



drishti

**Current
Affairs
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Polity and Governance

Highlights

- Income Tax Dept Surveys BBC
- Foreigners Cannot Be Legal Guardians: Delhi HC
- International Intellectual Property Index 2023
- Draft Policy for Displaced Communities from Coastal Erosion
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- 60% of Voters Linked Aadhaar to Voter ID
- Corrupt Practices Under RPA Act 1951
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- National Curriculum Framework for Foundational Stage
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- Draft Geo-heritage Sites and Geo-relics Bill, 2022

Income Tax Dept Surveys BBC

Why in News?

Recently, the **Income Tax (I-T) Department** conducted surveys at the premises of the **British Broadcasting Corporation (BBC)** in Delhi and Mumbai.

Which Laws Confer Authority on the I-T Department to Conduct Surveys?

- The Income Tax Department is conducting surveys at BBC offices using **Section 133A of the Income Tax Act, 1961**, which allows authorised officers to enter any business, profession, or charitable activity within their jurisdiction to collect hidden information.
 - This provision was added to the **Act through an amendment in 1964**.
- During the survey, the **officers can verify the books of account or other documents, cash, stock, or other valuable articles or things**. The officers may impound and retain any books of account or other documents after recording reasons for doing so.
 - The provisions for **impounding or seizing goods** were introduced in the **Finance Act, 2002**.

What is the Difference Between Search and Survey Under I-T Act?

- Search and survey are often used interchangeably, but they denote different things and have different consequences.

➤ **Search, defined under Section 132**, can take place anywhere **within the jurisdiction of the authorised officer**, and it's a **more serious proceeding than a survey**.

- A survey under **Section 133A (1)** can **only be conducted within the limits of the area assigned to the officer** or at any place occupied by a person under the officer's jurisdiction where a business or profession is **carried out**.
- Surveys are conducted **only during working hours on business days**, whereas a **search can happen on any day after sunrise and continue until the procedures are completed**.
- The **scope of a survey is limited to the inspection of books** and verification of cash and inventory, while **in a search, the entire premises can be inspected** to discover undisclosed assets, with the help of police.
 - The **consequences of a search are more severe**, and the **penalties are steeper than in a survey**.

Foreigners Cannot Be Legal Guardians: Delhi HC

Why in News?

The Delhi High Court has ruled that a **foreigner cannot claim the right to be appointed as the legal guardian of a person with disabilities** or the protection guaranteed under **Part III of the Constitution**, as available to **Indian citizens**.

Note:

What are Major Points Related to the Issue?

- The concerned foreigner challenged the validity of certain rules and regulations prescribed by the **National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Rules, 2001**, allow only Indian citizens to be guardian of a person
- The **High Court** ruled that the Act does not specify the essential qualifications that a guardian must possess, leaving it to be determined by rules and regulations that may be framed.
- However, the High Court directed the Local Level Committee to examine and evaluate the circumstances.
- The Committee may consider the appointment of an Indian citizen as a statutory guardian.

What are Fundamental Rights Available for Only Indian Citizens?

- **Article 15:** This article prohibits discrimination on the grounds of religion, race, caste, sex, or place of birth.
- **Article 16:** This article guarantees equality of opportunity in matters of public employment.
 - It ensures that no citizen shall be discriminated against on the grounds of religion, race, caste, sex, descent, place of birth, or residence.
- **Article 19:** This article provides for six freedoms, namely, freedom of speech and expression, assembly, association, movement, residence, and profession.
- **Article 29:** This article protects the interests of minority groups by ensuring that they have the right to conserve their distinct language, script, and culture.
- **Article 30:** This article provides minority communities with the right to establish and administer educational institutions of their choice.

International Intellectual Property Index 2023

Why in News?

Recently, India ranks **42nd among 55 leading global economies** on the **International Intellectual Property (IP) Index 2023** released by the **U.S. Chambers of Commerce**, according to which India is ripe to become a leader for emerging markets seeking to transform their economy through **IP-driven innovation**.

- **US topped the International IP Index** followed by United Kingdom and France.

What is International IP Index?

- The Index evaluates the **IP framework in each economy across 50 unique indicators** which industry believes represent economies with the most effective IP systems.
- The indicators create a snapshot of an economy overall IP ecosystem and span nine categories of protection: **Patents, Copyrights, Trademarks, Design Rights, Trade Secrets, Commercialization of IP Assets, Enforcement, Systemic Efficiency, Membership and Ratification of International Treaties.**

What is Intellectual Property?

- **About:**
 - **Intellectual Property (IP)** refers to **creations of the mind**, such as **inventions, literary and artistic works, symbols, names, and images used in commerce.**
 - It is a form of legal protection in the form of **Intellectual Property Rights (IPR)** given to individuals or companies for their creative and innovative works.
 - These rights are outlined in **Article 27 of the Universal Declaration of Human Rights.**
 - These legal protections allow the creators to control use of their work and **prevent others from using or reproducing them without permission.**
- **Types:**
 - The main types of IP include **patents for inventions, trademarks** for branding, **copyrights** for artistic and literary works, **trade secrets** for confidential business information, and industrial designs for product appearance.
- **India and IPR:**
 - India is a member of the **World Trade Organisation** and committed to the Agreement on **Trade Related Aspects of Intellectual Property (TRIPS Agreement).**
 - India is also a member of **World Intellectual Property Organization**, a body responsible for the promotion of the protection of intellectual property rights throughout the world.
 - The **National Intellectual Property Rights (IPR) Policy 2016** was adopted in May 2016 as a vision document to guide future development of IPRs in the country.

Note:

- Its clarion call is “Creative India; Innovative India”.
- **Issues Related to IPR:**
 - **Enforcement:** Despite efforts to strengthen IP enforcement, piracy and counterfeiting remain significant problems in India.
 - Enforcement agencies often lack the resources and expertise to effectively combat these issues, leading to low rates of prosecution and conviction.
 - **Patent Backlog:** The backlog of patent applications in India is a major challenge.
 - This leads to delays in granting patents and creates uncertainty for innovators seeking to protect their inventions.
 - **Lack of IP Awareness:** There is still a lack of awareness and understanding of IPR among many businesses and individuals in India.
 - This can lead to **inadvertent infringement of IP rights**, as well as challenges in enforcing these rights.

Draft Policy for Displaced Communities from Coastal Erosion

Why in News?

The **National Disaster Management Authority (NDMA)** received the inputs from disaster management officials and researchers on the draft of India’s first national policy for the mitigation and rehabilitation of the people affected by river and **Coastal Erosion**.

- The Ministry of Home Affairs had directed NDMA to draft a policy based on the **15th Finance Commission’s report for 2021**.
- Until now, most policies in the country only address **displacement after sudden rapid-onset disasters** such as floods and cyclones.

What are the Recommendations of the 15th Finance Commission Report?

- It had for the **first time emphasised on rehabilitation and resettlement for people displaced by the river and coastal erosion**, in view of the increasing threat due to **climate change**.

- It introduced **mitigation measures to prevent erosion** under the **National Disaster Mitigation Fund (NDMF)**, with an allocation of Rs 1,500 crore for 2021-26.
- For the resettlement of displaced people affected by erosion, it allocates Rs 1,000 crore for the same period under the **National Disaster Relief Fund (NDRF)**.
- It emphasized that **states must follow timelines for mitigation and rehabilitation projects without delays**, projects under NDRF and NDMF should be sanctioned in such a manner that they can be completed within the award period of the Commission.

What are the Key Features of Draft Policy?

- **Fund Allocation:**
 - For both funds (NDRF and NDMF), state governments will have to avail **resources on a cost-sharing basis**, contributing 25% to the costs of mitigation and resettlement associated with coastal and river erosion.
 - However, northeastern states have **to only pool 10% of state funds**.
 - NDMA will coordinate the allocations and expenses under NDRF and NDMF at the national level for **mitigation and rehabilitation**.
- **Nodal Agency:**
 - **District Disaster Management Authorities (DDMA)** would be the nodal agency to implement the measures, aided by other district agencies and a specific panchayat-level committee.
 - The DDMA will prepare mitigation and rehabilitation plans and **submit them to the SDMAs**, from where the proposed measures will be appraised by NDMA and finally submitted to the home ministry.
 - A high-level committee of the ministry will then approve the disbursement of funds.
- **Detailed Hazard Assessments:**
 - Detailed hazard assessments carried out by central agencies such as the National Centre for Coast Research, Central Water Commission etc., and **high-resolution LiDAR data** available with National Remote Sensing Centre should be made available to the SDMAs.
 - These should be made available in easy-to-access geographic information systems (GIS) formats by the NDMA.
- **Mapping Coastal and River Erosion:**

Note:

- The policy insists on mapping coastal and river erosion impacts and coming up with a database of diverse challenges confronted by the affected and vulnerable habitations.
- **Impact and Vulnerability Assessments:**
 - The draft policy also recommends impact and vulnerability assessments of regions threatened by coastal and river erosion to be undertaken periodically, which will be spearheaded by SDMAs in coordination with the state departments and DDMAAs.

What is NDMA?

- NDMA is India's **apex statutory body for disaster management**.
- The NDMA was formally constituted on **27th September 2006, by the Disaster Management Act, 2005**. The **Prime Minister is its chairperson**, and it has nine other members. One of the nine members is designated as Vice-Chairperson.
- The primary responsibility for the management of disaster rests with the State Government concerned. However, the National Policy on Disaster Management puts in place an enabling environment for all i.e., the Centre, state and district.

Higher Pension under EPS

Why in News?

The **Employees' Provident Fund Organisation (EPFO)** has issued guidelines to allow a section of its older members to opt for **Higher Pension** under the **Employees' Pension Scheme (EPS)** as per 4th November 2022 judgment of the **Supreme Court (SC)**.

What was the SC's November 2022 judgment?

- The SC upheld the **Employees' Pension (Amendment) Scheme, 2014** but extended **the time to opt for the new scheme** by four months.
- Under **Article 142**, the SC's ruling gives EPFO members, who have availed of the EPS, another opportunity over the next four months to opt and contribute up to 8.33% of their actual salaries as **against 8.33% of the pensionable salary capped at Rs 15,000 a month towards pension**.
 - Under the pre-amendment scheme, **the pensionable salary was computed as the average of the salary**

drawn during the 12 months prior to exit from membership of the Pension Fund. The amendments raised this to an average of 60 months prior to exit from membership of the Pension Fund.

- The court held the amendment requiring **members to contribute an additional 1.16 % of their salary exceeding Rs 15,000** a month as ultra vires the provisions of the Employees' Provident Funds and Miscellaneous Provisions Act, 1952.

What are the New Guidelines?

- The new guidelines open the **window for employees to deduct a sum equal to 8.33% of the actual basic salary** (Basic pay+ DA) towards the EPS, helping to accumulate larger corpus and receive a higher pension amount.
 - Currently, the EPS contribution from employees is capped at the maximum Rs 15,000 for pensionable salary.
- For subscribers who opt for this, the employers' share going to the Employees' Provident Fund (EPF) since September 2014 will be **shifted to the EPS, with the interest earned**.
- The **Basic Criteria to avail** the benefits are,
 - Employees who were members before September 1, 2014, and continued to be a member on or after that date.
 - Employees and employers who had contributed on salary exceeding the wage ceiling of Rs 5,000 or Rs 6,500.
 - Employees and employers who did not exercise the joint option in the previous window while being EPS members.

What is the Employees' Pension Scheme?

- The EPS, administered by the EPFO, came into being in 1995. The pension fund was to **comprise a deposit of 8.33% of the employers' contribution** towards the PF corpus.
- It makes provisions for pensions for the employees in the **organized sector after retirement at the age of 58 years**.
- Employees who are members of EPF automatically become members of EPS.
 - Both employer and employee contribute 12% of employee's monthly salary (basic wages plus dearness allowance) to the Employees' Provident Fund (EPF) scheme.

Note:

- EPF scheme is mandatory for employees who draw a basic wage of Rs. 15,000 per month.
- Of the employer's share of 12 %, 8.33 % is diverted towards the EPS.
- Central Govt. also contributes 1.16% of employees' monthly salary.

60% of Voters Linked Aadhaar to Voter ID

Why in News?

According to the **Election Commission (EC)**, over **60% of India's 94.5 crore voters** have linked their **Aadhaar number** to their voter IDs.

What is the Status of Aadhaar Linking in India?

- **Tripura** has the **highest rate of Aadhaar linking**, with over **92% of voters in the state providing their Aadhaar details to the EC**.
- **Lakshadweep and Madhya Pradesh** have the **second and third highest rates** of Aadhaar linking, with over **91% and 86% of voters** having provided the number respectively.
- **Southern states have lower proportions** of Aadhaar registration compared to the national average, with **Andhra Pradesh and Karnataka falling shy of 71%**, and **Tamil Nadu and Kerala** standing around 63% and 61%.
- **Gujarat has the lowest Aadhaar registration by voters**, with only **31.5% of voters linking the document** to their voter registration.
 - Also, less than **34% of voters** in Delhi had their Aadhaar linked.

Why is the Government

Pushing to Link Voter ID with Aadhaar?

- **Update Database:**
 - The linking project would help the Election Commission, which conducts regular exercises to maintain an **updated and accurate record of the voter base**.
- **Remove Duplication:**
 - To weed out duplication of voters, such as **migrant workers** who may have been registered more than once on the electoral rolls in different constituencies

or for persons registered multiple times within the same constituency.

➤ Pan India Voter ID:

- As per the government, linkage of Aadhaar with voter IDs will **assist in ensuring that only one Voter ID is issued per citizen of India**.

What are the Issues Related to Linking Aadhaar with Voter ID?

➤ Unclear Constitutional Status:

- In the **Puttaswamy case (Right to Privacy)**, one of the questions that the **Supreme Court** explored was **whether the mandatory linking of Aadhaar with bank accounts** was constitutional or not.

➤ Different Purpose:

- The **preference for Aadhaar for the purposes of determining voters is puzzling as Aadhaar is only proof of residence and not proof of citizenship**.
 - Therefore, verifying voter identity against this will only help in **tackling duplication but will not remove voters** who are not citizens of India from the electoral rolls.

Conclusion

Along with pursuing the Aadhaar-Voter ID integration, the government shall also look forward to enacting the **Digital Personal Data Protection (DPDP) Bill, 2022**. The DPDP regime must also **apply to government entities and require them to obtain an individual's explicit consent** before sharing their data across various government institutions.

Corrupt Practices Under RPA Act 1951

Why in News?

Recently, the **Supreme Court (SC)** has said that providing false information about electoral Candidates Qualification is not a **Corrupt Practice** under **RPA (Representation of People's Act) Act 1951**.

The SC observed that **no one in India votes for a candidate based on their educational qualifications**.

What is the Case all About?

- The SC was hearing a petition, challenging a **2017 Allahabad High Court ruling**, which held that

Note:

declaration of false information pertaining to education qualification does not interfere with the free exercise of electoral rights of the electors.

- The petition said that the electoral candidate committed a “corrupt practice” under Section 123(2) by interfering in the free exercise of electoral rights of the voters by not **disclosing his liabilities and correct educational qualifications** in his affidavit of nomination.
 - It also argued that a “corrupt practice” under Section 123(4) was committed by the candidate in **publishing a false statement of fact about his character** and conduct to influence the outcome of his election, knowingly.
- The SC declared the Petition as “null and void”, saying that providing false information about a candidate’s qualifications cannot be considered a **“Corrupt Practice”** under **Sections 123 (2) and Section 123 (4) of the RPA, 1951.**

What are ‘Corrupt Practices’ under the RPA, 1951?

- **Section 123 of the Act:**
 - It defines ‘**corrupt practices**’ to include **bribery, undue influence, false information, and promotion or attempted promotion** of “feelings of enmity or hatred between different classes of the citizens of India on grounds of religion, race, caste, community, or language” by a candidate for the furtherance of his prospects in the election.
- **Section 123 (2):**
 - It deals with ‘undue influence’ which it defines as **“any direct or indirect interference or attempt to interfere on the part of the candidate or his agent, or of any other person, with the consent of the candidate or his election agent, with the free exercise of any electoral right.”**
 - This could also include **threats of injury, social ostracism and expulsion** from any caste or community.
- **Section 123 (4):**
 - It extends the **ambit of “corrupt practices” to the intentional publication** of false statements which can prejudice the outcome of the candidate’s election.
 - Under the provisions of the Act, an **elected representative can be disqualified if convicted of certain offences**; on grounds of corrupt practices;

for failing to declare election expenses; and for interests in government contracts or works.

What Practices has the Court held as Corrupt Practices in the Past?

- **Abhiram Singh v C.D. Commachen Case:**
 - In 2017, the SC in ‘*Abhiram Singh v C.D. Commachen*’ held that an election will be annulled if votes are sought in the name of a candidate’s religion, race, caste, community, or language, as per **Section 123 (3)** which prohibits the same.
- **SR Bommai v. Union of India:**
 - In 1994, the Supreme Court’s ruling in ‘*SR Bommai v. Union of India*’, said that the **encroachment of religion into secular activities is strictly prohibited**, citing subsection (3) of Section 123 of the RPA Act, 1951.
- **S. Subramaniam Balaji vs State of Tamil Nadu:**
 - In 2022, the SC while reconsidering its 2013 judgment in ‘*S. Subramaniam Balaji vs State of Tamil Nadu*’, it held that **promises of freebies cannot be termed a corrupt practice.**
 - However, the **matter is still yet to be decided.**

What is the Representation of the People Act 1951?

- **Provisions:**
 - It regulates the **conduct of elections.**
 - It specifies the **qualifications and disqualifications for membership** of the houses,
 - It provides provisions to curb corrupt practices and other offences.
 - It lays down the **procedure for settling doubts and disputes** arising out of elections.
- **Significance:**
 - The act is significant for the smooth functioning of the Indian democracy as it bars the entry of persons with criminal background into representative bodies, thus **decriminalizing Indian politics.**
 - The act requires every candidate to declare his assets and liabilities, and maintain an account of election expenses. This provision ensures the **accountability and transparency** of the candidate in the use of public funds or misuse of power for personal benefits.

Note:

- It prohibits corrupt practices like booth capturing, bribery or promoting enmity etc., which ensures the **legitimacy** and **free & fair** conduct of elections which is essential for the success of any democratic setup.
- The act provides that only those political parties which are registered under section 29A of the RPA Act, 1951 are eligible to receive **electoral bonds**, thus providing a mechanism to track the source of political funding and ensuring **transparency** in electoral funding.

International Mother Language Day

Why in News?

On **International Mother Language Day**, which was celebrated on **February 21, 2023**, it was revealed that **India is losing many of its languages due to modernisation and globalisation**, particularly because of the lack of education.

- The theme of **2023** is “**Multilingual education – a necessity to transform education**”.

What is International Mother Language Day?

- **About:**
 - **UNESCO** declared **21st February as International Mother Language Day** in 1999 and the World has been celebrating the same since 2000.
 - The day also commemorates a long struggle by **Bangladesh** to protect its mother language Bangla.
 - The resolution to mark 21st February as the International Mother Language Day was suggested by **Rafiqul Islam, a Bangladeshi living in Canada**.
- **Aim:**
 - **UNESCO has emphasised the importance of mother-tongue-based education** for the preservation of **linguistic heritage**, and the International Decade of Indigenous Languages has been initiated to safeguard cultural diversity.
- **Concern:**
 - According to the **United Nations (UN)**, every two weeks, **a language disappears** and the world loses an entire cultural and intellectual heritage.

- In India, this is especially affecting **tribal areas where children struggle to learn in schools** that do not offer instruction in their native tongues.
 - Only **6 tribal languages in the state of Odisha** have a written script, leaving many without access to literature and learning materials.

What are Global Efforts for Protection of Languages?

- The UN has designated the period between 2022 and 2032 as the **International Decade of Indigenous Languages**.
 - Earlier, the **United Nations General Assembly** had proclaimed 2019 as the International Year of Indigenous Languages (IYIL).
- The **Yuelu Proclamation**, made by UNESCO at Changsha (China) in 2018, plays a central role in guiding the efforts of countries and regions around the world to protect linguistic resources and diversity.

What are India's Initiatives to Protect Indigenous Languages?

- **Bhasha Sangam:** The government has launched the “**Bhasha Sangam**” program, which encourages students to learn and appreciate different languages, including their mother tongues.
 - The program also aims to **promote multilingualism and cultural diversity**.
- **Central Institute of Indian Languages:** The government has also established the **Central Institute of Indian Languages**, which is dedicated to the research and development of Indian languages.
- **Commission for Scientific and Technical Terminology (CSTT):** The CSTT is providing publication grants towards the publications of **University Level Books in regional languages**.
 - It was established in 1961 to evolve technical terminology in all Indian Languages.
- **State-level Initiatives:** There are also several **state-level initiatives** to protect mother tongues. For example, the **Odisha government has launched the “Ama Ghara” program**, which provides education in tribal languages to tribal children.
 - Also, **Namath Basai** by Kerala State Government has proved to be very beneficial in educating children from tribal areas by adopting vernacular languages as medium of instruction.

Note:

National Curriculum Framework for Foundational Stage

Why in News?

Recently, the Ministry of Education has launched **Learning - Teaching Material for the Foundational Stage** under **National Education Policy 2020** and Jadui Pitara was launched at the Occasion.

- In October 2022, the Ministry of Education launched the **National Curriculum Framework for Foundational Stage (NCF-FS) education** of children in the three to eight years age group.

What is Jadui Pitara?

- Jadui Pitara is a **play-based learning-teaching material** tailored for children between the age group of 3-8 years.
- It comprises playbooks, toys, puzzles, posters, flash cards, story books, worksheets as well as reflecting the local culture, social context and languages is designed to pique curiosity and accommodate the diverse needs of learners in the foundational stage.
- Jadui Pitara has been developed under the **National Curriculum Framework (NCF)** and is available in 13 Indian languages.
- It aims at enriching the **learning-teaching environment and making it more child-centric**, lively and joyful for the Amrit Generation as envisioned in the NEP 2020.

What is NCF?

- **About:**
 - NCF is one of the key components of NEP 2020, that enables and energizes this transformation, informed by the aims, principles, and approach of NEP 2020.
- **Four Sections of NCF:**
 - NCF for School Education
 - NCF for Early Childhood Care and Education (Foundational Stage)
 - NCF for Teacher Education
 - NCF for Adult Education
- **NCFFS:**

- The NCF for the Foundational Stage (NCFFS) is developed based on the vision of the NEP 2020.
 - The Foundational Stage refers to **children in the age group of 3 to 8 years**, across the entire range of diverse institutions in India.
- This is the first Stage in the 5+3+3+4 Curricular and Pedagogical restructuring of School Education as envisioned in NEP 2020.
- The NCFFS has been **developed by NCERT through an extensive consultative process with States & UTs** upto grass root level and various institutions and organisations.

Objective:

- It aims to help in positively transforming the school education system of India as envisioned in NEP 2020, through **corresponding positive changes in the curriculum including pedagogy**.
- It aims to realize the highest quality education for all children, consistent with realizing an equitable, inclusive, and plural society as envisaged by the Constitution of India.

What are the Other Government Initiatives Related to Educational Reforms?

- **National Programme on Technology Enhanced Learning.**
- **Sarva Shiksha Abhiyan**
- **PRAGYATA**
- **Mid Day Meal Scheme**
- **Beti Bachao Beti Padhao**
- **PM SHRI Schools**

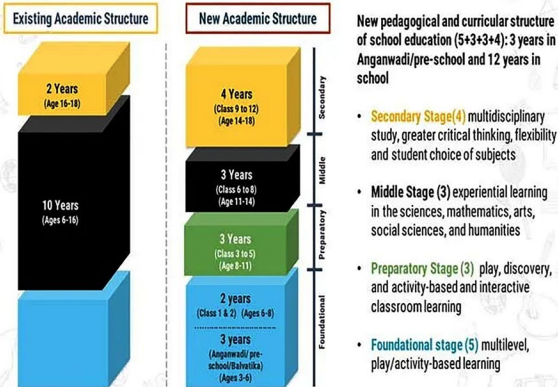
What is the National Education Policy 2020?

- **About:**
 - The NEP 2020 is a **comprehensive framework for education reform** in India that was approved in 2020, aiming to bring **significant changes in the education system of India** by providing a holistic and multidisciplinary approach to education.
- **Features of the NEP 2020:**
 - Universalization of education from preschool to secondary level.
 - Introduction of a **new pedagogical and curricular structure** based on cognitive and socio-emotional development of students.

Note:

- Emphasis on the development of **foundational literacy and numeracy** skills in primary education.
- Increased focus on research and development in education.

Transforming Curricular & Pedagogical Structure



Special Category Status

Why in News?

Recently, Union Finance Minister made it clear that the **Centre will not consider demands for “special category status” for any state** as the 14th **Finance commission** has clearly said no special status can be given.

- This comes as a **blow to states like Odisha, Bihar, Andhra Pradesh** which have been pushing for it for some years now.

What is Special Category Status (SCS)?

- **About:**
 - SCS is a **classification given by the Centre to assist development of states that face geographical and socio-economic disadvantages.**
 - **Constitution does not make a provision for SCS** and this classification was later done on the **recommendations of the Fifth Finance Commission** in 1969.
 - Status was first accorded to **Jammu and Kashmir, Assam and Nagaland in 1969.**
 - SCS for plan assistance was granted in the past by the **National Development Council** of the **erstwhile Planning Commission.**

- Eleven States including **Assam, Nagaland, Himachal Pradesh, Manipur, Meghalaya, Sikkim, Tripura, Arunachal Pradesh, Mizoram, Uttarakhand and Telangana** have been accorded the special category state status.

- **Telangana, the newest State of India, was accorded the status as it was carved out of another state Andhra Pradesh.**

- The **14th Finance Commission has done away with the ‘special category status’ for states, except for the Northeastern and three hill states.**

- It suggested to **fill the resource gap of such states through tax devolution by increasing it to 42% from 32%.**

- **SCS is different from Special status** which imparts enhanced legislative and political rights, while SCS deals with only economic and financial aspects.

- For instance, J&K used to have Special status before **Article 370** was repealed.

Parameters (Based on Gadgil Formula):

- Hilly Terrain;
- Low Population Density and/or Sizeable Share of Tribal Population;
- Strategic Location along Borders with Neighbouring Countries;
- Economic and Infrastructure Backwardness; and
- Nonviable Nature of State finances.

What are the Benefits of Special Category Status?

- The **Centre pays 90% of the funds required in a centrally-sponsored scheme** to special category status states as against 60% or 75% in case of other states, while the remaining funds are provided by the state governments.
- **Unspent money in a financial year does not lapse** and is carried forward.
- **Significant concessions** are provided to these states in excise and customs duties, income tax and corporate tax.
- **30% of the Centre’s Gross Budget** goes to Special Category states.

What are the Concerns regarding Special Category Status?

- It causes **Increased burden on Central Finances.**

Note:

- Also, giving special status to a state leads to demands from other states too. For instance, demands from Andhra Pradesh, Odisha and Bihar.

Conclusion

As suggested by 14th Finance commission, tax devolution to states has been increased to 42% and the same has been continued by 15th FC (41%) too to fill the resource gap without extending SCS.

Speaker's Role in Defection

Why in News?

Hearing a case related to the Maharashtra crisis in 2022 and whether a speaker facing a notice for his removal can disqualify MLAs in his assembly, the **Supreme Court (SC) on February 15, 2023 maintained that Speakers should be the first authority to decide on disqualification.**

- Earlier in 2016, the SC in the Nabam Rebia case had held that a Speaker or **Deputy Speaker** facing notice of removal cannot decide disqualification proceedings against legislators.

What are the Debates over

Discretion of the Speaker's Role?

- For the past three years, the **All India Presiding Officer's Conference**, chaired by **Lok Sabha Speaker**, has been reviewing the Speaker's role as envisaged in the **10th Schedule of the Constitution** that deals with disqualification of MPs and MLAs.
- The focus of the discussions is to secure the legislative speaker's dignity in this matter. Many presiding officers have expressed views that **their role should be limited** and other mechanisms must evolve to decide cases of defection.
- One proposal being discussed is to **leave the issue of disqualification to the respective political parties** as they give tickets to the MLAs.
- During a **Speaker's Conference in Dehradun in 2021**, several participants voiced their concerns and **pointed out loopholes that often cast a shadow on the speaker's role.**

What is the 10th

Schedule of the Indian Constitution?

➤ About:

- The **Tenth Schedule of the Indian Constitution**, also known as the **Anti-Defection Law**, was added by the **52nd Amendment in 1985.**
 - It was a response to the **toppling of multiple state governments** by party-hopping **MLAs after the general elections of 1967.**
- It lays down the **provisions related to disqualification of members of Parliament (MPs) and State Legislatures on grounds of defection.**

➤ Exception:

- It **allows a group of MP/MLAs to join (i.e., merge with)** another political party without inviting the penalty for defection.
 - And it **does not penalise political parties** for encouraging or accepting defecting legislators.
- As per the 1985 Act, a **'defection' by one-third of the elected members** of a political party was considered a 'merger'.
- But the **91st Constitutional Amendment Act, 2003**, changed this and now **at least two-thirds of the members of a party** must be in Favour of a "merger" for it to have validity in the eyes of the law.

➤ Discretion:

- The **decision on questions as to disqualification on ground of defection** are referred to the Chairman or the Speaker of such House, which is subject to **'Judicial review'.**
- However, the **law does not provide a timeframe** within which the presiding officer has to **decide a defection case.**

➤ Grounds for Defection:

- If an **elected member voluntarily gives up his membership** of a political party.
- If he/she votes or **abstains from voting** in such House contrary to any direction issued by his political party.
- If any **independently elected member** joins any political party.
- If any **nominated member** joins any political party after the expiry of six months.

Note:

LOK SABHA SPEAKER



*The **Constitutional/Ceremonial Head** of LS who presides over its day-to-day functioning*

*What **Speaker/Deputy Speaker** is for LS, the **Chairman/Dy Chairman** is for RS*

ORIGIN IN INDIA

- 1921 (Gol Act of 1919) under the name **President and Dy President**

*Gol Act of 1935 changed this nomenclature to **Speaker and Deputy Speaker***

ELECTION (BOTH SPEAKER & DY SPEAKER)

- Article 93, Part V
- By a **simple majority**
- Re-election – **Eligible**

ELECTION CRITERIA

- Should be a **member of LS**
- No specific qualifications
- Generally, belongs to the **ruling party**

TENURE

- 5 years** (till immediately before first meeting of the next LS)

Speaker does not vacate his/her office upon dissolution of LS

POWERS

- Final interpreter** of Constitutional provisions in LS; his/her **rulings are binding** in nature
- Presides over a **joint sitting** of the two Houses of Parliament
- Can adjourn the House/suspend the meeting in **absence of Quorum**
- Power of Casting vote** to resolve a deadlock
- Decides:
 - if a bill is (not) a **money bill**
 - Disqualification** of LS members (under 10th Schedule) (granted via **52nd Amendment 1985**)

REMOVAL (CONDITIONS)

- If s/he **ceases to be a member** of LS
- Written Resignation** to Dy Speaker
- Removed by Effective Majority**

Sealed Cover Jurisprudence

Why in News?

Recently, the **Supreme Court (SC)** has rejected a “Sealed Cover” suggestion from the Government pertaining to the **Adani-Hindenburg issue**.

- The Centre Government had earlier proposed the names of members of the committee to **assess the market regulatory framework and recommend**

measures related to the **Adani-Hindenburg issue**.

- But the SC refused to accept any suggestions on names in Sealed Cover in order to maintain transparency.

Note:

- Hindenburg Research has alleged that the **Adani Group** was “engaged in a **stock manipulation and accounting fraud**”.
- Hindenburg is a **US-based investment research firm** that specializes in activist **Short-Selling**.

Note:

What is Sealed Cover Jurisprudence?

➤ About:

- Sealed Cover Jurisprudence (SCJ) is a **legal concept that refers to the practice of presenting sensitive or confidential information** to a court or tribunal in a sealed envelope or cover, to be opened and reviewed **only by the judge or judges in charge of the case.**
- Even though there is **no specific law** to define the idea of sealed cover, the SC derives its power to use it from **Rule 7 of order XIII of the Supreme Court Rules 2013** and **Section 123 of the Indian Evidence Act of 1872.**
- The Court can ask for information in a sealed cover in **broadly two circumstances:**
 - When information is connected to an **ongoing investigation,**
 - When it involves personal or confidential information whose disclosure may result in **violation of an individual's privacy or breach of trust.**

➤ Rule 7 of order XIII of the Supreme Court Rules:

- If the Chief Justice or the Court directs certain information to be kept under sealed cover or considers it of confidential nature, **no party would be allowed access to the contents of such information,** except if the Chief Justice himself orders that the opposite party be allowed to access it.
- The information can be kept **confidential if its publication is not considered to be in the interest of the public.**

➤ Section 123 of the Indian Evidence Act of 1872:

- Official unpublished documents relating to state affairs are **protected and a public officer cannot be compelled** to disclose such documents.
- Other instances where information may be sought in secrecy or **confidence are when its publication impedes an ongoing investigation,** such as details which are part of a police case diary.

What are the Issues

Related to Sealed Cover Jurisprudence?

➤ Lack of Transparency:

- Sealed cover jurisprudence **can limit transparency and accountability** in the legal process, as the evidence or arguments presented in the sealed cover are not available to the public or other parties.

- It stands against the idea of an open court, where decisions can be subjected to public scrutiny.

➤ Disparate Access:

- The use of sealed cover jurisprudence **can create an unequal playing field,** as the parties who have access to the information in the sealed cover may have an advantage over those who do not.

➤ Limited Opportunity to Respond:

- The parties who are not privy to the information in the sealed cover may not have the **opportunity to respond to or challenge the evidence or arguments** presented in it, which can undermine their ability to present their case effectively.

➤ Risk of Abuse:

- Sealed cover jurisprudence can be abused by parties who seek to conceal information that is not legitimately confidential, or who use it to gain an unfair advantage in the legal process.

➤ Interference with Fair Trial:

- The use of sealed cover jurisprudence can interfere with the right to a fair trial, as the parties may not have access to all the relevant evidence or arguments that are considered in the decision-making process.

➤ Arbitrary Nature:

- Sealed covers are dependent on individual judges looking to substantiate a point in a particular case rather than common practice. This makes the **practice ad-hoc and arbitrary.**

What are SC's Observations

over Sealed Cover Jurisprudence?

➤ P. Gopalakrishnan vs The State of Kerala case (2019):

- The SC held that disclosure of documents to the accused is constitutionally mandated, even if the investigation is ongoing and documents may lead to a breakthrough in the investigation.

➤ INX Media case (2019):

- The Supreme Court had criticised the Delhi High Court for basing its decision to deny bail to a former Union Minister on documents submitted by the **Enforcement Directorate (ED) in a sealed cover.**

- **It held the action as against the concept of fair trial.**

➤ Cdr Amit Kumar Sharma v Union of India case (2022):

- The SC said, "the non-disclosure of relevant material to the affected party and its disclosure

Note:

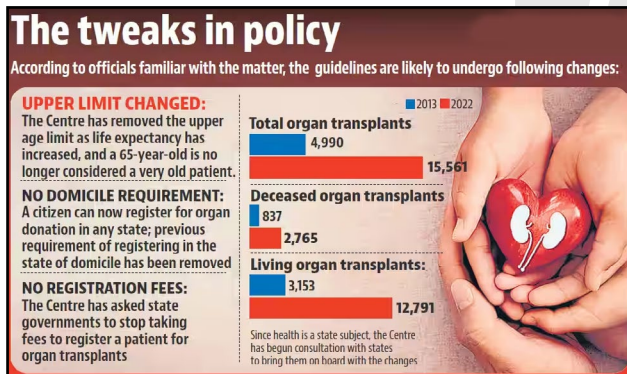
in a sealed cover to the adjudicating authority... sets a dangerous precedent. The disclosure of relevant material to the adjudicating authority in a sealed cover makes the process of adjudication vague and opaque”.

National Organ Transplantation Guidelines

Why in News?

Recently, the Ministry of Health and Family Welfare has modified National Organ Transplantation Guidelines, allowing those above 65 years of age to receive an organ for transplantation from deceased donors.

- In India, Transplantation of Human Organ Act, 1994 provides various regulations for the removal of human organs and its storage. It also regulates the transplantation of human organs for therapeutic purposes and for the prevention of commercial dealings in human organs.



What are the Highlights of the New Guidelines?

- **Removed Age Cap:**
 - The upper age limit has been removed as people are now living longer.
 - Earlier, according to the NOTTO (National Organ and Tissue Transplant Organization) guidelines, an end-stage organ failure patient above 65 years of age was prohibited from registering to receive the organ.
- **No Domicile Requirement:**
 - The ministry has removed the domicile requirement to register as an organ recipient in a particular state under a 'One Nation, One Policy' move.

- Now a **needy patient can register to receive an organ in any state** of his or her choice and will also be able to get the surgery done there.
- **No Fees for Registration:**
 - There will be **no registration fee that states used to charge for this purpose**, the Centre has asked states that used to charge for such registration to not do so.
 - Among the states that sought money for registration were Gujarat, Telangana, Maharashtra, and Kerala.
 - Certain states asked for anything **between Rs 5,000 and Rs 10,000 to register a patient** on the organ recipient waitlist.

Note:

- NOTTO is set up under Directorate General of Health Services, Ministry of Health and Family Welfare, located in New Delhi.
- National Network division of NOTTO functions as apex centre for all India activities for procurement, distribution and registry of organs and tissues donation and transplantation in the country.

What is the Purpose of New Guidelines?

- The Centre is planning to make changes in the rules of **Transplantation of Human Organs (Amendment) Act 2011** towards creating a national policy for transplantation.
- Currently, different states have different rules; the Union government is considering changes to the rules so that there is a **standard criterion followed in all states across the country**.
- However, **Health being a state subject**, the rules formed by the central government will not be binding on the states.
- The steps are aimed at **better and more equitable access to organs** and also to **promote cadaver donations**, which currently form a minuscule fraction of all organ transplants carried out in India.

What is the Scenario of Organ Transplantation in India?

- India conducts the **third highest number of transplants** in the world.
- Organs from deceased donors **accounted for nearly 17.8% of all transplants in 2022**.

Note:

- The total number of deceased organ transplants climbed from **837 in 2013 to 2,765 in 2022**.
- The total number of organ transplants – with organs from both deceased and living donors – **increased from 4,990 in 2013 to 15,561 in 2022**.
- Every year, an **estimated 1.5-2 lakh people need a kidney transplant**.
 - Only around 10,000 got one in 2022. Of the 80,000 people who required a liver transplant, less than 3,000 got one in 2022.
 - And, of the 10,000 who needed a heart transplant, only 250 got it in 2022.

Vibrant Villages Programme

Why in News?

Recently, the Union Cabinet has approved raising of **seven new ITBP (Indo-Tibetan Border Police) battalions** and allocated Rs 4,800 crore under the **Vibrant Villages Programme (VVP)** to bolster the social and security framework along the China border.

- The Cabinet has also cleared a 4.1-km Shinku-La tunnel on the Manali-Darcha-Padum-Nimmu axis to allow **all-weather connectivity to Ladakh**.

What is the Significance?

- It is aimed at **strengthening the security grid on the Line of Actual Control (LAC)**. It will also provide a window for the ITBP to rest, recuperate and train its personnel.
- The decision to raise additional battalions was taken keeping an eye **on the need for effective monitoring in the border areas and the battalion**.
- The government's decision to approve a financial package for border villages and upgrade security comes at a time **when issues with China are still to be resolved along the LAC** in Ladakh. PLA troops are still squatting in the Depsang Plains and Demchok. China is also upgrading its infrastructure along the LAC.

What is the Vibrant Villages Programme?

- **About:**
 - It is a **Centrally sponsored scheme**, announced in the **Union Budget 2022-23 (to 2025-26)** for development of villages on the **northern border, thus improving the quality of life of people living in identified border villages**.

- It will cover the border areas of **Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Sikkim and Ladakh**.
- It will cover 2,963 villages with 663 of them to be covered in the first phase.
- Vibrant Village Action Plans will be created by the district administration with the help of Gram Panchayats.
- There will **not be overlap with Border Area Development Programme**.
- **Objective:**
 - The scheme aids to identify and develop the economic drivers based on local, natural, human and other resources of the border villages on the northern border;
 - Development of growth centres on **'hub and spoke model'** through promotion of social entrepreneurship, empowerment of youth and women through skill development and entrepreneurship;
 - Leveraging the **tourism potential through promotion of local, cultural, traditional knowledge and heritage**;
 - Development of **sustainable eco-agri businesses** on the concept of **'one village-one product'** through community-based organisations, cooperatives, NGOs.

What are the Key Points of the Shinku-La tunnel?

- It is a 4.1-km tunnel on the **Nimu-Padam-Darcha Road link** to provide all-weather connectivity to the **border areas of Ladakh**.
- The tunnel will be completed by December 2025.
- It is very important as far as the security and safety of the country is concerned.
- It will also help in the movement of security forces in that region.

Plan to Set up 2 lakh PACS, Dairy, and Fisheries Cooperatives

Why in News?

The Centre approved a **plan for setting up 2 lakh Primary Agricultural Credit Societies (PACS), dairy, and**

Note:

fisheries cooperatives in the country in the next five years to strengthen the cooperative movement.

- Earlier, the **Union Budget 2023** announced Rs 2,516 crore for **computerisation of 63,000 PACS** over the next five years, with the aim of bringing greater transparency and accountability.

What are the Key Points of the Plan?

- **Aim:** The plan, mooted by the **Ministry of Cooperation**, is aimed at “strengthening cooperative movement in the country and deepening its reach up to the grassroots”.
- **Convergence of Various Schemes:** Plan is to **establish viable PACS, dairy and fishery cooperatives in villages**, and **strengthen the existing ones** through convergence of various schemes of the **Ministry of Fisheries, Animal Husbandry & Dairying** by leveraging the ‘whole-of-government’ approach.
- **Action Plan:** Action plan for implementation of the project shall be prepared by **NABARD, National Dairy Development Board (NDDB) and National Fishery Development Board (NFDB)**.
- **Components:**
 - Department of Animal Husbandry and Dairying:
 - **National Programme for Dairy Development (NPDD)**
 - Dairy Processing & Infrastructure Development Fund (DIDF)
 - Department of Fisheries:
 - **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**,
 - **Fisheries and Aquaculture Infrastructure Development (FIDF)**
- **High Level Inter-Ministerial Committee (IMC):** It is to be established under Ministry of Cooperation for smooth implementation of the plan.

What is the Significance of the Plan?

- There are still **1.6 lakh panchayats without PACS** and nearly **2 lakh panchayats without any dairy cooperative society**.
- PACS account for **41% (3.01 crore farmers) of the Kisan Credit Card (KCC) loans** given by all entities in the country.
 - NABARD’s annual report of 2021-22 shows that **59.6 per cent of the total loans were extended to the small and marginal farmers**.

- These societies also **provide warehousing services** to farmers in order to preserve and store their food grains.

What is PACS?

- PACS are the **ground-level cooperative credit institutions** that provide short-term, and medium-term agricultural loans to the farmers for the various agricultural and farming activities.
- These are the **last link in a three-tier cooperative credit structure** headed by the **State Cooperative Banks (SCB)** at the state level. Credit from the SCBs is transferred to the District Central Cooperative Banks (DCCBs), which work with PACS.
- The PACS functioning at the **base of the co-operative banking system** constitute the major retail outlets of **short term and medium-term credit** to the rural sector.

Draft Geo-heritage Sites and Geo-relics Bill, 2022

Why in News?

Recently, the Ministry of Mines has notified **Draft Geo-heritage Sites and Geo-relics (Preservation and Maintenance) Bill, 2022**.

- The Bill is aimed at providing for the **declaration, preservation, protection and maintenance of geo-heritage sites and geo-relics** of national importance, for geological studies, education, research and awareness purposes.
- The GSI has declared **32 geo-heritage sites**, including the Siwalik Fossil Park, Himachal Pradesh; Stromatolite Fossil Park, Jharmarkotra Rock Phosphate deposit, Udaipur district, Akal Fossil Wood Park, Jaisalmer, but **several are in stages of disrepair**.

What are the Key Features of the Bill?

- **Defines Geoheritage Sites:**
 - Geoheritage sites are “sites containing geo-relics and phenomena, stratigraphic type sections, geological structures and geomorphic landforms including caves, natural rock-sculptures of national and international interest; and includes such portion of land adjoining the site,” that may be required for their conservation or to access to such sites.

Note:

- **Georelics:**
 - A Geo-relic is defined as “**any relic or material of a geological significance or interest like sediments, rocks, minerals, meteorite or fossils**”.
 - They **GSI (geological Survey of India)** will have the power to **acquire geo-relics** “for its preservation and maintenance”.
- **Authority to Central Government:**
 - It would authorize the Central Government to declare a geoheritage site to be of national importance.
 - This would be under the provisions of the **Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCTLARR Act)**.
- **Compensation to the Occupier of Land:**
 - Provision is made for compensation to the owner or occupier of land who **incurs loss or damage from the land** due to the exercise of any power under this Act.
 - The market value of any property will be **ascertained in accordance with the principles set out in the RFCTLARR Act**.
- **Prohibition on Construction:**
 - The Bill imposes a prohibition on construction, reconstruction, repair or renovation of any building within the geoheritage site area or utilization of such area in any other manner, except for construction for preservation and maintenance of geoheritage site or any public work essential to the public.
- **Penalty:**
 - Penalties for destruction, removal, defacement or contravention of any direction issued by the

Director General, GSI in the geo-heritage site are mentioned.

- There is a **penalty of imprisonment which may extend to six months or fine which may extend to Rs.5 lakh, or both**. In the case of a continuing contravention, an additional fine of upto Rs.50,000 for every day of continuing contravention may be imposed.

What are the Concerns?

- There are concerns over the distribution of power as mentioned in the Bill.
- It points to **how the GSI has the authority to acquire any material of geological significance**, including sediments, rocks, minerals, meteorites, and fossils, as well as sites of **geological importance**.
- The issue of land acquisition for the purpose of safeguarding these sites **could also lead to issues with local communities**.

What is the Geological Survey of India?

- It was set up in **1851 primarily to find coal deposits for the Railways**.
- Over the years, it has not only grown into a repository of **geo-science information required in various fields** in the country but has also attained the status of a geo-scientific organisation of international repute.
- The main functions of the GSI relate to creation and **update of national geo-scientific information** and mineral resource assessment.
- It is headquartered in Kolkata and has six regional offices located at Lucknow, Jaipur, Nagpur, Hyderabad, Shillong and Kolkata. Every state has a state unit.
- Presently, **GSI is an attached office to the Ministry of Mines**.



Note:

Economic Scenario

Highlights

- India to Contribute 15% of Global Growth in 2023: IMF
- State of Rural India
- Current Account Deficit
- Demographic Transition and Opportunity for India
- Draft Norms Lending and Borrowing of G-Secs
- Stock Market Regulation
- 49th GST Council Meeting
- Vostro Accounts
- India's Livestock Sector
- Sagar Parikrama
- Blue Food
- DoT Updates Definition of Broadband
- 470 Airbus, Boeing Planes for Air India
- Payment Aggregators
- Singareni Thermal Power Plant

India to Contribute 15% of Global Growth in 2023: IMF

Why in News?

According to the **International Monetary Fund (IMF)**, India will alone contribute **15% of the global growth in 2023** and continues to remain a relative “**bright spot**” in the world economy.

Which Factors are Most Responsible for India's Economic Rise?

- **Growth Prospects:** India remains a bright spot at a time when the IMF is projecting 2023 to be difficult with **global growth** slowing down from **3.4% in 2022 to 2.9% in 2023**.
 - For FY 2023/24 (April 2023 to March 2024) India's growth rate is projected at 6.1% a bit slow like the rest of the world economy, but **way above the global average**.
 - And in that way, India is providing about **15% of global growth in 2023**.
- **Digitalisation:** According to the IMF, India has turned **digitalisation** into a driver of overcoming the pandemic and creating job opportunities, while the **country's fiscal policy has been responsive to economic conditions**.

- **Investment in Green Economy:** The country's **fiscal responsibility** has been translated into a medium-term framework, with a **strong anchor to public finances**.
 - Also, India is investing in the **green economy**, including **renewables with potential to shift the country towards clean energy**.
- **Capital Spending:** The capital spending has increased, which would amount to **3.3% of gross domestic product**, and will be the biggest such jump after an increase of more than **37% between 2020-21 and 2021-22**.
- **Demographic Dividend:** India does have a young population. **15 million people are added to the labour force every year**. Strong investment climate that **generates jobs is a great advantage for India**. Women can be a fabulous driver for India's growth.

What are the Roadblocks in Achieving Sustainable Economic Growth?

- **Contemporary Geopolitical Issues:** Emerging markets (including India) bear the brunt of the geopolitical risk in more ways than one including **supply chain constraints** widening the gap between demand and supply.
 - For instance, the **Russia-Ukraine War** has resulted in **global food shortages**.
- **Jobless Growth in Recent Past:** According to **CMIE (Centre for Monitoring Indian Economy)**, the unemployment rate in India is around **8% (December**

Note:

2022). This is because **job growth has not kept pace with GDP growth**.

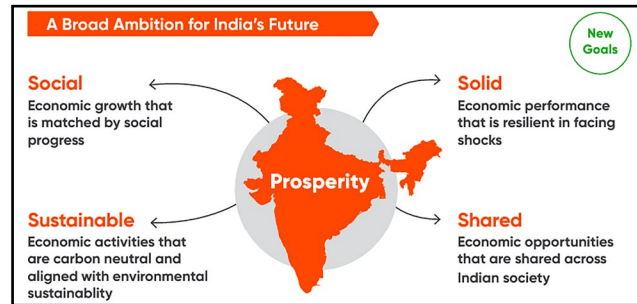
- Only **40% of the labour force that is capable of working** is actually working or looking for work, in which women have a lower participation rate.
- **Widening Rich-Poor Gap:** As per the '**World Inequality Report 2022**', **top 10% of India's population hold 57% of the total national income while the bottom 50% share has gone down to 13%**.
- India's inequality is driven by **limited upward mobility due to unequal opportunity**.
- **Widening Trade Deficit:** India's export trend has declined, with India's trade deficit reaching a **record 31 billion dollars in July 2022** due to recessionary trends in developed economies (like the US) and higher commodity prices.
- The **capital outflows and the rising current account deficit** is putting pressure on the Indian rupee.

How India can Ensure Sustainable Economic Growth?

- **Setting up Economic Development Goals:** India's performance depends not only on how well it addresses the challenges of today but **also in its preparedness for future challenges**.
 - India needs to **ensure that its policy choices are robust and forward looking with modern technological solutions**. For this, an effective strategy for India needs to be based on a **transparent articulation of the country's economic development goals**.
 - These goals should outline an ambition that is **bold, energising, and reflective of the aspirations of the country**.
- **Manufacturing in India, for India and World:** There is a need to strengthen the **Make in India** initiative with special emphasis on the '**zero defect zero effect**'.
 - There is also a need for **reform in the banking sector** that can help boost small-scale manufacturing instead of only large-scale.
- **Unlocking the Potential of Indian Women:** Closing the **gender gap in education** and financial and digital inclusion of women and **breaking down the glass ceiling should be the priorities**.
- **Strengthening Special Economic Zones:** More **special economic zones** are needed to enhance foreign

investment, increase exports, and support regional development.

- **Baba Kalyani Committee on SEZs** has recommended that MSME investments in SEZs be promoted by **linking them to MSME schemes and allowing sector-specific SEZs**.



State of Rural India

Why in News?

Rural India is already in distress, yet the **Union Budget 2023-24** did not offer much to revive the economic growth, instead **it made severe cuts in the allocations to subsidy schemes**, with some crucial schemes receiving marginal rises in allocations.

How has the Union Budget Fared for Rural India?

- **Agriculture and Allied Activities:**
 - There is marginal rise in the allocation of agriculture and allied activities, including **PM KISAN**, from Rs 1.36 trillion crore in FY23 to Rs 1.44 trillion crore in FY24 (an increase of 5.8 %).
- **Agriculture Research and Development:**
 - On agriculture R&D, the allocation is only Rs 9,504 crore, although it is higher than Rs 8,658 crore in FY23.
 - This is only 0.4 % of agri gross value added, while other countries spend 1-2 % of **agri Gross Domestic Product (GDP)**.
- **Agri Subsidy:**
 - The **Food Subsidy saw a 31% cut** in this budget. It now has an allocation of Rs 197,350 crore, from Rs 287,194 crore last year.
 - **Fertilizer subsidy saw a 22% cut** from last year and now has an allocation of Rs 175,099 crore.

Note:

- Subsidies on **Liquified Petroleum Gas (LPG)** for the poor have been reduced by 75% to Rs 2,257 crore now.
- The budget for the **procurement of cotton** by Cotton Corporation under **Price Support Scheme** has been reduced to Rs 1 lakh from Rs 782 crore in 2022-23.

What is the State of Rural Economy?

➤ About:

- As per the **Economic Survey 2022-23**, 65% of India's population lives in the rural areas and **47% of the population is dependent on agriculture for livelihood**.
- Contrary to the common perception about predominance of agriculture in the rural economy, about **two thirds of rural income is now generated in nonagricultural activities**.
- According to the Economic Survey, the agriculture sector has grown at an **average annual growth rate of 4.6% in the past six years**. However, agriculture and rural incomes are under stress for several reasons.

➤ Economic Situation:

○ Before Pandemic:

- According to the **National Statistical Office'** Situation Assessment Survey (SAS) of agricultural households for the 2018-19, showed the unprecedented crisis in India's economy driven by declining demand and supply disruptions.
- Even before 2014, **there were signs of distress following a sharp slowdown in the economy** and a rise in input costs driven by rising wages, faulty implementation of India's fertilizer-subsidy reforms and higher fuel prices.
- The back-to-back drought in 2014 and 2015 added to the misery.
- But before the agricultural sector could revive in 2016, **demonetization** caused disruptions that left many farmers unable to sell.
- Since then, the economy has experienced a **sharp slowdown, followed by the covid pandemic**.

○ After Pandemic:

- Per capita incomes in real terms in 2021-2022 are still below the 2018-2019 levels, and the overall growth between 2016-2017 and 2021-

2022 is at its lowest level of **3.7% for any five-year period** in the last four decades.

What are the Challenges to the Rural Economy?

➤ Inflation:

- The purchasing power of the rural population has declined due to higher **Inflation** in rural areas. Real rural wage growth **has been negative due to high inflation**.
- Weak rural demand has been a **concern for fast-moving consumer goods** and other consumer durables, although we see a few green shoots now.

➤ Agriculture Sector Issues:

- Agriculture is the primary source of livelihood for many rural households in India.
- Issues such as lack of **irrigation facilities, inadequate credit facilities, low prices for agricultural produce**, and unpredictable weather conditions can lead to crop failures, mounting debt, and declining incomes for farmers.

➤ Lack of Rural Employment Opportunities:

- Limited employment opportunities in rural areas have forced **people to migrate to urban areas** in search of work, leading to **social and economic dislocation** of rural communities.

➤ Poor Infrastructure:

- Lack of access to basic amenities such as water, electricity, healthcare, and education facilities in **rural areas have limited the potential** of these areas to develop and grow.

➤ Inadequate Social Protection:

- Lack of adequate social protection mechanisms such as **health insurance, old age pensions, and disability benefits** has resulted in increased vulnerability of rural households.

➤ Lack of Fiscal Autonomy:

- Panchayats **have only limited powers with regard to setting tax rates** and revenue base since broad parameters for such exercises are fixed by the state government.
- Resultantly, the extent of vertical gap and volume of conditional grants are much higher.
 - It reduces the **fiscal autonomy** of the Grama Panchayats and allows only feeble scope for freedom of borrowing and development.

Note:

What are the Constitutional Provisions Related to Rural Development in India?

- **Article 40** enshrines one of the **Directive Principles of State Policy** lays down that the State shall take steps to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government.
- Panchayati Raj Institutions was constitutionalized through the **73rd Constitutional Amendment Act, 1992** to build democracy at the grass roots level and was entrusted with the task of rural development in the country.
- **The Eleventh Schedule** of the Constitution places as many as **29 functions within the purview of the Panchayati Raj bodies** including agricultural extension, land improvement, implementation of land reforms etc.
 - Panchayats are empowered to prepare plans for economic development and social justice in respect of subjects as devolved by law to the various levels of Panchayats including the subjects as illustrated in **Eleventh Schedule**.

What are the Initiatives Related to Rural Empowerment?

- **Deen Dayal Upadhyay Grameen Kaushalya Yojana**
- **Pradhan Mantri Kaushal Vikas Yojana**
- **Pradhan Mantri Matru Vandana Yojana**
- **Mahatma Gandhi National Rural Employment Guarantee Act**
- **National Rural Livelihood Mission**
- **Pradhan Mantri Awas Yojana**

Current Account Deficit

Why in News?

Recently, the government released data showing that **India's exports and imports decreased by 6.59% and 3.63%**, respectively, in January 2023, there are indications that the **country's current account deficit (CAD)** will moderate despite the global slowdown triggered by the rising inflation and interest rates.

- The moderation in CAD is expected to be aided by the fall in commodity prices, rising workers remittances

and services exports, and abatement of selling pressure by foreign investors.

What is the Current Account Deficit?

- **About:**
 - **Current account deficit (CAD)** is when the value of a **country's imports of goods and services is greater than its exports**.
 - **CAD and fiscal deficit** together make up twin deficits that can impact the stock market and investors.
 - **Fiscal Deficit is the gap between the government's expenditure requirements and its receipts**. This equals the money the government needs to borrow during the year.
- **Implication:**
 - The CAD is significant because it affects the **economy, stock markets, and people's investments**.
 - A **lower CAD can boost investor sentiment** and make the country's currency more attractive to investors.
 - A surplus in the **current account** indicates that **money is flowing into the country**, which can **boost foreign exchange reserves** and the **value of the local currency**.
- **Recent Status of India's CAD:**
 - The CAD for the first half of 2022-23 was **3.3% of GDP**, but the situation improved in Quarter 3:2022-23 due to **lower commodity prices and moderated imports**.
- **Negative Effects of CAD on Economy:**
 - **Weaker Currency:** When a country's imports exceed its exports, it can cause a **decrease in demand for its currency**, leading to a weaker currency value (depreciation).
 - This can **make imports more expensive**, leading to higher inflation and a reduction in purchasing power.
 - **Debt Accumulation:** If a country is unable to finance its current account deficit with foreign investment, it may need to borrow to cover the gap.
 - This can lead to an **increase in debt levels, which can further harm the economy**.

How India can Moderate Current Account Deficit?

- **Encourage Exports:** Increasing exports is one of the most effective ways to reduce CAD.

Note:

- The government can provide incentives for **export-oriented industries**, streamline **export procedures and regulations**, and negotiate better trade agreements with other countries.
- **Promote Import Substitution:** Encouraging domestic production of goods that are currently being imported can help to reduce the trade deficit.
 - This can be **achieved by providing incentives for domestic manufacturers** and by imposing tariffs or import duties on certain goods.
- **Improve Productivity and Competitiveness:** Improving the productivity and competitiveness of the domestic economy can help to increase exports and reduce the trade deficit.
 - This can be achieved through various measures such as **investments in infrastructure, technology, and education**.

Demographic Transition and Opportunity for India

Why in News?

The world is going through a **phase of demographic transition towards aged populations**. Adaptation strategies will require **governments, businesses and common people to make key adjustments**.

- This may usher in a great opportunity for India that is **experiencing a demographic dividend**.

What is the Demographic Transition and Demographic Dividend?

- A **demographic shift refers to a change in the composition of a population over time**.
 - This change can occur due to various factors such as **changes in birth and death rates, migration patterns**, and changes in social and economic conditions.
- A **demographic dividend** is a phenomenon that occurs when a country's population structure shifts from having a high proportion of dependents (children and elderly) to having a **higher proportion of working-age adults**.
 - This change in population structure can result in economic growth and development if the country invests in its **human capital and creates conditions for productive employment**.

What is the Significance of India's Demographic Dividend?

- **About:**
 - India **entered the demographic dividend opportunity window in 2005-06** and will remain there till **2055-56**.
 - India's median age is markedly **lower than that of the US or China**.
 - While the median ages of the **US and China are already 38 and 39 respectively**, India's median age is not expected to reach 38 until 2050.
- **Challenges Associated with India's Demographic Dividend:**
 - **Low Female Labour Force Participation:** India's labour force is constrained by the **absence of women from the workforce**.
 - As per **Periodic Labour Force Survey 2020-2021**, female labour workforce participation stands at **25.1%**.
 - **Environmental Degradation:** India's rapid economic growth and urbanisation have led to **significant environmental degradation**, including **air pollution, water pollution, and deforestation**.
 - Addressing these issues is essential to **ensuring sustainable economic growth**.
 - **High Dropout Rate:** While over 95% of India's children attend primary school, the **National Family Health Surveys** confirm that poor infrastructure in government schools, **malnutrition, and scarcity of trained teachers** have resulted in poor learning outcomes and **high dropout ratios**.
 - **Lack of Employment Opportunities:** With a large and growing working-age population, **Indian job market is not able to generate enough jobs to meet the demands of this expanding workforce**.
 - This has resulted in high rates of **underemployment and unemployment**.
 - **Lack of Adequate Infrastructure:** Poor infrastructure, including **inadequate education and health facilities, transportation, power, and communication network**, makes it challenging for people to access basic services and employment opportunities, **particularly in rural areas**.
 - **Brain Drain:** India has a large pool of **highly skilled and talented professionals**, but many of them choose to **leave the country in search of better job opportunities** and living conditions abroad.

Note:

- This brain drain is a significant loss for India, as it results in a **shortage of skilled workers and limits the country's ability** to fully leverage its demographic dividend.

How India can

Utilise its Demographic Dividend?

- **Gender Equality:** India needs to address **gender inequality** in education and employment, including **improving access to education and employment opportunities for women.**
 - Women's participation in the workforce can increase economic growth and lead to a more inclusive society.
- **Raising Education Standards:** In both rural and urban settings, the public school system must ensure that **every child completes high school and goes on to skilling, training, and vocational education.**
 - The modernization of school curricula along with the implementation of **Massive Open Online Courses (MOOCs)** and the establishment of open digital universities will further contribute to India's qualified workforce.
- **Encouraging Entrepreneurship:** India needs to encourage entrepreneurship and innovation, particularly among the youth, to **create job opportunities and contribute to economic growth.**

Draft Norms Lending and Borrowing of G-Secs

Why in News?

Recently, the **Reserve Bank of India** released **Draft Reserve Bank of India (Government Securities Lending) Directions, 2023.**

- The RBI proposed introduction of securities lending and borrowing in Government Securities (G-sec) with an aim to **facilitate wider participation in the securities lending market** by providing investors an avenue to deploy idle securities and enhance portfolio returns.

What are the Draft Norms?

- **Government Securities Lending (GSL)** transactions shall be undertaken for a **minimum period of one day** and a **maximum of 90 days.**

- Government Securities issued by the central government **excluding Treasury Bills** would be eligible for lending/borrowing under a GSL transaction.
- Government securities issued by the Central government (including Treasury Bills) and the state governments would be **eligible for placing as collateral under a GSL transaction.**
- An entity eligible to undertake **repo transactions** in government securities, and any other entity approved by the Reserve Bank would be eligible to participate in GSL transactions as lender of securities.

What are

Government Securities?

- **About:**
 - A G-Sec is a tradable instrument **issued by the Central Government or the State Governments.**
 - A G-Sec is a **type of debt instrument issued by the government** to borrow money from the public to finance its **Fiscal Deficit.**
 - A debt instrument is a financial instrument that **represents a contractual obligation by the issuer to pay the holder** a fixed amount of money, known as principal or face value, on a specified date.
 - It acknowledges the **Government's debt obligation.** Such securities are **short term** (usually called **treasury bills**, with original maturities of less than one year- presently issued in three tenors, namely, 91-day, 182 day and 364 day) or long term (usually called **Government bonds or dated securities** with original maturity of one year or more).
 - In India, the **Central Government issues both, treasury bills and bonds or dated securities** while the State Governments issue only bonds or dated securities, which are called the State Development Loans (SDLs).
 - G-Secs carry **practically no risk of default and**, hence, are called risk-free gilt-edged instruments.
 - Gilt-edged securities are **high-grade investment bonds offered by governments and large corporations** as a means of borrowing funds.

Note:

What are the Types of G-Sec?

- **Treasury Bills (T-bills):**
 - Treasury bills are zero coupon securities and pay no interest. Instead, they are issued at a discount and redeemed at the face value at maturity.
- **Cash Management Bills (CMBs):**
 - In 2010, Government of India, in consultation with RBI introduced a new short-term instrument, known as CMBs, to meet the temporary mismatches in the cash flow of the Government of India. The CMBs have the generic character of T-bills but are issued for maturities less than 91 days.
- **Dated G-Secs:**
 - Dated G-Secs are securities which carry a fixed or floating coupon (interest rate) which is paid on the face value, on half-yearly basis. Generally, the tenor of dated securities ranges from 5 years to 40 years.
- **State Development Loans (SDLs):**
 - State Governments also raise loans from the market which are called SDLs. SDLs are dated securities issued through normal auction similar to the auctions conducted for dated securities issued by the Central Government.
- **Issue Mechanism:**
 - The RBI conducts **(Open Market Operations) OMOs** for sale or purchase of G-secs to **adjust money supply conditions**.
 - The RBI sells g-secs to **remove liquidity from the system** and buys back g-secs to infuse liquidity into the system.
 - These operations are often **conducted on a day-to-day basis in a manner that balances inflation** while helping banks continue to lend.
 - RBI carries out the OMO through commercial banks and does not directly deal with the public.
 - The RBI uses **OMO along with other monetary policy tools such as repo rate**, cash reserve ratio and statutory liquidity ratio to adjust the quantum and price of money in the system.

Stock Market Regulation

Why in News?

Recently, the **Supreme Court** asked the **Securities and Exchange Board of India (SEBI)** and the government

to produce the existing regulatory framework in place to protect investors from Stock Market **volatility**.

What is the Stock Market?

- **About:**
 - Stock markets are venues where **buyers and sellers meet to exchange equity shares** of public corporations.
 - Stock markets are components of a **Free-Market economy because they enable democratized access to investor trading** and exchange of capital.
 - A free-market economy is an economic system in which **the prices of goods and services are determined by supply and demand**, without interference from government regulation.
 - India has two stock exchanges – the **Bombay Stock Exchange (BSE)** and the National Stock Exchange (NSE).
 - SEBI is **the regulator of the securities market in India**. They set the legal framework and regulate all entities interested in operating in the market.
 - The **SCRA (Securities Contracts Regulation Act)** has empowered SEBI to recognise and regulate stock exchanges and later commodity exchanges in India; this was earlier done by the Union government.
- **Laws for Regulation:**
 - **Securities and Exchange Board of India Act, 1992 (SEBI Act):**
 - The SEBI Act empowers **SEBI to protect the interests of investors and to promote the development of the capital/securities market**, besides regulating it.
 - It sets out the functions and **powers of SEBI and establishes its structure and management**.
 - **Securities Contracts (Regulation) Act, 1956 (SCRA):**
 - This law provides the **legal framework for the regulation of securities contracts in India**.
 - It covers the **listing and trading of securities, the registration and regulation of stockbrokers and sub-brokers**, and the prohibition of insider trading.
 - **Companies Act, 2013:**
 - This law regulates the **incorporation, management, and governance of companies in India**.

Note:

- It also sets out the rules for the issue and transfer of securities by companies.
- **Depositories Act, 1996:**
 - This law provides for the regulation and supervision of depositories in India. It sets out the procedures for the dematerialization and transfer of securities held in electronic form.
- **Insider Trading Regulations, 2015:**
 - These regulations prohibit insider trading in securities listed on Indian stock exchanges. They prescribe the code of conduct for insiders, the procedures for disclosures, and the penalties for violations.

What is the Role of SEBI at Curbing Market Volatility?

- While SEBI does not interfere to prevent market volatility, **exchanges have circuit filters — upper and lower** — to prevent excessive volatility.
- But SEBI can issue directions to those who are associated with the market, and has powers to **regulate trading and settlement on stock exchanges**.
- Using these powers, SEBI **can direct stock exchanges to stop trading, totally or selectively**.
- It can also prohibit entities or persons from **buying, selling or dealing in securities**, from raising funds from the market and being associated with intermediaries or listed companies.

What are the Safeguards Against Fraud?

- SEBI notified the **Prohibition of Fraudulent and Unfair Trade Practices Regulations in 1995** and the **Prohibition of Insider Trading Regulations in 1992** to prevent the two key forms of fraud, market manipulation, and insider trading.
 - These regulations define a species of fraud, who is an insider and prohibit such fraudulent **activity and provide for penalties including disgorgement of ill-gotten gains**.
 - Violations of these regulations are predicate offenses that can lead to a deemed violation of the **Prevention of Money Laundering Act 2002**.
- **SEBI has notified the Substantial Acquisition of Shares and Takeovers Regulations to ensure that acquisitions** and changes of management are done only after giving an opportunity to public shareholders to exit the company if they want to.

- Appeals against orders of SEBI and the stock exchanges can be made to the **Securities Appellate Tribunal (SAT)** comprising three members.
- Appeals from the SAT can be made to the Supreme Court.

49th GST Council Meeting

Why in News?

Recently, the **Goods and Services Tax (GST)** Council in its 49th Meeting has reached consensus **on the constitution of the GST Appellate Tribunal** to resolve the rising number of disputes under the old indirect tax regime.

What are the Key Highlights of the GST Meeting?

- **GST Appellate Tribunal:**
 - The council has approved the creation of a national tribunal mechanism **with state benches** for the redressal of disputes.
 - The Tribunal will **resolve the rising number of disputes under the GST regime** that are now clogging High Courts and other judicial fora.
 - This year's Finance Bill can incorporate the enabling legislative provisions for the Tribunal.
 - The GST Tribunal will have one principal bench in New Delhi and many benches or boards in states. The principal bench and state boards would have **two technical and two judicial members each**, with equal representation.
 - But all four members would not sit to hear each case, which is likely to be **decided based on the threshold or value of dues involved**.
- **Cleared Pending Compensation Dues:**
 - It has cleared the balance of Rs 16,982 crore (for June 2022).
 - It has finalized **GST compensation** of Rs 16,524 crore to six states/UTs including, Delhi, Karnataka, Odisha, Puducherry, Tamil Nadu, and Telangana
- **Lower Penal Charges:**
 - It approved **lower penal charges for delayed filing of annual returns** by businesses with a turnover of up to Rs 20 crore a year.

Note:

- The council has approved an **Amnesty Scheme for taxpayers** unable to file three statutory returns, that entail conditional waivers or reductions in late fees for such filings.
 - The GST Amnesty Scheme was introduced to encourage non-filers to voluntarily come forward and file their GST returns by providing a one-time relief from late fees.
- **Rate Changes:**
 - The GST rate on **several items has been changed**, such as pencil sharpeners, rab (liquid jaggery).
 - The Council also **decided to extend the GST exemption to educational institutions** and central and state educational boards from conducting entrance examinations through any authority, including the **National Testing Agency**.
- **Plugging Tax Evasion:**
 - The Council has decided to switch the compensation **cess** levied on pan masala and gutkha commodities from an ad valorem basis to a specific tax-based levy.
 - The ad valorem tax is levied according to value.
 - This will boost the first stage collection of the revenue.
 - The Council also mandated that exports only be allowed against letters of undertaking assuring of GST compliance.

What is the GST Council?

- **About:**
 - It is a **joint forum** of the Centre and the states.
 - It was set up by the **President as per Article 279A (1)** of the amended Constitution.
- **Members:**
 - The members of the Council include the **Union Finance Minister (chairperson)**, the Union Minister of State (Finance) from the Centre.
 - Each **state can nominate a minister in-charge of finance** or taxation or any other minister as a member.
- **Functions:**
 - According to **Article 279** of the Constitution, the council can make recommendations to the **Union and the states on important issues related to GST**, like the goods and services that may be subjected or exempted from GST, model GST Laws".

- **Article 279** as well as **Article 279A** of the Indian Constitution **deal with the financial provisions** of the country.
- They are **specifically related to the calculation of "net proceeds" from Union duties and taxes** on goods and the formation of the Goods and Services Tax Council, respectively.
- It also **decides on various rate slabs** of GST.
 - For instance, an interim report by a panel of ministers has suggested imposing 28 % GST on casinos, online gaming and horse racing.

What is the Concept of Goods and Services Tax?

- **About:**
 - GST is a **value-added tax system** that is **levied on the supply of goods and services** in an economy.
 - It is a comprehensive indirect tax that was introduced in India on 1st July 2017, through the **101st Constitution Amendment Act, 2016**, with the slogan of **'One Nation One Tax'**.
 - The GST has subsumed **indirect taxes like excise duty, Value Added Tax (VAT), service tax, luxury tax** etc.
 - It is essentially a consumption tax and is levied at the final consumption point.
- **Tax Structure under GST:**
 - Central GST to cover Excise duty, Service tax etc,
 - State GST to cover VAT, luxury tax etc.
 - Integrated GST (IGST) to cover inter-state trade.
 - IGST per se is not a tax but a system to coordinate state and union taxes.
 - Under GST, Goods and services are divided into five different tax slabs for collection of tax: 0%, 5%, 12%, 18% and 28%.

What are the Issues Related to GST?

- **Complexity:**
 - The GST system in India is quite complex, **with multiple tax rates, exemptions, and compliance requirements**.
 - It **hampers the progress of a single indirect tax rate** for all the goods and services in the country.
- **High Tax Rates:**
 - Some industries and goods are subject to high GST rates, **which can make them unaffordable for many consumers**.

Note:

- For example, the tax rate on **luxury goods and services is 28%**, which is quite high.
- Though rates are rationalized, 50% of items are under the 18% bracket.
- **Compliance Burden:**
 - The GST regime has a lot of compliance requirements, including **filing of returns, maintaining records, and regular audits**. This can be a burden for businesses, especially small and medium enterprises.
- **Technical Issues:**
 - There have been reports of **technical glitches in the GST network**, leading to delays in filing returns and claiming input tax credits.
- **Impact on the Unorganized Sector:**
 - The unorganized sector, which forms a significant part of the Indian economy, has been **adversely affected by the GST**.
 - Many small businesses and traders have **found it challenging to comply with the new tax regime**.
- **Lack of Clarity:**
 - There is still a lack of clarity on some aspects of the GST regime, such as the classification of goods and services and the applicability of tax rates. **This lack of clarity can create confusion and disputes.**

Vostro Accounts

Why in News?

20 Russian banks have opened **Special Rupee Vostro Accounts (SRVA)** with partner banks in India for the settlement of payments in rupee for trade between India and Russia.

- Also, all major domestic banks have listed their nodal officers to sort out issues faced by exporters under the arrangement.

What is the Background?

- In July 2022, the **RBI** had unveiled a **mechanism to settle international transactions in rupee to promote the growth of global trade**, with emphasis on exports from India, as well as **pushing rupee as an international currency**.
 - It is also expected to enable trade with sanction-hit nations such as Russia.

- According to the mechanism finalized by the RBI, **banks of partner countries can approach authorized dealer banks in India for opening special rupee vostro accounts**. The authorized dealer bank will then have to seek **approval from the central bank** with details of such an arrangement.

What is SRVA arrangement?

- **About:**
 - A vostro account is an **account that domestic banks hold for foreign banks in the former's domestic currency**, in this case, the rupee.
 - Domestic banks use it to provide international banking services to their clients who have global banking needs.
 - The SRVA is an **additional arrangement to the existing system that uses Freely convertible currencies** and works as a complimentary system.
 - The **existing systems** require maintaining balances and position in such currencies like US dollar and pound to facilitate trade.
- **Framework:**
 - **Three important components**, namely invoicing, exchange rate and settlement are there.
 - **Invoicing** entails that all exports and imports must be denominated and invoiced in Indian National Rupee (INR).
 - **The Exchange Rate** between the currencies of the trading partner countries would be market-determined.
 - **The Final Settlement** also takes place in INR.
- **Functioning:**
 - The **authorized domestic dealer banks** are required to **open SRVA accounts for correspondent banks** of the partner trading country.
 - **Domestic importers** are required to **make payment (in INR) into the SRVA account** of the correspondent bank against the invoices for supply of goods or services from the overseas seller/supplier.
 - Similarly, **Domestic exporters** are **to be paid the export proceeds (in INR)** from the balances in the designated account of the correspondent bank of the partner country.
 - Indian **exporters may receive advance payment** against exports from overseas importers in Indian rupees through the above Rupee Payment Mechanism.

Note:

- But, it would be **foremost priority** of the domestic bank **to ensure that the available funds are used to meet existing payment obligations** i.e., already executed export orders or export payments in the pipeline.
- All reporting of cross-border transactions is to be done in accordance with the extant guidelines under the **Foreign Exchange Management Act (FEMA), 1999**.
- **Eligibility Criteria of Banks:**
 - The authorized domestic bank would seek approval from the apex banking regulator providing details of the arrangement when banks from partner countries approach for opening SRVA.
 - Domestic banks are responsible to **ensure that the correspondent bank is not from a country mentioned in the Financial Action Task Force (FATF)'s list of High Risk & Non-Co-operative jurisdictions**.
 - Authorized banks can open multiple SRV accounts for different banks from the same country.

What is the Purpose of the Arrangement?

- **Reduced Demand of Forex:** **The Economic Survey (2022-23)** had argued that the framework could **largely reduce the "net demand for foreign exchange, for the settlement of current account related trade flows"**
 - It will further arrest fall of rupee as demand for forex reduces.
- **Reduced Vulnerability to External Shocks:** Reduced dependence on foreign currencies, would make the country **less vulnerable to external shocks**.
- **Rupee as International Currency:** In the long-term it will **promote Rupee as an international currency** once the rupee settlement mechanism gains traction
 - As per the Bureau for International (BIS) Settlements' Triennial Central Bank Survey 2022, the **U.S. dollar accounts for 88% of all trades. The INR accounted for 1.6%**.
- **Trade with Sanctioned Countries:**
 - Ever since sanctions were imposed on Russia, trade has been virtually at standstill with the country due to payment problems.
 - As a result of the trade facilitation mechanism introduced by the RBI, we see the payment issues with Russia easing.

What is a Nostro Account?

- A Nostro account is an account held by a bank in another bank. It allows the customers to deposit money in the bank's account in another bank. It is often used if **a bank has no branches in a foreign country**. Nostro is a Latin word that means "ours".
 - Let's presume bank "A" does not have any branches in the Russia, but bank "B" does. Now, to receive the deposits in the Russia, **"A" will open a Nostro account with "B"**.
 - Now, if any customers in the Russia want to send money to "A", they can deposit it **into A's account in "B"**. "B" will transfer the money to "A".
- The main difference between a deposit account and a Nostro account is that the former is held by individual depositors while **foreign institutions hold the latter**.

India's Livestock Sector

Why in News?

Recently, the Ceremony for Distribution of Animal Breed Registration Certificates organised by the **Indian Council of Agricultural Research (ICAR)** was concluded.

- In the address, the **Union Agriculture and Farmers Welfare Minister**, has emphasised the importance of **identifying the large number of indigenous livestock breeds in India** to make the agriculture and animal husbandry sector prosperous.

What is the Status of India's Livestock Sector?

- **About:**
 - **Animal husbandry** has historically been an integral part of agriculture in India and is relevant today as a large section of society is actively engaged and dependent on it.
 - India is rich in **livestock biodiversity** and has **developed many specific breeds adapted to various climatic conditions**.
- **Contribution of Livestock in the Indian Economy:**
 - The **livestock sector grew at a CAGR of 7.9% during 2014-15 to 2020- 21** (at constant prices), and its contribution to total agriculture GVA (at constant prices) **has increased from 24.3% in 2014-15 to 30.1% in 2020-21**.

Note:

- Besides their monetary benefit and providing a steady stream of food and revenues for households, **livestock provide employment to the rural family, act as insurance during crop failures** and the number of livestock owned by a farmer determines the social status among the community.
- **Dairy is the single-largest agri commodity in India.** It contributes **5% to the national economy** and employs 80 million dairy farmers directly.
- **Recognised Indigenous Livestock Species:**
 - **Recently, ICAR** has registered 10 new breeds of livestock species. This has taken the total number of indigenous breeds to **212 as of January, 2023.**
 - The **ten new breeds of indigenous livestock species** are -
 - Kathani cattle (Maharashtra), Sanchori cattle (Rajasthan) and Masilum cattle (Meghalaya);
 - Purnathadi buffalo (Maharashtra)
 - Sojat goat (Rajasthan), Karauli goat (Rajasthan) and Gujari goat (Rajasthan)
 - Banda pig (Jharkhand), Manipuri Black pig (Manipur) and Wak Chambil pig (Meghalaya).
- **Issues Related to Livestock in India:**
 - **Lack of Transparency:**
 - Nearly half of the country's livestock is still unclassified. Also, Indian livestock product markets are mostly underdeveloped, **uncertain, lack transparency and often dominated by informal market intermediaries.**
 - **Rising Animal Diseases:**
 - There has been an increase in communicable diseases among animals. Most recent is the outbreak of **lumpy skin disease (LSD) in cattle across various states of India.**
 - **Lack of Extension Services:**
 - While the role of extension services in enhancing crop production and productivity is widely recognized, **livestock extension never got the attention it deserves,** and this has been one of the reasons for low productivity of India's livestock sector.

What are the Government Schemes Related to Livestock Sector?

- **Animal Husbandry Infrastructure Development Fund (AHIDF):** Under this scheme, the Central Government

provides a **3% interest subvention to the borrower and credit guarantee up to 25% of total borrowing.**

- **National Livestock Mission (NLM):** This scheme has been restructured for **2021-22 to 2025-26.**
 - The scheme focuses on entrepreneurship development and breeds **improvement in poultry, sheep, goat and piggery,** including feed and fodder development.
- **Livestock Health and Disease Control (LH&DC) Scheme:** It is being implemented to supplement the State/UT governments efforts towards **preventing, controlling and containing animal diseases of economic and zoonotic importance** by vaccination.
- **National Animal Disease Control Programme (NADCP):** It is being implemented to control **Foot & Mouth Disease and Brucellosis** by completely vaccinating cattle, buffalo, sheep, goat and pig populations against Foot & Mouth Disease and **bovine female calves of 4-8 months of age against brucellosis.**

How India can Enhance its Livestock Sector?

- **Registration of New Breeds:** ICAR's mission to document all animal genetic resources in the country in collaboration with State Universities, Animal Husbandry Departments, NGOs, and others is a good step in this direction.
 - Also, the **Department of Agricultural Research and Education (DARE) has started notifying all registered breeds in the Gazette since 2019** to claim sovereignty over these indigenous breeds.
- **Veterinary Ambulance Service and Compulsory Livestock Vaccination:** In order to provide **immediate primary treatment for injured animals,** ambulance services should be expanded in veterinary hospitals.
 - In addition, **livestock primary vaccination should be made mandatory,** and regular veterinary surveillance should be conducted in a time-bound manner.
- **Towards One-Health Approach:** There is a need to recognize **One Health Approach** and understand the **interconnection between people, animals, plants,** and their shared environment and encourage collaborations in research and sharing of knowledge at multiple levels across various disciplines like **human health, animal health, plants, soil, environmental and ecosystem** that can help in health sustainability and tackling **zoonotic diseases** as well.

Note:

Sagar Parikrama

Why in News?

The **Sagar Parikrama** Phase III, a program by the Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying and National Fisheries Development Board, was started on 19th Feb 2023 from Surat, Gujarat.

What are the Major Highlights of the Program?

- The main objectives of the program are to disseminate information about various fisheries related schemes and programs, promoting responsible fisheries with a focus on sustainable balance, and protection of marine ecosystems.
- The Phase-I of the program started in March 2022 from Mandvi and ended on 6th March 2022 at Porbandar, Gujarat.
- **Kisan Credit Card (KCC)** cards were distributed to fishers and fish farmers.
- It was also declared that the **Satpati Fish Market** would be inaugurated according to the state-of-the-art standards.

What is Sagar Parikrama?

- **About:**
 - It is a navigation journey to be conducted in all coastal states/UTs through a pre-decided sea route to demonstrate solidarity with all fisherfolk, fish farmers and concerned stakeholders.
- **Significance:**
 - It will focus on sustainable balance between the utilisation of marine fisheries resources for food security of the nation and livelihoods of coastal fisher communities and protection of marine ecosystems.

What is the Status of the Fisheries Sector in India?

- **About:**
 - India is the second major producer of fish through aquaculture in the world.
 - India is the 4th largest exporter of fish in the world as it contributes 7.7% to the global fish production.

- Also, India ranks 1st in inland capture fish production and 3rd in overall fish production in the world.

- Currently, this sector provides livelihood to more than 2.8 crore people within the country.

➤ Initiatives related to Fisheries Sector:

- Pradhan Mantri Matsya Sampada Yojana
- Palk Bay Scheme
- Fisheries and Aquaculture Infrastructure Development Fund (FIDF)

➤ Challenges Related to India's Fishery Sector:

- **Illegal, Unreported, and Unregulated (IUU) Fishing:** IUU fishing is a significant problem in India's fishery sector, and it often goes undetected.
 - IUU fishing can lead to a decline in fish stocks, and it also puts legitimate fishers at a disadvantage.
- **Lack of Infrastructure:** The fishery sector in India lacks adequate infrastructure, such as cold storage, processing facilities, and transportation, which results in post-harvest losses and limits access to higher-value markets.
- **Limited Access to Credit:** Small-scale fishers in India often struggle to access credit, which hinders their ability to invest in their businesses and improve their livelihoods.
- **Climate Change:** Climate change is impacting India's fishery sector, causing changes in fish distribution and affecting fish reproduction rates.
- It also leads to increased risks of natural disasters, such as cyclones and flooding, which can destroy fishing boats and infrastructure.

Blue Food

Why in News?

A new study suggests that blue food sourced from aquatic environments can help reduce nutritional deficiencies and contribute to employment and export revenue in India.

What is Blue Food?

- **About:**
 - Blue food is food derived from aquatic animals, plants or algae that are caught or cultivated in freshwater and marine environments.

Note:



➤ **Significance:**

- **Key Source of Nutrient:**
 - **Blue foods** are important for the economies, livelihoods, **nutritional security**, and cultures of people in many countries.
 - They supply protein to over **3.2 billion people**, are a key source of nutrients in many **coastal, rural and indigenous communities**, and support the livelihoods of over **800 million people**, the majority of whom work in **small-scale systems**.
 - **Low Emission and Tackle Deficiencies:**
 - They **generate lower emissions** compared to terrestrial meat.
 - **Aquatic foods** can also be used to address **B12 and omega-3 deficiencies in India**.
 - Over **91% of countries with vitamin B12 deficiencies** also show high levels of omega-3 deficiency
 - **Reduce Cardiovascular Diseases:**
 - Promoting blue foods over red meat overconsumption could address health and environmental concerns for about 82% of the 22 countries suffering from a high **cardiovascular disease** risk.
 - **Revenue Potential for Global South:**
 - Blue foods can help **improve nutrition, livelihoods or national revenue** for the **global south and indigenous communities** in the global north.
- **Issues Associated with Blue Food:**
- **Bycatch:** This refers to the **accidental capture of non-target species** in fishing nets, which can lead to the death of these animals.
 - **Pollution:** The presence of pollutants such as heavy metals, PCBs and **microplastics** in the **ocean can affect the quality and safety of seafood**.
 - **Mislabeling and Fraud:** There have been instances of mislabeling of seafood products, where a **cheaper fish is sold as a more expensive one**.
 - This can lead to consumer deception and potential health risks.
 - **Overexploitation:** Almost 90% of global marine fish stocks **are now fully exploited or overfished according to the World Bank**, which is an issue with **overfishing, illegal fishing, and other unsustainable aquatic food production**.

DoT Updates

Definition of Broadband

Why in News?

The **Department of Telecommunications (DoT)**, on **recommendation of Telecom Regulatory Authority of India (TRAI)** has updated the definition of broadband for telecom operators, increasing the minimum speed requirement to **2Mbps** from 512Kbps which had been in place since 2013.

- By the previous definition, there were 825.38 million broadband users in India in November 2022, according to TRAI data.

What is the New Definition?

- **Broadband** is a data connection that can support **interactive services including Internet access** and has the capability of the **minimum download speed of 2 Mbps** (Megabits per second) to an individual subscriber from the point of presence (POP) of the service provider intending to provide Broadband service,
 - Wired broadband and wireless broadband will both be subject to this 2Mbps limit.
- Updation of definition **was overdue** as **The National Telecom Policy 2012** which was replaced by **The National Digital Communications Policy 2018**, had set a goal of updating the definition of broadband to 2Mbps by 2015.

What is the Current Status of Broadband Speeds?

- According to Ookla's Speed test Global Index (December 2022):
 - **Median Wired Broadband Speed** in India is over **75Mbps**.
 - **Median Wireless Broadband (mobile) Speed** is over **36Mbps**.
- Broadband speed is **expected to further increase as 5G network expands**.

What is the Industry's Viewpoint?

- **Industry resisted** the definition update as **4G networks may not be able to sustain 2Mbps speed due to too many devices connected to single tower or user being far from nearest base location**.

Note:

- The actual speed available to or experienced by the customer will vary depending upon several dynamic factors.
- With focus towards **affordability and availability**, the previous definition of 512 Kbps for broadband should have been continued.


470 Airbus, Boeing Planes for Air India

Why in News?

Air India has announced two major deals worth around **USD 100 billion** to buy **470 passenger planes** from top aircraft manufacturers **Airbus (with France)** and **Boeing (with United States)**.

What is the Significance of this Aircraft Deal for India?

- The deal reflects **India's aspirations to be a world leader in the aviation sector**, which is projected to require over **2,000 aircraft in the next 15 years**.
- This is the **first aircraft order Air India has placed in 17 years** and the first A350 aircraft will be delivered to Air India by the end of 2023.
- The **deal is expected to make India the third-largest player in the aviation sector** and create new opportunities in aerospace manufacturing under India's '**Make in India-Make for the World**' vision.

LARGEST DEAL 

70 wide-body, ultra long-range aircraft included in deals

- These carry 300-410 passengers in three-class configurations
- From India, these aircraft can fly non-stop to the US

EXPLAINED

470 new aircraft for Air India: 250 from Airbus, 220 Boeing

400 are narrow-body, which usually carry 140-170 passengers

- These can be operated in India, countries close by

What is the Status of India's Aviation Sector?

- **About:**
 - India's Civil Aviation is among the **fastest-growing aviation markets globally** and will be a major growth engine to make India a **USD 5 trillion economy by 2024**.

- The nation's aeroplane fleet is projected to quadruple in size to approximately **2500 aeroplanes by 2038**.
- **Recent Government Initiatives Related to Aviation Sector:**
 - **National Civil Aviation Policy (NCAP) 2016:**
 - Through the **NCAP 2016** the government plans to take flying to the masses by **enhancing affordability and connectivity**.
 - It promotes ease of doing business, **deregulation, simplified procedures, and e-governance**.
 - The **Regional Connectivity Scheme or UDAN ('Ude Desh ka Aam Nagrik')** is a vital component of NCAP 2016.
 - **UDAN 2.0:**
 - The Scheme lays out the vision of **improving value realisation through better integration and optimization of Agri-harvesting and air transportation** and contributing to Agri-value chain **sustainability, resilience under different and dynamic conditions**.
 - **Monetising Assets through PPP Mode:**
 - The Centre has earmarked a total of **25 airports** for asset monetisation over the years 2022 to 2025 under the **National Monetization Pipeline**.
- **Challenges:**
 - **High Operating Costs:** One of the major challenges for the Indian aviation sector is the high operating costs. This is due to a number of factors such as **high fuel prices, airport charges, and taxes**.
 - **Infrastructure Constraints:** The Indian aviation sector also faces infrastructure constraints such as **limited airport capacity, lack of modernised air traffic control systems**, and inadequate ground handling facilities.
 - **Regulatory Framework:** The Indian aviation sector also faces challenges related to the regulatory framework.
 - The sector is heavily regulated, and airlines have to comply with a number of rules and regulations through different windows, which **can be complex and time-consuming**.

Note:

Payment Aggregators

Why in News?

Recently, the **Reserve Bank of India (RBI)** has given in-principle approval to 32 firms to operate as **Online Payment Aggregators (PA)**, under the **Payment and Settlement Systems Act, 2007 (PSS Act)**.

- The PSS Act, 2007 provides for the regulation and supervision of payment systems in India and designates the RBI as the authority for that purpose and all related matters.

Note:

- **In principle approval** means that an approval has been granted **based on certain conditions or assumptions**, but that additional information or steps may be required before final approval is given.

What is a Payment Aggregator?

➤ About:

- Online payment aggregators are companies that **facilitate online payments by acting as intermediaries between the customer and the merchant**.
 - The RBI introduced **Guidelines for Regulating PAs** and Payment Gateway in March 2020.

➤ Functions:

- They typically provide a **range of payment options to customers**, including credit and debit cards, bank transfers, and e-wallets.
- Payment aggregators collect and process payment information, **ensuring that transactions are secure and reliable**.
- By using a payment aggregator, **businesses can avoid the need to set up and manage their own payment processing systems**, which can be complex and expensive.
 - Some examples of payment aggregators include **PayPal, Stripe, Square, and Amazon Pay**.

➤ Key Features:

- **Multiple Payment Options:** Payment aggregators offer a range of payment options to customers, making it easier for them to pay for goods and services.

- **Secure Payment Processing:** Payment aggregators use **advanced security measures** to ensure that transactions are safe and secure.
- **Fraud Detection and Prevention:** Payment aggregators use algorithms and machine learning to detect and prevent fraud, reducing the risk of chargebacks and other payment disputes.
- **Payment Tracking and Reporting:** Payment aggregators provide detailed reports on payment transactions, making it easier for businesses to manage their finances and reconcile their accounts.
- **Integration with Other Systems:** Payment aggregators can integrate with a range of other systems, such as accounting software and inventory management systems, to streamline the payment process and make it easier to manage business operations.

➤ Types:

○ Bank Payment Aggregators:

- They involve **high setup costs and are difficult to integrate**.
- They lack many of the popular payment options along with detailed reporting features. Because of the **high cost, bank payment aggregators are not suitable for small businesses** and startups.
- e.g.; Razorpay and CCAvenue.

○ Third-Party Payment Aggregators:

- Third-party PAs offer **innovative payment solutions to businesses and have become more popular** these days.
- Their user-friendly features include a **comprehensive dashboard**, easy merchant onboarding, and quick customer support.
- e.g.; PayPal, Stripe and Google Pay.

➤ RBI's Criteria for Approving an Entity as Payment Aggregator:

- Under the payment aggregator framework, only firms approved by the RBI can acquire and offer payment services to merchants.
- A company applying for aggregator authorisation **must have a minimum net worth of Rs 15 crore in the first year of application**, and at least Rs 25 crore by the second year.
- It must also be compliant with **global payment security standards**.

Note:

How is the Payment Aggregator different from Payment Gateway?

- A payment gateway is a **software application that connects an online store or merchant to a payment processor**, allowing the merchant to accept payment from a customer.
 - Payment aggregators, on the other hand, are **intermediaries that provide a single platform to connect multiple merchants** to different payment processors.
- The main difference between a payment aggregator and payment gateway is that the **former handles funds while the latter provides technology**.
- Payment aggregators can offer a payment gateway, **but vice versa is not true**.

What are RBI's Other Initiatives to Regulate Fintech Firms?

- **RBI's Fintech Regulatory Sandbox:**
 - Established in 2018 with the primary objective of being a controlled regulatory environment for **testing fintech products**.
- **Payment System Operators license:**
 - This initiative was brought in in order to scrutinize the ever-expanding payments landscape in India.
- **Digital Lending Norms:**
 - All digital loans must be disbursed and repaid through bank accounts of **regulated entities** only, without the **pass-through of lending service providers (LSPs)**
- **RBI's Payment Vision 2025:**
 - It aims to **elevate the payment systems** towards a realm of empowering users with **affordable payment options accessible anytime and anywhere** with convenience.
 - It builds on the initiatives of **Payments Vision 2019-21**.
- **RBI's upcoming White-List:**
 - The RBI has prepared a "white-list" of digital lending apps (**List of Approved Lenders**) in order to **curb rising malpractices in the digital lending ecosystem**.

Singareni Thermal Power Plant

Why in News?

Singareni Thermal Power Plant (STPP) in Telangana is set to become the **first public sector coal-based power generating station** in the South and **first among the State PSUs** in the country to have a **flu gas desulphurization (FGD) plant**.

- With **100% utilisation of the fly ash generated**, the STPP has won the best fly ash utilisation award twice already

What are the Key Facts Related to FGD Plant?

- **About:**
 - The **FGD plant would process the sulphur and other gases (nitrogen oxides)** generated in firing the coal for power generation.
 - The **FGD plant removes Sulphur Dioxide from the flue gas** before it is released into the atmosphere and hence reduces its impact on the environment.
- **Types of FGD Systems:**
 - FGD systems are characterized as either "wet" or "dry" corresponding to the phase in which the flue gas reactions take place. **Four types of FGD systems:**
 - **Wet FGD systems** use a liquid absorbent.
 - **Spray Dry Absorbers (SDA)** are semi-dry systems in which a small amount of water is mixed with the sorbent.
 - **Circulating Dry Scrubbers (CDS)** are either dry or semi-dry systems.
 - **Dry Sorbent Injection (DSI)** injects dry sorbent directly into the furnace or into the ductwork following the furnace.
- **Ministry Guidelines:**
 - The **Ministry of Environment, Forest and Climate Change (MoEF&CC)** has set the deadline for installation of FGD plants for coal-based power plants as **December-end of 2026** for non-retiring plants and as **December-end of 2027** for retiring plants.
 - However, it is not made compulsory for the plants that are going to retire by **December-end of 2027**, provided they seek exemption from the **Central Pollution Control Board** and Central Electricity Authority.

Note:

➤ **Uses:**

- The **gypsum generated by the FGD plant would be used in fertiliser, cement, paper, textile and construction industries**, and its sales are likely to contribute to the maintenance of the FGD plant.

What is the Status of the Thermal Power Sector in India?

➤ **About:**

- The **thermal power sector** has been a major source of electricity generation in India, accounting for around **75% of the country's total installed power capacity**.
- As of May 2022, India has a **total Thermal installed capacity of 236.1 GW** of which **58.6% of the thermal power is obtained from coal** and the rest from **Lignite, Diesel, and Gas**.

➤ **Issues Associated with Thermal Power Plants:**

- **Environmental Impact:** Thermal power plants emit a large amount of **carbon dioxide, sulphur dioxide, nitrogen oxide, and other pollutants into the air**. This leads to air pollution, which has serious health implications for people living in the vicinity of the plants.
 - **Thermal power plants also consume a lot of water**, leading to water scarcity in some areas.

- **Coal Supply:** India's thermal power plants **rely heavily on coal**, which is mostly imported from other countries. This can lead to **supply disruptions and price volatility**.

- In FY22, **India's coal import of 208.93 million tonne (MT)** was worth Rs 2,28,741.8 crore.

- **Financial Health:** Many of India's thermal power plants are owned by government entities and are facing **financial losses due to rising coal prices**, low demand, and other factors.

- This has led to many plants being **shut down or operating at low capacity**.

- **Ageing Infrastructure:** Many of India's thermal power plants were built in the **1970s and 1980s and are in need of modernization**.

- Upgrading these plants to meet current environmental standards can be costly.

- **Renewable Energy Competition:** As **renewable energy** becomes cheaper, thermal power plants are facing **increased competition**.

- This has led to a **decrease in demand for thermal power** and has made it harder for some plants to operate profitably.



Note:

International Relations

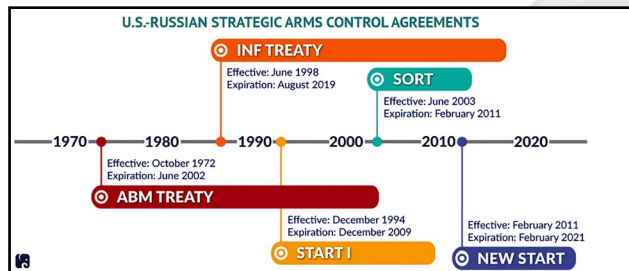
Highlights

- Russia Suspends New START
- One Year of Russia-Ukraine Conflict
- India-Germany Cooperation on Innovation

Russia Suspends New START

Why in News?

Recently, Russia has announced to suspend its participation in the **New START**, the last remaining major military agreement with the United States.



What is the New START?

- **Background:**
 - The name START comes from the original “**Strategic Arms Reduction Treaty**”, known as START-I, which was signed between the US and the erstwhile **USSR** in 1991, and came into force in 1994.
 - START-I, which capped the numbers of nuclear warheads and intercontinental ballistic missiles (ICBMs) that each side could deploy at 6,000 and 1,600 respectively, lapsed in 2009, and was replaced first by the SORT, also known as the Treaty of Moscow), and then by the **New START treaty**.
- **New START:**
 - The New START, the “Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms”, entered into force on 5th February 2011, and placed **new verifiable limits on intercontinental-range nuclear weapons**.

- The two countries had to meet the treaty’s central limits on strategic offensive arms by February 2018, and to then stay within those limits for the period the treaty remained in force. The US and Russia Federation subsequently **agreed to extend the treaty through February 2026**.

What are the Implications of the Suspension?

- A suspension of the treaty may mean that **it will be harder for the US to monitor compliance**.
- Since Russia has already suspended mutual inspections of nuclear weapons sites and participation in a bilateral consultative commission, it would be a **serious blow if Putin went further and stopped routine reporting and data exchange on nuclear weapon movements and other related developments**.
- The move is “entirely symbolic” and most probably Russia made the announcement to pressure US into approaching Russia about ending the war, so Russia can dictate the terms under which that would happen.

One Year of Russia-Ukraine Conflict

Why in News?

A year after start of **Russia-Ukraine conflict**, there are still signs of escalation everywhere. Calculations on both sides that this would be a short, swift war have proved wrong.

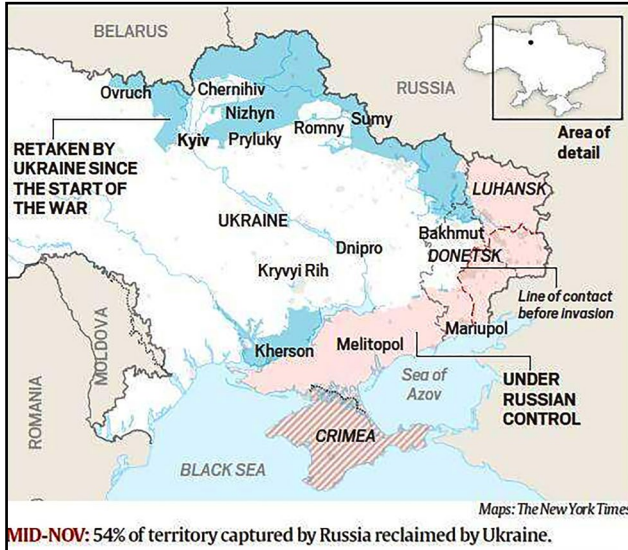
- The anniversary of war comes in the **backdrop of Russia’s withdrawal from New START treaty**.

What is the Current Status of the War?

- The West has recently announced the **supply of more advanced weapons to Ukraine**, deepening its involvement in the conflict.

Note:

- In response, Russian President Vladimir Putin has already reinforced Russian positions along the 1,000-km long frontline in Ukraine.
- **Risks of a direct confrontation** between **Russia** and the **North Atlantic Treaty Organisation (NATO)**, both nuclear powers, are also on the rise as the war is extended.



- **Russia** wanted to install a **Moscow friendly regime** and to take the whole of Ukraine's east and south, stretching from **Kharkiv in the northeast** through the **Donbas in the east** (which comprises Luhansk and Donetsk) to **Odesa, the Black Sea port city in the southwest**, turning the country into a land-locked rump. **Russia has failed to meet any of these objectives.**
- Nevertheless, **Russia has taken substantial portions of Ukrainian territories**, including **Mariupol**. Russia's territorial gains in Ukraine peaked in March 2022, when it controlled some 22% of pre-2014 Ukraine.
- **Ukraine recaptured some land in Kharkiv and Kherson.** But still, Russia controls some 17% of Ukraine.
- Focused fighting has been going on in some flashpoints along the frontline including Bakhmut, Donetsk and Zaporizhzhia.

What has been the West's Response?

- **Approach:**
 - Punish Russia's economy through sanctions and thereby weaken its war machine.
 - Arming Ukraine to counter the Russian offensive.

- **Major Aid Providers:**
 - The **U.S. is Ukraine's biggest aid provider** — it has pledged military and financial assistance worth over USD 70 billion.
 - The **EU has pledged \$37 billion** and among the EU countries, the **U.K. and Germany** top the list.
- **Evaluation of Western Response:**
 - While the approach of arming Ukraine has been **effective in at least halting the Russian advances**, **hurting Russia economically** has been a **double-edged sword.**
 - **Sanctions on Russia**, one of the **top global producers of oil and gas**, hit the global economy hard, **worsening an inflationary crisis across the West**, particularly in Europe.
 - Russia also took a hit, but it found **alternative markets for its energy exports in Asia**, redrawing the global energy export landscape. In 2022, despite sanctions, Russia **raised its oil output by 2% and boosted oil export earnings by 20%.**
 - The **Russian economy** was estimated to have contracted by 2% in 2023, but, according to the IMF, it is **expected to grow 0.3% in 2023** and 2.1% in 2024.
 - In comparison, Germany, Europe's largest economy, is expected to grow 0.1% in 2023, while the U.K., Ukraine's second biggest backer, is projected to contract by 0.6%.

Is there a Possibility for a Negotiated Settlement?

- Both sides **had exchanged several drafts about a potential peace plan in March 2022**, but the **U.S. and the U.K. staunchly opposed** Ukraine reaching any agreement with Russia. **Talks collapsed in March.**
- In July 2022, **Turkey brokered a deal** on taking out Russian and Ukrainian food grains through the Black Sea known as **Black Sea Food grain initiative**. Also, Warring parties had reached some prisoner exchange agreements.
- But barring these, talks between the two sides are non-existent.
 - **Russia**, despite the slow progress of its "special military operation", **remains adamant.**
 - **Mr. Zelensky** recently stated that he **would not reach any agreement with Russia making territorial compromises.**

Note:

- There is absolutely **no push from the West** for talks.
- **China** has stepped in with its own **peace initiative**, which is not in public domain yet.
- For any peace plan to succeed a few **Key issues** are to be addressed.
 - Ukraine's territorial concerns.
 - Russia's security concerns.
 - **Washington and Moscow should reach some kind of understanding** as Ukraine, given its dependence on the West, would require clearance from west for any final settlement.
 - However, in context of Russian withdrawal from New START Treaty, **possibility of such settlement in the near future looks bleak.**

How has the War Reshaped Geopolitics?

- **Increased focus on Security and Defence:**
 - The war has **re-energized the Europe-US security alliance**. **NATO** has opened its door to the **proposed inclusion of Sweden and Finland**, that will, once in (Turkey's approval is awaited), form the new military frontiers of the alliance against Russia.
- **Trust Deficit:**
 - The trust deficit **between Russia and the West is at an-all time high**. The US-led alliance is pouring weapons into Ukraine.
 - Though US President seems reluctant to accept all of Ukraine's demands, including for combat aircraft including F16s, perhaps mindful of the risk of widening the war.
- **China Factor:**
 - Moscow formalized its friendship with China in 2022 as "limitless". But China also does not want to jeopardize its Europe ties.
 - **China has not contributed with weapons to Russia** and also expressed its reservation **against nuclear war**.
 - However, the **US and Europe remain concerned about Chinese arms supplies** to Russia.

What has been India's Stand?

- The Ukraine war has been an **opportunity to practice strategic autonomy**. Adopting a neutrality India has maintained its relationship with Moscow while iterating support to global peace.

- India **worked around Western sanctions to buy oil from Russia**. As much as **25% of India's oil purchase is now from Russia**, from less than 2% before the war.
- Recently, **India abstained** on a UNGA resolution on first anniversary of the war, asking Russia to withdraw from its territory as the resolution had limitations in reaching the lasting goal of securing lasting peace.
 - India has **abstained on all three votes so far** on the Ukraine crisis at the UN General Assembly since Russian invasion.
- But the longer the war continues, the more pressure on India from the Western alliance to choose the "right side".
- India has expressed the hope that it can use its **G-20 presidency to bring peace**.

India-Germany Cooperation on Innovation

Why in News?

- Recently, the Indian Prime Minister met with the German-Chancellor and agreed on a **Vision Statement** to enhance cooperation on innovation and technology.
- It is considered to be **the most comprehensive economic document** signed between the two major economies to date.



Note:



What is the Vision Document all About?

- It focuses on **deepening ties between industry and spurring cooperation on development** of advanced technologies like **Artificial Intelligence and 6G**.
- This Cooperation aims at benefiting humanity and is firmly guided by their shared **democratic values and respect for universal human rights**.
 - **India and Germany** share a long history of cooperation in science and technology, research and innovation, institutionalized under the framework of the Inter-Governmental Agreement on 'Cooperation in Scientific Research and Technological Development' signed in May 1974.

What are the Key Highlights of the Meeting?

- **Green and Sustainable Development Partnership:**
 - Both leaders discussed progress on the **Green and Sustainable Development Partnership (GSDP)**, which India and Germany had launched during the Indian PM's visit to Berlin for the **6th IGC (Inter-Governmental Consultations)**.
 - The GSDP is an umbrella partnership that provides political guidance and steer to robust ties in climate action and **SDGs (Sustainable Development Goals)**.
 - Under this, **Germany will also place €10 billion** in new and additional commitments under their development cooperation portfolio in India.
- **Green Hydrogen:**
 - Both countries agreed to cooperate on **Green Hydrogen**.
 - The Indo-German Green Hydrogen Task Force was constituted in September 2022 and an Action Plan is close to finalization.
- **Triangular Development Cooperation:**
 - During the sixth IGC, India and Germany agreed to work on development projects in third countries.
 - The four projects, announced in May 2022, are now in **different stages of implementation:**

- **Cameroon:** Potato Seed Production through Rooted Apical Cuttings (RAC) Technology.
- **Malawi:** Agri Business Incubator Models for Women in Agriculture & Food Systems
- **Ghana:** Developing Bamboo-Based Enterprises for Sustainable Livelihood and Income Generation in Ghana
- **Peru:** Development of a geospatial portal prototype for planning, monitoring, and evaluation of the Ministry of Development and Social Inclusion of Peru (MIDIS) interventions and social programs.

➤ Indo-Pacific Oceans Initiative:

- Germany has come on board the **Indo-Pacific Oceans Initiative (IPOI)**.

➤ Submarines:

- The two countries discussed on the proposed deal for Germany to build jointly with India six conventional submarines for the Indian Navy.

What are the Key Facts About Germany?

- **Bordering Countries:** Germany shares borders with nine countries, **France, Luxembourg, Denmark, Belgium, Switzerland, Austria, Czech Republic, the Netherlands and Poland**.
- **Location:** It is located in Central Europe, bordering the **Baltic Sea** and the North Sea.
- **Rivers:** Danube, Rhine, Ems, Weser, Elbe and Oder
- **Forest:** The Black Forest is Germany's **largest and most famous wooded area located in the southwest near the Swiss border**. It is the source of the Danube, one of Europe's longest rivers.
- **Form of Government:** Germany is a **federal parliamentary republic with a President as the head of state** and a Chancellor as the head of government.
- **Main Industrial Regions:** Ruhr, Hanover, Munich, Frankfurt am Main, and Stuttgart.



Note:

Social Issues

Highlights

- Odisha's Initiative to Curb Child Marriage
- Mission Shakti
- Trends in Maternal Mortality: UN
- Genetic Information and Privacy
- Special Marriage Act, 1954
- Impact of Covid-19 on Human Capital
- Mental Healthcare Act, 2017

Odisha's Initiative to Curb Child Marriage

Why in News?

Odisha has been taking a long-term approach to bring about **social and behavioral change regarding child marriage** over the past **4-5 years**.

- Odisha recorded an overall decline in the prevalence of child marriage: from 21.3% in National Family Health Survey-4 to 20.5% in **NFHS-5**.

How Odisha is Tackling the Problem of Child Marriage?

- The state has implemented a **multi-pronged approach to tackle child marriage**, including tracking the absence of girls in schools and villages, **counseling**, and using a platform called "**Advika**" to **link all schemes targeting girls aged 10 to 19 years**.
- It has issued guidelines to **declare villages child-marriage-free** and there are also **monetary incentives for particularly vulnerable tribal groups**.
 - The approaches to prevent child marriages differ from district to district, with some **maintaining a database of adolescent girls** and others making the **production of Aadhaar number mandatory in all marriages**.
 - Various districts have come up with their own ways of tackling the problem, such as weaving a **Kathak performance into a local celebration to raise awareness about child marriage**.

- The emphasis is on **engaging with the community, especially girls in the age group of 15 to 18 who are dropouts**, and retaining them in educational institutions.
- The Odisha police have also been involved in the effort, conducting **monthly meetings in the community to discuss dropping out from school** and child marriages with representatives of the panchayat, parents, and children.
 - Police stations have been **made child-friendly** so that girls would feel empowered to approach the police.
- Various community leaders of different **caste, tribe, and religious groups have been roped in to build awareness** about child marriages.

What are the Major Developments in Minimum Marriageable Age in India?

- At the time of India's independence, the **minimum marriageable age stood at 15 years for females and 18 years for men**.
- In **1978**, the government increased it to **18 for girls and 21 for men**.
- The **Law Commission Report of 2008**, on reforming family law, recommended a **uniform age of marriage for boys and girls at 18 years** and not 21.
- In **2021**, the Central government sought to introduce the **Prevention of Child Marriage (Amendment) Bill 2021**, to raise the **manageable age for women across all religions, from 18 to 21 years**.
 - The proposed law will apply to all communities in the country and, once enacted, will supersede existing marriage and personal laws.

Note:



What are the Associated Issues with Child Marriage?

- **Health Complications During Childbirth:** Child brides are often not **physically mature enough to safely carry and deliver a child**, leading to a higher risk of health complications for both the mother and child.
- **Interrupted Education:** Marriage often interrupts a girl's education, which can **limit her future opportunities** and perpetuate the cycle of **poverty**.
- **Limited Economic Opportunities:** Child brides often have limited opportunities to pursue a career or earn a living, which can **leave them financially dependent on their husband** and vulnerable to abuse.
- **Domestic Violence:** Child brides are more likely to **experience domestic violence from their husbands**, who may view them as subservient and less deserving of respect than older wives.
 - Child marriage also have a significant impact on a girl's **mental health, leading to depression, anxiety, and low self-esteem**.

Mission Shakti

Why in News?

The **Supreme Court** has sought more information from the government about **Mission Shakti**, an umbrella scheme for the **safety, security, and empowerment of women**.

- This comes after concerns were raised about a **possible shortage of protection officers** to handle domestic violence cases.

What are the Raised Concerns Regarding Domestic Violence?

- According to a government document presented in court, **4.4 lakh cases of domestic assault are pending across 801 districts**.
- While most of these districts have **one-stop centres to assist victims under Mission Shakti**, it remains unclear **how many of them actually have protection officers** to effectively support survivors.
 - Under **Section 8 of the Protection of Women from Domestic Violence Act, 2005**, the appointment of protection officers is **mandatory**.
 - Protection officers, who should **ideally be women**, have a pivotal role under the law. They **help victims file complaints, give information to the police,**

provide immediate protection and support, inform victims about their legal rights and support them through court proceedings.

What is Mission Shakti?

- **About: Mission Shakti'** is a scheme of Ministry of Women and Child Development **aimed at strengthening interventions for women safety, security and empowerment**.
 - It seeks to realise the Government's commitment for **"women-led development"** by addressing issues affecting women on a life-cycle continuum basis and by making them **equal partners in nation-building through convergence and citizen-ownership**.
- **Sub-Schemes:** It has two sub-schemes - **'Sambal' and 'Samarthya'**. While the **"Sambal" sub-scheme is for safety and security of women**, the **"Samarthya" sub-scheme is for empowerment of women**.
 - **Sambhal:**
 - The components of 'Sambal' sub-scheme consist of erstwhile schemes of **One Stop Centre (OSC), Women Helpline (WHL), Beti Bachao Beti Padhao (BBBP)** with a new component of **Nari Adalats** - women's collectives to promote and facilitate alternative dispute resolution and gender justice in society and within families.
 - **Samarthya:**
 - The components of 'Samarthya' sub-scheme consist of erstwhile schemes of **Ujjwala, Swadhar Greh and Working Women Hostel** have been included with modifications.
 - In addition, the existing schemes of **National Creche Scheme for children of working mothers and Pradhan Mantri Matru Vandana Yojana under umbrella ICDS** have now been included in Samarthya.
 - A new component of **Gap Funding for Economic Empowerment** has also been added in the Samarthya Scheme.

Trends in Maternal Mortality: UN

Why in News?

According to the **United Nations' (UN)** new report **"Trends in Maternal Mortality"**, of the estimated 287,000

Note:

maternal deaths recorded in 2020, 70 % took place in sub-Saharan Africa.

- The **Maternal Mortality Ratio (MMR)** — deaths per lakh live births — in the region was at a dangerous high of 545, many times greater than the world average of 223.

What are the Key Findings of the Report?

➤ **Statistics:**

- Every two minutes, a woman dies during pregnancy or childbirth, revealing **alarming setbacks for women's health over recent years**, as maternal deaths either increased or stagnated in nearly all regions of the world.
- There were an estimated 287,000 maternal deaths worldwide in 2020, which is a **slight decrease from 309,000 in 2016** when the **UN's Sustainable Development Goals (SDGs)** came into effect.
- Although there has been significant progress in **reducing maternal deaths between 2000 and 2015**, gains largely stalled, or in some cases even reversed, after this point.

➤ **MMR:**

- In 2020, about 70% of all maternal deaths were in sub-Saharan Africa.
- The **top three sub-regions in the world with a high or very high MMR** were found in **sub-Saharan Africa**,
 - Western Africa at 754, middle Africa at 539 and eastern Africa at 351.
 - On the country level, a similar trend was seen with South Sudan (1,223), Chad (1,063) and Nigeria (1,047) recording an extremely high — greater than 1,000 — MMR.
- With approximately 82,000 maternal deaths in 2020, **Nigeria accounted for over a quarter (28.5%) of all estimated global maternal deaths** in the pandemic year.
- From 2000 to 2020, declines in the MMR stagnated in sub-Saharan Africa, northern Africa, Oceania (excluding Australia and New Zealand) and western Asia, and eastern and south-eastern Asia.

➤ **Causes of Maternal Deaths:**

- Severe bleeding, **high blood pressure, pregnancy-related infections**, complications from unsafe abortion, and underlying conditions that can be aggravated by pregnancy (such as **HIV/AIDS** and malaria) are the leading causes of maternal deaths.

- Globally, 1,878 HIV-related indirect maternal deaths were recorded, of which 1,738 (around 92.5%) were in sub-Saharan Africa.

➤ **Healthcare Gaps:**

- Roughly a third of women do not have even **four of a recommended eight antenatal checks** or receive essential postnatal care, while some 270 million women lack access to modern family planning methods.

➤ **Risks:**

- Inequities related to income, education, race or ethnicity further increase **risks for marginalized pregnant women**, who have the least access to essential maternity care but are most likely to experience underlying health problems in pregnancy.

What are the Findings Related to India?

- India recorded the **second highest number of maternal deaths** in 2020, coming second at 24,000 to only Nigeria.
- However, there has been **an overall reduction of 73.5% in MMR in India**, between 2000 and 2020.
- In 2020, India's MMR stood at 103, a vast improvement from 384 at the turn of the century.
 - In comparison, other developing countries like Argentina (45 in 2020), Bhutan (60), Brazil (72), Kyrgyzstan (50) and Philippines (78) **have performed better than India**.

What are the Recommendations?

➤ **More Resilient Health System:**

- With immediate action, more investments in primary health care and stronger, **more resilient health systems**, we can save lives, improve health and well-being, and advance the rights of and opportunities for women and adolescents.

➤ **Community-centered Health Care:**

- Community-centered primary health care can meet the needs of women, children and adolescents and enable equitable access to critical services such as assisted births and pre- and postnatal care, childhood vaccinations, nutrition and family planning.

➤ **Control over Reproductive Health:**

- Exercising control over their reproductive health, particularly decisions about if and when to have

Note:

children, is critical to ensure that women can plan and space childbearing and protect their health.

- **National and International Efforts:**
 - Ending preventable maternal deaths and providing universal access to quality maternal health care require **sustained national and international efforts** and unwavering commitments, particularly for the most vulnerable populations.
 - It is our collective responsibility to ensure that **every mother, everywhere, survives childbirth, so that she and her children can thrive.**
- **Meeting Global Targets:**
 - The world must significantly accelerate progress to meet global targets for reducing maternal deaths, or else risk the lives of over 1 million more women by 2030.
 - The SDG target for maternal deaths is for a global MMR of **less than 70 maternal deaths per 100,000 live births by 2030.**

Genetic Information and Privacy

Why in News?

Recently, the **Supreme Court** has ruled that children have the right to protect their genetic information from being revealed in **Deoxyribonucleic Acid (DNA) Tests** without their consent.

- The judgment came in a petition filed by a man who questioned his second child's paternity while accusing his wife of an adulterous relationship.
- The apex court concluded on the facts of the case that no adverse inference could be drawn on the ground that the **mother declined to subject the child to a paternity test.**

What is the Judgement?

- Genetic information is personal and intimate. It sheds light on a person's very essence.
- It allows individuals to **make informed decisions about their health, privacy, and identity.**
- Children have the **right to protect their genetic information from DNA testing** in divorce proceedings, as it is part of their fundamental right to privacy.

- This is guaranteed under **Article 21 of Indian Constitution.**

- It is imperative that children do not become the focal point of the battle between spouses.
- Rights of privacy, autonomy and identity are recognised under the **United Nations' Convention on the Rights of the Child.**
 - The Convention **acknowledges the control** that individuals, including children, have **over their own personal boundaries** and the means by which they define who they are in relation to other people.
 - Children are not to be deprived of this entitlement to influence and understand their sense of self simply by virtue of being children.

What is the Status of Genetic Information in India?

➤ Genetic Data and Privacy:

- Genetic data privacy is a term that seeks to prevent a third party or anyone else from using a person's genetic data without his permission.
- Technological advances have **made it easy to extract personal information from DNA samples, violating privacy rights.**
- While genetic research holds promise for the future, misapplication can have negative consequences. Due to the significance of genetic data as the blueprint for a person's physical being, privacy protection is crucial.

➤ Advantages of Genetic Information:

- Genetic information can reveal details **about disease, health, and ancestry.**
- This knowledge can increase a **person's awareness of their own health**, be used in medical research, and enable early intervention for disease prevention.

➤ Disadvantages of Genetic Information:

- Genetic data consists of a person's DNA and chromosomes and can reveal personal information about health and ancestry. Direct-to-consumer genetic tests are not always reliable **and can result in unintended exposure of private information.** Unauthorized access to genetic data can result in negative impacts, such as unwelcome responses from employers, insurance providers, and the government, affecting a person's privacy and life.

➤ Status of Genetic Privacy:

Note:



- In 2018, The Delhi High Court ruled against United India Insurance Company's discrimination in health insurance against a person with a heart disease that was thought to be a genetic disorder.
- Genetic discrimination is a **breach of Article 14**, which guarantees that everyone is treated fairly under the law.
- The Supreme Court of India unanimously stated that the **Right to Privacy is a Fundamental Right under Article 21** in *Justice KS Puttaswamy (Retd.) & Anr. v. Union of India*.
- Genetic discrimination is **illegal in almost all countries**. In 2008, the **United States passed the Genetic Information Non-discrimination Act (GINA)**, a federal law that protects people from genetic discrimination in health care and jobs.

Special Marriage Act, 1954

Why in News?

In India, the secular personal law - **Special Marriage Act (SMA) 1954**, provides an alternate route to religious laws for **marriage to interfaith couples**.

What is the Special Marriage Act 1954?

➤ About:

- The **Special Marriage Act (SMA), 1954** is an Indian law that provides a **legal framework for the marriage of people belonging to different religions** or castes.
 - It governs a **civil marriage where the state sanctions the marriage rather than the religion**.
- The Indian system, where both civil and religious marriages are recognised, is similar to the laws in the **UK's Marriage Act of 1949**.

➤ Basic Provisions:

- **Applicability:**
 - The applicability of the Act extends to the people of all faiths, including **Hindus, Muslims, Sikhs, Christians, Jains, and Buddhists**, across India.
- **Recognition of Marriage:**
 - The Act provides for the **registration of marriages, which gives legal recognition to the marriage** and provides a number of legal benefits and

protections to the couple, such as inheritance rights, succession rights, and social security benefits.

- It **forbids polygamy and declares a marriage null and void** if either party had a spouse living at the time of the marriage or if **either of them is incapable of giving a valid consent to the marriage** due to unsoundness of mind.

○ Written Notice:

- **Section 5 of the Act** specifies that the **parties must give written notice to the Marriage Officer of the District** and that at least one of the parties must have lived in the district for at least 30 days immediately before the date of such notification.
- **Section 7** of the Act allows any person to object to the marriage before the expiration of **30 days from the date of the notice's publication**.

○ Age Limit:

- The minimum age to get married under the SMA is **21 years for males and 18 years for females**.

➤ Differentiation from Personal Laws:

- Personal laws, such as the **Muslim Marriage Act, 1954**, and the **Hindu Marriage Act, 1955**, require **either spouse to convert to the religion of the other before marriage**.
 - However, the **SMA enables marriage between inter-faith or inter-caste couples without them giving up their religious identity** or resorting to conversion.
 - But, once married as per the **SMA**, an individual is deemed **severed from the family** in terms of rights like the **right to inheritance**.

➤ Issues Related to SMA:

- **Objections to Marriage:** One of the main issues with the Special Marriage Act is the provision for **objections to be raised against marriage**.
 - This **can often be used to harass consenting couples** and delay or prevent their marriage from taking place.
 - In January 2021, the Allahabad HC ruled that couples who wish to solemnise their marriage under the Special Marriage Act can choose **not to publish the mandatory 30-day notice of their intention to marry**.

Note:



- **Privacy Concerns:** The requirement for notices to be published can also be seen as a **violation of privacy**, as it can disclose the personal information of the couple and their plans to get married.
- **Social Stigma:** Inter-caste or inter-religious marriages are still not widely accepted in many parts of India, and **couples who choose to get married under the SMA may face social stigma and discrimination** from their families and communities.

Impact of Covid-19 on Human Capital

Why in News?

Recently, the **World Bank** released a report titled- “**Collapse and Recovery: How COVID-19 Eroded Human Capital and What to Do**”, stating that the **Covid-19** caused a **massive collapse in human capital**, primarily affecting children and young people.

- It analyzed global data on the pandemic’s impacts on young people at key developmental stages: early childhood (0-5 years), school age (6-14 years) and youth (15-24 years).

Note:

- **Human capital** consists of the **knowledge, skills, and health** that people invest in and accumulate throughout their lives, enabling them **to realize their potential as productive members of society.**

What are the Findings of the Report?

- **Impact of Pandemic:**
 - The Covid-19 caused massive damage to human capital **at critical moments in the life cycle**, primarily affecting children and young people in **underdeveloped and developing countries.**
 - The development of millions in **low- and middle-income countries has been derailed.**
- **Impact on School Children:**
 - Preschool-age children in multiple countries have **lost more than 34% of learning in early language and literacy** and more than 29% of learning in mathematics compared to pre-pandemic cohorts.
 - In many countries, even after schools had reopened, **preschool enrollment had not recovered by the end of 2021**; it was down by more than 10% in multiple countries.

- Children also faced greater **food insecurity** during the pandemic.
- **Reductions in Healthcare:**
 - Millions of children faced reductions in health care—including missed critical vaccines.
 - They also faced **more stress in their care environments**—orphanhood, domestic violence, suboptimal nutrition—which led to declines in school readiness and declines in social and emotional development.
- **Youth Employment:**
 - Forty million people who would have had a job in the absence of the pandemic **did not have one at the end of 2021**, worsening youth unemployment trends. Youth earnings contracted by 15% in 2020 and 12% in 2021.
 - New entrants with lower education will have 13% fewer earnings during their first decade in the labour market.
 - In Brazil, Ethiopia, Mexico, Pakistan, South Africa, and Vietnam **25% of all young people were neither in education, employment, nor training in 2021.**
- **Challenges in Future:**
 - The cognitive deficit in today’s toddlers **could translate into a 25% decline in earnings** at their prime working age.
 - Today’s students in low- and middle-income countries could lose up to 10% of their future average annual earnings due to the COVID-related education shocks. Globally, this generation of students risks **losing USD 21 trillion in potential lifetime earnings.**
 - Losses of lifetime earnings at this scale **can mean lower productivity, greater inequality, and possibly greater social unrest** for decades to come.

What are the Recommendations?

- Countries should **act urgently to recover these losses and invest better** in their people.
- Human capital is a key driver of poverty reduction and inclusive growth. It is imperative for **building resilience in the face of current and future crises** and shocks.
- Some of the **Policy Actions can include,**
 - Vaccinations and nutritional **supplementation campaigns**; increasing coverage of parenting

Note:

programs; increasing access to pre-primary education, **expanding coverage of cash transfers for vulnerable families**.

- Increasing instructional time; **assessing learning and matching instruction to students' learning level**; and streamlining the curriculum to focus on foundational learning.
- For youth, **support for adapted training, job intermediation**, entrepreneurship programs, and new workforce-oriented initiatives are crucial.
- In the longer term, **countries need to build agile, resilient, and adaptive human development systems** that can better prepare for and respond to current and future shocks.

Mental Healthcare Act, 2017

Why in News?

The **National Human Rights Commission (NHRC)** has raised concern over the **Deplorable Condition** of many Mental Healthcare Institutions (MHIs) in India, violating **Mental Healthcare Act (MHA), 2017**.

- According to the NHRC, MHIs are **"illegally" keeping patients long after their recovery**, which not only violates **Article 21** but also highlights **failure of the Governments to discharge the obligation under various international Covenants** relating to **rights of persons with disabilities** which have been ratified by India.

What is the Background MHA, 2017?

- Before MHA 2017, the Mental Healthcare Act, 1987 existed, which **prioritized the institutionalization of mentally ill people** and did not afford any rights to the patient.
- The Act provided **disproportionate authority to judicial officers and mental health establishments** to authorize long-stay admissions, often against the **informed consent and wishes of the individual**.
- Consequently, several persons **continue to be admitted and languish in mental health establishments** against their will.
- It embodied the **ethos of the colonial-era Indian Lunacy Act of 1912**, which linked criminality and madness.
 - Asylums were places where "abnormal" and "unproductive" behaviour was studied as an

individual phenomenon, isolating the individual from society. The intervention is meant to correct an inherent deficit or "abnormality", thereby leading to "recovery".

- In 2017, the MHA dismantled the **clinical heritage attached to asylums**.

What is MHA 2017?

➤ **About:**

- This Act **defined mental illness** as "a substantial disorder of thinking, mood, perception, orientation, or memory that grossly impairs judgment, behaviour, capacity to recognize reality or ability to meet the ordinary demands of life, mental conditions associated with the abuse of alcohol and drugs.
- It also provides the **right of patients to access facilities that include rehabilitation services in the hospital**, community, and home, sheltered and supported accommodation.
- It regulates the research on **PMI (Person with Mental Illness)** and the use of neurosurgical treatments.

➤ **Rights under MHA:**

- Right to Make an Advance Directive (Patient can state on how to be treated or not to be treated for the illness during a mental health situation).
- Right to Access to Healthcare Services.
- Right to **free of cost healthcare** services.
- Right to live in a community.
- Right to **protection from cruel, inhuman and degrading treatment**.
- Right not to be treated **under prohibited treatment**.
- Right to **equality and non-discrimination**.
- Right to information.
- Right to confidentiality.
- Right to legal aid and complain.

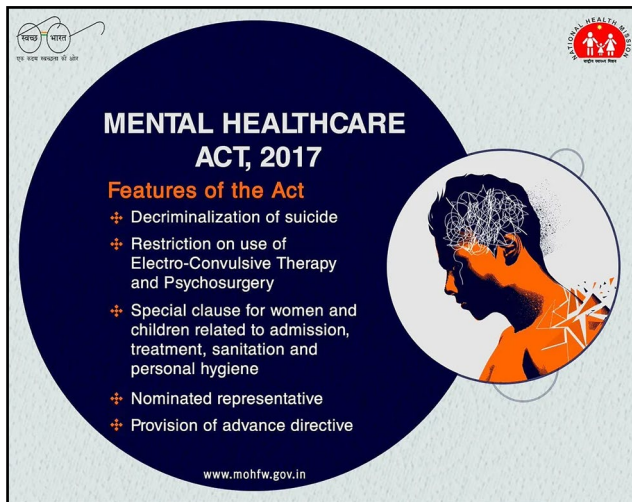
➤ **Attempt to Commit Suicide not an Offence:**

- A person who attempts to commit suicide will be presumed to be "suffering from severe stress" and shall not be subjected to any investigation or prosecution.

- The act envisages the establishment of **Central Mental Health Authority and State Mental Health Authority**.

Note:





What are the Associated Challenges with the Implementation?

- **Absence of MHRBs:**
 - The majority of the States have not established State Mental Health Authority and Mental Health Review Boards (MHRBs), and many States have not notified minimum standards which are **meant to ensure the quality of MHIs**.
 - MMHRBs are bodies that can draft **standards for mental healthcare institutes**, oversee their functioning and ensure **they comply with the Act**.
 - The absence of MHRBs renders **people unable to exercise rights or seek redressal in case of rights violations**.
- **Poor Budgetary Allocation:**
 - Poor budgetary allocation and utilization of funds further create a scenario where **shelter homes remain underequipped**, establishments are understaffed, and professionals and service providers are not adequately trained to deliver mental healthcare.



- **Stigma:**
 - People are either put in these establishments by families or through the police and judiciary.
 - In many cases, families refuse to **take them because of the stigma attached to incarceration or the idea that the person is no longer functional in society**.
 - Gender discrimination plays a role here: women are more likely to be abandoned due to **“family disruption, marital discords and violence in intimate relationships**.
- **Lack of Community Based Services:**
 - While **Section 19** recognises the right of people to “live in, be part of, and not be segregated from society,” there have been **no concrete efforts towards implementation**.
 - The dearth of alternative community-based services -in the form of homes for assisted or independent living, community-based mental healthcare services, and socio-economic opportunities – further **complicates access to rehabilitation**.

What are the Initiatives Related to Mental Health?

- **Global Initiatives:**
 - **World Mental Health Day.**
 - **WHO’s Comprehensive Mental Action Plan 2013-2020**
 - **Mental Health Atlas.**
 - **Sustainable Development Goals (SDG 3.4).**
- **Indian Initiatives:**
 - **National Mental Health Program.**
 - **Kiran Helpline**
 - **MANAS Mobile App**
 - **Manodarpan**

Note:

Science & Technology

Highlights

- National Science Day 2023
- NASA-ISRO Synthetic Aperture Radar (NISAR)
- Antimicrobial Resistance
- James Webb Telescope Spots 6 Monster Galaxies
- ALMA Telescope
- Neutrinos
- Electron's Magnetic Moment with Precision
- Brain-Inspired Image Sensor Can Detect Minuscule Objects
- Moon Dust as a Solar Shield
- Microbiome Link to Autism
- Chatbot
- Mad Cow Disease

National Science Day 2023

Why in News?

In 1986, the **Government of India**, designated **February 28 as National Science Day** to commemorate the announcement of the discovery of the **"Raman Effect"**.

- This year's edition is being celebrated under the theme of **"Global Science for Global Wellbeing"**, in light of **India's G20 presidency**.

What is the Raman Effect?

- **Physicist CV Raman** won the **Nobel Prize in 1930** for his discovery of the **Raman Effect**.
- It refers to the **inelastic scattering of light by matter**, resulting in a shift in the frequency of the scattered light.
 - In simpler words, it is a **change in the wavelength of light** that occurs when a light beam is deflected by molecules.
- The Raman effect forms the **basis for Raman spectroscopy** which is used by chemists and physicists to gain information about materials.
 - **Spectroscopy** is the study of the interaction between matter and **electromagnetic radiation**.

What are the Other Indian Nobel Laureates in the Field of Science?

Nobel Laureate	Subject	Topic	Year
Har Gobind Khurana	Medicine	Elucidation of the genetic code and its	1968

		function in protein synthesis.	
Subrahmanyan Chandrasekhar	Physics	Physical processes of importance to the structure and evolution of stars.	1983
Venkatraman Ramakrishnan	Chemistry	Structure and function of the ribosome.	2009

What were the Major Contribution of India in the Field of Science?

- **Mathematics:** India has made significant contributions to the field of mathematics, including the concept of **zero, decimal system, algebra, and trigonometry**.
 - Indian mathematicians such as **Aryabhata, Brahmagupta** (provide the formula for the area of a cyclic quadrilateral), and **Ramanujan** have made pioneering contributions to the field.
- **Astronomy:** Ancient Indian astronomer Aryabhata made significant contributions to the field of astronomy, including the **determination of the Earth's circumference, the discovery of the lunar nodes**, and the development of the **heliocentric model of the solar system**.
 - The **Jyotisa Vedanga**, the first Vedic text to mention astronomical data, records events going back as far as 4000 BCE.
- **Medicine:** **Ayurveda**, the traditional system of medicine in India, is one of the oldest medical systems in the world.

Note:



- Ancient Indian texts such as the **Charaka Samhita** and the **Sushruta Samhita** provide detailed descriptions of various medical conditions and their treatments.
- **Technology:** India has a long history of technological innovation, including the development of metallurgy, shipbuilding, and textile production.
 - The ancient city of **Mohenjo-Daro**, which existed in

- the **Indus Valley Civilization** over 4,500 years ago, had a sophisticated **sewage and drainage system**.
- **Space Exploration:** India has made significant progress in space exploration in recent years, including the successful launch of the **Mars Orbiter Mission in 2014** and the **Chandrayaan** mission and **Gaganyaan**, India's first human space mission, is **set to launch in 2024**.

NASA-ISRO Synthetic Aperture Radar (NISAR)



Drishti IAS

NASA-ISRO SYNTHETIC APERTURE RADAR (NISAR)

To be the first imaging radar satellite of its kind in space to systematically map Earth using 2 different frequencies (L-band and S-band)

SAR refers to a technique for producing fine-resolution images from a resolution-limited radar system where the radar moves in a straight line

BUILT UNDER

- NASA and ISRO's partnership agreement signed in 2014

EXPECTED LAUNCH

- 2024 from Satish Dhawan Space Centre

DURATION/LOCATION

- Min 3 years/near-polar orbit

NISAR will map the entire globe in 12 days

ISRO HAS PROVIDED

- The S-band radar (NASA: L-band)
- GSLV launch system
- Spacecraft

S-band radars operate on a wavelength of 8-15 cm and a frequency of 2-4 GHz and are useful for near and far range weather observation

L-band radars operate at a wavelength of 15-30 cm and frequency 1-2 GHz and are mostly used for clear air turbulence studies

SOCIETAL BENEFITS

- Observe subtle changes in Earth's surface
- Spot warning signs of natural disasters
- Track groundwater levels, flow rates of glaciers/ice-sheets
- Monitor forest/agricultural regions

NISAR WILL STUDY



Earth's Dynamic Surface and Interior

Earth's Cold Regions

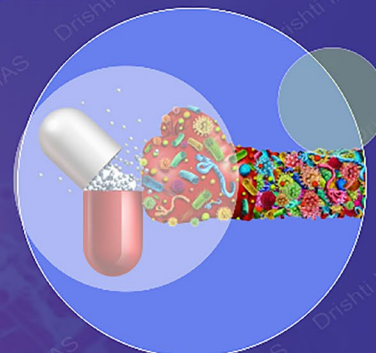
Terrestrial Ecosystems

Water

Note:

Antimicrobial Resistance

ANTIMICROBIAL RESISTANCE



The ability of microorganisms to resist the effects of antimicrobial drugs

CAUSES OF ↑ AMR

- Poor infection control/sanitation
- Antibiotic overuse
- Genetic mutations of microbe
- Lack of investment in R&D of new antimicrobial drugs

Microbes that develop AMR are called 'Superbugs'

IMPACTS OF AMR

- ↑ Risk of spreading infections
- Makes infections harder to treat; prolonged illness
- ↑ Healthcare costs

EXAMPLE

- Carbapenem antibiotics stop responding due to AMR in *K. pneumoniae*
- AMR Mycobacterium tuberculosis causing Rifampicin-Resistant TB (RR-TB)
- Drug-resistant HIV (HIVDR) making antiretroviral (ARV) drugs ineffective

RECOGNITION BY WHO

- Identified AMR as **one of the top 10 threats** to global health
- Launched **GLASS** (Global Antimicrobial Resistance and Use Surveillance System) in 2015

INDIA'S INITIATIVES AGAINST AMR

- Surveillance of AMR in microbes causing **TB, Vector Borne diseases, AIDS etc.**
- **National Action Plan on AMR (2017)** with One Health approach
- **Antibiotic Stewardship Program** by ICMR

New Delhi metallo-β-lactamase-1 (NDM-1) is a bacterial enzyme, emerged from India, that renders all current β-lactam antibiotics inactive

James Webb Telescope Spots 6 Monster Galaxies

Why in News?

The **James Webb Space Telescope (JWST)** has discovered six Monster galaxies, formed roughly **500-700 million years** after the Big Bang, according to a Study.

How were these Galaxies Found?

- Researchers spotted the six monster galaxies using the **Cosmic Evolution Early 44 Release Science programme** of JWST.
 - The programme studies the formation of the **earliest galaxies when the universe was less than 5% of its current age.**

Note:

- Researchers turned the telescope to a **patch of the sky close to the Big Dipper**, which appears to harbor a group of stars that form a pattern in the night sky. The **Hubble space telescope** first observed this region in the 1990s.
 - The Big Dipper is an asterism of stars, in the constellation Ursa Major (also known as the Great Bear). It consists of **seven bright stars, four forming a rectangular “bow!” shape** and three forming a “handle”. It is often used as a **navigational tool, a reference point for stargazing**, and as a symbol in popular culture.

What are the Findings of these Galaxies?

- Despite having the same mass as the Milky Way, one of the galaxies is 30 times smaller.
 - This indicates the presence of large and mature but remarkably **compact galaxies teeming with stars far sooner than scientists had considered possible**.
- The telescope reveals that six large, mature galaxies are as old as the Milky Way and exist around 540-770 million years after the Big Bang.
 - The universe was roughly 3 % of its current age at the time.
- These galaxies challenge our **current understanding of galaxy formation** as they should not have existed so early in their life.

What is JWST?

- The telescope is the result of an international collaboration between **NASA, the European Space Agency (ESA)** and the Canadian Space Agency which was launched in December 2021.
- It is currently at a point in space known as the Sun-Earth **L2 Lagrange point**, approximately 1.5 million km beyond Earth’s orbit around the Sun.
 - Lagrange Point 2 is one of the five points in the orbital plane of the Earth-Sun system.
 - Lagrange Points are positions in space where the gravitational forces of a two-body system (like the Sun and the Earth) produce enhanced regions of attraction and repulsion.
- It’s the **largest, most powerful infrared space telescope** ever built.
- It’s the **successor to Hubble Telescope**.

- It can see backwards in time to just after the Big Bang by looking for galaxies that are so far away that the light has taken many billions of years to get from those galaxies to our telescopes.

ALMA Telescope

Why in News?

The **Atacama Large Millimetre/submillimetre Array (ALMA)** is a **radio telescope** located in the **Atacama Desert of northern Chile**. It is set to receive software and hardware upgrades.

- The upgrades will enable ALMA to collect more data and **produce sharper images**.

What is ALMA?

- **About:**
 - ALMA is a **state-of-the-art telescope** that studies celestial objects at **millimetre and submillimetre wavelengths** — they can penetrate through dust clouds and help astronomers examine dim and distant galaxies and stars out there.
 - ALMA is an international partnership of the **European Southern Observatory (ESO)**, the **U.S. National Science Foundation (NSF)** and the **National Institutes of Natural Sciences (NINS) of Japan**, together with NRC (Canada), MOST and ASIAA (Taiwan), and KASI (Republic of Korea), in cooperation with the Republic of Chile.
- **Properties:**
 - It also has **extraordinary sensitivity**, which allows it to detect even extremely faint radio signals.
 - Each of its **66 antennas is equipped with a set of receivers** that are designed to detect **specific ranges of wavelengths on the electromagnetic spectrum**.
 - To combine the data collected by each antenna into a single image, **ALMA uses a correlator**.
 - The correlator is a **powerful supercomputer** that processes the vast amounts of data collected by the antennas and creates detailed images of celestial objects with exceptional resolution.
 - This technology allows astronomers to study distant galaxies, stars, and other celestial bodies with a level of detail never before possible.

Note:

➤ Discoveries Made by ALMA:

- In 2013, ALMA discovered **starburst galaxies** that existed earlier in the universe's history than previously thought.
- ALMA also provided detailed images of a protoplanetary disc around a young star, **HL Tauri**, in **2014**, which challenged existing theories about planetary formation.
- In 2015, the telescope helped scientists observe the **Einstein ring phenomenon**, where light from a galaxy or star passes by a massive object on its way to Earth.

Why is ALMA located in Chile's Atacama Desert?

- It is situated at an **altitude of 16,570 feet (5,050 metres)** above sea level on the Chajnantor plateau in **Chile's Atacama Desert** as the **millimetre and submillimetre** waves observed by it are very **susceptible to atmospheric water vapour absorption** on Earth.
- Moreover, the **desert is the driest place in the world**, meaning most of the nights here are clear of clouds and free of light-distorting moisture — making it a perfect location for examining the universe.

Neutrinos

Why in News?

Recently, physicists working with the **Kamioka Liquid Scintillator Antineutrino Detector (KamLAND)** in Japan reported that after analysing two years' data, they **could not find signs that neutrinos could be their own anti-particles.**

What was the Experiment?

- KamLAND looks for an event called **neutrinoless double beta-decay.**
 - In normal double beta-decay, **two neutrons in an atom turn into two protons** by emitting two electrons and two electron antineutrinos.
 - In neutrinoless double beta-decay, **the anti-neutrinos aren't emitted, which can happen only if anti-neutrinos are just different kinds of neutrinos.**

What are Neutrinos?

- **About:** Neutrinos are the **second most abundant particles in the Universe after photons** (light particles), produced in copious amounts in the **cores of stars.**
- **Properties:** Because they are so ubiquitous, **their properties are windows into the microscopic structure of the universe.**
 - For example, one open question about neutrinos is whether they are their own antiparticles. If they were, physicists will have a way to explain why the universe has more matter than antimatter.
- **Significance:** Probing of oscillations of neutrinos and their relations with mass are crucial in studying the origin of the universe.
- **Sources of Neutrinos:** Neutrinos are created by various radioactive decays; **during a supernova, by cosmic rays striking atoms etc.**

What are Anti-Particles?

- Every elementary particle has an antiparticle. If the two meet, **they will destroy each other** in a flash of energy.
- The electron's antiparticle is the positron. Similarly, **neutrinos have anti-neutrinos.**
- However, an **electron is distinguishable from a positron** because they have opposite charges.
- **Neither neutrinos nor anti-neutrinos have electric charge**, nor any other properties to really differentiate between them.
- One way to classify subatomic particles is as matter particles and force-carrying particles. **Neutrinos are matter particles, or fermions.** Fermions can be further split as Dirac fermions or Majorana fermions. Dirac fermions are not their own anti-particles, whereas Majorana fermions are.

Electron's Magnetic Moment with Precision

Why in News?

Recently, physicists have made a **groundbreaking achievement in metrology** by measuring the **electron's magnetic moment** with record-breaking precision. It is significant because it provides the **most precise test so far of the Standard Model of particle physics.**

Note:

- The measurement was reported to be **0.13 parts per trillion (ppt)**, which is **2.2 times more accurate than the previous best record** from 14 years ago.

What is the Standard Model?

- The **Standard Model (SM)** is a theory that describes the properties of subatomic particles, classifies them into groups, and determines how they are affected by three of the four fundamental forces: **strong-nuclear, weak-nuclear, and electromagnetic**.
 - But it can't explain gravity.
- The **SM predicted the existence of the Higgs boson**, which was discovered in 2012, and has **successfully predicted the properties of many particles**, making it one of the most successful theories in physics.
 - The **Higgs boson is an elementary particle, which means that it cannot be broken down into smaller components**. It has no electric charge, spin, or other intrinsic properties, but it does have mass.
 - The mass of the Higgs boson is around 125 billion electron volts, or about 133 times the mass of a proton.
- Despite its successes, the **SM is unable to explain certain phenomena, such as the excess of matter over antimatter in the universe, dark matter, and dark energy**.
- Further research in this field could help us understand more about the fundamental nature of the **universe and how it operates**.

What is Dark Matter and Dark Energy?

- The content of the Universe is widely thought to consist of three types of substance: **normal matter, dark matter and dark energy**.
 - In the currently popular 'concordance model' of the Universe, **70% of the cosmos is thought to be dark energy**, 25% dark matter and 5% normal matter.
- **Normal matter** consists of the atoms that make up stars, planets, human beings and every other visible object in the Universe.
- **Dark matter makes up most of the mass of galaxies and galaxy clusters**, and is responsible for the way galaxies are organized on grand scales.
- Dark energy, meanwhile, is the **name we give the mysterious influence** driving the accelerated expansion of the universe.

What is Electron's Magnetic Moment?

- This magnetic moment is a fundamental property of the electron and is related to the **electron's charge and its intrinsic spin**.
- The magnetic moment of an electron is an important physical property that is used to explain many phenomena in atomic and molecular physics, such as the **behaviour of electrons in magnetic fields and the magnetic properties of materials**.

Brain-Inspired Image Sensor Can Detect Miniscule Objects

Why in News?

A new study at **Indian Institute of science (IISc)** has shown that a brain-inspired image sensor can **go beyond the diffraction limit of light to detect miniscule objects** such as cellular components or nanoparticles invisible to current microscopes.

What is this Technology?

- The technique combines **optical microscopy with a neuromorphic camera and machine learning algorithms** and presents a major step forward in pinpointing **objects smaller than 50 nanometers in size**.
 - The **diffraction limit** prevents optical microscopes from distinguishing between two objects smaller than a certain size (typically 200-300 nanometers).
- The neuromorphic camera **mimics the way the human retina converts light into electrical impulses**.
 - In neuromorphic cameras, **each pixel operates independently, generating sparse and lower amount of data**. The process is **similar to how the human retina works**.
 - It allows the camera to "sample" the environment with much higher temporal resolution.
 - In **conventional cameras, each pixel captures the intensity of light falling on it** and these pixels are pooled together to reconstruct an image of the object.
- The experiment used the **neuromorphic camera to pinpoint individual fluorescent beads smaller than the limit of diffraction**, by shining laser pulses at both high and low intensities, and measuring the variation in the fluorescence levels.

Note:

- As the intensity increases, the camera captures the signal as an "ON" event, while an "OFF" event is reported when the light intensity decreases.
- The data from these events were pooled together to reconstruct frames.

What is the Significance of this Technique?

- This approach can have widespread applications in precisely tracking and understanding **stochastic processes** in biology, chemistry and physics.
 - It will help understand the thumb rules of biological processes like self-organisation.
 - The team was also able to closely track the movement of a fluorescent bead moving freely in an aqueous solution using this technique.

What is a Stochastic process?

- It is a process involving the operation of chance and is also known as **Random process**.
- For example, in radioactive decay every atom is subject to a fixed probability of breaking down in any given time interval.

What is Diffraction Limit?

- The diffraction limit is a fundamental physical limit on the ability of an optical system to resolve or distinguish between two closely spaced objects.
- The **smallest resolvable distance between two-point sources of light is determined by the size of the aperture or lens used to observe the objects, as well as the wavelength of the light** being observed.
- In practical terms, this means that **even with a perfect lens or telescope, there is a limit to how much detail can be resolved in an image**.
- Objects that are closer together than the diffraction limit will appear blurred or indistinguishable in the image.

Moon Dust as a Solar Shield

Why in News?

Recently, a team of Researchers have published a study titled- "**Dust as a Solar Shield**", proposing that launching Moon Dust into the stratosphere can slow down **Global-Warming**.

What was the Proposal?

- **Solar Radiation Management:**
 - They proposed the **regular transport of moon dust to a gravity point (Lagrange Point) between Earth and Sun** to temper the ravages of global warming.
 - They called it **Solar Radiation Management (SRM)** or Stratospheric Aerosol Injection, because by spraying aerosols in the stratosphere, it controls the Radiation of Sunlight reaching the Earth.
 - Ideas for filtering solar radiation to keep Earth from overheating have been kicking around for decades, ranging from giant space-based screens to churning out reflective white clouds.
- **Analogy with Volcanic Spew and Moon Dust:**
 - Artificially spraying Moon Dust into the stratosphere has been motivated from the fact that a **sufficiently powerful Volcanic Eruption can spew sulphates** and other aerosols into the stratosphere and thus cool the air there.
 - Aerosols in the stratosphere, especially radiation-scattering ones such as sulphates, do have a cooling effect.
 - Dimming of the amount of incoming sunlight with stratospheric aerosols **will have similar outcomes as compared to the Moon Dust**.
 - When Mount Pinatubo in the **Philippines blew its top in 1991**, it lowered temperatures in the northern hemisphere by **about 0.5C for nearly a year**.
- **Efficacy:**
 - Blocking 1 or 2 % of the Sun's rays is all it would take to lower Earth's surface by a degree or two Celsius - roughly the amount it has warmed over the last century.

What can be the Consequences of this Technique?

- Spraying dust in the Stratosphere may cool summer but can **lead to widespread Drought across the earth**, sending crop yields plummeting, leading to disease and starvation.
- Any projections related to changes in rainfall, as a result of throwing dust into the atmosphere or in space to block sunlight, **will be highly uncertain**.

Note:

- Other climate mitigation strategies, such as the use of **Renewable Energy**, emissions reductions schemes, **Carbon-Capture Technologies**, and bioenergy, are not expected to **have any dangerous unintended consequences**. On the other hand, spraying aerosols even in a small pocket of the **stratosphere will have global consequences** that can't fully be quantified at present.

Microbiome Link to Autism

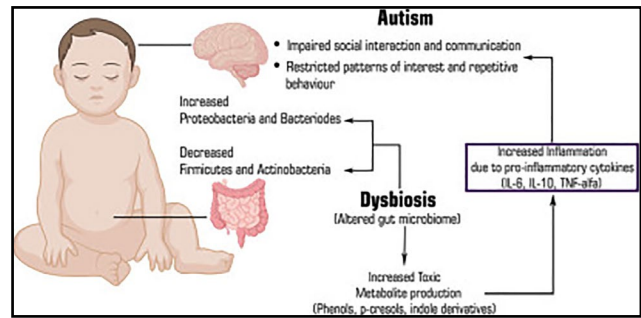
Why in News?

It is found that **Gut Microbiome** composition in humans implicates several diseases, including **Autism**, Crohn's disease etc.

- Gut microbiome or gut microbiota, are the microorganisms, **including bacteria, archaea, fungi, and viruses that live in the digestive tracts of humans**, they affect the body from birth and throughout life by controlling the digestion of food, immune system, central nervous system and other bodily processes.

What is Autism?

- **About:**
 - Autism spectrum disorder (ASD) is the term for a **group of neurodevelopmental disorders**.
 - Researchers are yet to fully understand the aetiology of ASD. However, they are beginning to find that a disorder in the gut-brain axis could have a prominent part.
 - Aetiology is the study of the factors that cause a condition or disease.
 - It is a complex brain development disability which makes **itself visible during the first 3 years of a person's life**.
 - It is **not mental retardation** as people with autism **may show excellent skills in spheres like art, music, writing** etc. The level of intellectual functioning in individuals with ASDs is extremely variable, extending from profound impairment to superior levels.
- **Causes:**
 - There are probably many factors that make a child more likely to have an ASD, including environmental and genetic factors.
 - According to the **World Health Organisation (WHO)**, ASD affects **one in 100 children**.



- **Signs and Symptoms:**
 - Children with ASD have impaired social interactions, lack verbal and nonverbal communication skills, and display restricted and repetitive behaviours.
- **Cure:**
 - Although **autism is not curable**, its symptoms can be addressed with appropriate interventions like evidence-based psychosocial interventions, behavioral treatment and skills training programmes for parents and other **caregivers, health promotion, care, rehabilitation services, etc.**

What is the Link Between Gut Microbiome and Autism?

- The **human microbiome**, sometimes called the **"forgotten organ"**, plays a significant role in an array of **host processes, including growth, development, physiology, immunity, nutrition, and disease**.
- The gut microbiome is believed to have a **big impact on immune modulation and metabolic activities in the human body**.
 - Immune modulation refers, among other things, to the efforts of the immune system to **ensure its response is proportionate to a threat**.
- Some scientists have disputed the significance of the gut microbiome by contending that the microbiome can't cause ASD and therefore its role in the pathophysiology of ASD is limited.
- But research on this topic has shown that even if the gut microbiome doesn't play a causative role, abnormalities in it can challenge a person with toxic metabolites and keep the **person from synthesizing the metabolites required to produce neurotransmitters** involved in cognition, behaviour, mood, and sleep.
- As a result, 'fixing' the gut in ASD **can reduce the toxic burden**, including that which moves through the blood-brain barrier, and/or help complete the necessary neurotransmitter synthesis pathways.

Note:

What are the Initiatives Related to ASD?

- **United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), Sustainable Development Goals** deal with rights of people with disabilities including autism.
- The **Right of Persons with Disabilities Act, 2016** increased the types of disabilities from 7 to 21. It also added autism spectrum disorder among others, which were largely ignored in earlier Act.
- In 2014, the **World Health Organisation (WHO)** adopted a resolution entitled “Comprehensive and coordinated efforts for the management of ASD,” which was supported by more than 60 countries.
- In 2008, the United Nations General Assembly unanimously declared 2nd April as **World Autism Awareness Day**.

Chatbot

Why in News?

Microsoft’s new version of **Bing search engine** includes a **chatbot** that can answer questions in clear language. However, some of the answers generated by the chatbot have been inaccurate, misleading, or bizarre.

- This has led to concerns that the chatbot has become **sentient** or aware of the world around it.

What is a Chatbot?

- Chatbots are **computer programs designed to simulate conversation** with human users, usually through **text-based interfaces** like messaging apps or websites.
- They use **natural language processing (NLP)** and **machine learning algorithms** to understand and respond to user input in a way that mimics human conversation.
- They are used in a **variety of industries, including retail, healthcare, finance, and entertainment**, to improve customer service and automate repetitive tasks.

How Artificial Intelligence

Based Chatbots Process Information?

- Some chatbots are powered by a kind of **artificial intelligence** called a **neural network**.
- A **neural network** is a **type of machine learning algorithm** that uses mathematical models inspired by the structure and function of the human brain.
 - It consists of **interconnected nodes, or artificial neurons**, that process information and learn to recognize patterns in data through repeated exposure.
 - As the neural network analyses large amounts of data, **it can adjust its parameters to improve its accuracy** in predicting outcomes or classifying objects.
- Researchers started building neural networks called **large language models** that learn from **massive amounts of digital text, such as books, online articles, and chat logs**. Example: Microsoft’s Copilot and Open AI’s Chatgpt.

What are the Issues Associated with Chatbots?

- **Inaccuracy:** Chatbots may provide inaccurate or incomplete information if they don’t understand the user’s intent or the context of their question. This can lead to **frustration and a poor user experience**.
- **Security and Privacy Concerns:** Chatbots may collect sensitive information from users, such as personal details or credit card information, which can be **vulnerable to data breaches or other security threats**.
- **Ethical Considerations:** Chatbots can perpetuate bias or discrimination if they are not designed with inclusivity and diversity in mind.
 - Additionally, there are **concerns around the use of chatbots in fields such as healthcare**, where incorrect or misleading information could have serious consequences for patients.

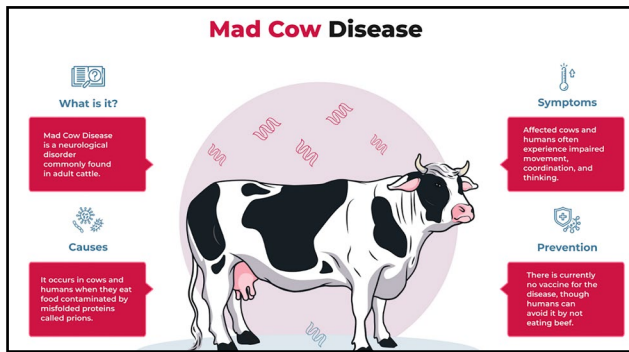
Mad Cow Disease

Why in News?

Recently, Brazil has halted its beef exports to China after a **case of Mad Cow Disease was confirmed in the northern state of Para**.

Note:





What is Mad Cow Disease?

➤ About:

- Also known as **Bovine Spongiform Encephalopathy (BSE)** is degenerative, transmissible, **slowly progressive, and a fatal infection that affects the central nervous system** of adult cattle.

➤ Causes:

- BSE is caused by a **protein called a prion** normally found on cell surfaces, the normal prion protein changes into an abnormal prion protein that is harmful.
 - After getting altered, these proteins destroy the nervous system tissue- the brain and spinal cord.

- The body of a sick cow **does not even know the abnormal prion** is there. Without knowing it is there, the **cow's body cannot fight off the disease.**
- **Transmission:**
 - A cow gets BSE by eating feed contaminated **with parts that came from another cow that was sick with BSE.**
- **Symptoms:**
 - A common sign of BSE in cows is incoordination. A sick cow has **trouble walking and getting up and may also act very nervous or violent.**
 - It usually takes **four to six years from the time a cow is infected with the abnormal prion** to when it first shows symptoms of BSE. This is called the **incubation period**. During the incubation period, there is no way to tell that a cow has BSE by looking at it.
 - Once a cow starts to show symptoms, it gets sicker and sicker until it dies, usually within two weeks to six months.
- **Treatment:**
 - There is **no treatment for BSE and no vaccine** to prevent it.

Note:

Environment & Ecology

Highlights

- Limiting Warming Below 1.8°C
- Deep Sea Mining and its Threats
- Deep Sea Fish Conservation
- Marine Spatial Planning Framework
- Underwater Noise Emissions
- Gross Domestic Climate Risk Ranking
- Biodiversity Beyond National Jurisdiction
- Adi Ganga Revival Plan
- Lead Poisoning
- Aztec Hummingbirds and Indian Sunbirds
- Rhododendron
- Pangolin

Limiting Warming Below 1.8°C

Why in News?

According to a recent study published in **Nature Communications**, limiting global temperature rise to the **UN-mandated Paris Agreement target of 2 degrees Celsius** is probably **insufficient to prevent an accelerated sea level rise** over the next century.

What Does the Recent Study on Rising Temperature Suggest?

- The study suggests that **if global temperatures rise above 1.8°C, the world could see an irreversible loss of the west Antarctic and Greenland ice sheets**, leading to a rapid sea level rise.
- Scientists studying **Antarctica's vast Thwaites Glacier (Doomsday Glacier)** say **warm water is seeping into its weak spots**, worsening melting caused by rising temperatures.
 - Using an **underwater robot vehicle known as Icefin**, mooring data and sensors, they monitored the **glacier's grounding line**, where ice slides off the glacier and meets the ocean for the first time.
- The study highlights that **reaching net-zero carbon emissions before 2060 is critical to avoid this catastrophe**.
- By 2150, **global sea level rise is estimated to increase by roughly 1.4, 0.5, and 0.2 metres under high, mid, and low-emission scenarios**, respectively.

What are the Major Catastrophic Events Caused by Climate Change?

➤ About:

- As the **Earth's temperature increases**, ice caps and glaciers are melting at an accelerated rate. The melting of land-based ice, such as glaciers and ice caps, contributes to **sea level rise as the water from melting ice flows into the ocean**.
- The rise in temperature is primarily due to the **increase in greenhouse gases the atmosphere, primarily carbon dioxide**, resulting from human activities such as the burning of **fossil fuels and deforestation**.

➤ Major Event:

- **Increase in Concentration of Greenhouse Gases:**
 - The concentrations of three main greenhouse gases, **carbon dioxide (CO₂), methane (CH₄) and Nitrous oxide (NO₂)**, were all at record highs in 2021.
 - The emissions of methane, which is **25 times more potent than carbon dioxide in causing global warming**, in fact, increased at the fastest pace ever.
- **Temperature:**
 - The global average temperature in 2022 is estimated to be about **1.15°C above the 1850-1900 average**.
 - **La Niña** (a cooling of sea-surface waters in the equatorial Pacific Ocean) conditions have dominated since late 2020.
- **Sea Level Rise:**

Note:



- Global mean sea level has risen by an estimated **3.4 ± 0.3 mm per year over the 30 years (1993-2022)** of the **satellite altimeter record**.
- **Ocean Heat:**
 - Overall, 55% of the ocean surface experienced at least **one marine heatwave** in 2022.
- **Extreme Weather:**
 - In East Africa, **rainfall has been below average in four consecutive wet seasons**, the longest in 40 years, with indications that the current season could also be dry.
 - The flooding came hard on the heels of an **extreme heatwave in both India and Pakistan in 2022**.

What are the Steps taken to tackle Climate change?

- **National:**
 - **NAPCC:**
 - To counter the emerging threats from climate change, India released its **National Action Plan to Combat Climate Change (NAPCC)**.
 - It has 8 sub missions including **National Solar Mission, National Water Mission etc.**
 - **India Cooling Action Plan:**
 - It provides an **integrated approach towards cooling and related areas** including reduction in the cooling demand.
 - This would help reduce emissions thereby combating global warming.
- **Global:**
 - **Paris Agreement:**
 - It seeks to keep the rise in global temperatures **“well below” 2°C from pre-industrial times**, while “pursuing efforts” to limit it to 1.5°C.
 - **UN SDGs:**
 - These are **17 broad goals for achieving sustainable development** in the society. Amongst them Goal 13 exclusively focuses on tackling climate change.
 - **Glasgow Pact:**
 - It was finally adopted by **197 parties in 2021** during the **COP26 negotiations**.
 - It has emphasised that stronger action in the current decade was most critical for achieving the **1.5-degree target**.

- **Sharm-El-Sheikh Adaptation Agenda (at COP 27):**
 - It outlines **30 Adaptation Outcomes** to enhance resilience for **4 billion people** living in the most climate vulnerable communities by 2030.

Deep Sea Mining and its Threats

Why in News?

Recently, a study suggested that commercial-scale **Deep seabed mining operations can potentially harm the oceans and endangered species, such as cetaceans including blue whales and several dolphin species.**

- The evaluation emphasizes the need for continued conservation efforts to protect these species.

What is Deep Sea Mining?

- **About:**
 - **Deep-sea mining** is the process of retrieving mineral deposits from the deep seabed, the **ocean below 200 metres** and covers **two-thirds of the total seafloor**.
 - According to **International Seabed Authority (ISA)**, an agency under the **United Nations Convention on the Law of the Sea (UNCLOS)** for monitoring all activities related to mineral resources in the deep sea, the **international seabed is the area that lies beyond the limits of national jurisdiction** and represents around 50% of the total area of the world’s oceans.
 - ISA has issued 32 contracts to explore deep sea mineral deposits. More than **1.5 million square kilometres of the international seabed** have been set aside for mineral exploration.
- **Governance:**
 - ISA is required by UNCLOS to put in place the **governance infrastructure including rules, regulations and procedures governing the contours of deep-sea mining within 2 years**.
 - In case of failure, the ISA must **at least evaluate the mining proposal by the end of two years**.
 - The **11th Annual Deep Sea Mining Summit 2023** is to be held in **London, United Kingdom**. Agenda includes the **“economic landscape and growth for deep sea mining and technological developments associated with commercialising”**.

Note:

Reasons for Growing Interest:

- **Depleting Terrestrial Deposits:** Depleting stocks of metals such as **copper, nickel, aluminium, manganese, zinc, lithium and cobalt** caused shift in focus towards Deep Sea Deposits.
 - Mineral resources are extracted from **Polymetallic nodules** found in various deep ocean regions including deep pacific and Indian oceans.
 - The nodules are approximately **potato-sized** and sit on the sediment surface across abyssal plains in the **Clarion-Clipperton Zone (CCZ)**, a region spanning 5,000 kilometres (3,100 miles) across the central Pacific Ocean at depths of 4,000 - 5,500 metres.
- **Increasing Demand:** Demand for these metals is also increasing to **produce smartphones, wind turbines, solar panels and batteries.**

What are the Cetaceans?

- Cetaceans are **exclusively aquatic placental mammals (including Whales, Dolphins, Porpoises, etc.) constituting the order Cetacea.** They are **found in oceans worldwide** and in **some freshwater environments.**
- They have a tapered body, no external hind limbs, and a tail ending in a horizontal blade of two lobes, or flukes.
- Cetaceans must **come to the water's surface to breathe** through blowholes located on top of their head.

What are the Threats?

- Commercial-scale mining is expected to operate 24 hours a day, causing **noise pollution.**
 - It can **overlap with the frequencies at which cetaceans communicate,** which can cause **auditory masking and behaviour change** in marine mammals.
- **Settlement of sediment plumes** generated by mining vehicles **could harm/kill the species at the bottom of the ocean (benthic species)** in the vicinity.
- Sediment discharged from processing vessels can also **increase turbidity in the water column.** Also, far from sight impacts could go largely unquantified.

What is India's Deep Ocean Mission?

- Deep Ocean Mission **seeks to develop the technologies required for exploring and then, extracting minerals** in the deep seabed.

- **Ministry of Earth Sciences (MoES) will be the nodal Ministry** implementing this multi-institutional ambitious mission.
- It would develop a **manned submersible (MATSYA 6000)** that can carry **three people to a depth of 6,000 meters** in the ocean with a suite of scientific sensors and tools.
- It will pursue **technological innovations for exploration and conservation of deep-sea biodiversity** through "bioprospecting of deep-sea flora and fauna" and studies on **sustainable utilization of deep-sea bio-resources.**
- The mission will seek to explore the prospects of **deriving energy and freshwater from the ocean** through "studies and detailed engineering design for **offshore ocean thermal energy conversion (OTEC)**-powered desalination plants.

What are other Blue Economy Initiatives?

- **India-Norway Task Force on Blue Economy for Sustainable Development:**
- **Sagarmala project**
- **O-SMART**
- **Integrated Coastal Zone Management**
- **National Fisheries policy**

Deep Sea Fish Conservation

Why in News?

Supreme Court (SC) has given **permission to fishermen using Purse Seine Fishing gear to fish beyond territorial waters (12 nautical miles) and within the Exclusive Economic Zone (EEZ) (200 nautical miles) of Tamil Nadu** but observing certain restrictions.

- This comes in the **backdrop** against the **banning of purse seine fishing by the Tamil Nadu Government** in February 2022.
- SC has **restricted the purse seiner to fish on two days, Monday and Thursday from 8am to 6pm** revoking the complete ban imposed by Tamil Nadu government.

What are the Concerns?

- **Insufficient Conservation Efforts:**
 - Court's order **seems to be more concerned about regulating fishing** with administrative and transparency measures **than about the conservation**

Note:

measures and obligations under the **United Nations Convention on the Law of the Sea (UNCLOS)**.

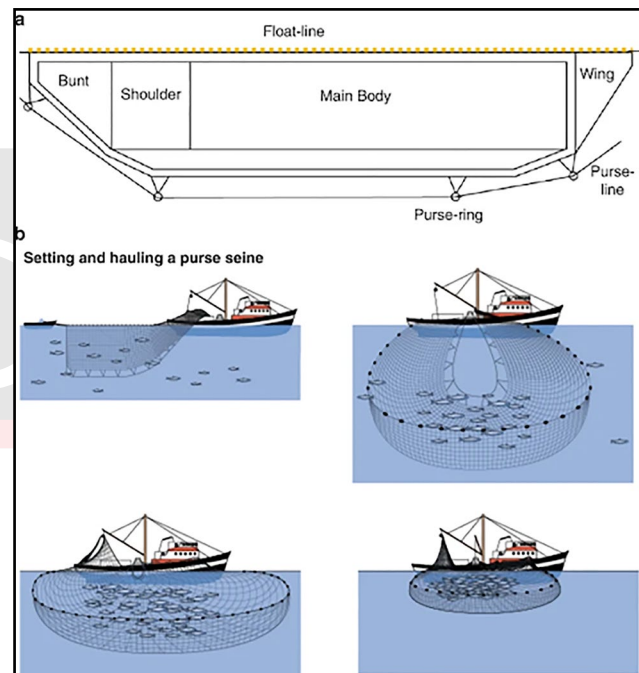
- Under **UNCLOS**, coastal states have sovereign rights to ensure that the living and non-living resources of the EEZ are used, conserved and managed, and not subject to overexploitation.
- In order to prevent overexploitation, coastal States must determine the **total allowable catch (TAC)** in the EEZ.
- **Restricting the purse seiner to fish on two days is not sufficient** without regulating fishing methods.
- **Threatens Livelihood of Traditional Fishers:**
 - **Purse seiners tend to overfish**, unlike traditional fishermen using traditional fish gear, thus **endangering the livelihood of the traditional fisher**.
 - It is a **non-targeted fishing gear** and catches all sorts of fishes which come in the way of the net, including juveniles. Hence, they are very much detrimental to marine resources.
- **Threat to Food Security:**
 - A major concern is the dwindling availability of oil sardines, a favourite of Kerala fish eaters.
 - In 2021, Kerala recorded a catch of just 3,297 tonnes of sardine, a sharp decrease from the haul of 3.9 lakh tonnes in 2012.
- **Threatens Endangered Species:**
 - Non-selective fishing methods by purse seiners resulting in the **by-catch of other marine living species** (which could include endangered species too) may threaten with a potential trade embargo.

What is UNCLOS?

- The **UNCLOS, 1982** is an international agreement that establishes the legal framework for marine and maritime activities.
- It is also known as **Law of the Sea**. It divides marine areas into **five main zones** namely- **Internal Waters, Territorial Sea, Contiguous Zone, Exclusive Economic Zone (EEZ)** and the **High Seas**.
- It is the only international convention which stipulates a framework for state jurisdiction in maritime spaces. It provides a different legal status to different maritime zones.
- It provides the backbone for offshore governance by coastal states and those navigating the oceans.
- It not only zones coastal states' offshore areas but also provides specific guidance for states' rights and responsibilities in the five concentric zones.

What is Purse Seine Fishing?

- A purse seine is made of a long wall of netting framed with floating and leadline and having purse rings hanging from the lower edge of the gear, through which runs a purse line made from steel wire or rope which allow the pursing of the net.
- The technique is considered to be an efficient form of fishing and has been widely deployed on India's western coasts.
- It is used in the open ocean to target dense schools of single-species pelagic (midwater) fish like tuna and mackerel.



What are the Conservation

Efforts for Marine Animal Resources?

- The **United Nations General Assembly** passed Resolutions in 1989 and 1991:
 - It called for a moratoria on all large-scale pelagic drift net fishing vessels in high seas.
- **UN (United Nations) Ocean Conference 2022:**
 - To ensure global cooperation towards protection and sustenance of the **Ocean ecosystem** of the world.
- **One Ocean Summit:**
 - Combating illegal fishing, decarbonising shipping and reducing plastic pollution.

Note:

- **Convention for the Conservation of Southern Bluefin Tuna 1993 (SBT):**
 - The objective of this Convention is to ensure, through appropriate management, the conservation and optimum utilisation of southern bluefin tuna
- **Convention for the Prohibition of Fishing with Long Drift Nets 1989:**
 - It is a regional convention in the South Pacific to restrict port access for drift net fishing vessels.
- **Tarawa Declaration 1989:**
 - It is a declaration of the **South Pacific Forum** to prohibit the use of large drift nets or at least call for their prohibition.

Marine Spatial Planning Framework

Why in News?

Puducherry has launched the country's first **Marine Spatial Planning (MSP) framework** as part of a pact under the **Indo-Norway Integrated Ocean Initiative**.

- **Puducherry and Lakshadweep** were chosen as **coastlines to pilot the MSP initiative** after a 2019 Memorandum of understanding (MoU) between India and Norway.

What is Marine Spatial Planning?

- MSP is an **ecosystem-based spatial planning** process for analysing current and anticipated ocean and coastal uses and **identifying areas most suitable for various activities**.
- It provides a **public policy process** for society to better determine **how the ocean and coasts are sustainably used and protected** - now and for future generations.

What is this Framework About?

- **Ministry of Earth Sciences** oversees the implementation of the MSP through **National Centre for Coastal Research (NCCR)**, the **National Centre for Sustainable Coastal Management**, the **Puducherry Coastal Zone Management Authority** and **Department of Science, Technology and Environment, Puducherry** in collaboration with Norwegian Environment Agency.

- The two nations have agreed to provide continued assistance towards the **sustainable use of ocean resources**, with the aim of promoting **economic and social development in coastal regions**.
- After successful implementation of pilot project in Lakshadweep and Puducherry, the framework **can be replicated to other coastal regions** of the country.

What is the Significance of MSP Framework?

- **An Ecosystem-based Approach:** It aims to simultaneously enhance ocean health and economic growth in a manner consistent with principles of social equity and inclusion.
- **Vital Governance Tool:** it is a tool to **ensure the emergence of a Blue economy** characterised by a **sustainable and equitable ocean resource management**, instead of an environmentally unsustainable "brown economy".
- **Tool in Balancing Conflicting Interests:** It can be used to **balance the demands for tourism growth with the livelihood concerns of fisher communities** in terms of the use of coastal land and marine waters.
- **In line with Blue Economy Policy:** Blue economy policy seeks to enhance contribution of coastal areas to GDP while preserving Marine biodiversity.
 - Currently, the **blue economy comprises 4.1% of India's economy**.
- **Vast Coastline:** With a coastline of nearly 7500 kilometres, India has a unique maritime position with respect to environmental responsibilities and economic growth opportunities.

Underwater Noise Emissions

Why in News?

According to a News Study, "**Measuring Underwater Noise Levels Radiated by Ships in Indian Waters**", the rising **Underwater Noise Emissions (UNE)** from ships in the Indian waters are posing a threat to the **Marine Ecosystem**.


- The measurement of the ambient **noise levels was carried out by deploying a hydrophone autonomous system** around 30 nautical miles from the Goa coastline.

Note:


Sounding a warning

Sound is a form of energy for marine mammals which is being denied to them by man-made noise with disastrous results for marine species, finds study.



 **250** baleen whales and 30 carcasses of the same species were found stranded in the shallow waters of Tiruchendur beach, Tamil Nadu, on January 12, 2016.

 **150** olive ridley turtles and bottlenose dolphins were found dead on Puri beach in Odisha on January 20, 2016

 **62** olive ridley turtles were found dead on Vizag-Bheemili coastal stretch in Andhra Pradesh in February 2021.

The way out

- There is a need to develop Green Ports
- Since ocean noise levels are increasing at 0.55 dB per year, regulations are needed to reduce it by at least 3 dB in the next five years.
- Speed of ships should be less than 5 knots up to port limits
- Re-routing of shipping lanes away from foraging region of marine species is also recommended

What are the Highlights of the Study?

- **Increased UNE Levels:**
 - The sound pressure levels of UNE in the Indian waters are **102-115 decibels**, relative to one **microPascal (dB re 1μ Pa)**.
 - Scientists have agreed to use 1μPa as the reference pressure for underwater sound.
 - The **East Coast level is slightly higher** than that of the West. There is an increase by a significant value of about 20 dB re 1μPa.
- **Factors:**
 - Continuous shipping movement is identified to be a major contributor to the increase in the global ocean noise level.
 - **UNE is posing a threat to the life of mammals** like Bottlenose Dolphin, Manatees, Pilot Whale, Seal, and Sperm Whale.
 - The main form of energy for multiple behavioural activities of marine mammals, which include **mating, communal interaction, feeding, cluster cohesion and foraging, is based on sound.**
- **Impact:**
 - The frequencies of ships' underwater self-noise and machinery vibration levels are **overlapping**

the marine species' communication frequencies in the low-frequency range of less than 500 Hz.

- This is called **masking**, which may lead to a **change in the migration route of the marine species** to the shallow regions and also making it difficult for them to go back to the deeper water.
- However, the sound that radiates from ships on a long-term basis affects them and **results in internal injuries, loss of hearing ability, change in behavioural responses, masking, and stress.**

What is Marine Sound Pollution?

- Marine sound pollution is the excessive or **harmful sound into the ocean environment**. It is caused by a variety of human activities, **such as shipping, military sonar, oil and gas exploration**, and recreational activities like boating and jet skiing.
- It can have a range of negative impacts on marine life, such as its interference with the **communication, navigation, and hunting behaviors of marine mammals**, such as whales, dolphins, and porpoises. It can also damage the hearing and other physiological functions of these animals, leading to injury or death.

Is there any Initiative to Safeguard Marine Ecosystems?

- **Global:**
 - **Global Programme of Action (GPA)** for the Protection of the Marine Environment from Land-based Activities:
 - The GPA is the only global intergovernmental mechanism directly addressing the connectivity between terrestrial, freshwater, coastal and marine ecosystems.
 - **MARPOL Convention (1973):** It covers pollution of the marine environment by ships from operational or accidental causes.
 - It lists various forms of marine pollution caused by oil, noxious liquid substances, harmful substances in packaged form, sewage and garbage from ships, etc.
 - **The London Convention (1972):**
 - Its objective is to promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter.

Note:

- **Indian:**
 - **Wild Life Protection Act of India (1972):** It provides legal protection to many marine animals. There are a total of **31 major Marine Protected Areas in India** covering coastal areas that have been notified under Wildlife Protection Act, 1972.
 - **Coastal Regulation Zone (CRZ):** The **CRZ** notification (1991 and later versions) prohibits developmental activities and disposal of wastes in fragile coastal ecosystems.
 - **Centre for Marine Living Resources and Ecology (CMLRE):** The CMLRE, an attached office of Ministry of Earth Sciences (MoES) is mandated with the management strategies development for marine living resources through ecosystem monitoring and modelling activities.

Gross Domestic Climate Risk Ranking

Why in News?

According to **Gross Domestic Climate Risk ranking** by **Cross Dependency Initiative (XDI)**, **India has nine states in the 50 high risk states** including Punjab, Bihar, Uttar Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Gujarat, Kerala and Assam.

- XDI is a global organisation **specialising in climate risk analysis** for regions, banks and companies.

What is this Report About?

- The index calculated the **'Physical climate risk'** to **built environments** such as buildings and properties across 2,600 States and provinces globally in 2050.
- The index assigned an **Aggregated Damage Ratio (ADR)** to each region, which signifies the **total amount of damage a region's built environment would sustain in 2050. A high ADR signifies more peril.**

What are the Findings?

- **Vulnerabilities:**
 - Risk **originates from 8 climate change Hazards:** Riverine and surface flooding, coastal inundation (coastal flooding), extreme heat, forest fire, soil movement (drought-related), extreme wind and freeze thaw.

- Most damage posed to built infrastructure globally is caused by **"riverine and surface flooding** or flooding combined with **coastal inundation.**

Global Findings:

- According to report the vast majority (**80%**) of **50 provinces** facing the highest climate risk to their physical infrastructure by 2050 are **in China, the US, and India.**
- Two of China's largest sub-national economies – Jiangsu and Shandong – top the global ranking; followed by the U.S. which has 18 regions in the top 100 list.
- **Asia dominates the list** with 114 of the top 200 regions falling in the continent, including **Pakistan, Indonesia and most South East Asian countries.**
 - **Devastating flooding in 2022 affected 30% of the area of Pakistan** and has partially or fully damaged more than 9 lac houses in Sindh province.

India Specific Findings:

- Under high emissions scenarios such as the **Representative Concentration Pathway (RCP) 8.5**, high risk provinces will witness an average of **110% increase in damage risk by 2050.**
 - **Currently, with 0.8 degrees rise in temperature,** India's 27 states and more than three-quarters of its districts are extreme event hotspots accounting for a **5% loss in GDP.**
- If global warming is not limited to 2-degree thresholds, **climate-vulnerable states in India will lose more than 10% of their gross state domestic product (GSDP).**
- **Bihar, Assam, and Tamil Nadu had the highest ADR among other Indian States.** Assam, in particular, would witness the maximum increase of climate risk: rising up to 330% by 2050.
 - **Assam** has witnessed an experienced **exponential increase in flood events** since 2011, and it had **15 of India's 25 districts most vulnerable to climate change.**
 - **11 of the 36 districts in Maharashtra** were found to be **"highly vulnerable"** to **extreme weather events, droughts** and dwindling water security.

Note:



What is the Significance of the Report?

- The ranking data can also be **significant for investors**, as extensive built-up areas overlap with high levels of economic activity and property wealth.
 - It can inform **climate resilient investment**, in conjunction with **adaptation measures and infrastructure planning undertaken by state** and provincial governments
- The finance industry can **directly compare global industrial hubs** like Mumbai, New York and Berlin using a like-for-like methodology **to check vulnerability of global supply chains**.

What are the Steps

Taken by India regarding Climate Change?

- **Global Leadership:**
 - India has already established its global thought leadership by founding institutions like **International solar alliance (ISA)** and **Coalition for Disaster Resilient Infrastructure (CDRI)**. Also, India gave **stronger climate targets for 2030 in revised Nationally determined contributions (NDCs)**.
 - It seeks to make India the climate solutions hub for the world by fostering **systemic, technological, and financial innovations** from the margins to the mainstream.
- **Reforms in Transport Sector:**
 - India is accelerating its **e-mobility transition** with the Faster Adoption and Manufacturing of **(Hybrid &) Electric Vehicles Scheme**.
 - A voluntary **vehicle scrapping policy** to phase out old and unfit vehicles complements the existing schemes.
- **India's Support to EVs:**
 - India is among a handful of countries that support the **global EV30@30 campaign**, which aims for at least 30% new vehicle sales to be electric by 2030.
 - India's advocacy of five elements for climate change "**Panchamrit**", at the **UNFCCC COP26 in Glasgow** is a commitment to the same.
- **Role of Government Schemes:**
 - **The Pradhan Mantri Ujjwala Yojana** has helped 88 million households to **shift from coal-based cooking fuels to LPG connections**.
- **Role of Industries in Low-Carbon Transition:**

- **The public and private sectors** in India are already playing a key role in **meeting the climate challenge**, helped by growing customer and investor awareness, as well as increasing regulatory and disclosure requirements.

- **Hydrogen Energy Mission:**

- Focus on generation of hydrogen from green power resources.

- **Perform, Achieve and Trade (PAT):**

- It is a **market-based mechanism** to further accelerate as well as incentivize **energy efficiency in the large energy-intensive industries**.

Biodiversity Beyond National Jurisdiction

Why in News?

India has urged the member nations to **stay dedicated to the conservation and preservation of the oceans and its biodiversity** during the ongoing session (Feb-March 2023) Of Intergovernmental Conference (IGC) i.e., **IGC-5 of Biodiversity Beyond National Jurisdiction (BBNJ)**.

- India supported the high ambition coalition for the **early conclusion** of the International **Legally Binding Instrument of BBNJ** under **United Nations Convention on the Law of the Sea (UNCLOS)**.

What are the Key Developments?

- Several rounds of intergovernmental talks have been ongoing since 2014, with the **most recent one taking place in Feb-March 2023**.
- Despite significant progress on several major issues, negotiations are still ongoing, and **consensus not arrived at important issues like funding, intellectual property rights and institutional mechanisms**.
- **India's approach** to biodiversity management is congruent with three globally accepted principles: **conservation, sustainable usage, and equitable benefit sharing**.

What is the BBNJ Treaty?

- The "BBNJ Treaty", also known as the "**Treaty of the High Seas**", is an international agreement on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction **within the framework of the UNCLOS**.

Note:

- BBNJ encompasses the high seas, beyond the exclusive economic zones or national waters of countries.
 - According to the **International Union for Conservation of Nature (IUCN)**, these areas account for “almost half of the Earth’s surface”.
 - These areas are **hardly regulated and also least understood or explored** for its biodiversity - only 1% of these areas are under protection.
- Launched at the **One Ocean Summit** in February 2022, the **High Ambition Coalition on Biodiversity Beyond National Jurisdiction** brings together many delegations engaged in the BBNJ negotiations on a common and ambitious outcome at the highest political level.
- The negotiations are **centered around a package of elements** agreed upon in 2015, namely:
 - the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, in particular, together and as a whole, marine genetic resources, including questions on the sharing of benefits
 - area-based management tools, including marine protected areas
 - environmental impact assessments
 - capacity-building and the transfer of marine technology

What is the Need of Legally Binding Instrument for BBNJ?

- Biodiversity in areas beyond national jurisdiction is **critical for the health of the ocean, the well-being of coastal people, and the overall sustainability of the planet.**
- **Areas beyond national jurisdiction comprise 95% of the ocean** and provide invaluable ecological, economic, social, cultural, scientific and food-security benefits to humanity.
 - However, these areas are now **vulnerable to growing threats**, including pollution, overexploitation, and the impacts already visible of climate change.
 - The **increasing demand for marine resources in the coming decades** – for food, minerals or biotechnology – threatens to exacerbate this problem.
- The **deep seafloors**, believed to be the harshest habitat, the **extinction process is setting in there.**

- The 184 species (of Molluscs) assessed, 62% are listed as threatened: 39 are critically endangered, 32 are endangered and 43 are vulnerable. Yet, the International Seabed Authority, a Jamaica-based intergovernmental body, is allowing deep sea mining contracts.
- Biodiversity occurring in areas beyond national jurisdiction remains **a vital resource from the global seas, with more than 60% of it still to be managed and regulated with a legal frame work aimed at conservation.**

Adi Ganga Revival Plan

Why in News?

- Recently, plans to **revive Adi Ganga (the original channel of River Ganga passing through the city of Kolkata)** have been announced.
- The **National Mission for Clean Ganga** has allocated **around Rs 650 crore** to revive the ancient river and it has been included in a **multi-country South Asian River project on combating pollution.**

What are the Major Issues and Developments Associated with Adi Ganga?

- **Encroachment History:**
 - The river, which was once the main channel of the **Ganga till the 17th century, has been neglected for decades** and is now **polluted and encroached upon**. The choking of **Adi Ganga** severely impacted the natural drainage of the area.
 - However, **Adi Ganga** continued to thrive till the 1970s. Since then, **its water quality gradually deteriorated** until it turned into a sewer and got rapidly encroached.
 - In 1998, the **Calcutta High Court directed the removal of all encroachments on the river within a month.**
 - However, another report, close to two decades after the first order, **showed that the encroachments were still existing.**
- **Current Status:**
 - The **river is now practically dead and has turned into a sewer** with a load of faecal bacteria crossing **17 million in 100 millilitres of river water**, according to the state pollution control board data and **dissolved oxygen is zero.**

Note:

➤ Rejuvenation:

- The **West Bengal government** has been directed by the **National Green Tribunal** to complete its rejuvenation “**positively by September 30, 2025**”.
- The river was selected for the **pollution study** during an international water conference organised by the non-profit **Action Aid in Sylhet, Bangladesh**.
- Apart from Adi Ganga, **Buriganga in Bangladesh, Puyang in China, Bagmati in Nepal and Klang in Malaysia** were also chosen for pollution study during the conference.

Note:

- The **Adi Ganga**, also known as the Gobindapur creek, Surman’s Canal and (presently) Tolly’s Canal, was the **main flow of the Hooghly River between the 15th and 17th century** that virtually dried up due to natural reasons.
- Around 1750, a canal was dug to connect the main course of the river with the lower part of River Saraswati adjacent to Howrah.
 - The **resultant Hooghly became the main river stretch** and Adi Ganga turned into a secondary tributary.

What is the National Mission for Clean Ganga (NMCG)?

➤ About:

- On August 12, 2011, the **NMCG** was listed as a society under the **Societies Registration Act, 1860**.
- The NMCG is implemented by the **National Council for Rejuvenation, Protection and Management of River Ganga** also known as the **National Ganga Council**.

➤ Objective:

- The objective of the NMCG is to reduce pollution and ensure rejuvenation of the Ganga river.
- This can be achieved by **promoting intersectoral coordination for comprehensive planning & management** and maintaining minimum ecological flow in the river, with the aim of **ensuring water quality and environmentally sustainable development**.

➤ Organization Structure:

- The Act envisages five tier structure at national, state and district level to take measures for prevention, control and abatement of environmental pollution in river Ganga as below:

- **National Ganga Council** under chairmanship of **Hon’ble Prime Minister of India**.
- **Empowered Task Force (ETF) on river Ganga** under chairmanship of **Hon’ble Union Minister of Jal Shakti** (Department of Water Resources, River Development and Ganga Rejuvenation).
- **National Mission for Clean Ganga (NMCG)**.
- **State Ganga Committees**
- **District Ganga Committees** in every specified district abutting river Ganga and its tributaries in the states.

What are the Other Initiatives Related to Ganga?

- **Namami Gange Programme:** It is an **Integrated Conservation Mission**, approved as a ‘Flagship Programme’ by the Union Government in June 2014 to accomplish the twin objectives of effective abatement of **pollution and conservation and rejuvenation of National River Ganga**.
 - **Ganga was declared as the ‘National River’ of India** in 2008.
- **Ganga Action Plan:** It was the first **River Action Plan that was taken up by the Ministry of Environment, Forest and Climate Change in 1985**, to improve the water quality by the **interception, diversion, and treatment of domestic sewage**.
 - The National River Conservation Plan is an extension to the Ganga Action Plan. It aims at cleaning the Ganga River under Ganga Action Plan phase-2.
- **Bhuvan-Ganga Web App:** It ensures involvement of the public in monitoring of pollution entering into the river Ganga.

Lead Poisoning

Why in News?

The widespread use of **Lead** has resulted in **extensive environmental contamination**, human exposure and significant **public health problems** in many parts of the world.

What is Lead Poisoning?

➤ About:

- Lead poisoning is a type of poisoning **that occurs when lead accumulates in the body**, often over a period of months or years.

Note:

- It is caused by the **absorption of Lead in the system and is characterised especially by fatigue, abdominal pain, nausea, diarrhoea**, loss of appetite, anaemia, a dark line along the gums, and muscle paralysis or weakness of limbs.
- Children are **particularly vulnerable to lead poisoning because their bodies are still developing.**

Everyday risks

There is potential for lead exposure in several common occupations and products that are used in nearly every household

OCCUPATIONAL SOURCES	Non-Occupational Sources
Battery work	Traditional medicine
Mining	Vehicular exhaust
Glass manufacturing	Contaminated cosmetics and indoor
Automobile repair	Household storage batteries
Ceramic work	Household paints
Painting	Contaminated spices
Pottery	Effluent from lead-based industries
Smelting	Contaminated soil, dust and water near lead-based industries
Printing work	Food grown in lead contaminated areas
Plumbing	Retained bullets
Soldering	Food stored or cooked in lead-coated vessels
Making lead pipes and plastic	Painted toys

Source: "Assessment of Lead Impact of Human and India's Response" Niti Aayog and Council of Scientific Research

What are the Implications of Lead Poisoning?

- **High Blood Lead Levels:**
 - According to a 2020 report by the **UN Children's Fund (UNICEF)** and Pure Earth, half the children in India report **high blood lead levels**.
 - The report says 275 million children in India record blood lead levels beyond the tolerable limit of 5 µg/dL.
 - Of these, **64.3 million children's blood lead levels exceed 10 µg/dL**.
 - In terms of average blood lead levels among the population, **some 23 states exceed the 5 µg/dL margin**; levels in the remaining 13 states and Union Territories cannot be determined as there is a lack of research and screening mechanisms to collect data.
- **Disability-Adjusted Life Years:**
 - According to a 2016 analysis by the Institute for Health Metrics and Evaluation (IHME), Lead toxicity

in India **contributes to 4.6 million Disability-Adjusted Life Years** (number of years lost due to disease burden) and 165,000 deaths annually.

- IHME is an independent population health research center at the University of Washington School of Medicine.

➤ Adverse Health Impact:

- Once lead enters the bloodstream, it goes **directly to the brain**, particularly in children.
- It can be **transferred to the foetus during pregnancy**, leading to low birth weight and slow growth. Lead poisoning can cause anemia and various illnesses in children and adults, **affecting neurological, skeletal, and neuromuscular systems**.

What are the Challenges to Cope with Lead Poisoning?

➤ Less Attention:

- In India, lead does not get as much attention as other potential public health concerns.
- India lacks **systems to screen populations for possible exposure**. India has some 48 national referral centres for lead projects where blood lead levels can be tested, but screening is **usually done on a voluntary basis or at health camps** by non-profits.

➤ Poor Recycling Laws:

- Many developing countries, including India and under-developing countries have a **lack of stringent laws** over informal recycling sectors.
- As a result, enormous quantities of (lead)-acid batteries are recovered without using **scientific techniques in an unregulated and uncontrolled way**.
 - Management of lead-acid batteries came under the **Batteries (Management and Handling) Rules, 2001**. But enforcement capacity to ensure safe and environmentally sound recycling has been inadequate.
- In 2022, The government notified the **Battery Waste Management Rules, 2022**, but it remains to be seen whether the government can successfully implement this.

➤ High demand for Cheap Products:

- Many low-cost products in India contain lead, and people may not be willing or able to pay more for lead-free alternatives.

Note:



Aztec Hummingbirds and Indian Sunbirds

Why in News?

Recently a study found that the **loss of a key gene, *FBP2*** makes hummingbirds more **efficient at breaking down sugar** to use it for energy.

- Hummingbirds' hovering flight, a seemingly effortless suspension in air, is achieved by burning sugar in their flight muscles at a blisteringly fast rate.

What are Hummingbirds?

➤ About:

- Hummingbird, **native to American continent**, has approximately **350 species which are found in Iridescent colours**. These birds are **comparable to India's Sunbirds**.
- Aztecs referred to them as **Huitzilin** or **'A ray of sun'**.



➤ Size:

- These are small birds, barely 5cm long and weigh 2 grams.

➤ Humming:

- Their signature **'Hum'** is created by **beating the wings upto 50 times per second**.

➤ Manoeuvrability:

- They can **hover majestically** as they sip nectar from a flower (mostly Tubular flowers such as Lantana and **rhododendron**), and even fly backward.
- Relative to their body mass, hummingbirds have the **highest metabolic rate** (calories burnt per minute) **among vertebrates**. Most of this energy comes from nectar.
 - **Rapid sugar uptake by their digestive system** ensures that they utilise energy from nectar ingested just a few minutes ago.

➤ Mimicry and Dance:

- Hummingbirds are **capable of vocal mimicry** like parrots and some songbirds.

- They are also able to **align their muscular movements with auditory sensations** that come to their ears creating a **dance**.

How are Hummingbirds similar to Sunbirds?

➤ About:

- Indian Sunbirds, though **unrelated to Hummingbirds** share many **common features** through convergent evolution. They are part of **Nectariniidae family**.
- Though slightly larger, the sunbirds can **hover briefly**, and go for bright, tubular flowers. They are **critical pollinators of the 'Flame of the Forest'**.
- As the energy demands of hovering is very high, **sunbirds need to 'perch' while feeding, unlike Hummingbirds**.



➤ Habitat:

- They live in **tropical forests, inland wetlands, savannas, and scrubland** in Africa, southern Asia, the Middle East, and northern Australia.

Note:

Flame of the forest is a leguminous tree, *Butea frondosa*, native to Eastern India and Myanmar, having hanging clusters of scarlet flowers.

What is the

Significance of Recent Research?

- Recent genome studies have shown that hummingbirds lost the **gene (*FBP2*)** for a key enzyme involved in gluconeogenesis around the time when hovering appeared.
- While **intense exercise in humans can lead to a spike in blood glucose** levels due to **gluconeogenesis**. That is not the case in hummingbirds.
 - **They have a unique metabolism** that allows them to efficiently use energy from nectar.
- This study **could lead to new insights into energy metabolism** and potential therapeutic applications for humans.

Note:

Rhododendron

Why in News?

Recently, the **Botanical Survey of India** has published a new report titled 'Rhododendrons of Sikkim and Darjeeling Himalaya- An Illustrated Account', which lists **45 taxa of rhododendrons**.



What is Rhododendron?

- Rhododendron is a **genus of flowering plants** that includes about **1,000 species**, primarily native to the **temperate regions of Asia, North America, and Europe**, as well as to the tropical regions of southeast Asia and northern Australia.
- They are known for their **showy clusters of large, brightly coloured flowers**, and many species are popular ornamental plants in gardens and parks.
- Rhododendrons are **evergreen or deciduous shrubs or small trees**, with **woody stems and broad, leathery leaves**.
- In India, **Pink Rhododendron** is the state flower of Himachal Pradesh, while Rhododendron arboreum is the **state flower of Nagaland** and the official **State Tree of Uttarakhand**.

What are the Major Highlights of the Report?

- The report reveals that the **Darjeeling and Sikkim Himalayas** are home to **more than one-third (34%)** of all **rhododendron types found in India**, despite the region comprising only **0.3% of India's geographical area**.
- There are **132 taxa (80 species, 25 subspecies and 27 varieties)** of rhododendrons found in India.
- Of the 45 taxa listed in the report, **five are facing high threats due to anthropological pressures and climate change**.
 - **Rhododendron edgeworthii, Rhododendron niveum, Rhododendron baileyi, Rhododendron lindleyi, and Rhododendron maddenii** are among the threatened species.
- Rhododendron is considered an **indicator species for climate change** as the flowering season for rhododendrons has been found to begin as early as **January for some species**.

Pangolin

Why in News?

A new report by **TRAFFIC** and **World Wide Fund for Nature-India** revealed that **1,203 pangolins were poached for illegal wildlife trade in India from 2018-2022**.

- These were recovered in **342 seizure incidents across 24 states and one Union territory of India**. The highest number of seizure incidents and pangolins seized were in **Odisha**.

What are the Characteristics of Pangolin?

➤ About:

- **Pangolins are nocturnal mammals that dig burrows and feed on ants and termites**, and play a vital role in **ecosystem management**, mostly in **aerating and adding moisture to the soil**.
- Pangolins are known for their unique appearance. They have **scales made of keratin that cover their entire body**.
 - When threatened, they **can roll into a ball to protect themselves**.



- **Pangolin Species:** There are eight species of pangolin:
 - **4 Species in Africa:** Black-bellied pangolin, White-bellied pangolin, Giant Ground pangolin and Temminck's Ground pangolin.
 - **4 Species in Asia:** Indian pangolin, Philippine pangolin, Sunda pangolin and the Chinese pangolin.
- **Habitat:**
 - It is adaptable to a wide range of habitats including **primary and secondary tropical forests, limestone and bamboo forests, grasslands** and agricultural fields.
 - The Indian Pangolin is found across the Indian subcontinent; **Bihar, West Bengal, and Assam also have the presence of Chinese pangolin**.
- **Threats:**
 - Once known to be found in large numbers, **its population is rapidly declining in its range due to habitat loss and rampant poaching for its skin, scales, and meat**.

Note:



- Pangolins are **among the most trafficked wild mammals**, globally, traded mostly in **Asia**, where their **scales are considered to be medicinal** and their meat a delicacy.
- **Protection Status:**
 - In the red list of animals published by the **International Union for Conservation of Nature (IUCN)**, Indian Pangolin is listed in the **Endangered (EN)** category.
 - The Chinese pangolin has been listed as “**critically endangered**”.
 - In India, pangolins, both **Indian and Chinese**, are protected under **Schedule 1 of the Wildlife (Protection) Act 1972** that prohibits its **hunting, trade or any other form of utilisation**.
 - All pangolin species are listed in **Convention on International Trade in Endangered Species (CITES) Appendix I**.



Note:

Security

Highlights

- Light Combat Aircraft Tejas Mk2
- HAL Ties Up HENSOLDT For Tech Transfer

Light Combat Aircraft Tejas Mk2

Why in News?

According to a senior official from the **Aeronautical Development Agency (ADA)**, the **Indigenous Light Combat Aircraft (LCA) Tejas Mk2** will be integrated with heavy standoff weapons like **SCALP**, an air-to-ground, long-range **deep strike missile**.

- Unlike other aircraft, the **LCA Mk2 will be able to integrate unique weapons from various countries**.

What is LCA Tejas Mk2?

- The **Indigenous LCA Tejas Mk2** is a fighter aircraft developed in India that can carry **eight Beyond-Visual-Range (BVR) missiles simultaneously**, along with integrating all native weapons and advanced weapons from other countries.
- The **LCA Mk2 is an upgraded version of the LCA Tejas Mk1**, which has improved range and mission endurance.
 - The mission endurance for fighting a war was **57 minutes for LCA Tejas Mk1**, but it is **120 minutes for LCA Tejas Mk2**.
- The **LCA Mk2 will be pitched as a replacement for the Jaguars, MiG-29s, and Mirage 2000s** when they start retiring in a decade.
 - The critical design review of the aircraft is ready and the manufacturing initiated, and the aircraft should be rolled out by 2024.
 - LCA Mk2 will have a weapon carrying capacity of **6.5 tonnes**. The General **Electric GE-414** engine will power the **LCA Mk2**.

What is Light Combat Aircraft (LCA)?

- **About:**

- The **LCA** programme was started by the Government of India in 1984 when they established the **Aeronautical Development Agency (ADA)** to manage the LCA programme.

Features:

- Designed to **carry a range of air-to-air, air-to-surface, precision-guided**, weapons.
- Air to air refueling capability.

Other Variants of Tejas:

- **Tejas Trainer:** 2-seater operational conversion trainer for training **air force pilots**.
- **LCA Navy:** Twin- and single-seat carrier-capable for the **Indian Navy**.

HAL Ties Up HENSOLDT For Tech Transfer

Why in News?

Hindustan Aeronautics Ltd (HAL) will provide **Maintenance, Repair and Overhaul (MRO) services** for engines of US's MQ-9B Remotely Piloted Aircraft System as India is in discussions to buy **30 MQ-9B drones** to enhance its surveillance capabilities **along the China border and the Indian Ocean region**.

- In another announcement, **Germany based HENSOLDT and HAL** announced a collaboration agreement covering design/IPR Transfer for design and manufacturing of **Obstacle Avoidance System (OAS)** for Indian helicopters.

What is the MQ-9B Sea Guardian?

- The **MQ-9B Sea Guardian** has changed the game in maritime domain awareness. It's the first unmanned aerial system of its kind



Note:

that can search the **ocean surface and the depths in support of naval intelligence**, surveillance and reconnaissance.

- It is designed to fly over the horizon via **SATCOM** for up to 30 hours (depending on configuration) in all types of weather.
- General Atomics Aeronautical Systems, Inc (GA-ASI) of US is the manufacturer of the MQ-9Bs.
- **Indian Navy** operates two **MQ-9B Sea Guardians** taken on lease in 2020.

What are the Highlights Related to Tech-Transfer Between India and Germany?

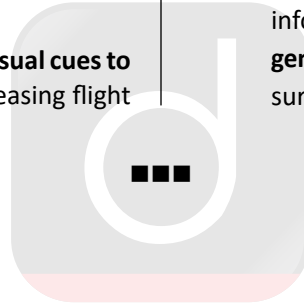
- **HAL** and **HENSOLDT** will collaborate on the design and manufacturing of **Obstacle Avoidance Systems (OAS)** for Indian helicopters, primarily the **Advanced Light Helicopter (ALH)**, with potential future exports.
 - The **OAS system will provide smart visual cues to pilots** to reduce their workload, increasing flight

safety, and mission effectiveness, particularly in crucial mission phases under adverse visual conditions.

- The system is a **LiDAR-based sensor with synthetic vision** and 3D conformal symbology to **detect objects and terrain**, providing assistance to the pilot through safety lines, enhancing situational awareness to increase flight safety.

What is LiDAR Technology?

- LiDAR, or **light detection and ranging**, is a popular **remote sensing method** used for measuring the exact distance of an object on the earth's surface.
- LiDAR uses a pulsed laser to calculate an object's variable distances from the earth surface.
 - These light pulses — put together with the information collected by the airborne system — **generate accurate 3D information** about the earth surface and the target object.



Note:

Art and Culture

Highlights

- Rural Tourism

Rural Tourism

Why in News?

Rural Tourism and Rural Homestays (CNA – RT and RH) under the Ministry of Tourism has identified **six niche experiences for tourists wanting to visit rural India**, including agritourism, art and culture, **ecotourism**, wildlife, tribal tourism, and homestays.

- The Ministry of Tourism is also **working on launching the State assessment and ranking criteria** to help foster competition and reach the overarching objectives of promoting sustainable and responsible tourism.

What are the Key Points of the Move?

- **Objective:**
 - The push aims at sustainability, avoiding large-scale infrastructure development.
 - It aims to rope in **local resources and communities to provide a unique organic experience** and bolster employment opportunities in villages.
 - The Ministry of Tourism is in the **process of formulating a budget, with certain training modules** at district levels being 100% centrally financed, and other aspects being 60% Centre and 40% State financed.
- **Village Clusters:**
 - Clusters of five to seven villages will be **identified in close proximity**.
 - A cluster will offer **more tourist attractions than rural tourism projects** of individual villages separated by long distances.
 - It can also aid in the marketing of local products of a group of villages through craft bazaars.

What is the Concept of Rural Tourism?

- **About:**

- Rural tourism in India is a form of tourism that **focuses on exploring and experiencing the rural lifestyle and culture**.
- It involves **traveling to rural areas and participating in various activities** such as farming, handicrafts, and village walks, to gain a deeper understanding of the local culture and way of life.
 - For instance, Tamil Nadu's **Kolukkumalai is the highest tea plantation** in the world; Kerala's Dewalokam is a yoga centre on the banks of a river; **Nagaland's Konyak Tea** retreat takes visitors on a trip through tribal culture etc.

➤ Scope:

- India's rural tourism potential lies in its **diverse and vibrant culture, handicrafts, folk arts, festivals, and fairs**.
- U.S.-based market research firm Grand View Research estimates that agritourism alone will develop at a **Compound Annual Growth Rate (CAGR) of 11.4% from 2022 to 2030**.

➤ Significance:

- Not only **can rural tourism revitalize local art and crafts and prevent viable traditional occupations** from being displaced, it will also help redevelop rural areas and rejuvenate rural life, create jobs and new business opportunities.

➤ Benefits:

- Reduce out-migration, Increase alternative business opportunities
- Increase entrepreneurial scopes
- Helps in poverty alleviation.
- Community empowerment
- Art and Crafts sale
- Heritage Preservation

What are the Challenges for Rural Tourism in India

- **Lack of Infrastructure:**

Note:

- Rural areas often lack basic amenities such as **good roads, electricity, and healthcare facilities**, which can deter tourists from visiting.
- Inadequate infrastructure **can also make it difficult for local communities** to provide quality services to visitors.
- **Limited Awareness:**
 - Lack of awareness about rural tourism among tourists and **local communities can hinder its growth.**
 - Many people are **unaware of the potential of rural areas** as tourist destinations and the benefits that tourism can bring to local communities.
- **Low Income and Unemployment:**
 - Rural areas often suffer from **low-income levels and high unemployment rates.**
 - This can make it difficult for local communities to invest in tourism infrastructure and provide quality services to visitors.
- **Threat to Ecology:**
 - Rural tourism has the potential to have a negative impact on the **environment and local communities** if not managed properly.
 - Overcrowding, pollution, and **destruction of natural habitats can harm the local ecology and culture**, which can deter visitors in the long run.
- **Safety Concerns:**
 - Rural areas can be perceived as unsafe by tourists due to a **lack of proper security arrangements**, which can make it difficult for them to enjoy their experience and create a negative image of the destination.

What are the Related Initiatives?

- The Government is exploring organic agriculture areas developed under the **Paramparagat Krishi Vikas Yojana (PKVY)** and **Mission Organic Value Chain Development in North East Region (MOVCD-NER)** for development as rural tourist spots.
- **Best Tourism Village Competition Portal** was launched recently to select the best tourism village from across the country, and also to promote rural tourism in the country
 - The 'Best Tourism Village Competition' will be held in three stages, and will seek entries at district level, state level and finally at the national level.
- The Ministry of Tourism has launched **Visit India Year 2023**, focusing on inbound travel to India, to highlight **varied tourism offerings of our country and showcase them to the global tourists.**
- **PRASHAD (National Mission on Pilgrimage Rejuvenation and Spiritual and Heritage Augmentation Drive) scheme** was launched by the Ministry of Tourism in 2015.
 - Till date, under PRASHAD scheme, a total of 45 projects for an amount of Rs.1586.10 Crore have been sanctioned.
- **Swadesh Darshan scheme** in 2014-15 with focus on integrated development of theme-based tourist circuits in the country.
 - 76 projects were sanctioned for an amount of Rs.5315.59 Crore under various themes such as eco, heritage, Himalayan, coastal theme etc.



Note:

History

Highlights

- ASI Discovers 1,300-yr-old Buddhist Stupa
- Dickinsonia Fossil
- Keeladi Findings
- Mutiny Memorial tells the Story of 1857 Revolt

ASI Discovers 1,300-yr-old Buddhist Stupa

Why in News?

Recently, the **Archaeological Survey of India (ASI)** discovered a **1,300-year-old stupa** right in the middle of a **mining site in Odisha's Jajpur district** at a Khondalite mining site.

- It is the place from where Khondalite stones were supplied for the beautification project around the **12th Century Shree Jagannath Temple in Puri**.

What are the Findings of the ASI?

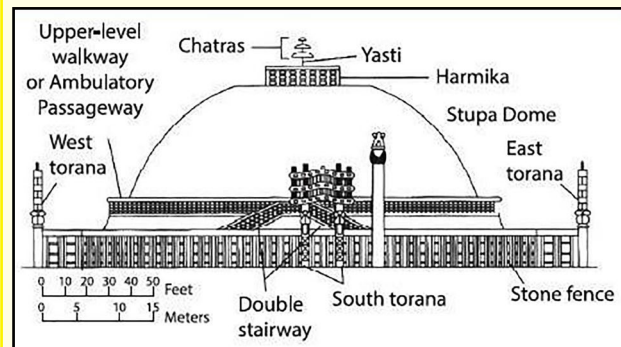
- The stupa could be 4.5-metre tall and initial assessment showed it may belong to the 7th or 8th century.
- It was found at Parabhadi which is situated near **Lalitgiri**, a major Buddhist complex, having a large number of stupas and monasteries.
 - **Lalitgiri Buddhist site** is believed to be the most sacred among the **three sites (Lalitgiri, Ratnagiri and Udayagiri)** as it unearthed a massive stupa where a relic of Buddha was discovered inside a stone casket.

What are the Khondalite Stones?

- Khondalite is a type of **metamorphic rock that is found in the Eastern Ghats** region of India, particularly in the state of Odisha. It is named after the **Khondalite Group of rocks**, which is believed to have formed around 1.6 billion years ago during the Proterozoic era.
- Khondalite is primarily composed of **feldspar, quartz, and mica, and has a distinct pinkish-grey coloration**. It is commonly used as a decorative stone in construction and is particularly prized for its durability and resistance to weathering.

What is Stupa?

- **About:** Stupas were burial mounds prevalent in India from the vedic period.
- **Architecture:** Stupas consist of a cylindrical drum with a circular **anda** and a **harmika** and a **chhatra** on the top.
 - **Anda:** Hemispherical mound symbolic of the mound of dirt used to cover Buddha's remains (in many stupas actual relics were used).
 - **Harmika:** Square railing on top of the mound.
 - **Chhatra:** Central pillar supporting a triple umbrella form.
- **Material Used:** The core of the stupa was made of **unburnt brick** while the outer surface was made by using **burnt bricks**, which were then covered with a thick layer of plaster and medhi and the toran were decorated with wooden sculptures.
- **Examples:**
 - **Sanchi Stupa** in Madhya Pradesh is the most famous of the Ashokan stupas.
 - **Piprahwa Stupa** in Uttar Pradesh is the oldest one.
 - **Stupas built after the death of Buddha:** Rajagriha, Vaishali, Kapilavastu, Allakappa, Ramagrama, Vethapida, Pava, Kushinagar and Pippalivana.
 - **Stupa at Bairat, Rajasthan:** Grand stupa with a circular mound and a circumambulatory path.



Note:

- Khondalite stones were widely used in ancient temple complexes. They are proposed to be used widely to maintain aesthetic value of some projects such as heritage security zone, Jagannath Ballav pilgrim centre, etc.

GAUTAM BUDDHA


Believed to be 8th of the 10 incarnations of Lord Vishnu (Dashavatar)

BIRTH


- Born as Siddhartha (563 BC)
- Birthplace - Lumbini (Nepal) near Kapilavastu

PARENTS


- Father - elected ruler of Kapilavastu; headed Shakya republican clan
- Mother - princess from Koshalan dynasty




IMPORTANT EVENTS




Buddha's Birth




The Great Departure (Mahabhinishikramana)



Enlightenment (Nirvana)



First Sermon (Dhammacakkapavartana)



Death (Mahaparinirvana)

Buddha referred to himself as *Tathagata* (one who has thus come/gone) and has been addressed as *Bhagavat* (in Buddhist texts)

CONTEMPORARIES

- Vardhaman Mahavira
- Bimbisara
- Ajatsatru

OTHER IMPORTANT PLACES ASSOCIATED WITH BUDDHA

- Bodhi Gaya (Enlightenment) (named Buddha after attaining enlightenment)
- Sarnath (first sermon)
- Vaishali (Last sermon)
- Kushinagara (death place (487 BC))

Dickinsonia Fossil

Why in News?

Fossils of an extinct species, Dickinsonia, that scientists reported in a **discovery from India's Bhimbetka Rock Shelters in 2021** have been found to be a false alarm.

- Researchers after a closer look at the site revealed the **Dickinsonia** fossil to really be wax smeared on a rock by a beehive.

What is Dickinsonia?

- *Dickinsonia* is an **extinct primitive animal** that inhabited seabeds around Australia, China, Russia, Ukraine, **in the Ediacaran period, 600-500 million years ago**. It was classified as an animal after discovery of cholesterol molecules in the fossils.
- It is believed to be **one of the earliest animals to have existed on earth**.



What are the Key

Facts of Bhimbetka Rock Shelter?

- **History and Period Span:**
 - The Bhimbetka rock shelters are an **archaeological site in central India that spans the prehistoric Paleolithic and Mesolithic periods**, as well as the historic period.
 - It exhibits the **earliest traces of human life in India and evidence of Stone Age** starting at the site in Acheulian times.
 - It is a **UNESCO World Heritage Site** that consists of seven hills and over 750 rock shelters distributed over 10 km.
- **Discovery:** The Bhimbetka rock shelters were founded by V S Wakankar in 1957.
- **Location:** It is located in Raisen District between Hoshangabad and Bhopal in Madhya Pradesh.
 - It is about 40 kilometres south-east of Bhopal in the foothills of the Vindhya Mountains.
- **Paintings:** Some of the Bhimbetka rock shelters feature prehistoric cave paintings and the earliest are about 10,000 years old (c. 8,000 BCE), corresponding to the Indian Mesolithic.
 - Most of these are done in red and white on the cave walls.
 - A multitude of themes were covered in this form of rock art and it depicted scenes like singing, dancing, hunting and other common activities of the people staying there.
 - The oldest of the cave paintings in Bhimbetka is believed to be **about 12,000 years ago**.

Keeladi Findings

Why in News?

Recently, the **Archaeological Survey of India (ASI)** has submitted a detailed **report on the findings during the first two phases** of the digging at the **Sangam-era site** and their significance.

- Also, the **Keeladi Site Museum** is coming up in Sivaganga that would house significant ones of the **over 18,000 artefacts unearthed so far**.

What are the Keypoints about Keeladi?

- Keeladi is a tiny hamlet in the **Sivaganga district in south Tamil Nadu**. It is about **12 km south-east to**

Note:



drishti

the temple city of Madurai and is located along the Vaigai river.

- The excavations here from 2015 prove that an **urban civilization existed in Tamil Nadu** in the **Sangam age** on the banks of the Vaigai river.

What are the Key Findings?

- In the **eight rounds of excavations**, including the **first three by the ASI**, over **18,000 artefacts** have been unearthed from the site and the unique artefacts will be on display at the museum to be opened soon.
- Unearthing of heaps of pottery suggest the **existence of a pottery making industry**, mostly made of locally available raw materials. Over **120 potsherds containing Tamil Brahmi inscriptions** have been found.
 - Over a thousand inscribed potsherds, found at Keeladi and other sites **clearly suggest the long survival of the script**.
- Spindle whorls, copper needles, terracotta seal, hanging stones of the yarn, terracotta spheres and earthen vessels to hold liquid **suggest various stages of a weaving industry**. There also existed a **dyeing industry and a glass bead industry**.
- Gold ornaments, copper articles, semi-precious stones, shell bangles, ivory bangles and ivory combs **reflect the artistic, culturally rich and prosperous lifestyle** of the Keeladi people.
- Agate and carnelian beads **suggest import through commercial networks** while terracotta and ivory dice, **gamesmen and evidence of hopscotch have been unearthed revealing their pastime hobbies**.

What is the Significance of the Findings?

- **Linkages with Sangam Age:**
 - The Sangam age is a period of history in ancient Tamil Nadu which was believed to be from the **3rd century BCE to the 3rd century CE** and derives its name from the renowned **Sangam assemblies** of the poets of Madurai from that time.
 - A recent **ASI report has pushed the Sangam age to 800 BCE** based on these archaeological findings.
 - Keeladi could also provide crucial evidence for **understanding the missing links of the Iron Age (12th century BCE to sixth century BCE) to the Early Historic Period (sixth century BCE to fourth century BCE)** and subsequent cultural developments.

➤ Potential Linkages with Indus Valley:

- The unearthed Keeladi artefacts have led academics to describe the site as part of the **Vaigai Valley Civilization**. The findings have also invited **comparisons with the Indus Valley Civilization** while acknowledging the cultural gap of 1,000 years between the two places.
 - The **gap is filled with Iron Age material in south India**, which serve as residual links.
- According to Tamil Nadu State Archaeology Department (TNSDA) Keeladi has all the **characteristics of an urban civilization, with brick structures, luxury items and proof of internal and external trade**.
 - It comes across as an **industrious and advanced civilization** and has given evidence of urban life and settlements in Tamil Nadu **during the Early Historic Period**.

What was the Controversy Surrounding Keeladi?

- After reports of possible links with the Indus Valley Civilization, there was **“no significant finding” in the third round**, which was **seen as an attempt to play down the excavation findings**.
- On the intervention of the Madras High Court, the **TNSDA has been carrying out excavations since 4th round** instead of ASI to unearth more about the history of Tamil civilization.

Sangam Age:

- The word ‘Sangam’ is the Tamil form of the Sanskrit word **Sangha** which means a group of persons or an association.
- The Tamil Sangam was an **academy of poets** who flourished in three different periods and in different places under the patronage of the **Pandyan kings**.
- The **Sangam literature** which was largely consolidated from the **third Sangam**, throws information on conditions of life of people around the beginning of the Christian era.
 - It deals with the **secular matter** relating to the public and social activities like government, war, charity, trade, worship, agriculture, etc.

Note:

- Sangam literature consists of the earliest Tamil works (such as the **Tolkappiyam**), the ten poems (**Pattupattu**), the eight anthologies (**Ettutogai**) and the eighteen minor works (**Padinenkilkanakku**), and the three epics.

Tamil-Brahmi Script:

- The Brahmi script was the earliest script that the Tamils used.
- In the late ancient and early medieval period, they started evolving a new angular script, called the **Grantha script**, from which the modern Tamil is derived.

Vaigai River:

- It is an **east-flowing river**.
- The Vaigai river basin is an important basin among the 12 basins lying between the **Cauvery and Kanyakumari**.
- This basin is bounded by the **Cardamom Hills and the Palani Hills** on the West and by the **Palk Strait and Palk Bay** on the East.

Mutiny Memorial tells the Story of 1857 Revolt

Why in News?

Mutiny Memorial (New Delhi) was initially **built in 1863 to honour those who fought from the British side** during the **Revolt of 1857** but 25 years after Independence, they **re-dedicated it to the memory of those Indians who lost their lives fighting the British**.

- The monument has an indifferent **gothic design** with arched marble-backed recesses on all sides of the octagonal tower.

What was the 1857 Revolt?

- Indian Revolt of 1857-59 was a widespread but **unsuccessful rebellion** against the rule of British East India Company in India during **Governor General Canning's** regime.
- It was the **first expression of organised resistance against the company** led by sepoys of the company, eventually securing the **participation of the masses**.
- The rebellion of 1857 is referred to by various names, including the **Sepoy Mutiny** (according to British

historians), **the Indian Mutiny, the Great Rebellion** (according to Indian historians), **the Indian Insurrection, and the First War of Independence** (as per Vinayak Damodar Savarkar).

What were the Causes?

➤ Immediate Causes:

- **Greased Cartridges:** The Revolt of 1857 was triggered by the use of new **Enfield rifles whose cartridges were believed to be greased with cow and pig fat**, leading to the refusal of both Hindu and Muslim sepoys to use them.
- **Repression of Grievances:** **Mangal Pandey's refusal to use the cartridges in Barrackpore and subsequent hanging, along with the imprisonment of 85 soldiers in Meerut** for similar refusal, were among the incidents that sparked the Revolt of 1857 in India.

➤ Political Causes:

- **Doctrine of Lapse:** The political causes of the revolt were the British policy of expansion through the **Doctrine of Lapse** and direct annexation.
 - The dislodgement of number of Indian rulers and chiefs and annexations including **annexations of Satara, Nagpur, Jhansi, Jaitpur, Sambalpur, Udaipur and Awadh** led to growing discontent against the **Policy of expansion**. Further many nobles, officials and soldiers were left jobless.

➤ Social and Religious Causes:

- **Spread of Western Civilization:** The rapidly spreading **Western Civilisation** in India was alarming concerns all over the country.
 - An act in 1850 **changed the Hindu law of inheritance** enabling a Hindu who had converted into Christianity to inherit his ancestral properties, which was **seen as an attempt to convert Indians to Christianity**
 - Even the introduction of the railways and telegraph was viewed with suspicion.
- **Challenge to Orthodoxy:** The **abolition of practices like sati and female infanticide**, introduction of **western education** and the legislation legalizing widow remarriage, were believed as **threats to the established social structure**.

➤ Economic Causes:

- **Heavy Taxes:** Peasants and zamindars, both were infuriated by the **heavy taxes on land** and the

Note:

stringent methods of revenue collection.often leading to loss of ancestral land.

- **Grievances of Sepoys:** Large numbers of **sepoys belonged to the peasantry class** and had family ties in villages, so the grievances of the peasants also affected them.
- **Ruins of Local Industry and Handicrafts:** After the Industrial Revolution in England, there was an **influx of British manufactured goods** into India, which ruined industries, particularly the textile industry and handicrafts of India.
- **Military Causes:**
 - **Unequal Remuneration:** Indian sepoy formed more than 87% of the British troops in India but were **considered inferior to British soldiers** and **paid less** than European counterparts.
 - **Posting In Far Areas:** They were **required to serve in areas far away from their homes** and **across the seas**. Crossing the sea was **seen by many as losing the caste**.

Who were the Leaders of Revolt?

Places of Revolt	Indian Leaders	British Officials who suppressed the revolt
Delhi	Bahadur Shah II	John Nicholson
Lucknow	Begum Hazrat Mahal	Henry Lawrence
Kanpur	Nana Saheb	Sir Colin Campbell
Jhansi & Gwalior	Lakshmi Bai & Tantia Tope	General Hugh Rose
Bareilly	Khan Bahadur Khan	Sir Colin Campbell
Allahabad and Banaras	Maulvi Liyakat Ali	Colonel Ocell
Bihar	Kunwar Singh	William Taylor

What was the British Response?

- The Revolt of 1857 lasted for more than a year. It was **suppressed by the middle of 1858 through severe repression**.
- On July 8, 1858, fourteen months after the outbreak at Meerut, peace was finally proclaimed by Lord Canning.

Why did the Revolt Fail?

- **Limited Uprising:** Although the revolt was fairly widespread, a large part of the country remained unaffected by it.
 - The Southern provinces and the large princely states, **Hyderabad, Mysore, Travancore, and Kashmir**, as well as the smaller ones of **Rajputana** did not join the rebellion
- **No Effective Leadership:** The rebels lacked an effective leader. Although Nana Saheb, Tantia Tope and Rani Lakshmi Bai were brave leaders, they **could not offer effective coordinated leadership** to the movement.
- **Limited Resources:** The rebels lacked resources in terms of men and money. The English, on the other hand, received a steady supply of men, money and arms in India.
- **No Participation of the Middle Class:** The English educated middle class, the rich merchants, traders and zamindars of Bengal helped the British to suppress the revolt.

What were the Impacts of the Revolt?

- **Direct Rule of the British Crown:** The Government of India Act, 1858, ended company rule in India and brought it under the direct rule of the British Crown.
 - **The India office** was created to handle the governance and the administration of the country.
- **Religious Tolerance:** It was promised, and due attention was paid to the customs and traditions of India. British support to religious reforms took a backseat.
- **Administrative Change:** The Governor General's office was replaced by that of the **Viceroy**.
 - The rights of Indian rulers were recognised.
 - The **Doctrine of Lapse was abolished**.
 - The right to adopt sons as legal heirs was accepted.
- **Military Reorganisation:** The ratio of British officers to Indian soldiers increased but the armoury remained in the hands of the English.

Note:

Geography

Highlights

- Major Ports in India

Major Ports in India

Major Ports in India



- Ports in India are classified as **Major** and **Minor Ports** according to the jurisdiction of the Central and State government as defined under the **Indian Ports Act, 1908** i.e. Major Ports are owned and managed by the Central Government and Minor ports are owned and managed by the State Governments.
- The **Major Port Authorities Act, 2021** provides for regulation, operation and planning of major ports in India and provide greater autonomy to these ports. It replaced the Major Port Trusts Act, 1963.
- There are **12 major ports**. **13th Major Port** (under construction) is **Vadhavan port, Maharashtra**.



Note:



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Miscellaneous

Highlights

- REAIM 2023
- INS SindhuKesari in Indonesia
- 18th UIC World Security Congress
- UPI-PayNow Integration

REAIM 2023

Why in News?

Recently, the world's First International Summit on the **Responsible Use of Artificial Intelligence in the Military (REAIM 2023)** was held in the Hague, Netherlands.

What are the Key Highlights of the Summit?

- **Themes:**
 - Mythbusting AI: Breaking Down the Characteristics of AI
 - Responsible deployment and use of AI
 - Governance frameworks
- **Objectives:**
 - Putting the topic of '**responsible AI in the military domain**' higher on the political agenda;
 - Mobilising and activating a **wide group of stakeholders** to contribute to concrete next steps;
 - Fostering and **increasing knowledge by sharing experiences**, best practices and solutions.
- **Participants:**
 - The conference, **co-hosted by South Korea**, hosted 80 government delegations (including those from the **US and China**), and over 100s of researchers and defense contractors.
 - **India was not a participant in the summit.**
 - REAIM 2023 brought together governments, corporations, academia, startups, and civil societies to raise awareness, discuss issues, and possibly, agree on common principles in deploying and using AI in armed conflicts.
- **Call on Action:**
 - Appealed to the multi-stakeholder community to **build common standards to mitigate risks** arising from the use of AI.

- The US called for the responsible use of artificial intelligence (AI) in the military domain and **proposed a declaration which would include 'human accountability'**.
- The proposal said **AI-weapons systems should involve "appropriate levels of human judgment"**.
 - The US and China signed the declaration alongside more than 60 nations.

➤ Opportunities and Concerns:

- Artificial intelligence is bringing about fundamental changes to our world, including in the military domain.
- While the integration of **AI technologies creates unprecedented opportunities to boost human capabilities**, especially in terms of decision-making, it also raises significant **legal, security-related and ethical concerns** in areas like transparency, reliability, predictability, accountability and bias.
- These concerns are **amplified in the high-risk military context**.

➤ Explainability in AI as a Solution:

- To remove bias from AI systems, **researchers have resorted to 'explainability'**.
- Explainable AI seeks to **address the lack of information around how decisions** are made.
- This in turn will help **remove biases and make the algorithm fairer**. But, in the end, the call to make a **final decision will rest with a human** in the loop.

How can a Responsible

AI be Ensured Aligning with Ethical Principles?

- **Ethical Guidelines for AI Development and Deployment:**
 - It can help **ensure that developers and organizations are working towards the same ethical standards** and that AI systems are designed with ethical considerations in mind.
- **Implement Accountability Mechanisms:**

Note:



- Developers and Organizations should be **held accountable for the impact of their AI systems**.
- It can include **establishing clear lines of responsibility and liability**, as well as creating reporting mechanisms for any incidents or issues that arise.
- **Foster Transparency:**
 - AI systems should be **transparent in terms of how they make decisions** and what data they use to do so.
 - It helps ensure that **AI systems are fair and not biased** towards certain groups or individuals.
- **Protect Privacy:**
 - Organizations should **take steps to protect the privacy of individuals whose data is used by AI systems**.
 - It can include **using anonymized data, obtaining consent from individuals**, and establishing clear data protection policies.
- **Involve Diverse Stakeholders:**
 - It is important to involve a **diverse range of stakeholders in the development and deployment** of AI, including individuals from different backgrounds and perspectives.
 - It will help ensure that AI systems are designed with the needs and concerns of different groups in mind.
- **Conduct Regular Ethical Audits:**
 - Organizations should conduct regular audits of their AI systems to **ensure that they are aligned with ethical principles and values**. This can help **identify any issues or areas for improvement** and ensure that AI systems continue to operate in an ethical and responsible manner.

INS Sindhukesari in Indonesia

Why in News?

In line with the expanding **military cooperation with Southeast Asian nations**, an Indian Navy Kilo class conventional submarine, **INS Sindhukesari**, docked in **Jakarta, Indonesia**, for the first time from February 22 to 24, 2023.

- It travelled through the **Sunda Strait** and undertook the maiden docking in **Indonesia for Operational Turnaround (OTR)**.



What is INS Sindhukesari?

- **INS Sindhukesari** is part of the Russian-made **Sindhughosh-class submarines**.
 - The submarine was first commissioned to the **Indian Navy** in 1989 before being refitted in 2018.
- **Sindhughosh class submarines are the Kilo class diesel-electric submarines**. The submarines have a displacement of 3,000 tonnes.

What is the Current Conventional Submarine Strength of the Indian Navy?

- The **Indian Navy** has **16 conventional submarines in service**, **7 Russian Kilo-class**, **4 German-origin HDW submarines** and **5 French Scorpene class submarines**.
- With the **Kilos and the HDWs ageing**, a **Medium Refit cum Life Certification (MRLC)** programme is underway to increase their life.
 - **INS Sindhukesari**, which was inducted in February 1989, underwent the MRLC at Severodvinsk, Russia in 2018.
- Of the **10 Kilo class submarines originally procured from Russia**, **Sindhurakshak** was lost in an accident, **Sindhuvir** was transferred to Myanmar and **Sindhudhvaj** was decommissioned in July 2020 after 35 years.
 - Meanwhile, another Kilo class submarine, **INS Sindhukirti**, reached Hindustan Shipyard Limited (HSL), Visakhapatnam.

Note:

18th UIC World Security Congress

Why in News?

The 18th UIC World Security Congress, organised by the **Railway Protection Force (RPF)** and the **International Union of Railways (UIC)**, ended with the adoption of the **Jaipur Declaration**.

What are the Major Highlights of the Jaipur Declaration?

- **Safe and Secure Rail Network:**
 - The declaration highlighted the commitment of **UIC** to work towards providing a more **safe and secure rail network** across the globe, by also fully activating the **Asia-Pacific, Latin America and African regional assemblies by 2025**.
- **Adoption of New Technologies and Role of RPF:**
 - It called for the adoption of new technologies such as **Artificial Intelligence 5G, IoT** among others to develop comprehensive solutions for Railway Security.

What is Union International Des Chemins?

- The **UIC (Union International Des Chemins)** or **International Union of Railways** established in 1922 is **headquartered in Paris**.
- It is the worldwide professional association representing the railway sector for **research, development & promotion of rail transport**.

What is the Railway Protection Force?

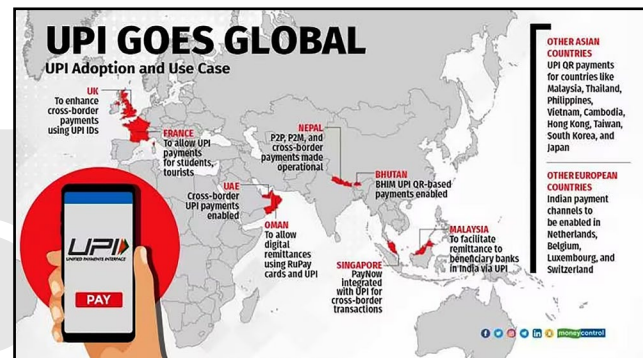
- **About:**
 - **RPF** is the prime security and **law-enforcement organisation** in the field of Railway Security in India.
 - Constituted as a **federal Force in the year 1957**, RPF is responsible for **security of railway property, passenger and passenger zones**.
 - RPF personnel serve the Nation and go the extra mile in their line of duty embodying its tagline **"Sewa hi Sankalp- A promise to serve"**.
- **Role Played by Railway Protection Force:**
 - **RPF has played exceptional role** towards enhancing passenger security in India through various initiatives such as **Operation Nanhe Farishte** for rescue of children and **Operation AAHT** for rescuing women and children from the clutches of traffickers.

UPI-PayNow Integration

Why in News?

Recently, India's **Unified Payments Interface (UPI)** and Singapore's PayNow have been integrated to **enable faster Remittances between the two countries**.

- Singapore has become the first country with which **cross-border Person to Person (P2P) payment facilities have been launched**.
- The UPI-PayNow partnership marks the **world's first to feature cloud-based infrastructure** and participation by non-bank financial institutions.



What is UPI and PayNow?

- **UPI:**
 - UPI is India's **mobile-based fast payment system**, which facilitates customers to make round-the-clock payments instantly, using a **Virtual Payment Address (VPA)** created by the customer.
 - **VPA is a unique identifier** assigned to an individual to facilitate the transfer of funds through a digital payments system. It is a user-created identifier that can be used **instead of providing sensitive bank account details** while making payments.
 - It eliminates the **risk of sharing bank account details by the remitter**. UPI supports both Person-to-Person (P2P) and Person-to-Merchant (P2M) payments and it also enables a user to send or receive money.
- **PayNow:**
 - PayNow is a fast payment system in Singapore. It enables **peer-to-peer funds transfer service**, available to retail customers through participating banks and Non-Bank Financial Institutions (NFIs) in Singapore.

Note:

- It allows users to send and **receive instant funds from one bank or e-wallet account to another in Singapore** by using just their mobile number, Singapore National Registration Identity Card (NRIC)/Foreign Identification Number (FIN), or VPA.

➤ **Linkage:**

- With this facility, funds held in bank accounts or **e-wallets** can be transferred to /from India using just the UPI ID, mobile number, or VPA.
- This facility will **eliminate the need for entering the details of beneficiaries**, such as bank account numbers, bank codes etc.

What is the Significance of the Move?

- The project is expected to greatly **benefit the Indian diaspora, especially migrant workers and students**, in Singapore as it **allows faster and cost-efficient funds transfer** across both countries without the mandate

of getting onboard the other payment system.

- As per the ministry of external affairs (MEA) document Population of Overseas Indians (2022), there are **approximately 6.5 lakh Indians**, including **non-resident Indians** and persons of Indian origin, currently residing in Singapore.
- Of the total inward remittances to India in 2020-21, the share of Singapore stood at 5.7%, according to the **RBI (Reserve Bank of India)** Remittance Survey, 2021.
- Integration of the system will bring down the **cost of sending remittances** by as much as 10%.
- By reducing the cost and inefficiencies of remittances between Singapore and India, the PayNow-UPI linkage will **directly benefit individuals and businesses in Singapore and India** that greatly rely on this mode of payment.



Note:

Rapid Fire Current Affairs

Highlights

- One Rank-One Pension (OROP)
- The Yellow River
- Olive Ridley Turtles
- Bisphenol A (BPA)
- Marconi Prize
- Exercise Cobra Warrior
- LCA Tejas' First International Exercise
- Amazon to Join ONDC
- Great Backyard Bird Count (GBBC) 2023
- eShram Portal
- Phosphor-Gypsum in National Highway Construction
- Sinthan Top
- First Meeting of the Culture Working Group
- Law Commission of India
- Anopheles Stephens: Deadly Malaria Species
- 26th Meeting of WMCC
- Minimum Age for Admission
- Announcement of Opportunity (AO)
- Live Transcription of Courtroom Proceedings
- Anubhuti Inclusive Park
- Kamala Kasturi
- Sansad Ratna Awards
- Vinyl Chloride: A Threat to Human Body
- India's First Hybrid Rocket
- Commission for Social Development
- Statehood Day of Arunachal Pradesh
- Teja Variety of Red Chillli
- Volatiles
- Lavani Folk dance
- Aadi Mahotsav
- Snow Leopard
- Exercise Dharma Guardian
- DHARA 2023
- Cyclone Gabrielle
- Agasthyarkoodam

One Rank-One Pension (OROP)

Following the **Supreme court's** observations, the defence ministry instructed the Controller General Defence Accounts (CGDA) to **release all One Rank-One Pension (OROP) arrears in a single installment.**

OROP means the **payment of the same pension to military officers for the same rank for the same length of service, irrespective of the date of retirement.** Before OROP, ex-servicemen used to get pensions as per the Pay Commission's recommendations of the time when they had retired. **Uttar Pradesh and Punjab have the highest number of OROP beneficiaries.**

The implementation of the scheme was **based on the recommendation of the Koshiyari committee** formed under the chairmanship of Bhagat Singh Koshiyari.

Read More: [One Rank-One Pension \(OROP\)](#)

The Yellow River

The mighty Yellow River, the **'mother river' of Chinese civilisation**, has also been **known as the 'River of Disaster' and 'China's sorrow' because of the devastating floods** it has caused since prehistory. According to a new study, **the Chinese practice of building embankments is also responsible for the flooding upstream of the Loess Plateau** which is surrounded by the Yellow river.

The Yellow River is the **sixth-longest river in the world and is also the most sediment-laden.** Also known as **Huang He**, it **originates in the province of Qinghai**, flows through the Loess Plateau, **where it takes sediment that gives its waters their characteristic yellow colour.**

The sediment or loess (a type of silt) from the plateau usually **settles on the river bed and raises its height, making the river especially flood-prone** in the lower reaches, on the North China Plain.

Note:



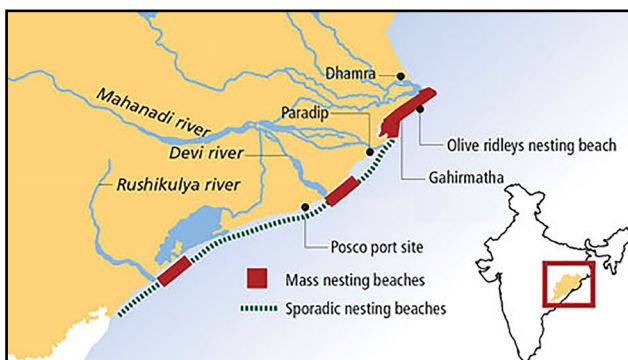


Olive Ridley Turtles

Officials and scientists are **unsure as to what could have caused the start of the mass nesting or 'Arribada' of Olive Ridley turtles** at the Rushikulya rookery in Odisha's district. Rushikulya beach is **considered the second biggest rookery for sea turtles in India** after Gahirmatha Marine Sanctuary, Odisha. Suitable climatic and beach conditions were some of the reasons for the early mass nesting of Olive Ridley turtles.

The Olive ridley turtles **are the smallest and most abundant of all sea turtles** found in the world. These turtles are **carnivores and get their name from their olive-coloured carapace**.

They are **best known for their unique mass nesting called Arribada**, where thousands of females come together on the same beach to lay eggs. They are **found in warm waters of the Pacific, Atlantic and Indian oceans**. Olive Ridley Turtles are included in **Schedule 1 of the Wildlife Protection Act, 1972**, listed as vulnerable in the **IUCN Red List** and mentioned in appendix I of the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**.



Read More: Olive Ridley: Threats & Related Initiatives

Bisphenol A (BPA)

Bisphenol A (BPA) is a **chemical used in polycarbonate plastics and epoxy resins** (class of thermosetting polymers) and is particularly found in water bottles, baby bottles, and other food containers. BPA **contaminates surface freshwater through industrial effluents and discharge leachates** (Any contaminated liquid that is generated from water percolating through a solid waste disposal site, accumulating contaminants, and moving into subsurface areas).

The discharge of BPA into the waters **occurs when plastic turns soft and when there is adequate sunshine**. As per a recent study, it also **speeds up the breeding of mosquitoes**. BPA, when ingested, **disrupts the endocrine system by interfering with hormones and affects the brain and prostate gland of foetuses, infants and children**.

Read More: Effective Plastic Waste Management

Marconi Prize

Recently, Computer scientist **Hari Balakrishnan** was awarded the **2023 Marconi Prize**. Dr. Balakrishnan has been cited for **fundamental contributions to wired and wireless networking, mobile sensing, and distributed systems**.



The Marconi Prize is a **top honour for computer scientists and is awarded by the U.S.-based Marconi Foundation**. It is given to those who have made a significant contribution to increasing digital inclusivity through advanced information and communications technology. The **Prize recipients are recommended by an independent selection committee and approved by the Marconi Society Board**.

Exercise Cobra Warrior

Indian Air Force (IAF) will participate in the **multilateral air exercise 'Exercise Cobra Warrior'** at the Royal Air Force's (RAF) in the United Kingdom from March 6 to 24, 2023.

Note:

The **Exercise Cobra Warrior** is a **multilateral Air exercise** in which Air Forces from Finland, Sweden, South Africa, the United States of America and Singapore would also be participating alongside the RAF and IAF.

The **aim of the exercise is to participate in various fighter aircraft engagements and learn from the best practices of various Air Forces.**

The other exercise held between both countries include: Ajeya Warrior (Military), Konkan (Navy), Indradhanush (Air Force) and Konkan Shakti (First ever tri-services joint exercise)



Read More: [India-UK Relations](#)

LCA Tejas' First International Exercise



For the first time, India's indigenously-made Light Combat Aircraft (LCA) Tejas will be participating in an international multilateral air exercise — **Exercise Desert Flag VIII** — in the UAE, reflecting India's increasing efforts at showcasing the jet at the world stage. The exercise is scheduled from 27 February to 17 March, 2023.

The **Light Combat Aircraft (LCA) programme** was started by the Government of India in 1984 when they established the Aeronautical Development Agency (ADA)

to manage the LCA programme. It replaced the ageing **Mig 21 fighter planes.**

As per the IAF, Exercise Desert Flag is a multilateral air exercise **that will see participation from the air forces of the UAE, France, Kuwait, Australia, the UK, Bahrain, Morocco, Spain, the Republic of Korea, and the US.** The aim of the exercise is **to participate in various fighter engagements and learn from the best practices of various air forces.**

'Desert Eagle II', is a joint air combat exercise, **between the air forces of India and UAE.**



Read More: [India-UAE Relations](#), [LCA Tejas](#)

Amazon to Join ONDC

Amazon has announced that it will join the Indian government's ONDC (Open Network for Digital Commerce) platform. In 2022, **Microsoft became the first big technology company to join the network** with an intention of introducing group buying in the Indian market through social e-commerce.

ONDC is an open e-commerce **protocol set up by the Ministry of Commerce's Department of Promotion of Industry and Internal Trade (DPIIT).** Under ONDC, it is envisaged that a buyer registered on one participating e-commerce site may purchase goods from a seller on another participating e-commerce site (for example, Flipkart).

Presently, **buyers and sellers have to be on the same app for a transaction which happens through the same platform.**

Read More: [Open Network for Digital Platform \(ONDC\)](#), [E-Commerce](#)

Note:

Great Backyard Bird Count (GBBC) 2023

During the Great Backyard Bird Count (GBBC) 2023 across 35 States and Union Territories, **West Bengal reported the highest number of species (498) followed by Uttarakhand and Arunachal Pradesh.**

As per the **Bird Count India (BCI)**, Kerala recorded the highest number of checklists of birds. **Maharashtra and Tamil Nadu were placed second and third.**

BCI is an **informal partnership of organisations and groups** working together to increase collective knowledge about bird distributions and populations.

India was among 190 countries that participated in GBBC 2023, an annual event that brings bird enthusiasts, students and nature enthusiasts together for counting birds they see around the places where they live, work or study. The **GBBC was launched in 1998. Bird Count India organises the GBBC in the country.** A remarkable increase in participation across the country **helped India upload the second-highest number of checklists after the United States of America and the third-highest species of any country.**

Read More: [State of the World's Birds](#)

eShram Portal

The eShram portal has **experienced unprecedented success from the unorganised/migrant workers of the country** and as on 24th February 2023, **over 28.60 crore workers have registered on the eShram portal.** The eShram portal **was launched in 2021 by the Ministry of Labour & Employment** to create a National Database of unorganised/migrant workers and to **provide them with a Universal Account Number (UAN).**

The objective of the **eShram portal is to extend the benefits of social security and welfare schemes to unorganised workers** especially migrant workers and to identify workers who are **deprived of the various benefits of the welfare schemes** due to a lack of awareness or otherwise. With this objective, the Ministry of Labour & Employment initiated **the matching the eShram beneficiaries' data with the Ration Card (National Food Security Act (NFSA) data** available from the Department of Food and Public Distribution (DFPD). This **initiative will ensure that Ration Card benefits under NFSA are made available to all eligible workers registered on eShram.**

Read More: [Formalising the Informal Sector, e-Shram Portal & Informal Economy in India](#)

Phosphor-Gypsum in National Highway Construction

National Highways Authority of India (NHAI) along with the Department of Fertilizers, Ministry of Chemicals & Fertilizers **will take up field trials on NHAI projects for the use of Phosphor-Gypsum in National Highway construction** to achieve a **circular economy** in the use of Gypsum.

Phosphor-Gypsum, a **waste product from manufacturing fertilizer, emits radon, a radioactive gas.** It also contains the radioactive elements uranium, thorium and radium.

NHAI is also **encouraging the use of waste plastic in road construction, which has been tested very successfully.** Studies have established that **roads built using plastic waste are durable, sustainable and increase the life of bitumen** (a substance produced through the distillation of crude oil).

Similarly, NHAI has used **Fly Ash** for the construction of Highways and flyover embankments. **Fly ash is an unwanted unburnt residue of coal combustion in a coal thermal power plant.** It is emitted along with flue gases (a waste gas from a combustion process) during the burning of coal in a furnace and **collected using electrostatic precipitators.**

Read More: [National Highways Authority of India \(NHAI\), Solid Waste Management](#)

Sinthan Top

For the first time, **the road to Sinthan Top has been opened in the month of February 2023** with an aim to promote tourism to this off-beat destination in Jammu and Kashmir.

Sinthan Top is a high mountain pass that is **located between the Breng valley in Anantnag district and Kishtwar of J&K which connects Kashmir to Chenab Valley.**

Jammu and Kashmir (J&K) is a Union Territory, **located in the country's northern part and a global tourist destination.** In addition to traditional recreational tourism, vast scope exists for adventure, pilgrimage, spiritual, and

Note:

health tourism. The natural beauty and picturesque locations have made it a favoured destination for tourists across the world. **Jammu is famous for its temples, while Kashmir Valley is known for its lakes and gardens.**

Some of the famous destinations include: Srinagar, Pahalgam, Jammu, Sanasar, Zanskar, Gulmarg, Sonmarg, Patnitop, Katra/ Vaishnodevi, Kargil, Nubra Valley.

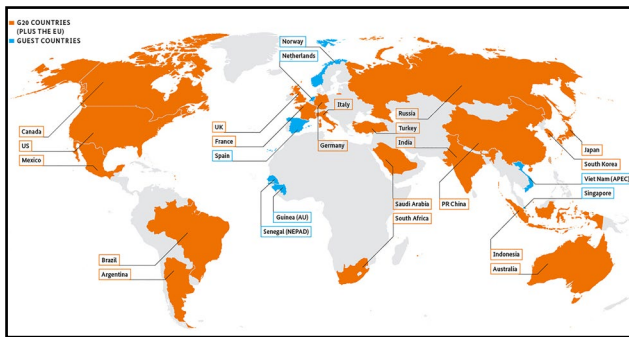
Read More: [Tourism in India](#)

First Meeting of the Culture Working Group

Under the presidency of India in G20, the **first meeting of the Culture Working Group has begun at Khajuraho in Madhya Pradesh recently.** The meeting was chaired by the Union Minister for Culture and Tourism.

On the first day of the meeting Padam **Shri Mr. Nek Ram known as the Millet man** has been invited to celebrate the **International Year of Millets (IYM) 2023.**

The **temples at Khajuraho were built during the Chandella dynasty, which reached its between 950 and 1050 AD.** Only about 20 temples remain; they fall into **three distinct groups and belong to two different religions – Hinduism and Jainism.** The **UNESCO site of ‘Khajuraho Group of Monuments’ is famous for its Nagara-Style architecture and graceful sculptures of nayikas (Hindu Mythological female protagonists) and deities.**



Read More: [International Year of Millets, Presidency of India in G20](#)

Law Commission of India

Recently, the Union Cabinet **extended by one-and-a-half years the term of the 22nd Law Commission** which is mandated to identify laws that are **“no longer relevant” and recommend for their repeal.** The term of the panel has been extended up to August 31, 2024. It is also

mandated to suggest enactment of new legislation as may be necessary to implement the Directive Principles and to attain the objectives set out in the **Preamble** of the Constitution.

The Law Commission of India is a **non-statutory body constituted by the Government of India from time to time.** The **first Law Commission was established during the British Raj era in 1834** by the Charter Act of 1833 and was chaired by Lord Macaulay. The first Law Commission of independent India was established in 1955 for a three-year term.

Read More: [Law Commission of India](#)

Anopheles Stephensi: Deadly Malaria Species

A deadly malaria vector from Asia has been detected in Kenya. Kenya is **now the sixth and latest country in Africa to report an invasion of the deadly malaria species.**

Anopheles Stephensi **originated in Southeast Asia, West Asia and the Arabian Peninsula.** The species has been **expanding its geographic range over the last decade,** with detections in Africa first reported in Djibouti (2012), Ethiopia and Sudan (2016), Somalia (2019), and Nigeria (2020). It **also poses a significant threat** because, unlike other main malaria-causing mosquito vectors that primarily **breed in rural areas, Anopheles Stephensi is highly adaptive and can thrive in urban environments.**

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

In India, **malaria elimination efforts were initiated in 2015** and were intensified after the launch of the **National Framework for Malaria Elimination (NFME) in 2016** by the Ministry of Health and Family Welfare.

Read More: [Initiatives to Curb Malaria](#)

Kanak Rele

Recently, the Classical dance legend **Kanak Rele and the Mohiniyattam** (classical dance form from the state of Kerala) exponent, who was awarded the **first Guru Gopinath National Puraskaram of**



Note:

the Government of Kerala passed away.

In 1973, Dr. Rele established the Nalanda Nritya Kala Mahavidyalaya and Nalanda Dance Research Centre offering undergraduate, post-graduate and Ph.D degrees affiliated to the Bombay University. In 1977, she earned her Ph.D in dance, **the first in India**. Her doctoral thesis was titled, 'Mohini Attam: All aspects and Spheres of Influence'. She was awarded with various awards like Padma Shri (1989), Sangeet Natak Akademi Award (1994), M. S. Subbulakshmi Award, Kalidas Samman (2006). Later in 2013, she was conferred the Padma Bhushan.

Read More: [Indian Classical Dances](#)

26th Meeting of WMCC

For the first time since the India-China border stand-off began in 2020, India visited Beijing for the 26th meeting of the Working Mechanism for Consultation & Coordination on India-China Border Affairs (WMCC). This was the first in-person WMCC meeting since the 14th meeting held in July 2019.

The WMCC was established in 2012 as an institutional mechanism for consultation and coordination for management of India - China border areas, as well as to exchange views on strengthening communication and cooperation, including between the border security personnel of the two sides.

The two sides reviewed the situation along the Line of Actual Control (LAC) in the Western Sector of India-China border areas and discussed proposals for disengagement in the remaining areas in an open and constructive manner, which would help in restoration of peace and tranquillity along the LAC in Western Sector and create conditions for restoration of normalcy in bilateral relations.



Read More: [India-China Relations](#)

Minimum Age for Admission

The Union ministry of education has directed all states and Union territories to fix the minimum age for admission in Class 1 as six years in line with the National Education Policy (NEP) 2020.

The foundational stage, according to NEP-2020, consists of five years of learning opportunities for all children (between 3 to 8 years) that includes three years of preschool education followed by Classes 1 and 2. NEP 2020 promotes seamless learning and development of children from pre-school to class 2.

It has also advised states to initiate the process of designing and running a two-year diploma in preschool education (DPSE) course in their respective jurisdiction. The course is expected to be designed by the State Council of Educational Research and Training (SCERT) and run or implemented through District Institute of Education and Training (DIETs) under supervision and hold of SCERTs.

Read More: [National Education Policy 2020](#)

Announcement of Opportunity (AO)

The Indian Space Research Organisation (ISRO) has made an Announcement of Opportunity (AO) to allow scientists and researchers to analyse data from the first dedicated Indian astronomy mission, AstroSat.

The space agency has made the AO soliciting proposals for 13th AO cycle observations from AstroSat. This AO soliciting proposal for the Thirteenth AO cycle is for Indian as well as international proposers as Principal Investigators (PIs) to utilise AstroSat observatory time. The observations will be carried out between October 2023 to September 2024.

This announcement is open to Indian scientists, researchers residing and working at institutes, universities and colleges in India for 55% of observing time and to non-Indian scientists, researchers, Non-Resident Indians (NRIs), working at space agencies, institutes, universities and colleges around the globe for 20% of observing time.

AstroSat is the first dedicated Indian astronomy mission aimed at studying celestial sources in X-ray and UV spectral bands simultaneously, providing a space astronomy observatory operated by ISRO. AstroSat was launched in 2015 and completed seven years in orbit at the end of September 2022.

Note:

Read More: [AstroSat, Indian Space Research Organisation \(ISRO\)](#)

Live Transcription of Courtroom Proceedings

Recently, the Supreme Court (SC) started a first-of-its-kind project to transcribe its proceedings live using Artificial Intelligence (AI).

The SC transcription is using Teres, which is a platform used often for transcribing arbitration proceedings. The transcript will also be shared with lawyers who argued cases for verification and is likely to be uploaded on the SC website every evening.

It is the second major decision towards making the court more transparent after the SC's decision to livestream its proceedings before Constitution Benches.

In 2022, the **Chief Justice of India (CJI)** launched the digital platform **FASTER (Fast and Secured Transmission of Electronic Records)** to communicate interim orders, stay orders, bail orders, etc, of the Supreme Court to authorities concerned through a secured electronic communication channel. The Supreme Court has also launched other programmes **involving technology** like **AI based portal 'SUPACE'** in the judicial system aimed at assisting judges with legal research.

In the United States, court transcripts are available to litigants and the public. The US's SC provides audio and text transcripts of the proceedings. In the United Kingdom, a litigant can ask for a transcript of the court proceedings for a fee if the hearing is recorded.

Read More: [Artificial Intelligence, Live-Streaming of the Supreme Court's Proceedings](#)

Anubhuti Inclusive Park

Recently, the Union Minister for Road Transport and Highways laid the Foundation Stone of the world's largest and unique Divyang Park - Anubhuti Inclusive Park in Nagpur, Maharashtra.

This is the world's first inclusive disabled park that is made by the Ministry of Social Justice and Empowerment. Various projects have been conceptualized for the disabled as well as for the general public and senior citizens. The park will have adapted facilities for all 21 types of disabilities, it will have facilities like a touch and smell garden, hydrotherapy unit, water

therapy, and independent room for mentally challenged children, and mothers.

In 2016, the central government passed the Rights of Persons with Disabilities Act for the rights of persons with disabilities. This law is to give the disabled the right to live with dignity. Taking initiative under this, the Central Government has created some Divyang Parks in South India and Madhya Pradesh.

Read More: [Rights of Persons with Disabilities Act, Initiatives for the Empowerment of Disables](#)

Kamala Kasturi

Recently, Mrs. Kamala Kasturi passed away. She was an environmentalist who contributed to protecting the environment and was the founder of the Environment Society, Chennai. She was involved in several environmental protection projects and the campaign to save the Cauvery River from several dyeing units and take up the cleaning of the river. She had participated in several tree planting campaigns and was also a petitioner in the public interest litigation (PIL) petition against the slaughterhouse which was proposed to be constructed in Red Hills (Sengundram, Tamil Nadu).



Read More: [Cauvery River & Related Disputes](#)

Sansad Ratna Awards

The 13th edition of the Sansad Ratna award function will be held on 25th March 2023 in New Delhi. The Sansad Ratna Awards were instituted at the suggestion of Dr. APJ Abdul Kalam to honour top-performing Parliamentarians. He himself launched the first edition of the Award function in 2010 in Chennai. Till now, 90 top-performing Parliamentarians have been honoured.

Note:

The 13th edition will be making history as it crosses the century of awards mark.

Read More: [Parliament, Dr. APJ Abdul Kalam](#)

Vinyl Chloride: A Threat to Human Body

Vinyl chloride, the chemical in several of the train cars that derailed and burned in East Palestine, Ohio recently **can be extremely harmful to the human liver**. The liver is the **body's filter for removing toxicants from the blood**. Specialized cells known as **hepatocytes help reduce the toxicity of drugs, alcohol, caffeine and environmental chemicals** and then send away the waste to be excreted.

The chemical **has been shown to cause liver cancer, as well as a nonmalignant liver disease known as TASH, or toxicant-associated steatohepatitis**. Vinyl chloride is used to produce **Polyvinyl Chloride (PVC)**, a hard plastic used for pipes, as well as in some packaging, coatings and wires.

India's First Hybrid Rocket

Recently, **India's first hybrid-sounding rocket by private players was launched from Chengalpattu, Tamil Nadu**. Martin Foundation, in association with Dr. APJ Abdul Kalam International Foundation and Space Zone India, **launched the Dr. APJ Abdul Kalam Satellite Launch Vehicle Mission- 2023**.

The organisations mentioned that 5,000 students were involved in the project. The selected **students designed and constructed a student satellite launch vehicle (rocket) and 150 PICO satellites** (satellites at a mass below 1 kg, implemented by use of modern miniaturization techniques) research experiment cubes that contained different payloads. **The rocket can be used for research in weather, atmospheric conditions and radiation**.

Hybrid rocket is a bipropellant rocket engine which uses propellants that are in two different states, typically liquid and solid, which when reacted, create exhaust gases suitable for rocket propulsion.

In 2022, **the Space technology startup Skyroot Aerospace also sent India's first privately developed rocket Vikram-S**. It is a single-stage spin-stabilised solid propellant rocket with a mass of approximately 545 kgs.

Read More: [India's Space Ecosystem, Vikram -S](#)

Commission for Social Development

India has been elected as the Chair of the 62nd Session of the Commission for Social Development in 2023. The announcement was made at the 13th plenary meeting- 61st session of the commission for social development.

For the 62nd session, **the priority theme of the session is decided as "Fostering Social Development and Social Justice through Social Policies to accelerate Progress on the Implementation of the 2030 Agenda for Sustainable Development and to achieve the overarching goal of poverty eradication."**

Commission for Social Development is **one of the key commissions tasked with monitoring and carrying out the Copenhagen Declaration and Programme of Action**. It was established by the Economic and Social Council (ECOSOC), one of the six main organs of the United Nations. The **commission's goal is to advise the ECOSOC, particularly on those social issues that are not dealt with by specialized intergovernmental organisations of the UN**.

Copenhagen Declaration and Programme of Action was adopted during the **World Summit for Social Development in 1995**, which represents a new consensus on the need to put people at the centre of development.

Read More: [Economic and Social Council \(ECOSOC\), Organs of the UN](#)

Statehood Day of Arunachal Pradesh

The Prime Minister of India extended his wishes to the people of Arunachal Pradesh on its 37th Statehood Day.

Through the 55th amendment to the Indian Constitution in 1986, Arunachal Pradesh became the 24th state of the Indian Union on 20th February 1987. During the British Colonial Rule, until 1972, the state was named as the North-East Frontier Agency (NEFA). On 20th January 1972, it became a Union Territory and was named Arunachal Pradesh. It was granted statehood by the State of Arunachal Pradesh Act, 1986. The state was formed out of Assam in the year 1987.

Note:



Read More: [Protected Areas of Arunachal Pradesh](#)

Teja Variety of Red Chilli

The growing demand for the popular **Teja variety of red chilli**, famous for its culinary, medicinal and other wide-ranging uses, in the export market is proving to be a boon for the Khammam Agriculture Market, Telangana.

Khammam district, the largest producer of the Teja variety of red chilli, is the **leading exporter of pungent fruit**. The huge **demand for Oleoresin**, a natural chilli extract, is mainly driving the export of Teja variety of red chilli from Khammam district to various spice processing industries in several Asian countries. **This variety of red chilli is being exported to China, Bangladesh and a few other south Asian countries. A large portion of the commodity is being exported to China.** The pungent fruit is most sought after in various south Asian countries including Thailand due to its unique flavour and wider applications as a natural colouring agent.

Read More: [India's Farm Export](#)

Volatiles

Volatiles are elements or compounds that **change from solid or liquid state into vapour at relatively low temperatures**. The most common volatiles are **carbon**

dioxide, nitrogen, ammonia, hydrogen, methane, sulphur dioxide and water.

New research suggests that **some of the well-known volatiles may have come from beyond inner solar system such as zinc**, a volatile, has come from asteroids originating in the **outer Solar System beyond the asteroid belt**.

Without contribution of outer Solar System material, the Earth would have had fewer concentrations of volatiles, making the planet drier and potentially unable to nourish and sustain life.

Material with a high concentration of zinc and other volatile constituents is also likely to be rich in water, giving clues about the origin of Earth's water.

In a recent study, the researchers examined **meteorites from the inner Solar System, known as non-carbonaceous meteorites, and from the outer Solar System, known as carbonaceous meteorites**.

While the Earth only incorporated about **ten percent of its mass from carbonaceous bodies**, this material supplied about **half of Earth's zinc**.

Japanese Archipelago's Islands Double from 1987

The Japanese archipelago, that lies just off the coast of Eurasia, now has **14,125 islands, which is double from 6,852**, the official figure of 1987.

The survey used the definition of 'island' as defined by the **United Nations Convention on the Law of the Sea**. It states that **an island is a "naturally formed area of land, surrounded by water, which is above water at high tide."**

Survey selected only those islands with **Circumference of 100 meters or greater**.



The reason behind the increase in the number of islands may be tectonic plate movement, 2011 Tohoku

Note:

Earthquake in Japan (could have removed or added small islands) or small pieces of land just above the waterline can show up as islands when one takes an **electronic photograph from a satellite**.

With sea levels going up, many islands will disappear in due course of time.

Japan is the **fourth-largest island nation** globally. However, Japan's **population is concentrated on** four islands known as the 'Home Islands' - **Honshu, Hokkaido, Kyushu and Shikoku**.

Read More: Kuril Islands.

Lavani Folk dance

Recently, Several Senior performers of Lavani have called for **ban on vulgar performances, in the name of Lavani**.

Lavani is a **traditional folk-art** form of Maharashtra in which **women dancers wearing nine-yard-long sarees in bright colours, make-up, and ghunghroos perform on dholak beats** on a stage before a live audience. The word Lavani comes from '**lavanya**' or **beauty**.



It attained **popularity in the Peshwa era** in the 18th century. Traditionally, performances were **held in front of kings or lords**, and for the **entertainment of tired soldiers** resting during breaks in fighting.

State-wise Famous Folk dances of India

State of Origin	List of Folk Dances in India
Andhra Pradesh	Vilasini Natyam, Bhamakalpam, Veerاناتyam, Kolattam
Arunachal Pradesh	Buiya, Chalo, Wancho, Ponung, Popir
Assam	Bihu, Bichhua, Natpuja, Maharas, Kaligopal, Bagurumba, Naga dance, Khel Gopal

Bihar	Jata-Jattin, Jhijhiya
Chhattisgarh	Gaur Maria, Raut Nacha, Vedamati, Kapalik
Gujarat	Garba, Dandiya Raas, Bhavai
Goa	Tarangamel, Koli, Fugdi, Samayi nrutya
Haryana	Jhumar, Phag, Daph
Himachal Pradesh	Jhora, Jhali, Dhaman, Chhapeli
Jammu & Kashmir	Rauf, Kud Dandi Nach
Jharkhand	Agni, Jhumar, Janani Jhumar, Paika, Phagua
Karnataka	Yakshagana, Huttari, Karga
Kerala	Ottam Thullal, Kaikottikali
Maharashtra	Lavani, Nakata, Koli, Lezim, Gafa, Dahikala Dasavtar
Madhya Pradesh	Jawara, Matki, Aada, Khada Nach, Phulpati, Selalarki, Selabhadoni
Manipur	Dol Cholam, Thang Ta, Lai Haraoba, Pung Cholom
Meghalaya	Nongkrem, Laho
Mizoram	Cheraw Dance, Khuallam, Chailam, Zangtalam
Nagaland	Rangma, Zeliang, Bamboo dance
Odisha	Savari, Ghumara, Painka,
Punjab	Bhangra, Giddha, Daff, Dhaman, Bhand
Rajasthan	Ghumar, Chakri, Ganagor, Jhulan Leela, Jhuma
Sikkim	Singhi Chaam or the Snow Lion, Yak Chaam
Tamil Nadu	Kumi, Kolattam, Kavadi
Tripura	Hojagiri
Uttar Pradesh	Nautanki, Raslila, Kajri, Jhora, Chappeli
Uttarakhand	Garhwali, Kumayuni, Kajari, Jhora, Raslila

Read More: Indian Classical Dances.

Aadi Mahotsav

Recently, the **Prime Minister of India inaugurated the tribal festival "Aadi Mahotsav"**, a two-week-long exhibition in New Delhi.

The Mahotsav **celebrates the spirit of tribal culture, crafts, cuisine, commerce and traditional art is an annual initiative of the Tribal Cooperative Marketing**

Note:

Development Federation Limited (TRIFED) under the Ministry of Tribal Affairs.

TRIFED was established in 1987 under the **Multi-State Cooperative Societies Act, 1984** by the Government of India as a **National level Cooperative body** under the administrative control of the then Ministry of Welfare of India, with the **basic mandate of bringing about socio-economic development of tribals of the country** by institutionalizing the trade of **Minor Forest Produce (MFP) & Surplus Agricultural Produce (SAP)** collected/ cultivated by them.

Read More: TRIFED, Initiatives & Constitutional Provisions Related to Tribes in India

Snow Leopard



A snow leopard has been sighted for the first time at a height of about 11,120 feet in the Darma valley in Uttarakhand's Pithoragarh district.

Snow leopards are also known as "Ghost of Mountains". They act as an indicator of the health of the mountain ecosystem in which they live, due to their position as the **top predator in the food web**. They are listed as **vulnerable on the International Union for Conservation of Nature's (IUCN) Red List**. They are listed in appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Schedule-I of the **Indian Wildlife Protection Act, 1972**.

They have a vast but fragmented distribution across the mountainous landscape of central Asia, which covers **different parts of the Himalayas such as Ladakh, Himachal Pradesh, Uttarakhand, and Sikkim**.

Read More: Indian Initiatives to Protect Snow Leopard

Exercise Dharma Guardian

The 4th edition of the joint military exercise, Exercise Dharma Guardian, **between India and Japan is being conducted in Japan from 17th February to 2nd March 2023**.

The exercise is an annual training event with Japan and is **crucial and significant in terms of security challenges faced by both nations** in the backdrop of the current global situation.

The exercise will further enhance the level of defence co-operation between The Indian Army and Japanese Ground Self Defence Forces, furthering the bilateral relations between the two nations.

Other Military Exercises between India and Japan are JIMEX (naval), SHINYUU Maitri (Air Force) and Exercise Veer Guardian.

DHARA 2023

Recently, Driving Holistic Action for Urban Rivers (DHARA), the **annual meeting of the members of the River Cities Alliance (RCA), was organised** by the National Mission for Clean Ganga (NMCG) in association with the National Institute of Urban Affairs (NIUA).

DHARA 2023 will provide a platform to co-learn and discuss solutions for managing local water bodies. DHARA 2024 will take place in Gwalior, Madhya Pradesh.

Ghat Par Yoga session, a novel initiative under **Namami Gange Programme** was organised on Mulla Mutha River, Pune. This meeting had strong synergies with the **Urban20 (U20) initiative** under the ambit of India's G20 Presidency.

It was recommended that every city should have natural fillers as promoted under the **Catch the Rain** campaign launched on the occasion of World Water Day 2021.

Read More: Namami Gange Programme, G20, World Water Day, National Mission for Clean Ganga

Cyclone Gabrielle

New Zealand stepped up recovery efforts after **Cyclone Gabrielle** left at least five people dead and displaced 9,000.

Cyclones are rapid inward air circulation around a **low-pressure area**. The air circulates in an anticlockwise

Note:



direction in the Northern hemisphere and clockwise in the Southern hemisphere. **There are two types of cyclones:** Tropical cyclones and Extra-Tropical cyclones.

New Zealand comprises two main islands—the North and the South Islands and a number of small islands. The country also has a unique array of vegetation and animal life. It was the first country to allow women to vote in 1893. New Zealand's wetapunga, one of the heaviest insects in the world, can weigh more than a sparrow.



Read More: [India-New Zealand Relations, Cyclone](#)

Agasthyarkoodam

Agasthyarkoodam peak located in the Western Ghat was once home to a forgotten and long-lost 19th century

observatory established by a Scottish meteorologist John Allan Broun.

Magnetic observatories continuously measure and record Earth's magnetic field at a number of locations. The first geomagnetic observatory of India was set up in Alibag and was named the Alibag Magnetic Observatory. Established in 1904, this observatory is one of its kind in the entire Asia.

Agasthyarkoodam peak was named after the sage Agasthya; this popular pilgrim site is one of the highest peaks in Kerala. It has long been known as a bird watcher's paradise. It is also known for its remarkable flora and fauna, especially certain rare medicinal herbs.



Read More: [Western Ghats](#)



Note:



drishti

Key Points

Details

Blank area for Key Points.

Lined area for Details.

Summary

Blank area for Summary.