses, which may need to invest in cleaner technologies or change their operations to meet pollution standards.
- **Innovation and Investment:** Investments in renewable energy, clean transportation, and environmental technologies can stimulate economic growth and create a more sustainable and resilient economy.

### INDIA'S CARBON EMISSION

- The leading Carbon emitters US (26%) China(13%) and UK have more than the average, India is fourth with only 3%
- Despite accelerating Growth rate India's annual carbon emission is at 0.5 tonnes per capita, which is below global average of 1.3 tonnes per capita.
- In terms of cumulative emissions India's contribution by 2020 is only 4% for 1.3 Billion population whereas European Union with a population of 443 M is responsible for emission of 20%
- According to UN, while the richest 1% of the global population emits more than 2 times the emission of the bottom 50%.
- India unlike developed countries cannot substitute its coal energy with oil or natural gas despite wind and solar energy they cannot help to maintain manufacturing industry, they can only substitute domestic consumption

### CONCLUSION

Mitigating air pollution through effective policies and investments in clean technologies can help minimize the economic impacts while also improving public health and environmental quality. Investments in clean technologies is crucial to mitigate the air pollution issue throughout the world.

### FALLING FARM EXPORT

#### GS III – AGRICULTURE & ECONOMY

**Context:** India’s agriculture exports have fallen 11.6% from April to September, this has been due to various bans/restrictions on the shipments of various commodities from wheat and rice to sugar and global prices easing from their peaks scaled immediately after Russia’s invasion of Ukraine.

According to department of commerce data

- Exports of farm commodities, at \$23.6 Billion in April-Sept 2023, it was \$26.7 for the same period in 2022.
- Imports fell too, from \$19.3 Billion to \$16.2 Billion, resulting in a marginal dip in the agricultural trade surplus.
- The years 2021-22 and 2022-23 also saw record imports of \$32.4 Billion and \$35.7 Billion respectively.

#### IMPACT OF GLOBAL PRICES

- UN Food and Agriculture Organization’s Food Price Index rose from an average of 96.5 points in 2019-20 to 139.5 points in 2022-23.
- India’s agricultural exports fell from \$43.3 Billion in 2013-14 to \$35.6 Billion in 2019-20.
- With world prices coming down, the value of both exports and imports of farm commodities are set to decline 2023-24.
- FAO has projected global ending cereal stocks from 2023-24 at an all-time high of 881.1 Million tonnes (mt) and the stocks-to-use ratio at 30.7%.

#### ISSUES WITH INDIAN FARM EXPORTS

- **Quality and Standards Compliance:** Indian agricultural exports often struggle to meet international quality and safety standards. The lack of uniform and consistently enforced quality control measures can result in rejections and bans of Indian agricultural products in international markets.

#### INDIA'S TOP AGRI IMPORT ITEMS (\$million)

	2021-22	2022-23	Apr-Sep 22	Apr-Sep 23
Vegetable oils	18991.62	20837.70	11097.64	8508.76
Fresh fruits	2460.33	2483.95	1236.66	1131.58
Pulses	2228.95	1943.89	595.78	1265.23
Spices	1299.38	1336.65	755.20	774.55
Cashew	1255.46	1805.67	1412.52	968.79
Raw cotton	559.55	1438.69	1081.43	401.20
Natural rubber	1032.71	937.60	542.18	380.37
TOTAL*	32422.30	35686.20	19311.21	16444.83

• **Infrastructure and Logistics:** Inefficient transportation, storage, and distribution systems can lead to post-harvest losses and higher costs. This affects the overall competitiveness of Indian farm exports.

• **Lack of Cold Chain Facilities:** A significant portion of perishable agricultural produce is lost due to inadequate cold storage and transportation facilities. This restricts the export potential of items like fruits and vegetables.

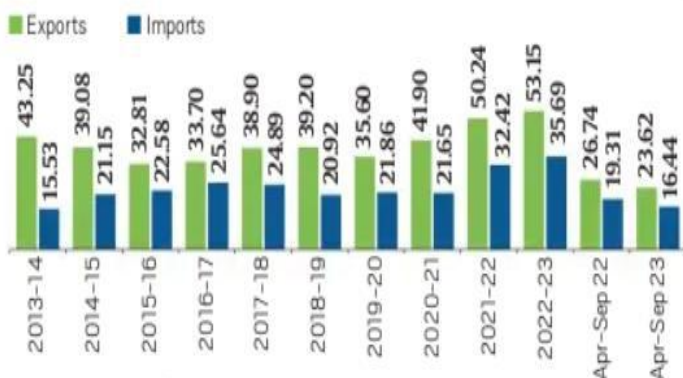
• **Pest and Disease Concerns:** Some countries place phytosanitary restrictions on Indian agricultural products due to concerns about pests and diseases. Ensuring pest-free produce can be a challenge.

• **Trade Barriers and Tariffs:** Non-tariff trade barriers, as well as tariffs and import restrictions, can affect the market access for Indian agricultural exports in various countries.

• **Price Volatility:** Fluctuations in commodity prices, both in domestic and international markets, can affect the profitability of Indian farm exports.

• **Small and Marginal Farmers:** The average land holding of Indian farmer is 1.8 Acres. Hence it limit their capacity to adopt modern agricultural

#### INDIA'S FARM EXPORTS AND IMPORTS (\$billion)



Source: Department of Commerce.



practices and access export markets. Aggregation and coordination are often needed for effective exports.

### CONCLUSION

Addressing these issues requires a multi-faceted approach involving government policies, private sector participation, research and development, and investment in infrastructure and technology. Moreover, enhancing the quality and safety of agricultural products, as well as streamlining

## NATIONAL SECURITY STRATEGY

### G S III – INTERNAL SECURITY

#### Context: WHAT IS NATIONAL SECURITY STRATEGY (NSS)?

- A NSS document outlines the country's security objectives, and the ways to achieve them.
- It defines traditional and non-traditional threats and opportunities while introducing accountability for agencies tasked with the implementation of various responsibilities.
- It means NSS would guide the military as well as critical Defence and security reforms, providing a holistic view of the overall National Security, the threats, and the roadmap to address them.

#### NEED FOR NSS

- The NSS is poised to encompass a broad spectrum of contemporary challenges, including financial and economic security, food and energy security, information warfare, critical information infrastructure vulnerabilities, supply chain concerns, and environmental issues.
- Complex nature of various traditional and non-traditional threats, especially amid rising geopolitical uncertainties, there is a need for new NSS.
- National security cannot be confined to the use of the state's coercive power to overcome domestic and external threats. For example, threats to domestic peace and stability may arise from economic and social grievances.
- A knee-jerk reaction may leave the grievances unaddressed while the use of coercive power exacerbates rather than ameliorates the situation. For instance, left-wing extremism in India is rooted in the persistent exploitation of tribal populations.
- Similarly, the vulnerability of our borders is linked to a large-scale smuggling and contraband trade. Such threats cannot be dealt with solely through enhanced military capabilities without addressing the drivers of illegal trade.
- For a modern state operating in an increasingly globalized world, the line between what is domestic and what is external is becoming increasingly blurred. For example, terrorism is a threat to domestic security but may have external links. Thus, a combination of domestic and external interventions may be necessary.
- It is only within a comprehensive NSS that such complex inter-relationships between domestic and external dimensions can be analysed and coordinated policy responses formulated.

#### PAST ATTEMPTS AND HURDLES

- **Failed Attempts:** India has previously made three attempts to develop a national security strategy, all without fruition.
- **Political Hesitation:** Some speculate that hesitation at the political level, driven by concerns about accountability in defense management, may have impeded the strategy's release.
- **Varied Views:** There have been differing views within the strategic community regarding the absence of a national security strategy, ranging from a lack of cohesive government efforts to intentional non-disclosure of national security objectives.

#### GLOBAL PRECEDENTS

- **Established Nations with NSS:** Developed nations with robust military and security infrastructures maintain National Security Strategies, updated periodically. The United States, the United Kingdom, and Russia have published their NSS.
- **China's Comprehensive National Security:** China has a closely integrated Comprehensive National Security strategy, tightly linked to its governance structure.



- **Pakistan's National Security Policy:** Pakistan recently unveiled a National Security Policy for 2022-2026, outlining its national security objectives and priorities.

### CONCLUSION

National security strategies are critical for guiding a nation's security apparatus and ensuring that resources are effectively allocated to protect the country's interests. They serve as a blueprint for government agencies, military forces, and other stakeholders to work together in pursuit of national security goals.

## NET NEUTRALITY IN INTERNET ACCESS

### GS III – ECONOMY

#### Context: WHAT IS NET NEUTRALITY?

- Net neutrality is the principle that Internet access providers must treat all traffic originating from and terminating to the Internet in the same way.
- The idea has been developed by Columbia Law School professor Tim Wu, he coined the term “net neutrality” in a 2003 paper titled “Network Neutrality, Broadband Discrimination.”
- Wu proposed the concept of net neutrality to promote an even playing field on the Internet, ensuring that all data is treated equally without discrimination by Internet service providers (ISPs).

#### WHY IN NEWS?

- The OTT consultation has renewed the clamor from the telecom companies that content providers such as Netflix, Amazon Prime, and Disney+ Hotstar be asked to share in the costs of bandwidth.
- They argue that streaming platforms are free riders, benefiting from the infrastructure built and maintained by the telecom companies.
- However, this argument is fundamentally flawed and sets a dangerous precedent that undermines the principle of net neutrality.

#### ARGUMENT BETWEEN TELECOM AND OTT

- By offering services that consumer's desire, OTT platforms generate demand for Internet access. They also pay for the content delivery networks (CDNs) to create pathways that substantially augment the capacity of the internet to deliver their content.
- Telecom companies capitalize on this demand (and the availability of OTT content) by providing connectivity to the Internet and charging subscribers for it.
- OTT services compete in their own market on the basis of variety and quality of content, the quality of streaming (such as, support for HD or better resolution or 5.1 surround sound), ease in navigation and discovery of content, and its availability on multiple devices.
- Similarly, in the marketplace for Internet access, the consumers are free to choose the provider that offers them the highest bandwidth, data volume, and reliability at an affordable price.
- These are distinct markets because services from one are not substitutable for services in the other. Therefore, it is logical to maintain a separation of costs between these two markets.
- The attempt of telcos to double dip by charging both consumers and content providers is not only avaricious but also undermines net neutrality.

#### TRAI REGULATIONS

- Net neutrality formed the basis of TRAI's regulation on prohibition of discriminatory tariffs for data services.
- The regulator's action forced the withdrawal of Facebook's Free Basics platform and some other offerings in India.
- The Body of European Regulators for Electronic Communications (BEREC) and TRAI agreed through a memorandum of understanding to cooperate in developing technological and policy initiatives for net neutrality.

#### PENETRATION OF INTERNET IN INDIA

- According to a joint report by industry body IMAI and market data analytics firm Kantar, more than half of Indians, 759 million citizens, are active internet users and access the internet at least once a month.
- The active internet base in India is expected to grow to 900 million by 2025.

### OTT SUBSCRIBERS IN INDIA

- Each OTT paying audience member in India has 2.4 subscriptions on an average, according to Ormax OTT Audience Sizing Report 2022.
- The consultancy firm estimates that India has 424 million OTT users.
- On the other hand, India has an approximate 150 million households with TVs, which translates to 600 million TV viewers.
- The study also showed that 72 per cent consumers in India would pay for an all-in-one platform for their entertainment services.

In addition, five in six (83 per cent) want the ability to share their streaming profiles across platforms to allow for better personalization of content.

### CONCLUSION

Upholding the principles of net neutrality is not merely about preserving the ethos of an open Internet but is also intrinsic to fostering a conducive environment for innovation, competition, and consumer welfare, especially countries such as India where the Internet is going to be the carrier of all Digital Public Infrastructure (DPI).

## IMPORTANCE OF LOSS AND DAMAGE FUNDS

### GS III – ENVIRONMENT

**Context:** As the climate crisis intensifies, two possibilities exist

1. **ADAPTATION** - Adaptation is the proactive response to climate change, the art of survival by which communities and countries make deliberate choices to prepare for and cope with climate related challenges.
2. **'LOSS AND DAMAGE' (L&D)**- L&D represents the irreversible consequences of climate change, impacts that can't be avoided or mitigated through adaptation efforts. They encompass the real losses that extend beyond monetary value and cut to the core of human rights and well-being. L&D includes economic losses, human casualties, and the degradation of ecosystems and cultural heritage.

### WHAT IS LOSS AND DAMAGE FUND?

- L&D fund was created to provide financial and technical assistance to economically developing nations that were incurring L&D due to climate change.
- This is call for affluent nations to acknowledge their accountability for historic pollution, which elevated the world's average surface temperature by more than 1 degree Celsius and is currently inflicting damage worldwide, but especially in the poorest nations.
- At the 19th Conference of the Parties (COP 19) to the United Nations Framework Convention on Climate Change (UNFCCC) in Warsaw, Poland, in 2013, representatives of member countries formally agreed to establish the L&D fund.
- However, during the 2021 COP26 climate summit in Glasgow, a 3-year task force was established to consider a funding arrangement for loss and damage.

### SIGNIFICANCE OF LOSS AND DAMAGE FUND

- **Equity and justice:** A loss and damage fund helps address the ethical and moral imperative of providing assistance to those who are least responsible for causing climate change but are suffering its most severe consequences.
- **Climate adaptation limitations:** While efforts are made to mitigate climate change through emissions reductions, adaptation measures to cope with its effects, particularly for extreme events like hurricanes, droughts, and floods, have limitations. A loss and damage fund provides a safety net for communities that cannot fully adapt to these impacts, ensuring that they receive support when adaptation alone is insufficient.
- **Climate justice in international agreements:** The concept of a loss and damage fund has gained prominence in international climate negotiations, such as the United Nations Framework Convention on Climate Change (UNFCCC). It underscores the principles of common but differentiated responsibilities, recognizing that historically high emitters have a responsibility to assist those disproportionately affected by climate change. This is an important element in ensuring equitable global climate agreements.
- **Risk reduction and resilience building:** A loss and damage fund can support risk reduction and resilience-building efforts in vulnerable regions. This includes investments in infrastructure, early warning systems,

disaster preparedness, and community-based adaptation projects that can help reduce future losses and damages.

### CONCERNS REGARDING THE FUND

- The unwillingness of wealthy nations to fulfil intended commitments undermines faith in global climate negotiations and hampers the cooperative spirit necessary to address climate change. As far as future COP negotiations are concerned, it only commits to creating a fund and leaves it up to discussion how it will be set up and, most importantly, who will contribute to it.
- Beyond the immediate diplomatic and trust-related repercussions, the watering down of the L&D fund has wide-reaching implications. It threatens climate justice and exacerbates the suffering of vulnerable communities in developing nations.
- While there have been nominal commitments by certain countries to donate to such a fund, the estimated L&D is already over USD 500 billion.
- There is no agreement yet on what counts as "loss and damage" caused by climate change which could include infrastructure damage, property damage, and cultural assets whose value is hard to quantify.
- Climate funding so far has focused mostly on cutting carbon dioxide emissions in an effort to curb global warming, while about a third of it has gone toward projects to help communities adapt to future impacts.

### INDIA'S RELATED INITIATIVES

#### National Adaptation Fund for Climate Change (NAFCC):

- It was established in 2015 to meet the cost of adaptation to climate change for the State and Union Territories of India that are particularly vulnerable to the adverse effects of climate change.

#### National Clean Energy Fund:

- The Fund was created to promote clean energy, and funded through an initial carbon tax on the use of coal by industries.
- It is governed by an Inter-Ministerial Group with the Finance Secretary as the Chairman.
- Its mandate is to fund research and development of innovative clean energy technology in the fossil and non-fossil fuel-based sectors.

#### National Adaptation Fund:

- The fund was established in 2014 with a corpus of Rs. 100 crores with the aim of bridging the gap between the need and the available funds.
- The fund is operated under the Ministry of Environment, Forests, and Climate Change (MoEF&CC).

### CONCLUSION

Addressing these issues in the implementation of loss and damage funds requires international cooperation, careful negotiation, transparency, and a commitment to equity and justice. It's an ongoing process as the international community grapples with the evolving challenges posed by climate change and its consequences.

## BIOMEDICAL WASTE

### GS III – ENVIRONMENT

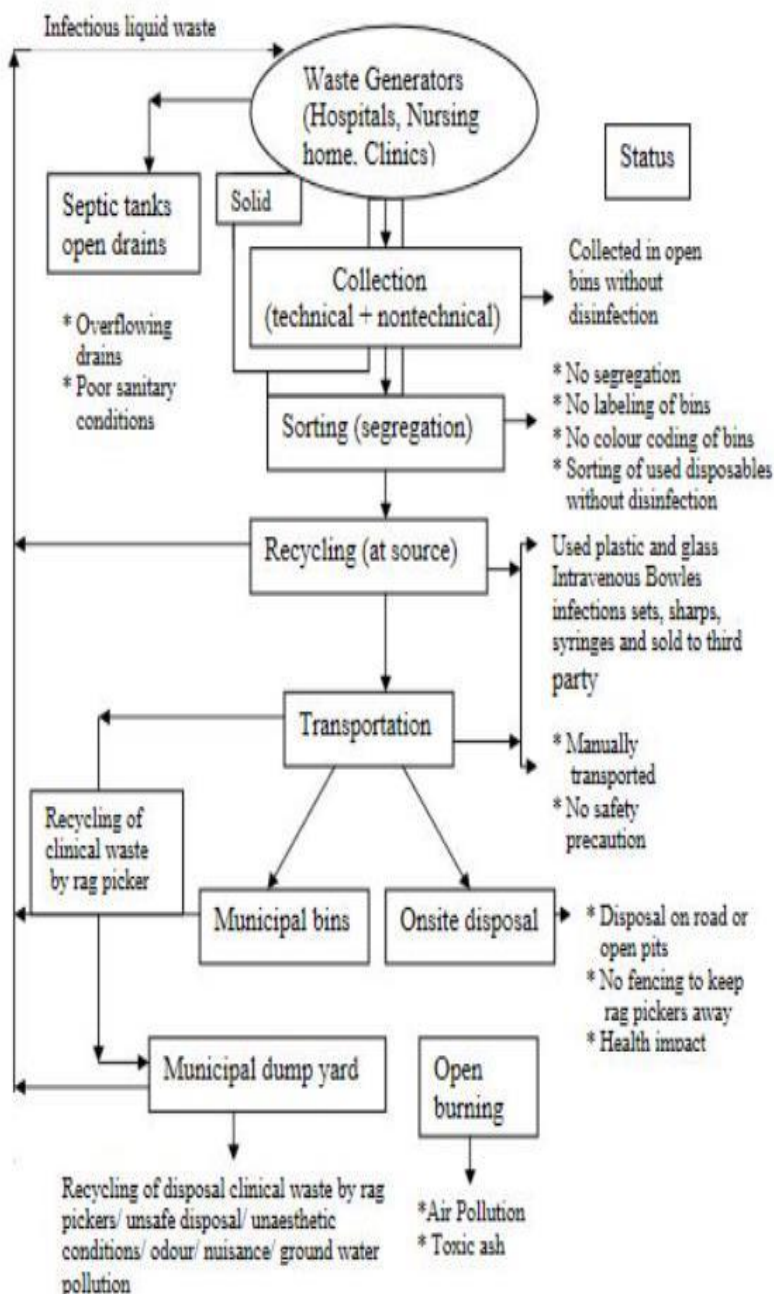
**Context:** Biomedical waste, refers to any waste generated during the diagnosis, treatment, or immunization of humans or animals, as well as research activities related to healthcare. This waste can pose serious health and environmental risks due to its potential for carrying infectious materials and hazardous substances. Proper management and disposal of biomedical waste are essential to prevent the spread of infections and protect the environment. Of the total amount of waste generated by healthcare activities, about 85% is a general, non-hazardous waste. The remaining 15% is considered hazardous material that may be infectious, toxic, or radioactive.

### ENVIRONMENTAL IMPACTS OF BIOMEDICAL WASTE

- **Soil and Water Contamination:** This contamination can occur when waste is dumped in landfills or improperly stored, allowing harmful substances to leach into the environment. The presence of hazardous chemicals, pharmaceuticals, and pathogens in biomedical waste can pose serious risks to the quality of soil and water resources.

- **Spread of Infectious Diseases:** Inadequate handling and disposal of biomedical waste can lead to the spread of infectious diseases in the environment. Pathogens from the waste can contaminate soil, water, and wildlife, potentially affecting human and ecosystem health.
- **Toxin emissions:** The most serious effect that biomedical waste has on our seas is the discharge of poisons into the waters that could then be consumed by ocean life creatures.
- **Food chain contamination:** Toxins would interject into the food chain and eventually reach humans who consume sea creatures.
- **Plastic pollution:** 85% of disposable plastic materials make up all medical equipment.

**BIO-MEDICAL WASTE MANAGEMENT RULES, 2016**



- The objective of the rules is to properly manage the per day bio-medical waste from Healthcare Facilities (HCFs) across the country.
- The ambit of the rules has been expanded to include vaccination camps, blood donation camps, surgical camps or any other healthcare activity.
- Pre-treatment of the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or sterilization on-site in the manner prescribed by the World Health Organization (WHO) or by the National AIDS Control Organisation (NACO).
- Bio-medical waste has been classified into 4 categories instead of the earlier 10 categories to improve the segregation of waste at source.
- The rules prescribe more stringent standards for incinerators to reduce the emission of pollutants in the environment.
- The State Government provides the land for setting up common bio-medical waste treatment and disposal facilities.

**CHALLENGES TO WASTE MANAGEMENT**

- Lack of awareness about the health hazards related to healthcare waste
- Inadequate training in proper waste management
- Absence of waste management and disposal systems
- Insufficient financial and human resources
- Many countries either do not have appropriate regulations or do not enforce them.

**BIOMEDICAL WASTE TREATMENT IN INDIA**

**INTERNATIONAL AGREEMENT AND CONVENTIONS**

The international agreements and conventions which are particularly pertinent in Biomedical Waste Management are-

**Basel Convention on Hazardous Waste:**

- It is the most inclusive global environmental treaty on hazardous and other wastes.

- It has 170 member countries, and its objectives are to protect human health and the environment against the adverse effects resulting from the generation, management, and disposal of hazardous wastes, specifically clinical wastes from health care in hospitals, health centers, and clinics.

#### **Stockholm Convention on POPs:**

- It is a global treaty to protect human health and the environment from POPs (POPs – dioxins and furans).
- POPs are toxic chemicals that accumulate in the fatty tissue of living organisms and cause damage.
- These chemicals are formed by medical waste incinerators and other combustion processes.
- It deals with BEP including source reduction, segregation, resource recovery and recycling, training, and proper collection and transport.

#### **Minamata Convention on Mercury**

- It is a global treaty to protect human health and the environment from the adverse effects of mercury.
- On October 10, 2014, in Japan, more than 90 nations signed the first new global convention on environment and health.
- This treaty includes the phasing out of certain medical equipment in health-care services, including mercury-containing medical items such as thermometers and blood pressure device.

#### **CONCLUSION**

Proper segregation, safe storage, and effective treatment methods can minimize the risks associated with biomedical waste. Furthermore, promoting awareness and education on responsible waste management practices is crucial to ensuring the protection of the environment and public health.

## **DEEPPAKES**

### **GS III – SCIENCE AND TECHNOLOGY**

#### **Context: WHAT ARE DEEPPAKES?**

- Deepfakes refer to realistic-looking, AI-generated content, typically images or videos that manipulate or replace the original content with new, often fabricated material.
- The term "Deepfake" is a combination of "deep learning" and "fake."
- The term became popular when a Reddit contributor used publicly available AI-driven software to impose the faces of celebrities onto the bodies of people in pornographic videos.
- Deepfakes are back in news, after a video of actor Rashmika Mandanna has recently gone viral on social media. Responding to the video, Rajeev Chandrasekhar, the Union Minister for Electronics & Technology, has said that deep fakes are the latest and a "more dangerous and damaging form of misinformation" that needs to be dealt with by social media platforms.
- Researchers have observed a 230% increase in deepfake usage by cybercriminals and scammers, and have predicted the technology would replace phishing in a couple of years.

#### **HOW DOES DEEPPAKE TECHNOLOGY WORK?**

- The technology involves modifying or creating images and videos using a machine learning technique called generative adversarial network (GAN).
- The AI-driven software detects and learns the subjects' movements and facial expressions from the source material and then duplicates these in another video or image.
- To ensure that the deepfake created is as close to real as possible, creators use a large database of source images. This is why more deepfake videos are created of public figures, celebrities and politicians.
- The dataset is then used by one software to create a fake video, while a second software is used to detect signs of forgery in it.
- Through the collaborative work of the two software, the fake video is rendered until the second software package can no longer detect the forgery.
- This is known as "unsupervised learning", when machine-language models teach themselves. The method makes it difficult for other software to identify Deepfakes.

#### **CHALLENGES POSED BY DEEPPAKES**

- **Promotes 'Liar's Dividend'**- Liar's Dividend refers to the situation when an undesirable truth is dismissed as Deepfakes or fake news. Leader's weaponries Deepfakes to replace an actual piece of media and truth.



Ex- Donald Trump Deepfake videos. Deepfakes blur the line between reality and fake. People start dismissing reality as fake.

- **Erosion of trust** in democratic processes like elections- Doctored content, most likely in the form of a realistic fake video is presented as fact to alter public perception and create democratic deficit. For Ex- Capitol Hill violence, 2021 was incited by using deep fake media.
- **Crime against women**- The deepfakes are being used as a weapon to attack women dignity and chastity. According to AI company Deeptrace report, over 90% of the deepfake videos are pornographic in nature.
- **Fuelling Radicalization and violence**- The non-state actors like ISIS and Al-Qaeda, use fake videos to stir anti-state sentiments among people. For Ex- Fake videos showing armed forces committing 'crimes in conflict areas'.
- **Rise in cybercrimes**- Cyber criminals are using deepfake technology to carry out phishing attacks, financial frauds and identity theft. Ex- CEO of a U.K. energy company was tricked using deepfake audio to transfer €2,20,000 to fraudsters.

## DEEFAKE REGULATION IN INDIA AND ACROSS WORLD

### INDIA

- India does not have specific laws or regulations that ban or regulate the use of deepfake technology.
- Sections 67 and 67A of the Information Technology Act (2000) related to defamation and publishing explicit material is applied in cases of deepfakes.
- India's IT Rules, 2021 require that all content reported to be fake or produced using deep fake be taken down by intermediary platforms within 36 hours.
- Section 500 of the Indian Penal Code (1860) also provides punishment for defamation.

### United States

- The U.S. introduced the bipartisan Deepfake Task Force Act to assist the Department of Homeland Security (DHS) to counter deepfake technology.

### European Union

- European Union has updated Code of Practice on Disinformation that was introduced in 2018 to stop the spread of disinformation through deepfakes.
- The EU has issued guidelines for the creation of an independent network of fact-checkers to help analyse the sources and processes of content creation

### China

China has introduced Comprehensive Regulation on Deep Synthesis aimed at curbing disinformation.

## CONCLUSION

Social media intermediaries have to develop technology to detect and report Deepfakes on their sites like watermarking AI-generated content. For Ex- Microsoft's video authenticator is a new anti-deep fake technology to fight misinformation. Additionally, there should be ongoing discussions about the need for legal frameworks to address the malicious use of Deepfakes technology.

## CLOUD SEEDING

### GS III – ENVIRONMENT

**Context:** Delhi is considering Cloud seeding to induce rain, so it can washout the pollution in the air. Attempts have been made before in India during Monsoon and Pre-monsoon period, when cloud carry some moisture. Also, the intentions with Cloud seeding is to bring rainfall to drought prone areas, and not to mitigate air pollution.

### WHAT IS CLOUD SEEDING?

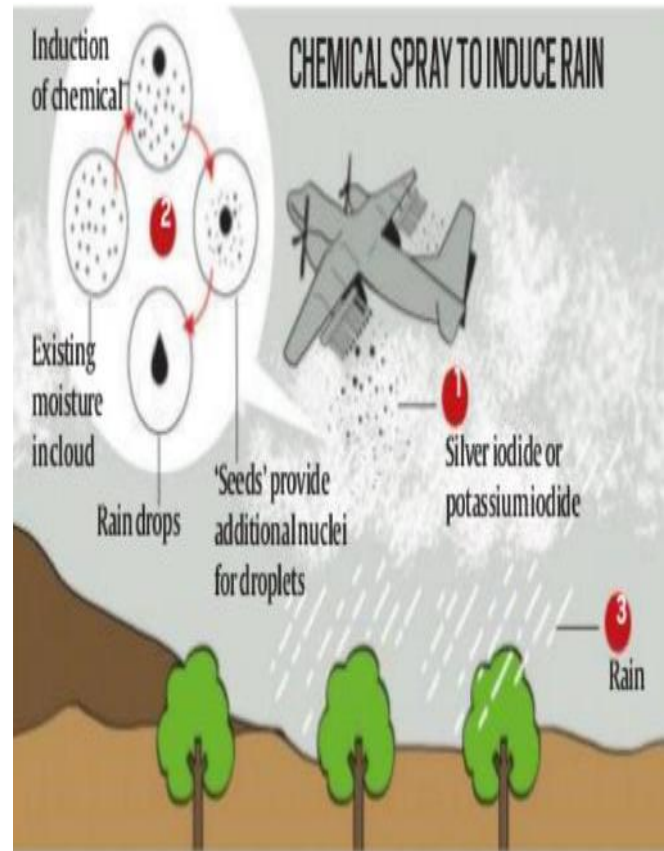
- Clouds are made up of tiny water droplets or ice crystals that form when water vapor in the atmosphere cools and condenses around a tiny particle of dust or salt floating in the atmosphere.
- Without these particles, known as condensation or ice nuclei, raindrops or snowflakes cannot form and precipitation will not occur.
- Cloud seeding is a process by which a cloud is injected with salts such as silver iodide or potassium iodide, which is the seed.
- The salts are expected to provide additional nuclei around which more cloud droplets can form.
- The seed can be dispersed either using aircraft or through generators on the ground.



- The condensation nuclei help form cloud droplets, and ice nuclei help to form ice crystals grow faster than drops, and they become large and fall.

#### PRIMARY GOALS OF CLOUD SEEDING

- **Drought Mitigation:** Cloud seeding is often employed in regions experiencing water scarcity or drought conditions. By enhancing precipitation, it aims to increase water resources, such as reservoirs and aquifers, to support agriculture, drinking water supplies, and other essential needs.
- **Water Resource Management:** In areas where water supply is a critical concern, cloud seeding can be used as part of a broader water resource management strategy. By increasing precipitation, it contributes to the overall water availability in a region.
- **Agricultural Enhancement:** Cloud seeding can benefit agriculture by increasing rainfall and, consequently, improving crop yields. This is particularly important in regions where water is a limiting factor for agricultural productivity.
- **Reducing Wildfire Risk:** In some cases, cloud seeding is explored as a means to reduce the risk of wildfires. By inducing rainfall, it can dampen dry conditions, making it more difficult for fires to spread.
- **Snowpack Augmentation:** In mountainous regions, cloud seeding is sometimes employed to enhance snowfall. This can contribute to the buildup of snowpack, which is crucial for downstream water supply during the spring and summer months.
- **Air Quality Improvement:** Cloud seeding may have the potential to improve air quality by promoting precipitation that can help remove particulate matter and pollutants from the air.



#### CHALLENGES INVOLVED IN CLOUD SEEDING

- **Potential Side-effects:** The chemicals used in cloud seeding might be potentially harmful to plants, animals, and people, or the environment.
- **Abnormal Weather Patterns:** It might ultimately change climatic patterns on the planet. Places that normally receive moisture might start experiencing drought due to the artificial process of adding chemicals to the atmosphere to stimulate rain.
- **Costly:** It involves processes such as delivering chemicals to the sky and releasing them into the air by flare shots or airplanes, which involves huge costs and logistic preparation.
- **Pollution:** As artificial rain falls, seeding agents like silver iodide, dry ice or salt will also fall. Residual silver discovered in places near cloud-seeding projects is considered toxic. As for dry ice, it can also be a source of greenhouse gas that contributes to global warming, as it is basically carbon dioxide.

#### CLOUD SEEDING METHODS

- **Hygroscopic Cloud Seeding:** Disperses salts through flares or explosives in the lower portions of clouds. The salt grows in size as water joins with them.
- **Static Cloud Seeding:** It involves spreading a chemical like silver iodide into clouds. The silver iodide provides a crystal around which moisture can condense. The moisture is already present in the clouds, but silver iodide essentially makes rain clouds more effective at dispensing their water.
- **Dynamic Cloud Seeding:** It aims to boost vertical air currents, which encourages more water to pass through the clouds, translating into more rain. The process is considered more complex than static cloud seeding because it depends on a sequence of events working properly.

## LONG WORKING HOURS DEBATE

### GS III – ECONOMY

**Context:** Infosys founder Narayana Murthy suggested that Indian youth should work 70 hours a week to improve the country's productivity. He emphasizes the need to improve India's work productivity, citing Germany and Japan as examples. A 70-hour work week, translating to nearly 12 hours of work for six days, raises both support and criticism.

#### HISTORY OF WORKING HOURS IN INDIA

- The first Indian Factories Act came into force in 1891 to address the working-age and conditions of children.
- It was not until 1911 that an amended (Factories) act was enforced to reduce the working duration per day to 12 hours, with a single weekly off.
- Post World War I, in 1922, with recommendations from the International Labour Organisation (ILO), the maximum weekly hour for an adult worker was brought down to 60 hours.
- A revised Factories Act of 1948 (independent India) further reduced this to 48 hours per week and 9 hours a day, as the maximum permissible working duration for an adult worker in India.
- The new Labour Codes brought the following changes in the working hours in India:
  - Weekly and daily working hours are capped at 48 hours and 12 hours, respectively.
  - 4-day work week will be feasible; 12 hour working day for each of the 4 days of the week.
  - Maximum overtime hours for workers increased from 50 hours in the Factories Act to 125 hours through the new codes.
  - The overtime policy also allows employers to contact workers on weekends, as per requirement.

#### ARGUMENTS IN FAVOUR OF LONG WORKING HOURS

- **Increased Productivity-** Advocates argue that a longer workweek could potentially result in higher productivity due to more time spent on tasks and projects. India's work productivity is one of the lowest in the world.
- **Higher Economic Growth-** It might boost economic growth as more work hours could contribute to increased production and innovation. It can help India reach the goal of \$5 trillion economy.
- **Opportunity for Skill Development-** Individuals can achieve mastery in one's chosen field by investing extra number of hours at work. For Ex- Out of the 70 hours, one can assign 40 hours to his/her professional responsibilities and set aside 30 hours for personal skill enhancement.
- **Leveraging the Demographic Dividend for Nation Building-** India needs a dedicated labour force where young individuals are willing to put in 70 hours of work per week for the service of nation-building.

#### ARGUMENTS IN AGAINST OF LONG WORKING HOURS

- **Decline in productivity with Long Working Hours-** Research shows that productivity declines significantly after 50 hours of work per week and drops further after 55 hours. Germany and Japan further increased productivity by reducing working hours to 1,400-1,600 hours a year.  
Ex- World's most productive countries have the least work week days.
- **Physical and mental health issues:** There are many physical and mental health issues that could arise from working without a break. Between 2000 and 2016, the number of deaths from heart disease due to working long hours increased by 42%, and from stroke by 19%.
- **Diminished Creativity and Innovation-** Overworked People frequently exhibit less creativity and innovation. Tiredness can hinder one's capacity for original thought and problem-solving.
- **'Work-life balance' as better fetching tool:** Companies that implement work-life balance policies benefit from increased retention of current employees, improved recruitment, lower rates of absenteeism and higher productivity, said the
- International Labour Organization (ILO) in a report released recently.

#### STATUS OF INDIA'S LABOUR PRODUCTIVITY AND WORKING HOURS

- Time Use Survey in India 2019 data shows that young Indians aged 15-29 currently work around 7.2 hours a day in rural areas and 8.5 hours a day in urban areas.

- A State-wise comparison of the time spent on work in urban areas is higher than in rural areas. Uttarakhand ranks first, with young people from the State working for an average of 9.6 hours a day.

#### INDIAN LABOUR PRODUCTIVITY STATUS AS PER THE ILO DATA

- India's hourly output stands at \$8.47. Indians work an average of nearly 48 hours per week.
- France's hourly output stands at \$58. Average workweek is around 30 hours per week.

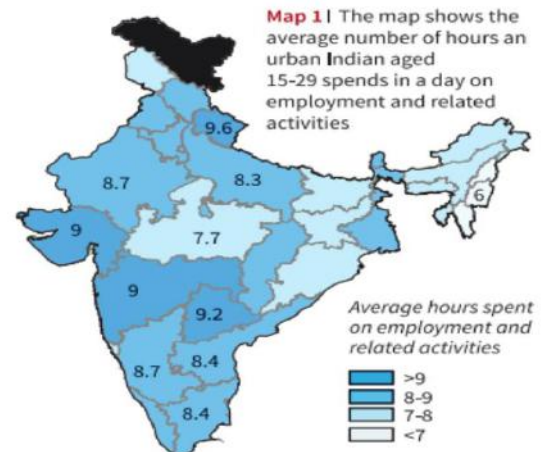
#### GOVERNMENT SCHEMES TO IMPROVE PRODUCTIVITY AND EFFICIENCY IN INDIA

- **Skill Development Initiatives:** The government has launched various skill development programs like Pradhan Mantri Kaushal Vikas Yojana (PMKVY), National Skills Qualifications Framework (NSQF) and Recognition of Prior Learning (RPL) to enhance the employability of the workforce.
- **Digital India:** The Digital India initiative aims to boost efficiency through digitalization and increased access to online services, reducing bureaucracy and enhancing productivity.
- **Make in India:** Make in India campaign encourages investment in manufacturing and promotes economic growth, creating job opportunities and enhancing productivity.
- **Startup India:** Startup India fosters entrepreneurship, the government introduced Startup India, offering support and incentives to startups and small businesses.

**Incentives for Research and Innovation:** Programs like Atal Innovation Mission and Biotechnology Industry Research Assistance Council (BIRAC) provide support and incentives for research and innovation.

#### CONCLUSION

Boosting productivity isn't just about working longer hours. It's about getting better at what you do upskilling, having a positive work environment and fair pay for the work done. The goal is to make work fulfilling, allowing a seamless integration of work and personal life. When young professionals are passionate and purpose-driven, achieving work-life harmony becomes a natural outcome.



## MINI-SOLAR GRIDS FOR RURAL ELCTRIFICATION

### GS III – RENEWABLE ENERGY

**Context:** Solar is the cheapest form of energy generation in most countries, and its climate, energy and economic benefits are increasingly apparent. However, the current global solar investments represents only 10% of the required amount to achieve net-zero emissions. Notably, developing countries, which are home to over 50% of the global population, received a mere 15% of renewable energy investments in 2022. In Sub-Saharan Africa, per capita investment in renewable energy saw a concerning 44% drop between 2015 and 2021. To put this into perspective, investment in North America and 41 times higher and in Europe they are 57 times greater.

#### CHARACTERISTICS AND BENEFITS OF MINI SOLAR GRID

- **Renewable Energy Source:** Mini solar grids primarily rely on solar energy for electricity generation. Solar panels capture sunlight and convert it into electricity through photovoltaic cells. This renewable energy source reduces dependence on traditional, fossil fuel-based power generation.
- **Decentralized Power Generation:** Mini solar grids are decentralized systems, meaning they operate independently of the centralized power grid. This decentralization enhances energy resilience, reduces transmission losses, and provides a more reliable source of electricity to local communities.
- **Scalability:** Mini solar grids can be designed to suit the specific energy needs of a community or area. They are scalable, allowing for the addition or removal of components based on the energy demand of the local population.
- **Community Empowerment:** Mini solar grids empower local communities by providing them with control over their energy production and consumption. This can lead to increased economic opportunities, improved living conditions, and enhanced community development.

- **Affordability:** In many cases, mini solar grids can be more cost-effective than extending the centralized power grid to remote or rural areas. They offer a reliable and sustainable energy solution that is often more affordable for communities that may not have access to traditional electricity infrastructure.
- **Reliable Power Supply:** Solar power, when combined with energy storage solutions like batteries, can provide a consistent and reliable power supply, even during periods of low sunlight or at night. Battery storage allows excess energy generated during sunny periods to be stored and used when needed.
- **Environmental Sustainability:** The use of solar power in mini grids contributes to environmental sustainability by reducing greenhouse gas emissions and reliance on non-renewable energy sources. This aligns with global efforts to combat climate change.

**Hybrid Systems:** Some mini solar grids may incorporate other renewable energy sources, such as wind or hydro power, to create hybrid systems. This approach can enhance the reliability and efficiency of the mini grid.

#### **RURAL ELECTRIFICATION THROUGH SOLAR POWERED MINI-GRIDS: A study of private sector models in Kenya**

- In Sub-Saharan Africa more than 630 million people live without access to electricity which is a constraint to social and economic development.
- Due to recent developments like price drops and increased quality in solar PV technology, better mobile coverage and access to mobile payment solutions, several mission-driven private firms have emerged in Kenya delivering power to rural residents through solar powered mini-grids.
- The aim of this PhD thesis was to explore the processes behind the emergence of such private-sector engagement, as well as the functioning and effects of specific private-sector models.
- This was pursued through a qualitative multiple case-study. The dynamics of change in the Kenyan rural electrification regime were investigated through the lens of the multilevel perspective to explore how niche-level actors conduct institutional entrepreneurship to influence existing structures in the rural electrification regime.
- The research found that firms seek to make private mini-grids a viable and sustainable alternative to grid-extension by following different strategies.
- While some actors sought to strengthen the private mini-grid niche by actively seeking to influence and change the 'rules of the game' in the broader rural electrification regime through negotiations, advocacy and other forms of institutional work, other actors are following a strategy of strengthening the niche from within by building partnerships and generating knowledge and learning.
- At the firm level, the research found that mini-grid firms respond differently to the competing demands of the social welfare and economic viability logics available to them.
- While some firms enact the logic of economic viability as the predominant logic guiding their work, other firms combine and blend the two logics.

While it is too early to draw conclusions regarding the prospects for the long-term sustainability of these firms, the existence of these various strategies is significant in two ways. First, it suggests that mission-driven enterprises can be differentiated based on the way they enact logics in their work. Secondly, it opens up a path to further research into how each of these strategies may influence the long-term sustainability of these firms.

#### **Conclusion:**

Creating a diverse energy mix, with adequate centralized and distributed renewable generation, is the future of the energy, and is suitable especially in underserved markets where the cost of grid extension to rural, off-grid areas is prohibitive. Private mini-grids combining solar battery storage are an affordable, technically mature, easily deployed, bankable solution that needs more support at a time when urgent energy access and climate action are required.

### **ARTIFICIAL INTELLIGENCE (AI) SAFETY SUMMIT 2023**

#### **GS III – SCIENCE AND TECHNOLOGY**

**Context:** Recently, the World's 1<sup>st</sup> Artificial Intelligence (AI) Summit was held at Bletchley Park, England. The summit was conducted to discuss about the challenges posed by the frontier AI technologies. To tackle the challenges they signed the Bletchley Park Declaration, at the first ever Ai Safety Summit.

#### **BLETCHLEY PARK DECLARATION**



- The Bletchley Park Declaration is the first global pact on tackling frontier AI risks, and it reflects a high-level political consensus and commitment among the major AI players in the world.
- Frontier AI is defined as highly capable foundation generative AI models that can produce realistic and convincing outputs, such as text, images, audio, or video, on demand.
- The summit discussed the establishment of an international register of frontier AI models that will allow governments to assess the risks involved.
- The declaration also announces the establishment of a regular AI Safety Summit, which will provide a platform for dialogue and collaboration on frontier AI safety.
- The next summit will be hosted by France within a year, and South Korea will co-host a mini virtual AI summit in the next six months.

#### HIGHLIGHTS OF BLETCHLEY DECLARATION

- **International Cooperation**- The declaration underscores the necessity for a united front in addressing the challenges and leveraging the opportunities that AI presents on a global stage.
- **Safety Standards**- It includes shared commitment to reducing risks associated with AI and ensuring that these technologies are developed with a safety-first approach.
- **Ethical AI**- The declaration ensures that AI technologies respect human rights, privacy, and democratic values, fostering a human-centric approach to AI.
- **Transparency and Accountability**- Both are seen as a cornerstone for building public trust and understanding, essential for the successful integration of AI technologies into society.

**Knowledge Sharing**- It aims at accelerating the global understanding and mitigation of AI-related risks, promoting a culture of shared learning and continuous improvement in AI safety practices.

#### INDIA'S STANCE AT THE SUMMIT

- India has shifted from a stance of not considering AI regulation to actively formulating regulations based on a risk-based, user-harm approach.

India called for a global framework for the expansion of "ethical" AI tools, signaling a commitment to responsible AI usage.

## OPIUM POPPY PRODUCTION

### GS III – ECONOMY AND AGRICULTURE

**Context:** Opium poppy (*Papaver somniferous*) plant is the source of opium gum which contains several indispensable alkaloids such as morphine, codeine and thebaine. Morphine is the best analgesic in the world. In case of extreme and excruciating pain such as that of terminally ill cancer patients, nothing alleviates the suffering except morphine. Codeine is commonly used in manufacture of cough syrups.

#### USES

- Opium is a natural substance obtained from poppy seeds and its derivatives are mainly used for pain management.
- Opium is unique in its therapeutic value and is indispensable in the medical world.
- It also finds use in Homeopathy and Ayurveda or Unani systems of indigenous medicines.
- The opium which is used as Analgesics, Anti-Tussive, Anti spasmodic and as a source of edible seed-oil, acts as a medicinal herb.

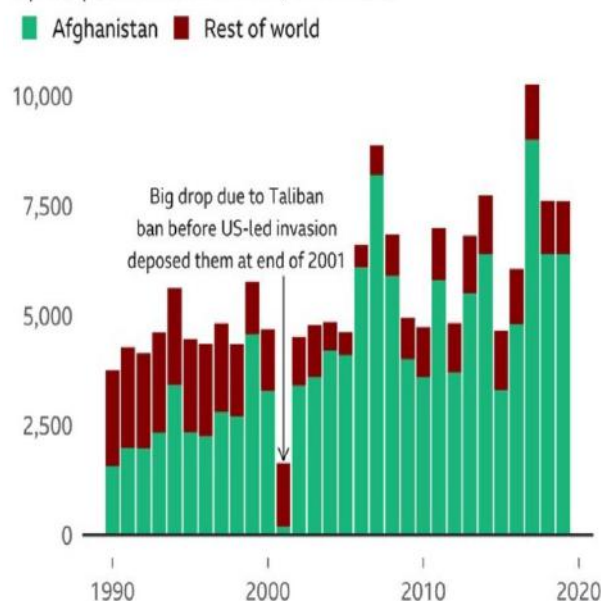
#### OPIUM CULTIVATION IN INDIA

- India has been growing poppy at least since the 15th century, as per historical records. The British East India Company assumed monopoly on the cultivation of poppy when the Mughal Empire was on the decline, and the entire trade was brought under government control by 1873.
- After independence, the control over cultivation and manufacture of opium became responsibility of the Central Government with effect from April, 1950.
- At present the Narcotics Commissioner along with the subordinates exercises all powers and performs all functions relating to superintendence of the cultivation of the opium poppy and production of opium.
- The Commissioner derives this power from the Narcotic Drugs & Psychotropic Substances Act 1985 and Narcotic Drugs & Psychotropic Substances Rules, 1985.

- License for manufacture of certain types of narcotic drugs and psychotropic substances as well as permits for export and import of narcotic drugs, psychotropic and controlled substances are issued with the approval and permission of the Narcotics Commissioner.
- The Government of India announces the licensing policy for cultivation of opium poppy every year, prescribing the minimum qualifying yield for issue of or renewal of licence, maximum area that can be cultivated by an individual cultivator, the maximum benefit that can be allowed to a cultivator for damage due to natural causes, etc.
- The opium poppy can be cultivated only in such tracts as are notified by the Government.
- At present these tracts are confined to three States, viz. Madhya Pradesh, Rajasthan and Uttar Pradesh.
- Mandsaur district of Madhya Pradesh and Chittorgarh and Jhalawar Districts of Rajasthan constitute about 80% of the total area cultivated.
- India is one of the few countries internationally permitted (by the United Nations Office on Drugs and Crime) to cultivate opium poppy for export.

### Afghanistan is responsible for more than 80% of global opium production

Opium production in tonnes, 1990-2019



#### INVOLVING PRIVATE PLAYERS

- India has opened up the highly regulated sector of producing and processing opium to private players.
- Bajaj Healthcare has become the first company to win tenders for producing concentrated poppy straw that is used to derive alkaloids that are the active pharmaceutical ingredient in pain medication and cough syrups.
- The private company will process 6,000 MT of unopened poppy capsules and opium gum to produce active pharmaceutical ingredients over the next five years.
- The involvement of the private sector might boost the domestic production of various alkaloids such as morphine and codeine, bring in modern technology, and reduce imports.
- Despite being one of the few global cultivators of poppy, India still imports these active pharmaceutical ingredients as well as poppy seeds, which is also consumed as a food item in the country.
- The move is also aimed at offsetting the declining area under cultivation of poppy in India. In 2017 and 2019, under a trial phase, two private companies were allowed to produce concentrated poppy straw.

#### ALKALOIDS

- These are any of a class of naturally occurring organic nitrogen-containing bases and have diverse and important physiological effects on humans and other animals.
- Well-known alkaloids include morphine, strychnine, quinine, ephedrine, and nicotine.
- Alkaloids are found primarily in plants and are especially common in certain families of flowering plants.
- They have diverse medicinal properties.
- India exports alkaloids to several countries.
- Usage
  - The poppy stem is cut below the pod and then crushed to produce a concentrate
  - Alkaloids obtained from opium are used to make cough syrups, cancer medicines and pain-management medicines
  - Therapeutically, alkaloids are particularly well known as anaesthetics, cardioprotective, and anti-inflammatory agents
  - Well-known alkaloids used in clinical settings include morphine, strychnine, quinine, ephedrine and nicotine
  - Alkaloids had some use as insecticides, but their use was limited due to high toxicity to humans.

#### CONCLUSION



Governments and international organizations regulate the production, distribution, and use of opium to prevent illegal drug trafficking and abuse. The medical use of opium derivatives is carefully controlled and prescribed by healthcare professionals to ensure patient safety and minimize the risk of addiction.

### EDIBLE OIL IMPORTS BY INDIA

#### GS III – ECONOMY

**Context:** Oilseeds and edible oils are two of the most sensitive essential commodities. Increased demand from several applications and rising consumer demand for high-quality cooking and edible oils are driving the global market for cooking oils. India’s edible oil imports have risen almost 1.5 times and more than doubled in rupee value terms during the last 10 years. According to Solvent Extractors Association of India (SEA), import of vegetable oils touched a record 16.5 Million tonnes.

#### STATE OF EDIBLE OIL SECTOR IN INDIA

- India is one of the largest producers of oilseeds in the world.
- It accounts for the estimated production of 36.56 Mt of nine cultivated oilseeds during the year 2021-22 as per the data released by the Ministry of Agriculture.
- India is the world's second-largest consumer and number one importer of vegetable oil.
- The present rate of edible oil consumption in India surpasses the domestic production rate. Hence, the country has to rely on imports to meet the gap between demand and supply.
- At present, India meets nearly 55% to 60% of its edible oil demand through imports. Therefore, India needs to be independent in oil production to meet the domestic consumption demand.
- Palm oil (Crude + Refined) constitutes roughly around 62% of the total edible oils imported and are imported mainly from Indonesia and Malaysia, while Soyabean oil (22%) is imported from Argentina and Brazil and Sunflower oil (15%) is imported mainly from Ukraine and Russia.

#### INDIA'S EDIBLE OIL IMPORTS

Oil Year (Nov-Oct)	Quantity (million tonnes)	Value in (₹cr)	Value in US \$ billion
2013-14	11.62	60,750	9.95
2014-15	14.42	62,862	9.65
2015-16	14.57	69,780	10.4
2016-17	15.08	75,125	11.55
2017-18	14.51	66,942	9.3
2018-19	14.91	62,933	9
2019-20	13.18	71,625	9.95
2020-21	13.13	117,225	15.6
2021-22	14.03	156,800	19.6
2022-23	16.47	138,424	16.65

#### DIPPING SELF-SUFFICIENCY

- In 2022-23, India’s edible oil production from domestically grown oilseeds and alternative sources such as cottonseed, rice bran and maize/corn amounted to around 10.3Mt.
- Adding imports of 16.5Mt took the total availability to 26.8Mt, with the share of domestic production in this at only 38.6%.
- Compare this to 2004-05, when domestic output, at 7Mt, exceed imports of 5Mt and translated into a self-sufficiency ratio of close to 60%.
- Efforts are being made to grow oil palm in Andhra Pradesh, Karnataka, Tamil Nadu, and North-Eastern parts of the country in addition to Kerala and Andaman & Nicobar Islands.
- Among the non-conventional oils, rice bran oil and cottonseed oil are the most important.
- In addition, oilseeds of tree and forest origin, which grow mostly in tribal inhabited areas, are also a significant source of oils.
- Higher yields from genetically modified Bt technology helped boost cottonseed oil production from less than 0.5Mt to 1.5Mt between 2002-03 and 2013-14.

#### EDIBLE OIL PRODUCTION

	2013-14	2022-23
Mustard*	22.72	39.8
Soyabean	14.03	18.53
Cottonseed**	14.74	12.44
Rice Bran	9.3	11
Groundnut@	6.75	9.91
Copra/Coconut	4.55	3.9
Palm	1.1	3.5
Maize Germ	0.5	1.5
Sesame	1.13	1.06
Sunflower@@	2.43	1.03
Others	0.77	0.68
<b>TOTAL</b>	<b>78.02</b>	<b>103.35</b>

#### YELLOW REVOLUTION

- The Yellow Revolution was a movement started in 1986–1987 to boost the production of edible oil, particularly from mustard and sesame seeds, to achieve self-reliance.

- The introduction of hybrid mustard and sesame seeds during the Yellow Revolution led to a large rise in the production of edible oil, which was also made possible by the adoption of more advanced oil production technologies.
- Soybean, groundnut, rapeseed-mustard, sunflower, sesame, safflower, and niger are the nine oilseed crops farmed in the nation. Safflower and niger are the only two non-edible oils (castor and linseed).
- The Malwa plateau, Marathwada, Gujarat, and dry sections of Rajasthan, Telangana, and Rayalseema regions of Andhra Pradesh are major oilseed-producing areas.

## INCLUSIVE GROWTH AND \$5 TRILLION ECONOMY

### GS III – ECONOMY

**Context:** In the G20 Sherpa meet Indian representative Amitabh Kant assured that India will be a \$5 Trillion economy by 2028, with a growth rate of 8% to 9%. However, ironically this growth does not talk about increase in per capita income or any other human development indices.

### FACTORS IN FAVOUR OF INDIA'S GROWTH

- **Strong relationships and a diversified economy:** Over the past 50 years, India's economy has expanded steadily. The economy is broadly diversified, and it has productive trade ties with other nations.
- **Technology adoption:** India has a huge thirst for embracing new technologies. The adoption rate has increased in the manufacturing and finance industries. This increased output while lowering production costs and raising production quality. These elements boosted profitability, which led to higher investments in innovation.
- **Offshoring opportunity:** Covid-19 sparked a long-term movement towards remote teams in the workplace ethos. This benefits India because it is more affordable for corporations from developed countries to collaborate with Indian citizens.
- **Demographic dividend:** With 356 million young people, India has the greatest youth population in the world. With a working population of 64%, India not only has a growing GDP and per capita income but also a sizable client base that businesses may successfully target.
- **Renewable energy:** India's installed electrical capacity already derives about 40% of its power from non-fossil fuel sources. With this conversion to renewable energy, both businesses and consumers will pay less, and the nation will be less dependent on imports.

### POSSIBLE CHALLENGES

- **Concentration of Wealth:** According to Oxfam report, India's top 1% owned more than 40.5% of its total wealth in 2021, while 50% owned 3% of its wealth. But ironically, it is the low-resource citizens who are funding the investment for the proposed \$5 trillion economy: approximately 64% of the total Goods and Services Tax (GST) came from the bottom 50% of the population, and the top 10% contributed 3% of GST. There is possibility that the growth only favors only few.
- **Poverty and Hunger:** PM Narendra Modi announced that he is extending the Pradhan Mantri Garib Kalyan Anna Yojna by five years because he does not want any citizen to sleep hungry. This means that 80 crore Indians will still be receiving free food grains to stave off hunger in 2028. Hence the growth may not help below poverty line citizens to come out of it.
- **Skill Requirement:** The tools and sectors identified for achieving this goal require highly skilled labour, which are not native to 80 crore marginalized citizens.
- **Per capita income:** The per capita income of Japan is \$34000 and that of China is \$13000. Though China outstripped Japan in world GDP ranking, since per capita income is a keen index of a population's well-being Japan is considered better than China. While India's per capita income in 2022 is \$2,400 much lower than China. How will it be improved with \$5 trillion economy?

**Inequality index:** According to World Economic Forum inequality index (more the value less the inequality) India has a value of 21.9. The values of China and Japan are more than 50. Will the divide deepen with the \$5 trillion economy?

### THE STORY OF JAPAN

- For 40 years, Japan was the world's second largest economy, powered by manufacturing and exports.
- But after the 2008 world financial crisis, the wheels came off the Japanese economy.
- Japan's population started spending less, exports shrank, and government incentives dried up.

- As soon as the economy plunged to the third position, Japan's leadership publicly welcomed China's ascent, stating that sustained demand from the (then) most populous country could only be good for Japan's exports.
- This ego-free 'activism' has ensured that Japan has held on to the third position in world GDP rankings for the last 14 years.
- Today Japan is the third largest economy by GDP in the world.
- However, with the developments workers moved from the countryside and satellite towns to cities expecting 'salaryman' jobs, but many discovered that they were not trained for the technological tsunami sweeping the high-growth sectors. They fell through the cracks into financial collapse and social withdrawal.
- Today there is reportedly a death by suicide every 20 minutes.
- About 15 lakh Japanese have not left their homes for years, a form of severe social withdrawal known as hikikomori.
- Old parents rent actresses who come in on Sunday to call them 'Mom' and 'Pop' because their own daughters don't visit any more.
- Every day, dead people are discovered in tiny apartment's days or weeks after they died; these are called kodokushi or lonely deaths.
- As the high-value industrial economy took centre stage, the strength of personal and professional relationships withered and the multi-generational family and social structure became atomised.

### CONCLUSION

It's important to note that the relationship between inequality and economic growth is complex and context-dependent. Some argue that moderate levels of inequality can provide incentives for innovation and investment, while extreme inequality may be detrimental to long-term economic prospects. In summary, addressing inequality is crucial for building a sustainable and inclusive \$5 trillion economy. Policies that promote education, social mobility, and equitable access to opportunities can contribute to a more balanced and resilient economic system.

## MILITARY AND AI

### GS III – INTERNAL SECURITY AND SCIENCE AND TECHNOLOGY

#### Context: APPLICATION OF AI IN DEFENCE SECTOR

- **Unmanned Aerial Vehicles (UAVs):** AI enables autonomous flight, navigation, and mission execution for drones, facilitating surveillance, reconnaissance, and target identification.
- **Unmanned Ground Vehicles (UGVs):** AI-equipped ground vehicles can be used for tasks such as reconnaissance, explosive ordnance disposal, and logistics support.
- **Cybersecurity:** AI is used to detect and respond to cyber threats in real-time. It enhances the ability to identify patterns, anomalies, and potential security breaches, helping to secure military networks and systems.
- **Border Surveillance:** AI-based solutions will help in border surveillance by incorporating cameras, radar feeds, sensors etc. These advanced technologies help to detect border intrusions, target classification, and enhance the accuracy of defence operations.
- **Simulations and Training:** AI-driven simulations provide realistic training environments for military personnel. These simulations can adapt based on trainee performance, offering personalized and immersive training experiences.
- **Intelligence and Surveillance:** AI assists in processing and analyzing vast amounts of data from various sources, including satellite imagery, sensors, and social media. This improves intelligence gathering, threat assessment, and situational awareness.
- **Swarm Intelligence:** AI-driven swarms of drones or robotic systems can be deployed for various missions, including surveillance, reconnaissance, and search and rescue, enhancing the capabilities of military forces.
- **Lethal Autonomous Weapon Systems (LAWS):** With integrated sensor and pre-programmed algorithms, these systems aid in identifying, selecting, and tracking hostile targets. These weapons autonomously engage targets and contribute in reducing personnel requirement.

#### CONCERNS RELATED TO THE AI IN DEFENCE

- **Budget Constraints:** India's current AI investment in the military is seen as inadequate compared to its strategic rival, China. According to the Delhi Policy Group, a security think tank, the Indian military allocates approximately US\$50 million annually for AI spending. China invests more than 30 times as much in AI technology.
- **Over-Reliance on Surveillance Systems:** There is a concern that overreliance on even advanced surveillance systems may not be foolproof, as demonstrated by the recent surprise attack on Israel. Anticipating and preventing unexpected threats.
- **Complexity of Counter-Terrorism:** Counter-terrorism and counter-insurgency operations often involve complex and nuanced situations that AI systems do not interpret easily. Human intelligence is crucial in understanding the subtleties of human behavior and decision-making in such contexts.
- **Misidentification of Targets:** AI systems may make mistakes in identifying targets, potentially leading to unintended attacks on non-combatants or friendly forces, resulting in unacceptable collateral damage. Ex, U.S. drone surveillance footage has misidentified civilians as terrorist targets in the August 2021 strike in Afghanistan.
- **Data and Privacy:** Balancing personal data protection with AI's benefits poses challenges and trade-offs between privacy and prosperity.
- **Ethical Dilemma:** There is a moral question regarding whether AI systems should have the authority to autonomously select and engage targets without human intervention, especially in situations where human lives are at stake.

#### INITIATIVES TAKEN BY GOVERNMENT TO PROMOTE AI IN DEFENCE SECTOR

- **Roadmap** - NITI Aayog and the Ministry of Defence partnered to build a roadmap for integrating AI within the defence forces in 2018.
- **Defence Artificial Intelligence Council** - It is led by Ministry of Defence to provide overall guidance and support for projects involving cutting-edge technologies.
- **Defence AI Project Agency** - As per Chandrasekaran committee recommendation it was launched with an annual budget of 100 crores for AI programs to provide necessary guidance and structural support.
- **Defence India Startup Challenge** - It is under the Innovations for Defence Excellence (iDEX) programme which aims to fund startups that address AI, sophisticated imaging, sensor systems, big data analytics, autonomous unmanned systems, and secure communication systems, among other technologies for the defence forces.
- **WARDEC** - The Army Training Command has signed an MoU with Rashtriya Raksha University (RRU) to develop a Wargame Research and Development Centre (WARDEC) in New Delhi. It will be India's first simulation-based training centre.
- **India-US Defence Artificial Intelligence Dialogue**- During the recent 4<sup>th</sup> U.S.-India 2+2 Ministerial Dialogue between India and US Defence and External Affairs Minister, there was a call for increased collaboration.
- **AI in defence symposium**- Ministry of Defence launched 75 newly-developed AI technologies during the first-ever "AI in Defense" symposium where products like robotics, automation tools and intelligence surveillance were on display.
- **Agni-D**- It is an AI-based surveillance software developed by the Indian military for border security and threat detection which was unveiled at Aero India, one of Asia's largest air shows, in 2023. It was deployed in eastern Ladakh sector, a region of strategic importance due to its closeness to China.
- **Research institutions**- DRDO has three dedicated laboratories for application oriented research in AI in different domains.
  - Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru and
  - DRDO Young Scientist Laboratory (DYSL)-AI and
  - DRDO Young Scientist Laboratory (DYSL)-CT (Cognitive Technology)

#### WAY FORWARD

- **Human Accountability:** Defining the extent of human involvement and responsibility in AI-driven military operations is crucial. Clear lines of accountability need to be established for any mishaps or wrongdoing.
- **Role of Private Sector:** Recognize the private sector's pivotal role in making AI accessible and efficient for military purposes. Foster an ecosystem that promotes the flow of both capital and skills, which is essential for AI innovation.



**Robust Hardware and Enabling Data Banks:** Invest in robust hardware and establish data banks to support AI operations. Critical infrastructure availability is crucial for AI's success in both civilian and military applications.

## CLIMATE RESILIENT AGRICULTURE (CSA)

### GS III – AGRICULTURE

**Context:** The two most important issues facing humanity in the 21st century are climate change and food insecurity. Some of the ongoing effects of climate change, such as heat waves, flash floods, droughts, and cyclones, are negatively influencing agriculture pattern. While, both population expansion and dietary changes are contributing to an increase in the demand for food, climate change and traditional farming practices are becoming less productive. In the scenario CSA plays a important role as there is pressing need for agricultural production to rise by 60% by 2050 in order to fulfill food demand.

### CLIMATE SMART AGRICULTURE

- According to Food and Agriculture Organization, Climate-smart agriculture is an approach for transforming food and agriculture systems to support sustainable development and safeguard food security under climate change.
- CSA comprises three pillars or objectives
  1. Sustainably increase agricultural productivity and incomes
  2. Adapt and build resilience to climate change
  3. Reduce/remove GHG (greenhouse gases) emissions, where possible
- Dimensions of climate-smart practices include water-smart, weather-smart, energy-smart, and carbon-smart practices.
- They improve productivity, deal with land degradation, and improve soil health.

### IMPORTANCE OF CSA

- **Food Security:** Climate-resilient agriculture helps ensure a stable and sufficient food supply by mitigating the impacts of climate change on crop yields. The importance of CSA lies in its ability to increase agricultural output while maintaining ecological stability.
- **Economic Stability:** Climate-resilient practices help farmers maintain stable incomes by minimizing the risks associated with extreme weather events, crop failures, and other climate-related challenges.
- **Adaptation to Changing Conditions:** By implementing practices that enhance adaptability, such as crop diversification and water management, agriculture can better withstand the challenges posed by rising temperatures, altered precipitation patterns, and more frequent extreme weather events.
- **Biodiversity Conservation:** Diverse and resilient agricultural systems can contribute to the conservation of biodiversity. By incorporating a variety of crops and utilizing agro-ecological practices, farmers can create habitats that support a range of plant and animal species, enhancing overall ecosystem health.
- **Water Management:** Efficient water management practices, a key component of climate-resilient agriculture, help address water scarcity issues. By optimizing irrigation systems, implementing rainwater harvesting, and improving water-use efficiency, agriculture can adapt to changing precipitation patterns and mitigate the impact of droughts.
- **Mitigation of Greenhouse Gas Emissions:** Agriculture is responsible for 73% of all methane emissions in the country. Climate-resilient agriculture often aligns with practices that contribute to the mitigation of greenhouse gas emissions. For example, conservation tillage, agroforestry, and organic farming can sequester carbon in the soil, helping to combat climate change.

### CONCLUSION

CSA has the potential to assure food security, empower farmers, and protect our delicate ecosystems by merging innovation, resilience, and sustainability. In the face of a changing climate, the path of CSA stands out as a source of inspiration and transformation for a world working to ensure a sustainable future.

## FLEET ELECTRIFICATION TO TACKLE URBAN POLLUTION

### GS III – ENVIRONMENT

**Context:** The air quality index (AQI) in many Indian cities has entered the red zone several days of the year. Millions of people have to face serious health hazards due to recurring increases in air pollution. It is clear that mitigation strategies have to be prioritised. As per two seminal studies pertaining to Delhi, the Urban Emission

(2015) and the TERI study (2018), a significant contributor to urban smog is PM<sub>2.5</sub> and PM<sub>10</sub> pollution, which is caused by the transport and construction sector.

#### VEHICULAR EMISSION DATA

- Vehicular emission is a major cause of air pollution in urban areas.
- Typically, vehicular emission contributes 20-30% of Particulate Matter (PM) 2.5 at the breathing level of air quality.
- At the same time, around 8% of total Greenhouse Gas (GHG) Emissions in India are from the transport sector, it exceeds 30%.
- The transport sector accounts for a quarter of total emissions, out of which road transport accounts for three-quarters of transport emissions (and 15% of total global CO<sub>2</sub> emissions).
- Passenger vehicles are the largest chunk of this, releasing about 45% of CO<sub>2</sub>.
- If the conditions prevail, annual GHG emissions in 2050 will be 90% higher than those of 2020.

#### GREEN FREIGHT CORRIDOR

- Declaring some of the expressways and national highways as green freight corridors will have a demonstration effect in the country.
- Accelerating feasibility studies, demand aggregation, supplier readiness, and a prudent risk allocation strategy are required to create green freight corridors in India.
- Such corridors can first evolve in small stretches of 500 kilometres on routes with heavy truck movement. Innovative financial instruments, incentivisation of charging infrastructure, facilitation of entrepreneurial efforts, and a conducive regulatory environment in the country can bring forth the much-needed breakthrough for truck electrification in India.

#### ASPECTS OF GREEN FREIGHT CORRIDOR

- **Sustainable Transportation Modes:** Promotion of environmentally friendly modes of transportation, such as electric or hybrid trucks, trains, and ships, which produce lower emissions compared to traditional diesel-powered vehicles.
- **Energy Efficiency:** Implementation of energy-efficient technologies and practices in freight transportation, including the use of fuel-efficient vehicles, optimized routing, and load consolidation to reduce energy consumption.
- **Renewable Energy Sources:** Integration of renewable energy sources, such as solar or wind power, to meet the energy demands of freight transportation operations. This can help reduce reliance on fossil fuels and decrease the carbon footprint of the transport corridor.
- **Intermodal Connectivity:** Promotion of intermodal transportation solutions that seamlessly integrate various modes (e.g., road, rail, maritime) to optimize efficiency and reduce environmental impacts. This can include improved coordination between different transport operators and infrastructure providers.
- **Emission Reduction Strategies:** Adoption of strategies to reduce greenhouse gas emissions, air pollutants, and other environmental impacts associated with freight transport. This could include the implementation of emission standards, incentives for cleaner technologies, and the use of alternative fuels.

#### INITIATIVES TO REDUCE EMISSIONS IN INDIA

##### Shift from Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI) emission norms:

- Bharat stage (BS) emission standards are laid down by the government to regulate the output of air pollutants from internal combustion engine and spark-ignition engine equipment, including motor vehicles.
- The central government has mandated that vehicle makers must manufacture, sell and register only BS-VI (BS6) vehicles from 1st April 2020.

##### Roadmap for Ethanol Blending in India by 2025:

- The roadmap proposes a gradual rollout of ethanol-blended fuel to achieve E10 fuel supply by April 2022 and phased rollout of E20 from April 2023 to April 2025.

##### Faster Adoption and Manufacturing of Hybrid and Electric vehicle (FAME) Scheme:

- The FAME India Scheme is aimed at incentivising all vehicle segments.
- Two phases of the scheme:



- Phase I: started in 2015 and was completed on 31st March, 2019
- Phase II: started from April, 2019, will be completed by 31st March, 2024.

**National Hydrogen Energy Mission:**

It aims to cut down carbon emissions and increase the use of renewable sources of energy while aligning India's efforts with global best practices in technology, policy and regulation.

**CONCLUSION**

Green freight corridors aim to strike a balance between economic efficiency and environmental sustainability in the movement of goods. By integrating green technologies, optimizing logistics, and fostering collaboration, these corridors seek to reduce the environmental footprint of freight transportation and contribute to broader sustainability goals.

**STUBBLE BURNING****GS III – ENVIRONMENT**

**Context:** Recently, Supreme Court questioned Punjab government about its failure to fund costs of crop residue management machines for marginal farmers. Stubble burning refers to the practice of intentionally setting fire to the leftover straw, stubble, and crop residue in fields after harvest. This is a common agricultural practice in some parts of the world, including India. Farmers often burn the remnants of the previous crop to clear the fields quickly and prepare them for the next planting season. However, stubble burning has several environmental and health implications, leading to concerns and discussions around its impact.

**WHY IS STUBBLE BURNING PRACTISED?**

- **Quick Clearing of Fields:** After harvesting a crop, farmers often want to clear the fields quickly to prepare for the next planting season. Stubble burning is a rapid and cost-effective method to remove the remaining crop residue and prepare the field for the next crop.
- **Ease of Plowing:** Burned stubble leaves behind ash, which some farmers believe makes it easier to plow the fields for the next planting. The ashes are thought to act as a form of natural fertilizer.
- **Pest and Disease Control:** Farmers may believe that burning stubble helps control pests and diseases that might be present in the leftover crop residue. The fire is thought to eliminate potential sources of infestation for the next crop.
- **Cheap:** It is considered one of the cheapest methods to clean the field after the harvesting season.
- **Labour shortage:** Use of expensive labour for stubble extraction is not feasible, especially in Punjab and Haryana where farm sizes are large.
- **Clears all stubble:** The use of mechanized harvester's leaves stubble of 10– 30 cm in the field, depending on the type of crop, which was not the case earlier with manual harvesting.
- **Low crop residue:** The low commercial and economic value of crop residue, coupled with the high costs of processing, reduces its value for farmers.

**IMPACTS OF STUBBLE BURNING**

- **Air Pollution:** Stubble burning releases large amounts of particulate matter into the air, including PM2.5 and PM10. These fine particles can penetrate deep into the respiratory system, causing respiratory problems and aggravating existing health conditions. Stubble burning contributes to the release of greenhouse gases, such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). These gases contribute to global warming and climate change.
- **Health Impacts:** The smoke produced during stubble burning contains pollutants that can cause or exacerbate respiratory problems, leading to conditions like asthma, bronchitis, and other respiratory illnesses.
- **Soil Health:** Stubble burning removes organic matter from the soil, affecting soil fertility and structure. It can lead to a decline in soil health over time.
- **Biodiversity:** The intense heat from stubble burning can harm or destroy the habitats of various plant and animal species, affecting biodiversity.

**STRATEGIES TO REDUCE STUBBLE BURNING**

## CAPITAL'S NIGHTMARE

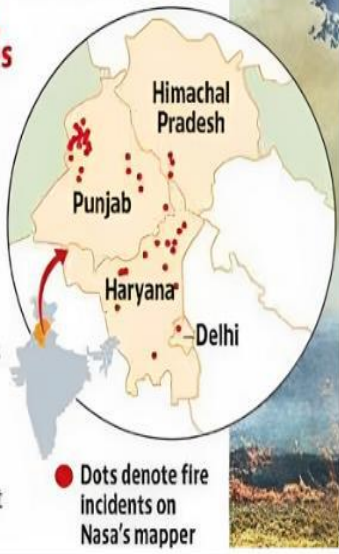
Stubble burning could contribute anywhere between 12% and 60% to Delhi's air pollution

**One ton of stubble, on burning, releases**

- 2 kg of SO<sub>2</sub>
- 3 kg of particulate matter
- 60 kg of CO
- 1,460 kg of CO<sub>2</sub>
- 199 kg of ash

### Health Impact

- Winter crop-burning triggers heavy pollution in Delhi
- Can aggravate and trigger respiratory diseases
- Results in loss of soil nutrient and kill soil organisms



- **Promote agri-implements:** Punjab has rolled out schemes for providing subsidy for mechanical implements that can mix the crop residue with soil to improve fertility. Promote co-ownership models for the agri-implements which can make such implements accessible to farmers.
- **Foster awareness:** Farmers should understand the value of crop residues and use of agri implements in extraction and packaging.
- **Power generation:** State governments need to incentivize establishment of biomass-based power plants through fiscal interventions and prioritization. Example- Biomass co-firing
- **Promote R&D:** Punjab Agricultural University is developing a variant of paddy straw that has lower silica content, thereby making it suitable for utilization in biomass-based power plants.
- **Biofuel production:** The State governments, along with appropriate policy interventions from the Central government need to incentivize utilization of biofuels.
- **Industrial application:** Biomass pellets can be sold commercially as the main fuel for industrial boilers and replace coal. Micro-pillarization should be incentivized and its local

usage promoted.

- **Crop residue collection mechanism:** Create a uniform decentralized mechanism for the collection, storage and commercial sale of crop residue.

### Chhattisgarh model

- A gauthan is a dedicated 5-acre plot, held in common by each village.
- Here, all the unused parali (paira in Chhattisgarhi) is collected through parali daan (people's donations) and converted into organic fertiliser by rural youth.

### SUPREME COURT'S REMARKS ON STUBBLE BURNING

- The court asked the Punjab government why it could not fund the costs of crop residue management machines for marginal farmers.
- Punjab responded that the issue of manpower and fuel for the machines was a challenge.

The court warned that paddy cultivation would deplete the water table in Punjab and suggested switching to crops other than paddy to save water and reduce pollution.

### CONCLUSION

Addressing the impacts of stubble burning requires a multi-faceted approach that includes regulatory measures, technological innovations, and support for sustainable agricultural practices. Efforts to raise awareness among farmers about the environmental and health consequences of stubble burning are also crucial in promoting positive change.

## SMOKED OUT EVERY YEAR

Burning of crop residue by farmers in northern India every October pollution in Delhi-NCR before winter



### Why harmful for air

- One ton of stubble on burning releases
- 2 kg of SO<sub>2</sub>
- 3 kg of PM
- 60 kg of CO
- 1,460 kg of CO<sub>2</sub>
- 199 kg of ash

### Loss of valuable nutrients

- Paddy straw contains (per hectare)
- 339 kg Nitrogen
- 6 kg Phosphorus
- 140 kg Potassium
- 11 kg Sulphur

## PAPER 4

## RBI GOVERNOR

## GS III – ECONOMY

## GS IV – LEADERSHIP QUALITIES

**Context:** Venkitaramanan, as RBI Governor, navigated a challenging financial landscape, implementing innovative measures, including pledging gold reserves, to overcome a critical balance of payment crisis exacerbated by the Iraq-Kuwait War. His leadership traits, commitment to reform, and resilience in dynamic political shifts define his impactful legacy.

## KEY HIGHLIGHTS

- **Challenges Faced by Venkitaramanan as RBI Governor:** Venkitaramanan assumed the role of RBI Governor during a challenging period marked by a critical balance of payment problem, intensified by the Iraq-Kuwait War. The situation demanded unconventional measures, including shipping gold reserves to raise foreign exchange.
- **Extraordinary Steps Taken:** To address the balance of payment crisis, the RBI, under Venkitaramanan's leadership, borrowed around USD 405 million by pledging gold reserves kept outside India. This unusual step showcased determination and innovation in navigating a complex financial scenario.
- **Dynamic Political Environment:** The backdrop of frequent changes in the central government added complexity to the financial responsibilities of the RBI and its governor. Venkitaramanan played a crucial role in tapping international financial institutions and raising the necessary foreign exchange.
- **Role of IMF and Devaluation of Rupee:** The RBI, led by Venkitaramanan, approached the International Monetary Fund (IMF) for assistance. The initial request was related to the Compensatory and Contingency Financing Facility (CCFF), providing limited conditionalities. Additionally, the government, in consultation with the RBI, decided to devalue the rupee sharply in two steps in June 1991.
- **Reform Initiatives:** Venkitaramanan was a reformer who initiated banking sector reforms and introduced changes in the exchange rate system, moving towards a dual exchange rate. He advocated for a strong role for public sector enterprises where efficiency could be maintained.
- **Leadership Traits:** Venkitaramanan's leadership qualities included a sharp mind, the ability to cut through complex problems, a willingness to listen to diverse viewpoints, and courage in making crucial decisions.

## KEY CHALLENGES

- **Balance of Payment Crisis:** Venkitaramanan faced a critical balance of payment problem aggravated by external factors such as the Iraq-Kuwait War. The challenge was to bridge the financial gap and avoid default in payment obligations.
- **Dynamic Political Changes:** Frequent changes in the central government added an additional layer of complexity to financial decision-making. Venkitaramanan navigated these changes while fulfilling the responsibilities of the RBI.

## CRITICAL ANALYSIS

- **Innovative Leadership in Crisis:** Venkitaramanan's decision to ship gold reserves and explore unconventional measures showcased innovative leadership during a financial crisis, preventing a default in payment obligations.
- **Navigating Political Changes:** Managing financial responsibilities amid frequent changes in the central government demonstrated Venkitaramanan's ability to navigate a dynamic political environment, ensuring financial stability.
- **Reform Initiatives for Financial Resilience:** Venkitaramanan's focus on banking sector reforms and a dual exchange rate system aimed at enhancing financial resilience during turbulent times, showcasing a forward-looking approach.

## KEY TERMS AND PHRASES

- **Compensatory and Contingency Financing Facility (CCFF):** An IMF facility created to aid countries facing sudden rises in the price of imported commodities or a sudden fall in export prices. The RBI approached the IMF for assistance, initially focusing on the CCFF.
- **Dual Exchange Rate System:** Venkitaramanan initiated a shift towards a dual exchange rate system, marking a significant change in the country's approach to managing its currency's value.
- **Gold Pledging to Raise Foreign Exchange:** The RBI, under Venkitaramanan, borrowed around USD 405 million by pledging gold reserves kept outside India during the balance of payment crisis.

**Conclusion:** S Venkitaramanan's leadership during a critical financial period exemplifies courage, innovation, and resilience. Acknowledging his contributions, the nation can build on reform initiatives, collaborate globally, and maintain prudent financial policies for a stable and resilient economic future



### Practice Questions



**Q1)** Consider the following pairs:

Festival	State
Chhath Puja	Bihar
Uttarayana	Chattisgarh
Onam	Karnataka

How many of the above pairs are correctly matched?

- a. **Only one**
- b. Only two
- c. All three
- d. None

**Q2)** Consider the following statements

Statement-I :

Donations through Electoral Bonds are only credited to the party bank account disclosed with the ECI.

Statement-II :

There is no specific treatment or vaccine for Hepatitis E. Electoral Bonds can be bought individually or jointly with other individuals.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. **Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I**
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

**Q3)** With reference to the Carbon nano florets, consider the following statements:

1. The nanoflorets resemble tiny marigold flowers.
2. They are made of carbon and hydrogen.
3. They have an unprecedented ability to absorb sunlight at multiple frequencies and convert it into heat.

How many of the statements given above is/are correct?

- a. 1 only
- b. 1, 2 and 3 only
- c. **1 and 3 only**
- d. 2 only

**Q4)** Consider the following pairs:

Space Telescope	Organization
Kepler Space Telescope	NASA
Astrosat	ISRO
James Webb Space Telescope	NASA

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. **All three**
- d. None

**Q5)** Consider the following statements

Statement-I :

Deep Ocean Mission is a mission-mode project to support the Green Economy Initiatives of the Government of India.

Statement-II :

Harnessing energy and freshwater from the ocean is one of the pillars of this mission.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. **Statement-I is incorrect but Statement II is correct**

**Q6)** With reference to the Aralam Wildlife Sanctuary, consider the following statements:

1. It is located in the northern part of Karnataka.
2. It is situated in the Eastern Ghats.
3. It is a UNESCO World Heritage Site.

How many of the statements given above is/are correct?

- a. **3 only**
- b. 1, 2 and 3 only
- c. 1 and 3 only
- d. 2 only

**Q7)** Consider the following pairs:

Missile	Type
Trishul	Anti-tank



Agni-III	Surface-To-Air
Amogha	Surface-to-surface

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. **None**

**Q8)** Consider the following statements

Statement-I :

Prevention of Money Laundering Act, 2002 (PMLA) is a civil law.

Statement-II :

It came into force on 1st July 2005.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. **Statement-I is incorrect but Statement II is correct**

**Q9)** With reference to the Minuteman III, consider the following statements:

1. The Minuteman III Is an intercontinental ballistic missile (ICBM).
2. It's kept in underground silos to protect it from attacks.
3. Its design makes it very easy to stop.

How many of the statements given above is/are correct?

- a. 1 only
- b. 1, 2 and 3 only
- c. **1 and 2 only**
- d. 3 only

**Q10)** Consider the following pairs:

Report	Organizations
World Air Quality Report	IQAir
Global Environment Outlook	UNCTAD
State of World Population	UNEP

How many of the above pairs are correctly matched?

- a. **Only one**
- b. Only two

- c. All three
- d. None

**Q11)** Consider the following statements

Statement-I :

Adaptation Gap Report 2023 is published by UNEP.

Statement-II :

It is a bi-annual publication.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. **Statement-I is correct but Statement II is incorrect**
- d. Statement-I is incorrect but Statement II is correct

**Q12)** With reference to Cuba, consider the following statements:

1. English is the principal language of Cuba.
2. It is located in South America.
3. It is the largest single island of the archipelago.

How many of the statements given above is/are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. 1 and 3 only
- d. **3 only**

**Q13)** Consider the following pairs:

Navy Warships	Type
INS Sindhujay	Frigates
INS Mysore	Submarines
INS Vikran	Aircraft Carrier

How many of the above pairs are correctly matched?

- a. **Only one**
- b. Only two
- c. All three
- d. None

**Q14)** Consider the following statements

Statement-I :

Pradhanmantri Sangrahalaya is located in New Delhi.

Statement-II :

It is a tribute to only the first Prime Minister of India, Shri Jawaharlal Nehru.



Which one of the following is correct in respect of the above statements?

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

**Q15)** With reference to the NITI Aayog, consider the following statements:

- It possesses a mandate to impose policies.
- Its Headquarters are in Mumbai.
- It focuses upon a 'Bottom-Up' approach to Planning.

How many of the statements given above is/are correct?

- 3 only**
- 1, 2 and 3 only
- and 3 only
- 2 only

**Q16)** Consider the following statements

Statement-I :

Directorate of Revenue Intelligence suggest remedies for loopholes in law and procedures to combat smuggling.

Statement-II :

It collects intelligence about the smuggling of narcotics.

Which one of the following is correct in respect of the above statements?

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

**Q17)** Consider the following statements

Statement-I :

Pradhan Mantri Rashtriya Bal Puraskar can be given to a child who is an Indian Citizen not exceeding 20 years.

Statement-II :

It includes a medal, a cash prize of Rs. 1,00,000, a certificate and a citation.

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Which one of the following is correct in respect of the above statements?

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

**Q18)** Consider the following pairs:

River	Origin
Hindon	Vindhya Range
Yamuna	Yamunotri Glacier
Teesta	Shivalik Hills

How many of the above pairs are correctly matched?

- Only one**
- Only two
- Only three
- None

**Q19)** Consider the following pairs:

VENUS MISSIONS	COUNTRY
Venus Express	Europe
Vegas	USA
Magellan	Russia

How many of the above pairs are correctly matched?

- Only one**
- Only two
- All three
- None

**Q20)** Consider the following statements

Statement-I :

NIA builds a database of all terrorist-related information.

Statement-II :

It is under the Ministry of Defence.

Which one of the following is correct in respect of the above statements?

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

**Q21)** With reference to the Tuberculosis, consider the following statements:

1. Those who are infected but not (yet) ill with the disease cannot transmit it.
2. Tuberculosis is preventable and curable.
3. It affects only the lungs.

How many of the statements given above is/are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. **1 and 2 only**
- d. 3 only

**Q22)** Consider the following pairs:

Organization	Headquarters
World Intellectual Property Organization (WIPO)	Rome, Italy
Food and Agricultural Organisation (FAO)	Geneva, Switzerland
United Nations Industrial Development Organization (UNIDO)	Vienna, Austria

How many of the above pairs are correctly matched?

- a. **Only one**
- b. Only two
- c. All three
- d. None

**Q23)** Consider the following statements

Statement-I :

The Directorate of Civil Aviation (DGCA) is responsible for the Licensing of air traffic controllers.

Statement-II :

It promotes the indigenous design and manufacture of aircraft.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. **Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I**
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

**Q24)** With reference to the National Human Rights Commission (NHRC), consider the following statements:

1. It was established in 1990.
2. It has headquarters in Mumbai.
3. It is a statutory body established under the Protection of Human Rights Act (PHRA), 1993.

How many of the statements given above is/are correct?

- a. **3 only**
- b. 1, 2 and 3 only
- c. 2 and 3 only
- d. 1 only

**Q25)** Consider the following pairs:

Disease	Caused by
Cholera	Vibrio cholerae
Plague	Yersinia pestis
Leprosy	Mycobacterium Leprae

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. **All three**
- d. None

**Q26)** Consider the following statements

Statement-I :

Jericho-1 missile system had a range of 500 kilometres.

Statement-II :

Jericho-2 Missile System is the first Israeli Intercontinental Ballistic Missiles (ICBM).

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. **Statement-I is correct but Statement II is incorrect**
- d. Statement-I is incorrect but Statement II is correct

**Q27)** With reference to the Awaous Motla, consider the following statements:

1. It was discovered from the Mahanadi River.
2. It costs less than several other locally available fish.
3. The species belongs to the family 'Awaous' (Oxudercidae).

How many of the statements given above is/are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. **1 and 3 only**
- d. 3 only

**Q28)** Consider the following pairs:

Organizations	HQ
RBI	New Delhi
SEBI	Mumbai
CBI	Pune

How many of the above pairs are correctly matched?

- a. **Only one**
- b. Only two
- c. All three
- d. None

**Q29)** Consider the following statements

Statement-I :

APEDA is under the Ministry of Agriculture.

Statement-II :

Improving the packaging of the Scheduled products is one of its functions.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. **Statement-I is incorrect but Statement II is correct**

**Q30)** With reference to the IIP, consider the following statements:

- 1 It is published quarterly.
- 2 It is published by the National Statistical Office (NSO).
- 3 Its Base Year is 2011-2012.

How many of the statements given above is/are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. **2 and 3 only**
- d. 3 only

**Q31)** Consider the following pairs:

ORGANIZATION	HQ

OPEC	UAE
WTO	Tokyo
FAO	Switzerland

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. **None**

**Q32)** Consider the following statements

Statement-I :

Shield Volcanoes produce non-explosive eruptions and fast-flowing lava.

Statement-II :

The lava produced by Dome Volcanoes is thick and viscous, which means it doesn't travel far from the source.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. **Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I**
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

**Q33)** With reference to the Black Hole, consider the following statements:

1. A black hole is such an astronomical object with such a powerful gravitational field, that nothing not even light can escape from the gravitational effect.
2. It is a region of space having a gravitational field so intense that no matter or radiation can escape.
3. It is exactly like a perfect black body in thermodynamics.

How many of the statements given above is/are correct?

- a. 2 only
- b. **1, 2 and 3 only**
- c. 1 and 3 only
- d. 3 only

**Q33)** Consider the following pairs:

Species	IUCN Status
Jenkin's Andaman Spiny Shrew	Least Concern
Forest Owlet	Critically Endangered
Himalayan Quail	Vulnerable

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three
- None

**Q35)** Consider the following statements

Statement-I :

PM PVTG (Particularly Vulnerable Tribal Groups) Development Mission is under the Ministry of Tribal Affairs.

Statement-II :

The mission is aimed at improving the socio-economic condition of particularly tribal Group C.

Which one of the following is correct in respect of the above statements?

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

**Q36)** With reference to the Aurora, consider the following statements:

- In the Northern Hemisphere, the phenomenon is called the Northern Lights (aurora australis).
- It is a phenomenon exclusively seen on planet Earth.
- In the Southern Hemisphere it's called the southern lights (aurora borealis).

How many of the statements given above is/are correct?

- 2 only
- 1, 2 and 3 only
- 2 and 3 only
- None**

**Q37)** Consider the following pairs:

EXERCISE	Countries
Hand-in-Hand Exercise	India & China
Table Top	India & Bangladesh
Eastern Bridge	India & Nepal

How many of the above pairs are correctly matched?

- Only one
- Only two**
- All three
- None

**Q38)** Consider the following statements

Statement-I :

Halley's Comet orbits the sun approximately every 56 years.

Statement-II :

Halley's Comet was predicted, by the calculations by English astronomer Edmond Halley.

Which one of the following is correct in respect of the above statements?

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

**Q39)** With reference to the ASEAN, consider the following statements:

- The motto of ASEAN is "One Vision, One Identity, One Community".
- 7th August is observed as ASEAN Day.
- ASEAN Secretariat is in Indonesia, Jakarta.

How many of the statements given above is/are correct?

- 2 only
- 1, 2 and 3 only
- 1 and 3 only**
- 3 only

**Q40)** Consider the following pairs:

SPACE MISSIONS	AGENCY
RISAT-2BR1	ISRO
Mariner 3	NASA
Pioneer	JAXA

How many of the above pairs are correctly matched?

- Only one
- Only two**
- All three
- None

**Q41)** Consider the following statements

Statement-I :

Alzheimer's disease is a brain disorder that gets better with time.

Statement-II :

It causes brain cells to degenerate and die.

Which one of the following is correct in respect of the above statements?

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

d. Statement-I is incorrect but Statement II is correct

- b. 1, 2 and 3 only
- c. **2 and 3 only**
- d. 3 only

**Q42)** With reference to the Niobium , consider the following statements:

1. It is anti-corrosive.
2. It has high superconductivity properties.
3. It usually forms layers of dielectric oxides when exposed to air.

How many of the statements given above is/are correct?

- a. 2 only
- b. **1, 2 and 3 only**
- c. 2 and 3 only
- d. 1 only

**Q43)** Consider the following pairs:

Disease	Caused by
Plague	Yersinia pestis
Chickenpox	Varicella-zoster virus.
Small Pox	Variola virus

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. **All three**
- d. None

**Q44)** Consider the following statements

Statement-I :

Measles spreads easily when an infected person breathes, coughs or sneezes.

Statement-II :

Measles can affect only children.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. **Statement-I is correct but Statement II is incorrect**
- d. Statement-I is incorrect but Statement II is correct

**Q45)** With reference to Saturn, consider the following statements:

1. Saturn is the seventh planet from the Sun.
2. It is the second largest planet in our solar system.
3. It is a massive ball made mostly of hydrogen and helium.

How many of the statements given above is/are correct?

- a. 2 only

**Q46)** Consider the following pairs:

Nobel Prize 2023	Set up
Chemistry	Katalin Karikó, Drew Weissman
Medicine	Moungi G. Bawendi, Louis E. Brus, Aleksey I. Yekimov
Physics	Pierre Agostini, Ferenc Krausz, Anne L’Huillier

How many of the above pairs are correctly matched?

- a. **Only one**
- b. Only two
- c. All three
- d. None

**Q47)** Consider the following statements

Statement-I :

British Academy Book Prize was established in 2011.

Statement-II :

It was formerly known as Nayef Al-Rodhan Prize.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. **Statement-I is incorrect but Statement II is correct**

**Q48)** With reference to the Eklavya Model Residential School, consider the following statements:

1. They are set up in States/UTs with provisioning of funds through “Grants under Article 275(1) of the Constitution”.
2. The establishment of EMRSs is based on the demand of the concerned States/UTs with the availability of land as an essential attribute.
3. There will be an autonomous society under the Ministry of Home Affairs to run the EMRSs.

How many of the statements given above is/are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. **1 and 2 only**
- d. 3 only

**Q49)** Consider the following pairs:

EXERCISE	PARTICIPATING COUNTRIES
Exercise Indra	India & Russia
Ajeya Warrior	India & USA
Lamitiye	India & Maldives

How many of the above pairs are correctly matched?

- a. **Only one**
- b. Only two
- c. All three
- d. None

**Q50)** Consider the following statements

Statement-I :

Lemru Elephant Reserve lies in the Korba district of Jharkhand.

Statement-II :

The reserve is part of an elephant corridor that connects Lemru (Korba), Badalkhol (Jashpur), and Tamoringla (Surguja).

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. **Statement-I is incorrect but Statement II is correct**

**Q51)** With reference to the INFUSE Mission, consider the following statements:

1. It was launched by JAXA.
2. It was led by Brian Fleming.
3. It will observe the release of light as the supernova’s blast wave collides with pockets of cold gas.

How many of the statements given above is/are correct?

- a. 1 only
- b. 1, 2 and 3 only
- c. **2 and 3 only**
- d. 3 only

**Q52)** Consider the following pairs:

Organizations	Headquarters
United Nations Population Fund (UNFPA)	Brussels, Belgium
North Atlantic Treaty Organization (NATO)	New York, USA
Organization of Petroleum Exporting Countries (OPEC)	Vienna, Austria

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

**Q53)** Consider the following statements

Statement-I :

The G20 does not have a permanent secretariat or Headquarters.

Statement-II :

During India’s presidency, India, Indonesia and Brazil will form the troika.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. **Statement-I is correct but Statement II is incorrect**
- d. Statement-I is incorrect but Statement II is correct

**Q54)** With reference to Zika, consider the following statements:

1. The Zika virus is a mosquito-borne flavivirus.
2. It was first identified in India in 1947 in monkeys.
3. Most infections in humans are asymptomatic or with mild symptoms, including fever, rash, and joint pain.

How many of the statements given above is/are correct?

- a. 1 only
- b. 1, 2 and 3 only
- c. **1 and 3 only**
- d. 3 only

**Q55)** Consider the following pairs:

RIVER	ORIGIN
Penna River	Nandi Hills
Sabari River	Sinkaram hill ranges
Dihing River	Patkai Hills

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. **All three**
- d. None



**Q56)** Consider the following statements

Statement-I :

Pavana River is a prominent river that runs through Kolkata.

Statement-II :

It separates it from the Pimpri-Chinchwad district.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct**

**Q57)** With reference to Earthquake, consider the following statements:

- 1. The point where the energy is released is called the epicentre.
- 2. A line connecting all points on the surface where the intensity is the same is called an Isoseismic line.
- 3. A seismograph, or seismometer, is an instrument used to detect and record earthquakes.

How many of the statements given above is/are correct?

- a. 3 only
- b. 1, 2 and 3 only
- c. 2 and 3 only**
- d. 2 only

**Q58)** Consider the following pairs:

EXERCISE	COUNTRIES
Mitra Shakti	India & Sri Lanka
Siam Bharat	India & Thailand
Cope India	India & US

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three**
- d. None

**Q59)** Consider the following statements

Statement-I :

The CBI Academy is located in Ghaziabad, UP

Statement-II :

The CBI Investigates cases of corruption, bribery and misconduct of Union govt employee.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I**
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

**Q60)** With reference to the Lucy Mission, consider the following statements:

- 1. It is a NASA space probe.
- 2. It is on a twelve-year journey to ten different asteroids.
- 3. It is the first solar-powered spacecraft to venture so far from the Sun , consider the following statements

How many of the statements given above is/are correct?

- a. only
- b. 1, 2 and 3 only**
- c. and 3 only
- d. only

**Q61)** Consider the following pairs:

Fighter Aircraft	Country
Rafale	Russia
Tejas	India
Sukhoi 30	France

How many of the above pairs are correctly matched?

- a. Only one**
- b. Only two
- c. All three
- d. None

**Q62)** Consider the following statements

Statement-I :

M-Yoga App is a work of collaboration between the World Health Organisation (WHO) and the (Ministry of AYUSH), Government of India.

Statement-II :

Yoga is also a part of the Fit India Movement.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I**
- c. Statement-I is correct but Statement II is incorrect

- d. Statement-I is incorrect but Statement II is correct

**Q63)** With reference to the Tropical cyclone, consider the following statements:

1. April-May and October-December periods are conducive for cyclones.
2. It is characterized by low atmospheric pressure, high winds, and heavy rain.
3. These are formed over slightly cooler ocean waters.

How many of the statements given above is/are correct?

- a. 3 only
- b. 1, 2 and 3 only
- c. **1 and 2 only**
- d. 1 only

**Q64)** Consider the following pairs:

VOLCANO	TYPE
Mount Fuji	Stratovolcano
Mt Etna	Shield volcano
Mount Vesuvius	Cinder cone volcano

How many of the above pairs are correctly matched?

- a. Only one
- b. **Only two**
- c. All three
- d. None

**Q65)** Consider the following statements

Statement-I :

On January 26, 1950, the Constitution of India was adopted by the Assembly.

Statement-II :

There is no specific treatment or vaccine for Hepatitis E. 26<sup>th</sup> November, 2023 is Law Day in India.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. **Statement-I is incorrect but Statement II is correct**

**Q66)** With reference to the Mount Etna, consider the following statements:

1. It is on the western coast of Sicily.
2. It is the highest peak in Italy South of the Alps.
3. It is also the least active stratovolcano in the world.

How many of the statements given above is/are correct?

- a. **2 only**
- b. 1, 2 and 3 only
- c. 1 and 3 only
- d. 3 only

**Q67)** Consider the following pairs:

Exercises	Countries
Al Nagah	India & Oman
Naseem Al Bahr	India & Qatar
Lamitiye	India & Seychelles

How many of the above pairs are correctly matched?

- a. Only one
- b. **Only two**
- c. All three
- d. None

**Q68)** Consider the following statements

Statement-I :

Israel declared independence in 1946.

.Statement-II :

There is no specific treatment or vaccine for Hepatitis E. Qatar shares a land border with Saudi Arabia, Bahrain, and the United Arab Emirates.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. **Statement-I is incorrect but Statement II is correct**

**Q69)** With reference to the Silkyara tunnel, consider the following statements:

1. The total length of the tunnel is 4.5 km.
2. It is meant to connect Silkyara to Dandal Gaon in Uttarkashi district.
3. The double-lane tunnel is pegged as one of the longest tunnels under the Char Dham all-weather road project.

How many of the statements given above is/are correct?

- a. 1 only
- b. **1, 2 and 3 only**
- c. 1 and 3 only
- d. 2 only

**Q70)** Consider the following pairs:

Disease	Caused by
Plague	Bordetella pertussis
Whooping Cough	Yersinia pestis
Pneumonia	Streptococcus pneumoniae

How many of the above pairs are correctly matched?

- a. **Only one**
- b. Only two
- c. All three
- d. None

**Q71)** Consider the following statements

Statement-I :

NISAR (NASA-ISRO Synthetic Aperture Radar) is planned to be launched in year 2024.

Statement-II :

It is joint effort of Agency NASA and ESA.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. **Statement-I is correct but Statement II is incorrect**
- d. Statement-I is incorrect but Statement II is correct

**Q72)** With reference to Zimbabwe, consider the following statements:

1. Its Capital is Harare.
2. Zimbabwe is a landlocked country.
3. Zimbabwe does not share its borders with Botswana.

How many of the statements given above is/are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. **1 and 2 only**
- d. 3 only

**Q73)** Consider the following pairs:

EXERCISES	COUNTRIES
Sampriti	India & Bangladesh
Maitree Exercise	India & Thailand
Yudh Abhyas	India & UK

How many of the above pairs are correctly matched?

- a. Only one
- b. **Only two**
- c. All three
- d. None

**Q74)** Consider the following statements

Statement-I :

Vajra Prahar is conducted biannually.

Statement-II :

The 2023 edition will take place in Umroi Cantonment, Meghalaya.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. **Statement-I is incorrect but Statement II is correct**

**Q75)** With reference to Pirola, consider the following statements:

1. Pirola is also called BA.2.86 .
2. It demonstrates distinct symptoms like rashes, conjunctivitis, and diarrhoea.
3. The Pirola variant has only been detected in the US.

How many of the statements given above is/are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. **1 and 2 only**
- d. 3 only



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