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**JAN 2023**

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## Polity

### What is the Maharashtra-Karnataka border dispute?

- The dispute between Maharashtra and Karnataka over Belgaum and other border areas is a longstanding issue between the two states.
- The erstwhile Bombay Presidency, a multilingual province, included the present-day Karnataka districts of Bijapur, Belgaum, Dharwar and Uttara-Kannada (previously North Kanara).
- The Belagavi/Belgaum region at the border of Maharashtra and Karnataka comprises both Kannada and Marathi speakers.
- In 1948, the Belgaum municipality requested that the district, having a predominantly Marathi-speaking population, be incorporated into the proposed Maharashtra state.
- However, the **States Reorganisation Act of 1956**, which divided states on linguistic and administrative lines, made Belgaum a part of the then Mysore State (which was renamed Karnataka in 1973).
- The area has been under dispute since then.
- The **Maharashtra Ekikaran Samiti**, formed in 1948, has been fighting for a merger of 800-odd villages in Karnataka with Maharashtra.
- From 2006, Karnataka started holding the **winter session of the Legislature in Belagavi, building a massive Secretariat building in the district headquarters** on the lines of the Vidhana Soudha in Bengaluru to reassert its claim.



Mahajan Commission:

- In 1966, at Maharashtra's insistence, then **Prime Minister Indira Gandhi established a one-man commission led by Mehr Chand Mahajan**, third Chief Justice of India.
- The Commission, which submitted its report in 1967, recommended

that 264 villages be transferred to Maharashtra and that Belgaum and 247 villages remain with Karnataka.

- The Commission also additionally stated that Sholapur in Maharashtra and Kasaragode, which is in Kerala, be given to Karnataka.

Four-member committee:

- In 1960, a four-member committee was formed by both States, but it couldn't arrive at a consensus and representatives submitted reports to their respective governments.

### **Ministry of Women and Child Development has taken a number of initiatives to empower women through the schemes and programmes implemented in the country.**

- The Ministry of Women and Child Development has formulated 'Mission Shakti', an Integrated Women Empowerment Programme, as Umbrella Scheme for the Safety, Security and Empowerment of Women for implementation during the 15th Finance Commission period.
- It aims at strengthening interventions for safety, security and empowerment of women in a mission mode through institutional and convergence mechanism for greater efficiency, effectiveness and financial prudence.
- The Umbrella Scheme of Mission Shakti has two sub-schemes namely:
  - **"Sambal" for safety and security of women and "Samarthya" for empowerment of women.**
  - **Under 'Samarthya' sub- scheme**, a new component i.e. **\*\*Hub for Empowerment of Women (HEW)\*\*** has been included with the aim to facilitate inter-sectoral convergence of schemes and programs meant for women at the Central, State/ UT and District levels for creating an environment in which women are able to realize their full potential.
  - The support under the HEW provides for guiding, linking and hand holding women to various institutional and schematic set ups for their empowerment and development including access to healthcare, quality education, career and vocational counseling/ training, financial inclusion, entrepreneurship, backward and forward linkages, health and safety for workers, social security and digital literacy at districts/ Blocks/ Gram Panchayats level across the country.



### Uttarakhand passes Bill giving 30% job quota to women

- The Bill proposes to plug gender gaps by providing women with 30 per cent horizontal reservation in public services and posts, in addition to the existing quotas applicable in the state.
- The beneficiaries need to be women with a domicile certificate of Uttarakhand.
- The reservation will be applicable for posts in local authorities, Uttarakhand co-operative committees in which the holding of the state government is not less than 51 per cent of share capital, board or corporation or legal body established by any central or Uttarakhand State Act which is under the ownership or control of the state government, and any educational institution under the ownership and control of the state government or which receives grants in aid from the state government.
- If enough women are not available to fill the reserved seats, they will be filled with qualified male candidates in the order of proficiency.

#### Vertical and Horizontal reservations:

- In December 2020, the Supreme Court clarified the position of the law on the interplay of vertical and horizontal reservations.
- A decision by a two-judge Bench in the case of **Saurav Yadav versus State of Uttar Pradesh** dealt with issues arising from the way different classes of reservation were to be applied in the selection process to fill posts of constables in the state.
- **Vertical reservation:**
  - **A vertical reservation applies separately for each of the groups specified under the law.**
- **Horizontal reservation:**
  - **The horizontal quota is always applied separately to each vertical category, and not across the board.**
- Reservation for Scheduled Castes, Scheduled Tribes, and Other Backward Classes is **referred to as vertical reservation.**
- **Horizontal reservation refers** to the equal opportunity provided to other categories of beneficiaries such as women, veterans, the transgender community, and individuals with disabilities, cutting through the vertical categories.
  - For example, if women have 50 per cent horizontal quota, then half of the selected candidates will have to necessarily be women in each vertical quota category — i.e., half of all selected SC candidates will have to be women, half of the unreserved or general category will have to be women, and so on.

## **More than 3 crore 60 lakh pregnant women receive comprehensive antenatal care under PMSMA**

- The Pradhan Mantri Surakshit Matritva Abhiyan has been launched by the **Ministry of Health & Family Welfare (MoHFW), Government of India.**
- The program aims to provide assured, comprehensive and quality antenatal care, free of cost, universally to all pregnant women on the 9th of every month.
- It guarantees a minimum package of antenatal care services to women in their **2nd / 3rd trimesters of pregnancy at designated government health facilities.**
- The programme follows a systematic approach for engagement with private sector which includes motivating private practitioners to volunteer for the campaign developing strategies for generating awareness and appealing to the private sector to participate in the Abhiyan at government health facilities.
- It envisages to improve the **quality and coverage of Antenatal Care (ANC) including diagnostics and counselling services as part of the Reproductive Maternal Neonatal Child and Adolescent Health (RMNCH+A) Strategy.**

### **Objectives of the program:**

- Ensure at least one antenatal checkup for all pregnant women in their second or third trimester by a physician/specialist
- Improve the quality of care during ante-natal visits. **This includes ensuring provision of the following services:**
  - All applicable diagnostic services
  - Screening for the applicable clinical conditions
  - Appropriate management of any existing clinical condition such as Anaemia, Pregnancy induced hypertension, Gestational Diabetes etc.
  - Appropriate counselling services and proper documentation of services rendered
  - Additional service opportunity to pregnant women who have missed ante-natal visits
- Identification and line-listing of high risk pregnancies based on obstetric/ medical history and existing clinical conditions.
- Appropriate birth planning and complication readiness for each pregnant woman especially those identified with any risk factor or comorbid condition.
- Special emphasis on early diagnosis, adequate and appropriate management of women with malnutrition.
- Special focus on adolescent and early pregnancies as these pregnancies need extra and specialized care.
- One of the critical components of the Abhiyan is identification and

- follow up of high risk pregnancies.
- A sticker indicating the condition and risk factor of the pregnant women would be added onto MCP card for each visit:
  - **Green Sticker** for women with no risk factor detected
  - **Red Sticker** – for women with high risk pregnancy

### **Supreme Court grants anticipatory bail to Amazon Prime Video's India head Aparna Purohit**

- The term 'bail' is originated from an old French verb 'bailer' which means 'to give' or 'to deliver'. Bail refers to the provisional release of the accused in a criminal case in which the court is yet to announce the judgment.

#### Types of Bail In India

Depending upon the stage of the criminal matter, there are commonly three types of bail in India:

- **Regular bail** It is generally granted to a person who has been arrested or is in police custody. A bail application can be filed for the regular bail under section 437 and 439 of CrPC.
- **Interim bail**- This type of bail is granted for a **short period of time and it is granted before the hearing for the grant of regular bail or anticipatory bail.**
- **Anticipatory bail**- It is granted under section 438 of CrPC either by session court or High Court. An application for the grant of anticipatory bail can be filed by the person who discerns that he may be arrested by the police for a non- bailable offence.

Conditions for bail in bailable offence are:

- There are sufficient reasons to believe that the accused has not committed the offence.
- There is sufficient reason to conduct further enquiry in the matter.
- The person is not accused of any offence punishable with death, life imprisonment or imprisonment up to 10 years.

Conditions for bail in non- bailable offence are:

- If the accused is a woman or a child, bail can be granted in a non-bailable offence.
- If there is lack of evidence then bail in non-Bailable offences can be granted.
- If there is delay in lodging FIR by the complainant, bail may be granted.

- If the accused is gravely sick.

#### Cancellation of Bail

- Court has the power to cancel the bail even at a later stage. This power is laid upon the court under section 437(5) and 439(2) of the CrPC. The court can cancel the bail granted by it and give directions to the police officer to arrest the person and keep in police custody.

#### **NCPCR launches 'GHAR' to enable smooth repatriation of children to their native place**

- The portal - “GHAR - Go Home and Re-Unite” will be a platform for information on children from every district to smoothen the process of their repatriation and restoration.

#### Salient features

1. **Digital tracking and monitoring** of children who are in the Juvenile Justice system and have to be repatriated to another Country/State/District.
2. **Digital transfer of cases** of children to the concerned Juvenile Justice Board/Child Welfare Committee of the State. It will help in speedy repatriation of children.
3. Where there is a requirement of a translator/interpreter/expert, request will be made to the concerned State Government.
4. **Child Welfare Committees** and **District Child Protection Officers** can ensure proper restoration and rehabilitation of children by digitally monitoring the progress of the case of the child.
5. **A checklist format** will be provided in the forms so that the children who are being hard to repatriate or children who are not getting their entitled compensation or other monetary benefits can be identified.
6. **List of Government implemented schemes** will be provided, so that at the time of restoration the Child Welfare Committees can link the child with the schemes to strengthen the family and ensure that child remains with his/her family.

#### Juvenile Justice (Care and Protection of Children) Act, 2015

- The Act provides for protection of children in need of care and protection and those in conflict with law by catering to their basic needs through care, protection, development, treatment and social re-integration.
- **The Child Welfare Committees** have been empowered to take decisions with regard to the children in need of care and protection for the best interest of the children.



- **Every State Government has to constitute a District Child Protection Unit (DCPU)** for every district to take up matters relating to children.
- To ensure effective coordination in the Child Safety, Protection and Development; **District Magistrates have been made the head of DCPUs.** DMs have been empowered to review the functioning of DCPUs and CWCs at regular intervals to ensure prompt decisions

### **One District One Product (ODOP) initiative operationally merged with 'Districts as Export Hub (DEH)' initiative**

- ODOP was launched by **the Ministry of Food Processing Industries**, to help districts reach their full potential, foster economic and socio-cultural growth, and create employment opportunities, especially, in rural areas.
- It aims to do this **by identifying, promoting and branding a product from one district.**
- Its objective is to **turn every district in India, into an export hub** through promotion of the product in which the district specialises.
- The initiative plans to accomplish this by **scaling manufacturing, supporting local businesses, finding potential foreign customers** and so on, thus helping to achieve the 'Atmanirbhar Bharat' vision.
- The one district one product launch date is January 24, 2018, by the **Uttar Pradesh Government, and due to its success, was later adopted by the Central Government.**
- This initiative is carried out with the **'Districts as Exports Hub' initiative** by the Directorate General of Foreign Trade (DGFT), Department of Commerce. The Department for Promotion of Industry and Internal Trade is an important stakeholder. **In the scheme, the ODOP product is identified by the state for a district.** The criteria for ODOP identification are given below:
  - Percentage of ODOP produce relative to total agricultural produce of the district
  - Perishable nature
  - ODOP presence in the district relative to other districts
  - Recognisability of the district with the ODOP product
  - Processing level for ODOP in that district, other districts and states
  - Number of workers engaged in ODOP production and processing
  - Marketing linkages
  - ODOP processing infrastructure in the district

### Justice Dipankar Dutta takes oath as judge of Supreme Court

- The Supreme Court will have 28 judges out of the strength of 34 judges.
- **Article 124(3) of the constitution** mentions the following people as eligible to become a Supreme Court (SC) Judge:
  - A High Court (HC) judge who has held that post for 5 years or more.
  - An advocate who has practiced in the HC/SC for 10 years or more.
  - A distinguished Jurist (no judge appointed on this basis till date).
- **\*\*Article 124(2)\*\*** says that the President of India Shall appoint the judges after consultation with such number of Judges of the SC/HC as he deems necessary. For appointment of any Judge of SC (other than CJI), the CJI must be consulted.
- **The three Judges case of 1981, 1993 & 1998** has formalised the collegium system for the purpose of consultation.
  - The collegium for appointing SC judge consists of the CJI and 4 senior-most judges of SC.
  - Memorandum of Procedure (MoP) was set up after the Third Judge Case of 1998 to provide the process of how the Collegium would recommend names to the Executive.
- The President of India can either accept the recommendation or send it back for reconsideration.
- The reconsidered advice must be accepted by the President.

### Union Minister Smriti Irani says govt has set up over 1000 fast track courts in the country

- **Objective:** For implementation of initiatives aimed at enhancing the safety and security for women in the country.
- **Established in:** 2013
- **Established by:** Union Finance Ministry.
- **Type:** It is a non-lapsable corpus fund.

### Schemes of Ministry of Women and Child Development under Nirbhaya Fund:

- **One Stop Centre Scheme (Sakhi Centres):**
  - It is being implemented across the country since 1st April 2015. It aims at establishing Centres to facilitate women affected by violence.
  - It provides First aid, Medical aid, Police assistance, Legal aid and counselling support.

- **Women Helpline (181):**
  - The Department of Telecommunication has allocated the number 181 to all States/UTs for Women Helpline.
  - This helpline number will link the One Stop Centres being established by the Ministry of Women & Child Development.
- **Mahila Police Volunteers (MPVs):**
  - These will act as a link between police and community and help women in distress.
  - Haryana launched the scheme in 2016, thereby becoming the first state to launch it.

### **Centre notifies appointment of two additional judges as permanent judges in Chhattisgarh HC**

- Additional Judges can be appointed by the President under **clause (1) of Article 224 of the Constitution.**
- The President can appoint duly qualified persons as **additional judges of a high court for a temporary period not exceeding two years** when:
  - there is a temporary increase in the business of the high court; or
  - there are arrears of work in the high court.
- No person appointed as an additional or acting Judge of a High Court shall hold office after attaining the age of **sixty-two years.**
- The Chief Justice of the High Court, however, should not make a recommendation for appointment of an Additional Judge when a vacancy of a permanent Judge is available in that High Court.

### **Expedite approval to continue scheme for madrasas, minority institutes: Parliamentary panel tells government**

- The Parliamentary Standing Committee on Social Justice and Empowerment recently pulled up the Union government for the delay in approving the continuation of the Scheme for Providing Education to Madrasas/Minorities (SPEMM), which provides for financial assistance to madrasas and minority institutes.
- The scheme has two sub-schemes –
  - **the Scheme for Providing Quality Education in Madrasas (SPQEM) and**
  - **Infrastructure Development of Minority Institutes (IDMI).**
- The scheme is being implemented at the national level.
- Both the schemes are voluntary in nature.

### **Implementation:**

- **Department of School Education and Literacy** is implementing the Umbrella Scheme for Providing Quality Education to Madrasas/Minorities (SPEMM).
- The scheme was transferred from the Ministry of Minority Affairs to the Ministry of Education in 2021.

### **The salient features of SPQEM scheme are:**

- To provide financial assistance to traditional institutions like Madrasas and Maktabas to encourage them to introduce Science, Mathematics, Social Studies, Hindi and English in their curriculum so that academic proficiency for classes I-XII is attainable for children studying in these institutions.
- To provide opportunities to students of these institutions to acquire education comparable to the National Education System especially for secondary and senior secondary levels.
- To strengthen State Madrasa Boards opting for assistance by enabling them to monitor the Madrasa modernization programme and enhance awareness about education among the Muslim community.
- To provide quality components in Madrasas such as remedial teaching, assessment and enhancement of learning outcomes, Rashtriya Avishkar Abhiyan etc.
- To provide in-service training of teachers appointed under the scheme for teaching modern subjects of Science, Mathematics, Social Studies, Hindi and English to improve their pedagogical skills and quality of teaching.

### **Infrastructure Development of Minority Institutes (IDMI):**

- **Infrastructure Development of Minority Institutes (IDMI)** has been operationalised to augment Infrastructure in Private Aided/Unaided Minority Schools/Institutions in order to enhance the quality of education to minority children.

### **The salient features of IDMI scheme are:**

- To facilitate education of minorities by augmenting and strengthening school infrastructure in Minority Institutions (elementary/secondary/senior secondary schools) in order to expand the facilities for formal education to children of minority communities.
- To encourage educational facilities for girls, children with special needs and those who are most deprived educationally amongst the minorities.



### House panel flags 'casual approach' of government over setting up disability centres

- It is an initiative by the **Ministry of Social Justice and Empowerment, Govt. of India, to facilitate comprehensive services to Persons with Disabilities in the rural areas.**
- It is a joint venture of Central and State Governments wherein Central Government will establish, initiate, implement the centre for three years involving funding for man power contingencies as well as required equipments and coordination.
- State Government will provide provision for rent free, well connected building, basic infrastructure, furniture, monitoring and coordination of activities through District Management Team (DMT) Chaired by the District Collector and also identification of implementing agency.
- These centres are run jointly by **District Management Team headed by DM/Collector and a reputed NGO (Usually Indian Red Cross Society).**
- To upscale their services, a MODEL DDRC has been conceptualised by the Department of Empowerment of Persons With Disability in the Ministry of Social Justice and Empowerment Government of India.
- Nine such model DDRCs, namely- Badaun, Pilibhit, Barielly, Balaghat, Golaghat, Ahmedabad, Amravati , Kullu and Rampur have been upgraded to MODEL DDRC level in the first phase.

### Punjab's sacrilege Bills pending with Centre: The provisions, debate

- The Punjab Assembly had unanimously passed The Indian Penal Code (Punjab Amendment) Bill, and The Code of Criminal Procedure (Punjab Amendment) Bill in 2018.
- It stipulates punishment upto life imprisonment for injury, damage or **sacrilege to Guru Granth Sahib, Bhagwat Gita, Holy Quran and Holy Bible with the intention to hurt the religious feelings of the people.**
- The Indian Penal Code (Punjab Amendment) Bill, 2018, seeks to **amend the IPC by inserting Section 295AA.**
- Under the existing **Section 295 A** [Deliberate and malicious acts, intended to outrage religious feelings of any class by insulting its religion or religious beliefs], a convict can be awarded a maximum of three years' imprisonment with or without fine.

What is the Governor's function in passing a Bill?

- **Under Article 200, the Governor may**
  - grant assent
  - withhold assent

- return for reconsideration by the Legislature or
- reserve for the consideration of the President any Bill passed by the State legislature and presented to him for assent.
- There is no timeframe fixed in the Constitution for any of these functions.
- The Constitution makes it mandatory that the Governor should reserve for the President's consideration if, in his opinion a Bill that "so derogates from the **powers of the High Court** as to endanger the position which that Court is by this Constitution designed to fill".
- **In addition, the governor can also reserve the bill if it is of the following nature:**
  - Ultra-vires, that is, against the provisions of the Constitution.
  - Opposed to the Directive Principles of State Policy.
  - Against the larger interest of the country.
  - Of grave national importance.
  - Dealing with compulsory acquisition of property under the Article of the Constitution.

### **Governments around the world jailing record number of journalists: Committee to Protect Journalists**

- This figure is a new global high that overtakes last year's record by 20%.
- New 'fake news' laws, criminal defamation, and abuse of judiciary are also tactics used to clamp down on press freedom.
- This year's top five jailers of journalists were Iran, China, Myanmar, Turkey, and Belarus, respectively.
- The report stated that a key driver behind authoritarian governments' increasingly oppressive efforts to stifle the media was the intent "to keep the lid on broiling discontent in a world disrupted by COVID-19 and the economic fallout from Russia's war on Ukraine".
- India draw criticism over its use of the Jammu and Kashmir Public Safety Act, a preventive detention law, to keep few Kashmiri journalists behind bars after they were granted court-ordered bail in separate cases".

### **Repression of minorities:**

- The report noted that in Iran and Turkey – both classified as "worst offenders" – it was Kurdish journalists who bore the brunt of government crackdown.
- In China, too, another 'worst offender', many imprisoned journalists were Uighurs from Xinjiang.

### **The Committee to Protect Journalists:**

- The Committee to Protect Journalists is an independent, nonprofit organization that promotes press freedom worldwide.
- Its headquarters in **New York City**.

### **Assam govt launches 'Orunodoi 2.0', scheme to benefit over 1 mn people**

- It is a scheme of the Government of Assam is launched on **2nd October 2020**.
- Under 'Orunodoi', monetary benefits have been envisaged for more than 24 lac poor household in the state.
- Government of Assam will provide monthly financial assistance to the eligible beneficiaries for procuring medicines, pulses, and sugar.
- The schematic benefit has been enhanced from 830/- to Rs. 1000/ Women.
- Women being the primary caretakers of the family are kept as beneficiaries of the scheme.
- 'Orunodoi' scheme will provide Financial Assistance of Rs. 1000 per month through Direct Benefit Transfer (DBT) scheme.
- The financial outlay for Orunodoi is ₹ 4,142 crore per annum.

#### **Beneficiaries:**

- The preliminary selection of the beneficiaries will be done at the **level of Gaon Panchayat (GP) Village Council Development Committee (VCDC) Urban Local Body (ULB)** based on eligibility/ineligibility conditions.

### **Government tweaks vehicle registration rules**

- The Ministry of Road Transport and Highways (MoRTH) has allowed the conversion of regular vehicle registrations into Bharat Series (BH) numbers as part of measures to widen the scope of the BH series ecosystem.
- The BH series registration mark vide General Statutory Rule (GSR) 594(E) was introduced on August 26, 2021.
- This has come into force with effect from 15th September, 2021.
- It has been incorporated in the Central Motor Vehicles Rules, 1989.
- The implementation of Central Motor Vehicles Rules, 1989 is under the **purview of the State Governments/UT administration**.

#### Eligibility:

- **It has been introduced for citizens working in Government offices or in private organizations with offices in four or more States/UTs, on voluntary basis.**
- Applicants, working in Government offices, can avail BH Series facility

on the basis of their official ID Card.

- Private Sector employees are required to submit a working certificate, certifying that their organization has offices in 4 or more States/UTs.
- Currently, only new vehicles are being registered under the BH Series.
- So far, 24 states and UTs have rolled out the new Bharat Series (BH-series) for vehicle registration and so far over 20,000 vehicles have been registered across the states.

### **What is triple test survey, which UP is to carry out for OBC quota in urban local bodies**

- The five-member commission will conduct a survey to ensure that the OBCs are provided reservation on the **basis of the triple test**, as mandated by the Supreme Court. This is the first time that the triple test exercise will be carried out in Uttar Pradesh.
- **Rapid survey:**
  - The Urban Development Department of the UP government had on April 7, 2017 issued orders to **conduct a rapid survey for determining the population of OBCs.**
  - Based on such a rapid survey in each constituency of a municipality, seats were **reserved in proportion to the population of the backward class of citizens in the constituency/ward concerned.**

#### Triple test

- The triple test requires the government to complete three tasks for finalisation of reservation to OBCs in the local bodies. These include:
- To set up a dedicated commission to conduct a rigorous empirical inquiry into the nature and implications of the backwardness in local bodies;
- To specify the proportion of reservation required in local bodies in light of recommendations of the commission, so as not to fall foul of overbreadth;
- To ensure reservation for SCs/STs/OBCs taken together does not exceed an aggregate of 50 per cent of the total seats.
- These triple test/conditions were outlined by the **Supreme Court in the case of Vikas Kishanrao Gawali vs. State of Maharashtra and others**, decided on March 4, 2021.

#### Triple test instead of rapid survey

- The Lucknow Bench of the Allahabad High Court said that any inquiry or study into the nature and implications of the backwardness with respect to local bodies involves **ascertainment of representation in such bodies.**



- The court said such an exercise **cannot be confined to counting of heads alone**, as is being done through the rapid survey.
- The court said simply granting reservation on the basis of population misses a very crucial factor for determination of backwardness, and that factor is **political representation of the class or group concerned**.
- The High Court quoted the Supreme Court's observation in the K Krishna Murthy case, which pointed out that the **nature of disadvantages which restrict access to education and employment cannot be readily equated with disadvantages in the realm of political representation**.

### **EC begins delimitation of assembly, parliamentary constituencies in Assam**

- The Delimitation process in Assam will be **based on Census data from 2001**. The last delimitation of constituencies in Assam was **done in 1976 based on the 1971 Census**.

### **Delimitation**

- Delimitation is carried out by an independent **Delimitation Commission**, appointed by the Government of India under provisions of the **Delimitation Commission Act**.
- **Under Article 82**, Parliament is to enact a Delimitation Act **after every Census**. Once the Act is in force, the Union government sets up the Delimitation Commission.
- The Commission is supposed to determine the number and boundaries of constituencies in a way that the population of all seats, so far as practicable, is the same. The Commission is also tasked with identifying seats reserved for Scheduled Castes and Scheduled Tribes.
- It works in collaboration with the Election Commission of India.
- The **commission is composed** of: a **retired Supreme Court judge**, the **Chief Election Commissioner of India** and respective **State Election Commissioners**.
- In the history of the Indian republic, Delimitation Commissions have been set up four times: 1952, 1963, 1973 and 2002 under the Acts of 1952, 1962, 1972 and 2002.

### **Ministry of Housing and Urban Affairs launches 2 key initiatives to take India's Urban Rejuvenation journey to next level**

- The rankings aim to motivate city/state officials and decision-makers,

- to implement municipal finance reforms.
- The participating ULBs will be evaluated on 15 indicators across **three key municipal finance assessment parameters**, namely:
    - Resource Mobilization
    - Expenditure Performance
    - Fiscal Governance.
  - The cities will be ranked at the national level based on their scores under any one of the following four population categories:
    - Above 4 million
    - Between 1-4 million
    - 100K to 1 million
    - Less than 100,000
  - The top 3 cities in each population category will be recognized and rewarded at the national level as well as within each state/state cluster.

#### **Significance of the ranking:**

- City Finance Rankings are an effort to analyse and help the ULBs in identifying areas in their financial performance where they can make further improvements, to be able to deliver quality infrastructure and services to its citizens.
- The rankings will serve as a constant motivation for city/state officials to continue to implement municipal finance reforms.
- At a state- and national level, the rankings will highlight the outcomes achieved by municipalities and provide critical insights to key policymakers into the state of finances of urban local bodies.

**Minister for Housing & Urban Affairs (MoHUA) recently said more than 5,000 internships have been offered under the TULIP.**

#### **About The Urban Learning Internship Program (TULIP):**

- TULIP is a programme for providing internship opportunities to fresh graduates in all Urban Local Bodies (ULBs) and Smart Cities across the country.
- **The Ministry of Housing & Urban Affairs (MoHUA)** in collaboration with the **Ministry of Education (MoE)** and **All India Council of Technical Education (AICTE)** has developed this programme.
- At the State level, TULIP will be supported by the Urban Development departments in providing a clear roadmap for the ULBs/smart cities to adopt TULIP in their respective organisations.
- **Duration:** Internship durations can range from eight weeks to one year.

### **TULIP:**

- Enhanced employability through **“learning by doing”** and opportunity to co-create innovation for cities.
- TULIP interns would get exposure in a large number of areas including but not limited to urban planning, urban design, different branches of engineering, information and technology, mobility, finance, social sector issues and environmental issues.
- Strengthen institutional capacity of the urban ecosystem and youth engagement towards urban initiatives, creating an ecosystem wherein youth can contribute towards building a liveable city.
- Skilled, high-quality workforce and innovative citizen-centric solutions that help them address critical challenges

### **Railway Budget 2022-23: What is Kavach? Know about Indian Railways plans to enhance safety with this world-class tech**

- Indian Railways has indigenously developed an **automatic train protection system rechristened as ‘Kavach’** (Train Collision Avoidance System), to prevent accidents due to human error resulting in Signal Passing at danger and over-speeding.
- It is a set of electronic devices and **Radio Frequency Identification devices** installed in locomotives, in the signalling system as well the tracks, that talk to each other using ultra high radio frequencies to control the brakes of trains and also alert drivers, all based on the logic programmed into them.
- One of its features is that by **continuously refreshing the movement information** of a train, it is able to send out triggers when a loco pilot jumps signal, **called Signal Passed at Danger (SPAD)**, a grave offence in railway operations with respect to safety, and the key to accidents like collision.
- The devices also **continuously relay the signals ahead to the locomotive**, making it useful for loco pilots in low visibility, especially during dense fog.
- **Other benefits of ‘Kavach’** include controlling speed of trains by automatic application of brakes on approach of turnouts, repeating of signal aspects in cab, which is useful for higher speeds & foggy weathers, and auto whistling at level crossing gates.

### **Google approaches NCLAT against CCI's order on Android devices**

- Google, was slapped with a fine of Rs 1,338 crore by CCI after being found guilty of anti-competitive behaviour in the Android mobile

application ecosystem

### **Anticompetitive practices**

- It refers to a wide range of business practices in which a firm or group of firms may engage to restrict inter-firm competition to maintain or increase their relative market position and profits without necessarily providing goods and services at a lower cost or of higher quality.

### **CCI**

- The Competition Commission of India (CCI) was established in March 2009 by the Government of India under **the Competition Act, 2002** for the administration, implementation, and enforcement of the Act.
- **Composition of the CCI**
  - The Commission consists of **one Chairperson and six Members** who shall be appointed by the Central Government.
  - It is a **quasi-judicial body** which gives opinions to statutory authorities and also deals with other cases.
  - The Chairperson and other Members shall be whole-time Members
- **Objectives:**
  - It will eliminate practices having adverse effects on competition.
  - To Promote and sustain competition.
  - It helps in protecting the interests of consumers.
  - Ensuring freedom of trade in the markets of India.
  - It will Establish a robust competitive environment through:

### **NCLAT**

- It was constituted under Section 410 of **the Companies Act, 2013** for hearing appeals against the orders of the National Company Law Tribunal(s) (NCLT), with effect from 1st June 2016.
- **Functions:**
  - Hearing appeals against the orders passed by NCLT(s) under Section 61 of **the Insolvency and Bankruptcy Code, 2016** (IBC).
  - To hear and dispose of appeals against any direction issued or decision made or order passed by **the Competition Commission of India (CCI)**.
  - It also hears and disposes of appeals against the orders of the **National Financial Reporting Authority**.

**Bureau of Indian Standards published 21,890 standards for products, process specification, service sectors, code of practice and methods of**

## test terminology

- Bureau of Indian Standards (BIS), the National Standards Body of India established under the **BIS Act 2016**.
- **Objective:** Harmonious development of the activities of standardisation, and quality assurance of goods and articles.
- It works under the **Ministry of Consumer Affairs, Food & Public Distribution**.
- BIS represents India in **International Organization for Standardization (ISO)** and **International Electrotechnical Commission (IEC)**.

## ISO

- It is an independent, **non-governmental international organization** with a membership of 167 national standard bodies.
- Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market-relevant International Standards that support innovation and provide solutions to global challenges.

## IEC

- The IEC is a global, **not-for-profit membership organization**, whose work underpins **quality infrastructure and international trade in electrical and electronic goods**.
- The IEC brings together more than 170 countries and provides a global, neutral and independent standardization platform to 20 000 experts globally.
- It administers 4 Conformity assessment systems whose members certify that devices, systems, installations, services and people work as required.

## Consumer Affairs Minister Goyal unveils 'right to repair' portal

- On this portal **manufacturer will share the manual of product** details with customers so that they can either repair it by themselves, or by third parties, rather than depend on the original manufacturers.
- Initially, **mobile phones, electronics, consumer durables, automobiles and farming equipment** will be covered.
- It allows consumers to repair and modify their consumer products against the manufacturer requiring them to use their services either by restricting access to tools and components or putting in place software barriers.
- From now on India will be joining a clutch of **countries like the US and the UK** that offer this facility.



- It will save consumers money and contribute to circular economy objectives by improving the life span, maintenance, re-use, upgrade, recyclability, and waste handling of appliances.

### **States' apathy has made gram nyayalayas 'almost defunct', says Parliamentary panel**

- The panel said even after more than 12 years of coming into force the Gram Nyayalayas are yet to take off in the country. Only 15 states have notified them and about half of those are yet to be operationalized.

#### Gram Nyayalayas

- The Law Commission of India, in its 114 Report, had suggested the establishment of Gram Nyayalayas for providing affordable and quick access to justice to the citizens at their doorsteps.
- Gram Nyayalayas or village courts are established under **the Gram Nyayalayas Act, 2008** for speedy and easy access to the justice system in the rural areas of India.

#### Composition:

- The Gram Nyayalayas are presided over by a **Nyayadhikari**, who will have the same power, enjoy the same salary and **benefits as a Judicial Magistrate of First Class**.
- **Appointment:** By **the State Government** in consultation with the respective High Court.
- **Jurisdiction:** Over an area specified by a notification by the State Government in consultation with the respective High Court.
- The Court can function as a mobile court at any place within the jurisdiction of such Gram Nyayalaya, after giving wide publicity in that regard.
- They **have both civil and criminal jurisdiction** over the offences.
- The pecuniary jurisdiction of the Nyayalayas is fixed by the respective High Courts.
- Gram Nyayalayas has been given the power to accept certain evidence which would otherwise not be acceptable under the Indian Evidence Act.

#### Procedure

- Gram Nyayalayas can follow special procedures in civil matters, in a manner it deems just and reasonable in the interest of justice.
- Gram Nyayalayas allow for conciliation of the dispute and settlement

of the same in the first instance.

Appeals:

- An appeal in **criminal** cases shall lie to the **Court of Session**, which shall be heard and disposed of within a period of six months from the date of filing of such appeal.
- An appeal in **civil cases** shall lie to the **District Court**, which shall be heard and disposed of within a period of six months from the date of filing of the appeal.

### **Economy**

#### **Estimates of Gross Domestic Product for the Second Quarter (July-September) of 2021-22**

- The second quarter or Q2 refers to the months of July, August and September.
- India's **Gross Domestic Product (GDP)** grew by 6.3 per cent in Q2 on a year-on-year basis.
- In other words, it was 6.3% more than the GDP in the same months in 2021.
- MoSPI also reported that India's **Gross Value Added (or GVA)** in Q2 grew by 5.6 per cent on a year-on-year basis.

GDP and GVA:

- GDP and GVA are the two main ways to ascertain the country's economic performance.
- Both are measures of national income.
- The **GDP measures the monetary measure of all "final" goods and services**— those that are bought by the final user— produced in a country in a given period.
- The GDP does this by adding up the total expenditures in the economy; in other words, it looks at who spent how much.
- That is why GDP captures the total "demand" in the economy.

Four key "engines of GDP growth"

- All the money Indians spent for their private consumption (that is, **Private Final Consumption Expenditure or PFCE**)
- All the money the government spent on its current consumption, such as salaries [**Government Final Consumption Expenditure or GFCE**]
- All the money spent towards investments to boost the productive

capacity of the economy. This includes business firms investing in factories or the governments building roads and bridges [**Gross Fixed Capital Expenditure**]

- The net effect of exports (what foreigners spent on our goods) and imports (what Indians spent on foreign goods) [**Net Exports or NX**].

GVA:

- The GVA calculates the same national income from the supply side.
- It does so by adding up all the value added across different sectors.
- According to the RBI, the GVA of a sector is defined as the value of output minus the value of its intermediary inputs.
- This “value added” is shared among the primary factors of production, labour and capital.
- **The GDP and GVA are related by the following equation:**
  - **$GDP = (GVA) + (\text{Taxes earned by the government}) - (\text{Subsidies provided by the government})$ .**

### **Manthan Platform Wins the Best Tech Initiative Award at D&B Business Excellence Awards 2022**

- The award was presented for building the technology infrastructure to support Manthan.
- Manthan is a platform that promotes collaboration at scale between industry and the scientific research and development ecosystem.
- The development of the platform was conceptualized and implemented by the **Office of the Principal Scientific Adviser (PSA) to the Government of India**.
- It is aimed at promoting collaboration between industry and the scientific research and development ecosystem.
- It was launched on **India's 76th Independence Day**.
- Manthan empowers multiple stakeholders to collaborate for co-creating solutions aligned with the United Nations' Sustainable Development Goals (SDGs) and our national scientific missions.

NSEIT

- NSEIT Limited is a global technology enterprise focused on delivering excellence in a complex digital environment, primarily in the banking, insurance, and capital market ecosystem.
- **It is a 100% subsidiary of the National Stock Exchange of India.**
- Their key service pillars are Application Modernization, Business Transformation, Data Analytics, Infrastructure & Cloud Services, Cybersecurity, EdTech, and online examinations solutions.

### Digital lending: No clarity, awaiting RBI response, say bank & fintechs

- FLDG is a lending model between a fintech and a regulated entity in which a third party guarantees to compensate up to a certain percentage of default in a loan portfolio of the regulated entities (RE).
- Under these agreements, the **fintech originates a loan and promises to compensate the partners up to a pre-decided percentage** in case customers fail to repay.
- **The bank/NBFC partners lend through the fintech but from their own books.** FLDG helps **expand the customer base** of traditional lenders but relies on the fintech's underwriting capabilities.
- A report by an RBI-constituted working group on digital lending has laid down risks of FLDG agreements with unregulated entities. The other concern is that **FLDG costs are often passed on to customers.**

### Intellectual property protection: Govt increases professional charges of IP facilitators for startups

- For patents, the fee for application and filing has been increased to INR 15K from INR 10K. For trademarks and designs, the fee has been increased to INR 3K from INR 2K.
- SIPP scheme launched by Government of India, facilitates the start-ups to file applications for patents, designs and trademarks through registered facilitators in appropriate IP offices by paying only the statutory fees.
- **Who can apply?** Any Start-Up certified by the **Start-up Certification Board** as having an innovative business.
  - For this purpose, Start-up means an entity, incorporated or registered in India **not prior to seven years** (in the case of Startups in the Biotechnology sector, the period shall be up to ten years), with **annual turnover not exceeding INR 25 crores** in any preceding financial year, working towards innovation, development, deployment or commercialization of new products, processes or services driven by technology or intellectual property.
  - provided that **such entity is not formed by splitting up, or reconstruction, of a business already in existence.**
  - provided also that an **entity shall cease to be a Start-up if its turnover for the previous financial years has exceeded INR 25 crore** or it has completed 7 years from the date of

- incorporation/registration.
- provided further that a Start-up **shall be eligible for availing the benefits of this scheme only after it has obtained certification** from the Start-up Certification Board.
- **Appointment of Facilitators:** For effective implementation of the scheme, facilitators shall be empanelled by the Controller General of Patent, Trademark and Design (CGPDTM). The CGPDTM shall regulate conduct and functions of empanelled facilitators from time to time.

### Why the US Inflation Reduction Act has Europe up in arms

- The Inflation Reduction Act of 2022 (IRA) is a landmark United States federal law which aims **to curb inflation by reducing the deficit, lowering prescription drug prices, and investing into domestic energy production** while promoting clean energy.
- It is a reduced version of the Biden administration's proposed Build Back Better Act.
- At the end of a decade, according to Democrats, the U.S. will realize a deficit reduction of more than \$300 billion while lowering inflation, **investing in energy production, and reducing healthcare costs**. Of the \$737 billion in revenue raised, the legislation calls for \$222 billion from a **15% corporate minimum tax**.
- The legislation stands to be **the single largest investment in climate and energy in the U.S. to date**.

Europe is concerned

- The 27 EU countries are worried **their companies will be cut off from U.S. tax credits** for components used in renewable energy technologies like electric cars, offered under the new law on condition they are made in North America.
- EU countries consider that some 200 billion euros (\$207 billion) of the U.S. subsidies are tied to locally produced content provisions that potentially violate World Trade Organization (WTO) rules.
- Not only do the tax breaks put European companies at a disadvantage to U.S. rivals, but EU state aid rules in their current form prevent member countries from offering similarly generous tax breaks to companies looking to set up factories.

### Technotex 2023 to be held in Mumbai from 22nd to 24th February, 2023

- The event is being organized by the **Ministry of Textiles** in collaboration



with Federation of Indian Chambers of Commerce Industry, under **National Technical Textiles Mission (NTTM)**.

- Technotex 2023 offers a good opportunity for Startup Entrepreneurs who represent the fastest-growing category worldwide.
- The Government is making all efforts to promote Technical Textiles and has undertaken various initiatives in this direction, such as creation of **PLI scheme, HSN Codes, National Technical Textiles Mission**.

### Technical Textiles

- Technical textiles are defined as **textile materials and products used primarily for their technical performance** and functional properties rather than their aesthetic or decorative characteristics.
- As a component or part of another product, they are used to enhance the strength, performance or other functional properties of that product.
- These products are broadly classified into **12 different categories**- Agrotech, Oekotech, Buildtech, Meditech, Geotech, Clothtech, Mobiltech, Hometech, Sportstech, Indutech, Protech, Packtech.
- Technical textile **accounts for approximately 13% of India's total textile and apparel market and contributes to India's GDP at 0.7%**.

### National Technical Textiles Mission (NTTM)

- **The Ministry of Textiles** has launched NTTM to increase the penetration level of technical textiles in India while leveraging the extraordinary growth rate of the sector.
- **The aim of the mission** is to position India as a global leader in Technical Textiles.
- **The mission will comprise four components:** Research, Innovation and Development; Promotion and Market Development; Export Promotion; Education, Training, Skill Development.
- **Implementation period:** Four years starting from FY 2020-21 till FY 2023-24. The total outlay of the mission is INR 1480 Cr.
- **Target:** Take domestic market size of technical textile sector to \$ 40-50 Bn by the year 2024 with an average growth rate of 15-20% per annum.

### What is HSN Code?

- HSN code stands for "**Harmonized System of Nomenclature**". This system has been introduced for the systematic classification of goods all over the world.
- HSN code is a **6-digit uniform code that classifies 5000+ products and is accepted worldwide**.

**Paris Club proposes 10-year moratorium in 15-year Sri Lanka debt re-**

### structure: report

- The Paris club has also called upon the Global north and south to take a similar haircut in restructuring of Sri Lankan debt. So far no official proposal has been made by Paris club to China or India.
- The Paris Club is an **informal group of creditor nations whose objective is to find workable solutions to payment problems faced by debtor nations.**
- The Paris Club has **22 permanent members**, including most of the western European and Scandinavian nations, the United States, the United Kingdom, and Japan.
- The group is **organized around the principles that each debtor nation be treated case by case, with consensus**, conditionality, solidarity, and comparability of treatment.
- The Paris Club stresses the informal nature of its existence. **As an informal group, it has no official statutes and no formal inception date**, although its first meeting with a debtor nation was in 1956, with Argentina.

### Digital payments worth ₹ 38.32 trln carried out in Jul-Sep 2022

- UPI is a system that powers multiple bank accounts into a single mobile application (of any participating bank).
- It does so by merging several banking features, seamless fund routing & merchant payments into one hood.
- The interface is **regulated by the Reserve Bank of India** and works by instantly transferring funds between two bank accounts on a mobile platform.
- It was launched in **2016, by the National Payments Corporation of India (NPCI).**

#### UPI

- In UPI, a user just needs to download the UPI app, register details, and create a virtual payment address (VPA). The user needs to link the VPA to their bank account.
- This VPA becomes the users' financial address and the user need not remember the details like beneficiary account number, IFSC codes, or net banking user id and password for sending or receiving money. The UPI interface allows multiple bank accounts to be added into a single mobile application.

#### National Payments Corporation of India (NPCI)

- National Payments Corporation of India (NPCI) is an umbrella organisation for operating retail payments and settlement systems in

India.

- It is an initiative of **Reserve Bank of India (RBI) and Indian Banks' Association (IBA)** under the provisions of the **Payment and Settlement Systems Act, 2007**, for creating a robust Payment & Settlement Infrastructure in India.
- It has been incorporated as a Not for Profit Company with an intention to provide infrastructure to the entire banking system in India for physical as well as electronic payment and settlement systems.
- The Company is focused on bringing innovations in the retail payment systems through the use of technology for achieving greater efficiency in operations and widening the reach of payment.

### **TRAI releases Consultation Paper on Introduction of Calling Name Presentation (CNAP) in Telecommunication Networks**

- The feature would provide an individual with information about the calling party (**similar to 'Truecaller' and 'Bharat Caller ID & Anti-Spam'**).
- The idea is to ensure that telephone subscribers are able to make an informed choice about incoming calls and curb harassment by unknown or spam callers.
- Existing technologies present the number of the calling entity on the potential receiver's handset.
- Since subscribers are not given the name and identity of the caller, they sometimes choose not to answer them believing it could be unsolicited commercial communication from unregistered telemarketers. This could lead to even genuine calls being unanswered.
- Additionally, there have been rising concerns about robocalls (calls made automatically using IT-enabled systems with a pre-recorded voice), spam calls and fraudulent calls.
- **Truecaller's '2021 Global Spam and Scam Report'** revealed that the average number of spam calls per user each month in India, stood at 16.8 while total spam volumes received by its users were in excess of 3.8 billion calls in October alone.

### **World Bank revs up growth hopes to 6.9%**

- It was released by World Bank.
- India Development Report titled 'Navigating the Storm'.
- It revised the GDP forecast considering the strong upturn in the July to September quarter of 2022-23, when it grew **3%** despite inflationary pressures and tighter financing conditions, "driven by strong private consumption and investment".

- The government's focus on bolstering capital expenditure also supported domestic demand in the first half of 2022-23.
- It expects the Indian economy to **grow at a slightly slower 6.6% in 2023-24** as a challenging external environment and faltering global growth will affect its economic outlook through different channels.
- The report said that while a **one percentage point decline in growth in the United States is associated with a 0.4 percentage point decline in India's growth**, the effect is around 1.5 times larger for other emerging economies, and the result is similar for growth spillovers from the EU and China.
- It cautions about trade-offs between trying to limit the adverse impact of global spillovers on growth and the available policy space.
- The RBI's gradual withdrawal of liquidity and policy rate hikes have been aimed at anchoring inflation expectations. However, this has increased borrowing costs, which along with elevated input prices have potentially **constrained private investment**.
- RBI's management of short-term volatility in exchange rates has contributed to a **decline in reserves**, though they are still at a relatively high level.
- A widening goods trade deficit, driven by rising imports and softening exports, has expanded **India's current account deficit to 2.8% of GDP in Q2** this year from 1.5% in the first quarter.
- The adoption of several regulatory and policy measures—including introduction of a **new Insolvency and Bankruptcy Code and creation of the new National Reconstruction Company Limited**—facilitated an improvement in financial sector metrics over the past five years.

### **European Securities and Markets Authority (ESMA) on October 31 derecognised six Indian clearing houses with effect from May 1, 2023**

- Once the derecognition comes into effect, the six clearing houses will not be able to provide services to clearing members and trading venues established in the European Union.
- **The six institutions in ESMA's list** are The Clearing Corporation of India (CCIL), Indian Clearing Corporation (ICCL), Multi Commodity Exchange Clearing (MCXCCL), NSE Clearing (NSCCL), India International Clearing Corporation (IFSC) (IICC) and NSE IFSC Clearing Corporation (NICCL).
  - Amongst the six institutions,

CCIL is supervised by the RBI; ICCL, MCXCCL, and NSCCL are supervised by SEBI; IICC and NICCL are supervised by the International Financial Services Centre Authority (IFSCA).

- **Reason for derecognition:** Essentially, the European regulators want to scrutinize the clearing parties or the European banks in India. But the Indian financial regulators such as the Reserve Bank of India (RBI) and the Securities and Exchange Board of India (SEBI) believe that this is a jurisdictional overreach.

### What is ESMA?

- It is an **independent European Union (EU) Authority** that contributes to safeguarding the stability of the EU's financial system by enhancing the protection of investors and promoting stable and orderly financial markets.
- Whilst ESMA is an independent Authority, it is **accountable to the European Institutions including the European Parliament**, where it appears before the Economic and Monetary Affairs Committee (ECON) at their request for formal hearings, the Council of the European Union and European Commission.
- ESMA achieves its mission and objectives through **four activities**:
  - Assessing risks to investors, markets and financial stability;
  - Completing a single rulebook for EU financial markets;
  - Promoting supervisory convergence; and
  - Directly supervising specific financial entities.
- ESMA is the **direct supervisor of specific financial entities**:
  - Credit Rating Agencies (CRAs)
  - Securitisation repositories (SRs)
  - Trade Repositories (TRs)

### Centre extends PM SVANidhi scheme till December 2024

- The government has also introduced third loan of upto Rs 50,000 in addition to first and second loans of Rs 10,000 and Rs 20,000, respectively.
- PM SVANidhi was launched by the **Ministry of Housing and Urban Affairs** on June 01, 2020 for providing affordable Working Capital loan to street vendors to resume their livelihoods that have been adversely affected due to Covid-19 lockdown.
- **Scheme Benefits**
  - Vendors can avail a working capital loan of up to Rs. 10,000, which is repayable in monthly instalments in the tenure of one year.
  - On timely/ early repayment of the loan, an interest subsidy @ 7% per annum will be credited to the bank accounts of beneficiaries through Direct Benefit Transfer on quarterly basis.



- There will be no penalty on early repayment of loan.
- The scheme promotes digital transactions through cash back incentives up to an amount of Rs. 100 per month.
- The vendors can avail the facility of escalation of the credit limit on timely/ early repayment of loan.
- **Implementation agency:** Small Industries Development Bank of India (SIDBI)

### **GST Council to discuss circular trading, de-criminalisation**

- Circular trading refers to **fraudulently availing input tax credit by traders by issuing of invoices without availing any real goods or service.**
- In simple words, circular trading refers to the transaction of selling and buying of goods (**without actual movement of goods**) through shell companies.
- Circular trading is a circular which **is being formed by a group of companies engaging themselves in fake sales transaction** by producing fake sale invoices.
- **The main objective** of circular trading is inflating turnover of the business. However, through circular trading, companies may also aim to:
  - To increase the valuation of the company/business;
  - To benefit higher loans from the Banks or Non-Banking Financial Corporation (NBFC);
  - To bring black money into the system;
  - To avail fake input tax credit.

### **Assam govt launches 'Orunodoi 2.0', scheme to benefit over 1 mn people**

- It is a scheme of the Government of Assam is launched on **2nd October 2020.**
- Under 'Orunodoi', monetary benefits have been envisaged for more than 24 lac poor household in the state.
- Government of Assam will provide monthly financial assistance to the eligible beneficiaries for procuring medicines, pulses, and sugar.
- The schematic benefit has been enhanced from 830/- to Rs. 1000/ Women.
- Women being the primary caretakers of the family are kept as beneficiaries of the scheme.
- 'Orunodoi' scheme will provide Financial Assistance of Rs. 1000 per month through Direct Benefit Transfer (DBT) scheme.

- The financial outlay for Orunodoi is ₹ 4,142 crore per annum.

#### **Beneficiaries:**

- The preliminary selection of the beneficiaries will be done at the **level of Gaon Panchayat (GP) Village Council Development Committee (VCDC) Urban Local Body (ULB)** based on eligibility/ineligibility conditions.

#### **EAC-PM to release the Social Progress Index (SPI) for states and districts**

- SPI is a comprehensive tool intended to be a holistic measure of the Social Progress made by the country at the national and sub-national levels.
- The report has been prepared by **Institute for Competitiveness**, headed by Dr Amit Kapoor and the **Social Progress Imperative**, headed by Michael Green.
- It was mandated by **Economic Advisory Council to the Prime Minister of India**.

#### **Objective of the SPI**

- The report aims to provide a systematic account of the social progress made at all levels in the country with state and district-wise rankings and scorecards.
- The report also sheds light on the achievements of the districts that have performed well on the index and the role of the states in achieving social progress.
- A special section of the report provides an analysis of the Aspirational Districts of India, leading to a broader understanding of the social progress at the grassroots level.
- The report will act as a critical enabler and tool for policymakers in the coming years for achieving sustained socio-economic growth.
- SPI assesses the performance of states and districts on three dimensions of social progress: **Basic Human Needs, Foundations of Wellbeing, and Opportunity. Within each dimension, there are four components.**
- The **dimension of Basic Human Needs** assesses the performance of states and districts in terms of Nutrition and Basic Medical Care, Water and Sanitation, Personal Safety and Shelter.
- The **dimension of Foundations of Wellbeing** evaluates the progress made by the country across the components of Access to Basic Knowledge, Access to Information and Communication, Health and Wellness, and Environmental Quality.
- The **dimension of Opportunity** focuses on aspects of Personal Rights, Personal Freedom and Choice, Inclusiveness, and Access to Advanced

Education.

### **Atal Innovation Mission and UNDP India launch 5th edition of Youth Co:Lab for Young Entrepreneurs**

- Youth Co:Lab is an initiative launched in **2019 by UNDP India in partnership with Atal Innovation Mission, NITI Aayog.**
  - Youth Co:Lab was co-created in **2017 by UNDP and the Citi Foundation, Youth Co:Lab.**
  - It is a multi-dimensional and multi-level response to tackle the challenges young people face by positioning youth at the forefront in finding solutions to global challenges tackling Sustainable Development Goals (SDGs).
- It aims to establish a common agenda for Asia-Pacific countries to invest in and empower youth to accelerate implementation of the Sustainable Development Goals (SDGs) through leadership, social innovation, and entrepreneurship.
- The Youth Co:Lab initiative, till date, has been implemented in 28 countries and territories, reaching over 200,000 participants, benefitting more than 11,000 young social entrepreneurs and supporting over 1,240 social enterprises.
- Through Youth Co: Lab, 30 early-stage start-ups would be supported by the springboard programme, and the best would be provided a seed grant for scaling up their start-up.
- **The 5 focus thematic areas for Youth Co: lab 2022-23 are:**
  - Digital and Financial Literacy for Youth
  - Gender Equality and Women Economic Empowerment
  - Developing FinTech Solutions focused on Biodiversity Conservation
  - Promoting Biodiversity-friendly Lifestyles through Technological Solutions in Finance
  - Accelerating Circular Economy through Upcycling Innovations
  - Behavioural Nudges for LiFE ( Lifestyle For Environment)

### **Sebi proposes regulatory framework for index providers**

- The index provider shall be a legal entity incorporated under the Companies Act in the country of origin and should have a minimum net worth of Rs 25 crore.
- The proposed regulation shall apply to **index providers of both domestic and foreign.**
- The index providers must be assessed by independent external auditors to evaluate **adherence to International Organization of Securities**

**Commissions (IOSCO)** principles once in two years.

IOSCO

- Established in 1983, it is the international body that brings together the world's securities regulators and is recognized as the global standard-setter for the securities sector.
- It works intensively with the G20 and the Financial Stability Board (FSB) on the global regulatory reform agenda.
- There are three categories of members: **Ordinary, Associate and Affiliate.**
- Recently, **\*\*the International Financial Services Centres Authority (IFSCA)\*\*** has become an **associate member** of this organisation.

**'ROOH AFZA has immense degree of goodwill, prima facie strong mark': Delhi HC in trademark infringement claim**

- **A trademark** is a distinctive sign or indicator used by a business organisation to distinguish its products or services from those of other entities.
- It serves as a badge of origin exclusively identifying a particular business as a source of goods or services.
- **Trademark infringement** is the unauthorised usage of a sign that is identical or deceptively similar to a registered trademark.

Strong trademark

- A mark is said to be strong when it is well-known and has acquired a high degree of goodwill.
- The degree of the protection of any trademark changes with the **strength of the mark; the stronger the mark, the higher the requirement to protect it.**

**Year End Review- 2019: Ministry Of Micro, Small And Medium Enterprises**

Major achievements of the Ministry in the year 2022 are detailed as follows.

UDYAMI BHARAT

The Prime Minister of India launched 3 key initiatives for the MSME sector in the 'Udyami Bharat' programme.

- **Raising and Accelerating MSME Performance (RAMP) scheme:** The programme will focus on two result areas: 1) Strengthening Institutions

and Governance of the MSME Program and 2) Supporting Market Access, Firm Capabilities and Access to Finance.

- **Capacity Building of First-Time MSME Exporters' (CBFTE) scheme:** To encourage MSMEs to offer products and services of international standards for the global market.
- **New features of the 'Prime Minister's Employment Generation Programme' (PMEGP).**
  - **Firstly**, increase the maximum project cost to Rs 50 lakhs (from Rs 25 lakhs) for the manufacturing sector and Rs 20 lakhs (from Rs 10 lakhs) for the service sector.
  - **Secondly**, the inclusion of applicants from Aspirational districts & Transgenders in the Special Category applicants for availing higher subsidies.
  - **Thirdly**, handholding support is being provided to applicants/entrepreneurs through the engagement of banking, technical & marketing experts.

#### POLICY INITIATIVES:

- The **Udyam Registration Portal** was launched. It is fully online, free of cost, hassle-free, does not require any documentation, and is a step towards Ease of Doing Business for MSMEs.
- **Scheme of Fund for Regeneration of Traditional Industries (SFURTI):** The scheme supports the establishment of collective manufacturing enterprises of artisans, to increase their production, making them produce value-added products, and enhancing the marketability of products.
- **Public Procurement Policy for Micro and Small Enterprises:** Ministry of MSME mandates 25% annual procurement from MSEs by Central Ministries/ Departments/ Central Public Sector Enterprises (CPSEs) including 4% from MSEs owned by SC/ST and 3% from MSEs owned by Women entrepreneurs.
- **Procurement and Marketing Support (PMS) Scheme:** The scheme promotes new market access initiatives and enhances the marketability of products and services in the MSME sector.
- **International Cooperation Scheme:** The Scheme provides financial assistance to Industry Associations to participate in International exhibitions abroad, to organize International conferences in India and to capacity build 'First Time MSE Exporters' on a reimbursement basis.
- **Promotion of MSMEs among SC/STs & in NER**
- **National SC-ST Hub (NSSH):** The scheme is aimed at promoting entrepreneurship among the SC/ST and fulfilling the 4% procurement mandate by the CPSEs as laid down in the Central Government Public Procurement Policy and boosting entrepreneurship among SC/STs.
- **Promotion of MSMEs in NER and Sikkim Scheme:** The scheme includes components viz., Setting up of new and modernization of existing Mini Technology Centre, Development of new & existing



Industrial Estates and Development of Tourism Sector.

### Digital lending: No clarity, awaiting RBI response, say bank & fintechs

- FLDG is a lending model between a fintech and a regulated entity in which a third party guarantees to compensate up to a certain percentage of default in a loan portfolio of the regulated entities (RE).
- Under these agreements, the **fintech originates a loan and promises to compensate the partners up to a pre-decided percentage** in case customers fail to repay.
- **The bank/NBFC partners lend through the fintech but from their own books.** FLDG helps **expand the customer base** of traditional lenders but relies on the fintech's underwriting capabilities.
- A report by an RBI-constituted working group on digital lending has laid down risks of FLDG agreements with unregulated entities. The other concern is that **FLDG costs are often passed on to customers.**

### SEBI gives final nod for Social Stock Exchange: What is SSE? Who can list on it?

- SSE is a novel idea in India, and a stock exchange of this kind is intended to **benefit the private and non-profit sectors by directing more capital to them.**
- During her Budget speech for the fiscal year 2019–20, Finance Minister first proposed the concept of SSE. **The Securities Contracts (Regulation) Act, 1956** was then invoked by the government, which subsequently published a gazette notification announcing a new security as "zero coupon zero principal".
- The SSE will **function as a distinct division of the current stock exchanges** under the new regulations.

#### List on SSE

- Not-for-profit organisations (NPOs) and for-profit social enterprises with social intent and impact as their primary goal will be eligible to participate in the SSE.
- The social enterprises will have to engage in a social activity out of 16 broad activities listed by the regulator.
- The eligible activities include-
  - eradicating hunger poverty, malnutrition and inequality
  - promoting healthcare, supporting education, employability and livelihoods

- gender equality empowerment of women and LGBTQIA communities
- supporting incubators of social enterprise.
- Corporate foundations, political or religious organisations or activities, professional or trade associations, infrastructure companies, and housing companies, with the exception of affordable housing, **will not be eligible to be identified as social enterprises.**
- According to Sebi's framework, **minimum issue size of ₹ 1 crore and a minimum application size for subscription of ₹ 2 lakh are currently required for SSE.**

### Environment

#### **Supreme Court Moots Idea Of 'Project Great Indian Bustard' To Save Endangered Birds, Seeks Centre's View**

- The Great Indian Bustard, found mainly in the Indian subcontinent, is the flagship grassland species of India.
- It is one of the largest flying birds in the world, and India's heaviest flying bird.
- The male bird weighs upto 12-15 kg and female bird up to 5-8 kg.
- Black crown on the forehead contrasting with the pale neck and head.
- The body is brownish and the wings are marked with black, brown and grey.
- Diet:
- They feed on grass seeds, insects like grasshoppers and beetles, and sometimes even small rodents and reptiles. The species primarily feed on meswak, sewan grass.
- Its population of about **150 in Rajasthan accounts for 95% of its total world population.**
- They are mainly in Jaisalmer district of Rajasthan, including the Desert National Park which is the natural habitat of the species.
- Grasslands of Kutch in Gujarat which is home to second-largest bustard population in India.
- Arid regions of Maharashtra (Solapur), Karnataka (Bellary and Haveri) and Andhra Pradesh (Kurnool)
- It is the **State bird of Rajasthan.**

Conservation status:

- Listed in Schedule I of the Indian Wildlife (Protection) Act, 1972,
- Listed in Appendix I of CITES,
- Listed as **Critically Endangered on the IUCN Red List.**

### Project Tiger:

- The '**Project Tiger**', launched in 1973, is a **Centrally Sponsored Scheme (CSS)** of the Ministry of environment, forests and climate change.
- It is providing funding support to **18 tiger range states** for in-situ conservation of tigers in designated tiger reserves, and has put the endangered animal on an assured path of recovery by saving it from extinction.
- It started five decades back with nine tiger reserves, now increased to **51 covering 2.23% of the country's geographical area.**

### Artificial highlands aren't enough to protect Kaziranga animals during annual floods

- **The Kaziranga project** is a part of a larger Assam Project on Forest and Biodiversity Conservation (APFBC) for which the **Agence Française de Développement (AFD)** has committed funding of €80.2 million for a 10-year period, between 2014-2024.
- The project conceptualised **the reforestation of 33,500 hectares of land** and the training of 10,000 community members in alternate livelihoods by 2024.
- APFBC Society was **created by State Government of Assam as a Special Purpose Vehicle (SPV)** registered under the Societies Registration Act, 1860.
- The Society has the mandate for planning, implementation, monitoring, coordination and management of all the activities proposed under the project.
- With French and Indian technical and financial support, the **Indo-Pacific Parks Partnership** will facilitate partnership activities for interested natural parks of the Indo-Pacific region. These activities include biodiversity conservation, wildlife management and engagement with local communities.

### Kaziranga National Park

- Located in the **State of Assam** it is the single largest undisturbed and representative area in the Brahmaputra Valley floodplain.
- It is inhabited by the **world's largest population of one-horned rhinoceroses**, as well as many mammals, including tigers, elephants, panthers and bears, and thousands of birds.
- **Protection status:**
  - It was declared a national park in 1974.
  - UNESCO declared it a world heritage site in 1985.
  - It became a Tiger Reserve in 2006.

- It is also recognized as an 'Important Bird Area' by BirdLife International for the conservation of avifaunal species



### International Cheetah Day and Wildlife Conservation Day celebrated at National Zoological Park

- December 4 is marked as International Cheetah Day every year. The day is dedicated to encouraging people worldwide to help this animal win the race against extinction.
- **American zoologist Dr Laurie Marker** is credited with creating International Cheetah Day. Dr Marker founded the **Cheetah Conservation Fund in 1991** and she designated December 4 as International Cheetah Day in 2010.

### Cheetah

- It is one of the oldest of the big cat species, with ancestors that can be traced back more than five million years to the **Miocene era**.
- **Namibia has the world's largest population of cheetahs.**
- The **fastest land animal in the world**, a cheetah can reach **112km/h** in just three seconds.
- In 1952, the **Indian government officially declared the Cheetah extinct** in the country. The cheetah is the **only large carnivore to have gone extinct in India**, primarily due to hunting and habitat loss.
- **All cheetah subspecies are listed as vulnerable by the IUCN, except the Northwest African and Asiatic cheetah which are critically**

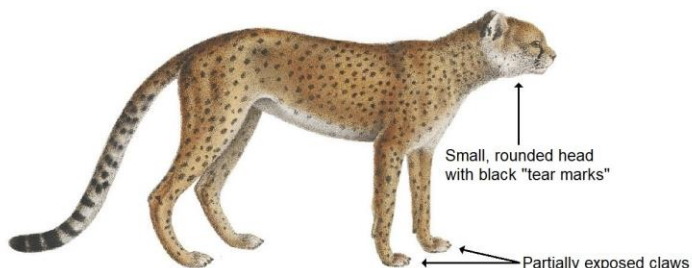
**endangered at present.**

Cheetah and Leopard

- **Cheetahs are commonly misidentified as leopards, and vice versa,** since both big cats have prominent yet similar dark spots on their bodies.
- **Cheetahs boast a pair of dark-coloured curved lines** running between their nose and cheeks, while leopards don't have any unique face markings.
- **The spots on their bodies also differ:** the cheetah's fur is covered with round or oval-shaped spots, whereas the leopard has distinctive spots on its fur called 'rosettes', resembling the shape of a rose.
- **A cheetah is slender, lighter and taller than a leopard,** and it also has semi-retractable claws, allowing for swift movements when chasing prey at high speeds. Leopards, on the other hand, are shorter but bulky and powerful big cats with retractable claws, making them excellent tree climbers.
- Vocally, **cheetahs chirp almost like a bird, while leopards roar like other big cats.**

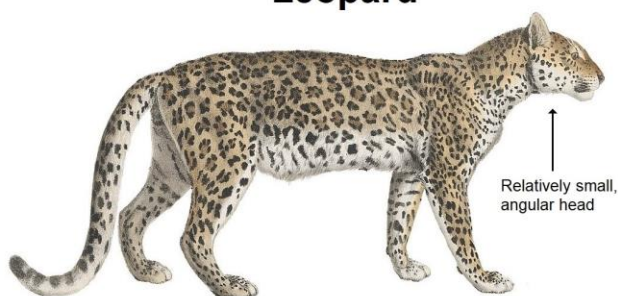


### Cheetah



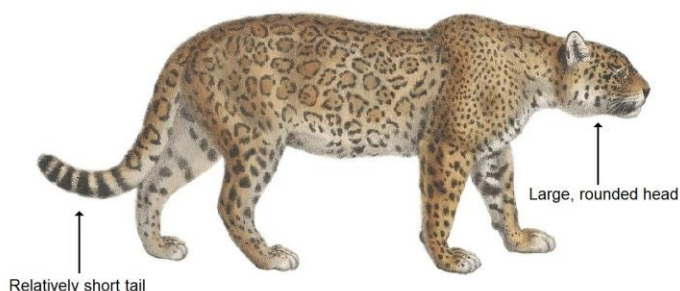
**Solid black spots**

### Leopard



**Small, densely packed rosettes**

### Jaguar



**Large rosettes with central spot**

### Centre approves formation of Advisory Group for streamlining development of Bamboo sector

- Restructured National Bamboo Mission approved by the Cabinet Committee on Economic Affairs (CCEA) on 25-04-2018. It mainly focuses on the development of a **complete value chain of the Bamboo sector** to link growers with consumers
- The Restructured National Bamboo Mission is a **centrally sponsored scheme (CSS)**.
- **Aim:**
  - The Mission envisages promoting holistic growth of bamboo sector by adopting an area-based, regionally differentiated strategy and



- to increase the area under bamboo cultivation and marketing.
- Under the Mission, steps have been taken to increase the availability of quality planting material by supporting the setting up of new nurseries and strengthening of existing ones.
  - **Objectives:**
    - To **increase the area under bamboo plantation in non forest Government and private lands** to supplement farm income.
    - To **improve post-harvest management** through establishment of innovative primary processing units near the source of production.
    - To **promote product development** keeping in view market demand, by assisting R&D, entrepreneurship etc.
  - **Implementation:** It is being **implemented through the state nodal department which is nominated by the State/UT governments concerned.**
  - **The selection of beneficiaries:** The selection of beneficiaries and delivery of assistance are being carried out by the State Bamboo Mission/State Bamboo Development agency stationed at the State/UT nodal department for implimenting the National Bamboo Mission



The infographic features a vertical bamboo stalk on the left side. At the top center is the Government of India emblem. Below it, the text reads 'Ministry of Agriculture & Farmers Welfare, Government of India'. The main title 'NATIONAL BAMBOO MISSION' is in large green letters. A green banner with the word 'OBJECTIVES' is positioned below the title. Four numbered points are listed in a column, each with a green circular icon to its left. At the bottom, there are three circular icons for social media: Facebook (labeled 'AgriGei'), Twitter (labeled 'AgriGei'), and a globe icon (labeled 'agricoop.gov.in').

Ministry of Agriculture & Farmers Welfare  
Government of India

## NATIONAL BAMBOO MISSION

### OBJECTIVES

- 1 To increase the area under bamboo plantation in non forest Government and private lands to supplement farm income and contribute towards availability of quality raw material requirement of industries.
- 2 To improve post-harvest management through establishment of innovative primary processing units, primary treatment and seasoning plants, preservation technologies and market infrastructure.
- 3 To promote skill development, capacity building, awareness generation for development of bamboo sector.
- 4 To promote product development

AgriGei AgriGei agricoop.gov.in

## **Government of India has accorded 'In-Principle' approval for setting up of 21 Greenfield Airports.**

- Development of a Greenfield airport is governed under the **Greenfield Airports (GFA) Policy, 2008**.
- As per the Policy, a State Government or an Airport Developer, willing to establish an airport is required to send a proposal to the Ministry of Civil Aviation (MoCA) for **2-stage approval i.e. 'Site-Clearance' followed by 'In-Principle' approval**.
- Such proposals are considered by MoCA as per the procedure stipulated in the GFA Policy.
- The responsibility of implementation of airport projects including funding of the projects rests with the **concerned airport developer including the respective State Government** (in case the State Government is the project proponent).
- Government of India (GoI) has accorded 'In-Principle' approval for setting up of **21 Greenfield Airports namely**,
  - Mopa in **Goa**,
  - Navi Mumbai, Shirdi and Sindhudurg in **Maharashtra**,
  - Kalaburagi, Vijayapura, Hassan and Shivamogga in **Karnataka**,
  - Dabra (Gwalior) in **Madhya Pradesh**,
  - Kushinagar and Noida (Jewar) in **Uttar Pradesh**,
  - Dholera and Hirasar in **Gujarat**,
  - Karaikal in **Puducherry**,
  - Dagadarthi, Bhogapuram and Oravakal (Kurnool) in **Andhra Pradesh**,
  - Durgapur in **West Bengal**,
  - Pakyong in **Sikkim**,
  - Kannur in **Kerala** and
  - Donyi Polo, Itanagar in **Arunachal Pradesh**.
- Out of these, **9 Greenfield airports** Durgapur, Shirdi, Kannur, Pakyong, Kalaburagi, Orvakal (Kurnool), Sindhudurg, Kushinagar and Donyi Polo, Itanagar **have been operationalized**.

## **Cyclone Mandous, a severe cyclonic storm in the Bay of Bengal, is likely to bring heavy rainfall to parts of Tamil Nadu on December 9, 2022.**

- Cyclones are known as typhoons in the China Sea and Pacific Ocean; hurricanes in the Caribbean Sea and Atlantic Ocean; tornados in the Guinea lands of West Africa and southern USA; willy-willies in north-western Australia and tropical cyclones in the Indian Ocean.
- Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air

circulation.

- Cyclones are usually accompanied by violent storms and bad weather.
- The air circulates inward in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere.

### **Types:**

- **Cyclones are classified as:**
  - (i) extra tropical cyclones; and
  - (ii) tropical cyclones.
- According to the World Meteorological Organisation (WMO), 'Tropical Cyclone' covers weather systems in which winds exceed 'Gale Force' (minimum of 34 knots or 63 kph).
- Extra tropical cyclones (also called temperate cyclones) occur in temperate zones and high latitude regions, though they are known to originate in the Polar Regions.

### **Promoting a Heat-Resistant Variety of Wheat**

- The wheat varieties DBW187 and DBW222 have been found superior over HD-3086 as far as heat tolerance is concerned.
- During the crop season 2021-22, the varieties namely DBW187 and DBW222 have shown heat tolerance with yield gain of 3.6% and 5.4%, respectively as compared to HD-3086.
- The Government aims to promote the **use of heat-resistant varieties amongst the farmers** through public and private partnership and providing seed directly to the farmers.
- To promote the use of these varieties, the Indian Institute of Wheat and Barely Research (IIWBR), Karnal under ICAR has signed 250 Memorandum of Agreements (MoAs) for DBW 187 and 191 MoAs for DBW 222 with private companies for seed production.
- The ICAR-IIWBR Karnal has initiated a specific research project entitled **"Breeding high yielding wheat genotypes for stress conditions of warmer regions of India"** on heat tolerant varieties.
- Besides, ICAR-IIWBR Karnal is also collaborating with **International Maize and Wheat Improvement Centre (CIMMYT), Mexico on development of climate resilient wheat varieties.**

### **Why have countries failed to meet their biodiversity goals?**

- Many of the 24 conservation targets under discussion at the 15th Conference of the Parties (COP15) aim to avoid past mistakes and improve on the world's last set of conservation goals — the Aichi

Biodiversity Targets that expired in 2020.

- No single country met all 20 Aichi Targets within its own borders, according to a September 2020 UN assessment.

Aichi Targets:

- The Convention on Biological Diversity (CBD) adopted the Aichi Biodiversity Targets at the Nagoya conference in 2010.
- The Aichi Biodiversity Targets laid out a 10-year plan (Strategic Plan for Biodiversity 2011-2020), which had 20 global biodiversity targets, divided under five goals, with a deadline of 2020.
  - Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society.
  - Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use.
  - Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.
  - Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.
  - Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building
- It included goals such as reducing deforestation by at least half during the coming decade and curbing pollution so that it no longer harmed ecosystems.
- Many of the targets, however, included vague language and did not hold countries to a specific action.
- After parties adopted the Aichi Targets, they were expected to devise their own national biodiversity strategies that would mimic the goals laid out by Aichi.
- Nearly all parties created these strategies, but most were never fully implemented.

### Three Himalayan medicinal plants enter IUCN Red List

- **Meizotropis pellita** has been assessed as 'critically endangered', **Fritilloria cirrhosa** as 'vulnerable', and **Dactylorhiza hatagirea** as 'endangered'.

#### **Meizotropis pellita:**

- Meizotropis pellita, commonly known as Patwa, is a perennial shrub with restricted distribution that is **endemic to Uttarakhand**.
- "The species is listed as '**critically endangered**' based on its limited area of occupancy (less than 10 sq. km)," the study stated.
- The species is threatened by deforestation, habitat fragmentation and forest fires.

- The essential oil extracted from the leaves possesses strong antioxidants and can be a promising natural substitute for synthetic antioxidants in pharmaceutical industries.

#### **Fritillaria cirrhosa:**

- Fritillaria cirrhosa (Himalayan fritillary) is a perennial bulbous herb.
- According to the study, a decline of at least 30% of its population over the assessment period (22 to 26 years).
- Considering the rate of decline, long generation length, poor germination potential, high trade value, extensive harvesting pressure and illegal trade, the species is listed as 'vulnerable'.
- In China, the species is used for the treatment of **bronchial disorders and pneumonia**.
- The plant is also a **strong cough suppressant**.

#### **Dactylorhiza hatagirea:**

- The third listed species, Dactylorhiza hatagirea (Salampanja), is threatened by habitat loss, livestock grazing, deforestation, and climate change.
- It is extensively used in Ayurveda, Siddha, Unani and other alternative systems of medicine to cure dysentery, gastritis, chronic fever, cough and stomach aches.

#### **GEF-UNIDO-BEE Project**

- The United Nations Industrial Development Organization (UNIDO), in collaboration with the Bureau of Energy Efficiency (BEE) is executing a Global Environment Facility (GEF) funded national project titled "**Promoting energy efficiency and renewable energy in selected MSME clusters in India**". The project was initiated in 2011.
- **Aim:** To develop and promote a market environment for introducing energy efficiency (EE) and enhanced use of renewable energy (RE) technologies in process applications in selected energy-intensive micro, small and medium enterprises (MSME) sectors.
- The project has been supported by the **Ministry of Micro, Small, and Medium Enterprises (MoMSME) and the Ministry of New and Renewable Energy (MNRE)**.
- The project has implemented its programmatic intervention in 26 clusters in five different energy.

#### Bureau of Energy Efficiency (BEE)

- It is an agency of the Government of India, under the **Ministry of Power** created in 2002 under the provisions of the **Energy Conservation Act**,



**2001.**

- The mission of BEE is to assist in developing policies and strategies with a thrust on self-regulation and market principles with the primary objective of reducing energy intensity of the Indian economy.

United Nations Industrial Development Organization (UNIDO)

- It is a **specialized agency of the United Nations** that assists countries in economic and industrial development.
- It was established in 1966 by the UN General Assembly to promote and accelerate the industrialization of developing countries, which were emerging from decolonization in record numbers and with little to no industrial base.

### **Fossil-Sorting Robots Will Help Researchers Study Oceans, Climate**

- According to a research, Forabot: Automated Planktic Foraminifera Isolation and Imaging, published in the open-access journal Geochemistry, Geophysics, Geosystems, North Carolina State University have developed and demonstrated a robot named Forabot which capable of sorting, manipulating and identifying microscopic marine fossils.
- Forabot has an accuracy rate of 79 per cent for identifying forams, which is better than most trained humans.
- Forabot is capable of identifying six different types of foram and processing 27 forams per hour.
- The robot's AI uses images to identify the type of foram and sorts it accordingly.

Foraminifera:

- Foraminifera, also called forams, are very simple micro-organisms that secrete a tiny shell, a little longer than a millimetre.
- The organisms have existed in our oceans for more than 100 million years.
- When forams die, they leave behind their shells.
- Examining their shells give scientists insights into the characteristics of the oceans from a time when the forams were alive.
- Different types of foram species thrive in different ocean environments and chemical measurements can tell scientists everything from the ocean's chemistry to its temperature when the shell was being formed.

### **Auto companies to face stiff fines over emissions**



- Car companies in India will have to cough up stiff penalties from April, 2023 with Parliament approving Energy Conservation (Amendment) Bill 2022 that stipulates heavy fines on a company's annual domestic sales numbers for violation of mandated Corporate Average Fuel Economy (CAFE) score.
- Corporate Average Fuel Efficiency/Economy regulations are in force in many advanced as well as developing nations, including India.
- They aim at lowering fuel consumption (or improving fuel efficiency) of vehicles by lowering carbon dioxide (CO<sub>2</sub>) emissions, thus serving the twin purposes of reducing dependence on oil for fuel and controlling pollution.
- Corporate Average refers to sales-volume weighted average for every auto manufacturer.
- The norms are applicable for petrol, diesel, LPG and CNG passenger vehicles.
- CAFE regulations in India came into force from April 1, 2017.
- Under this, average corporate CO<sub>2</sub> emission must be less than 130 gm per km till 2022 and below 113 gm per km thereafter.

CAFE (Corporate Average Fuel Efficiency) and BS6:

- CAFE (Corporate Average Fuel Efficiency) regulations are similar norms to BS6 but with a different approach towards reducing the carbon footprint in the exhaust gasses of the vehicle.
- **CAFE majorly focuses on CO<sub>x</sub> emissions. BS6, on the other hand, focuses on overall emissions which include NO<sub>x</sub> (Nitrogen Oxides), SO<sub>x</sub> (Sulphur Oxides).**
- The CAFE regulations aim to reduce the overall CO<sub>x</sub> (Carbon Oxides) from the exhaust of the vehicle.
- The reduced carbon footprint leads to increased fuel economy.

### **Union Minister Dr Jitendra says, India is not reliant on China for accessing rare earth minerals**

- Rare Earth Elements or Rare Earth Metals are a set of 17 elements in the periodic table — the 15 lanthanides, plus scandium and yttrium, which tend to occur in the same ore deposits as the lanthanides, and **have similar chemical properties.**
- They used in production in a huge number of sectors, including renewable energy technology, oil refinery, electronics, and the glass industry.
- Rare Earth elements are used in space shuttle components, jet engine turbines, and drones.
  - **Cerium**, the most abundant Rare Earth element, is essential to NASA's Space Shuttle Programme.

- **Although called "rare", they are actually found relatively abundantly in the Earth's crust.**
- However, they are hazardous to extract, and there are relatively few places in the world that mine or produce them.
- According to the Rare Earth Technology Alliance (RETA), the estimated size of the Rare Earth sector is between \$10 billion and \$15 billion. About 100,000-110,000 tonnes of Rare Earth elements are produced annually around the world.

## SEVENTEEN RARE EARTH ELEMENTS

Rare earth name	Discovery year	Atomic name & number	Light/heavy REE	Critical/ Uncritical
Yttrium	1788	Y-39	Heavy	Critical
Cerium	1803	Ce-58	Light	Excessive
Lanthanum	1839	La-57	Light	Uncritical
Erbium	1842	Er-68	Heavy	Critical
Terbium	1843	Tb-65	Heavy	Critical
Ytterbium	1878	Yb-70	Heavy	Excessive
Holmium	1878	Ho-67	Heavy	Excessive
Scandium	1879	Sc-21	Heavy	Critical
Samarium	1879	Sm-62	Light	Uncritical
Thulium	1879	Tm-69	Heavy	Excessive
Praseodymium	1885	Pr-59	Light	Uncritical
Neodymium	1885	Nd-60	Light	Critical
Dysprosium	1886	Dy-66	Heavy	Critical
Europium	1886	Eu-63	Heavy	Critical
Gadolinium	1886	Gd-64	Heavy	Uncritical
Lutetium	1907	Lu-71	Heavy	Excessive
Promethium	1947	Pm-61		

Reserves of rare-earth minerals:

- China has the largest reserve (37 percent), followed by Brazil and Vietnam (18 percent each), Russia (15 percent), and the remaining countries (12 percent).
- India has the world's fifth-largest reserves of rare earth elements (contributing a total value of nearly \$200 billion to the Indian economy), nearly twice as much as Australia.

## Rare earth metals production and reserves



### NTPC Bongaigaon observes 'National Energy Conservation Day'

- The purpose is to showcase the achievements of the nation in energy efficiency and conservation.

#### National Energy Conservation Award 2022:

- To raise awareness about energy efficiency and its conservation, the BEE, under the guidance of Ministry of Power, recognizes and encourages endeavours of industrial units, institutions, and establishments in reducing energy consumption by felicitating them with **Energy Conservation Awards** on the occasion of National Energy Conservation Day, celebrated on 14th December every year.

#### National Energy Efficiency Innovation Awards (NEEIA) 2022:

- To recognize outstanding work and innovative minds of India in the area of Energy Efficiency, NEEIA awards were started in the year **2021**.
- The awards are evaluated based on Replicability, Affordability, Reliability, Impact on Energy Savings and Impact on Environment & Sustainability.

#### National Painting Competition 2022:

- To continually bring change in society towards conservation and efficient use of energy, the Ministry of Power has been organizing the National Painting Competition on Energy Conservation since **2005**.
- The competition is held in three stages, namely, **School, State and**

### **National Level.**

#### EV-YATRA PORTAL:

- Bureau of Energy Efficiency has developed a Mobile Application to facilitate in-vehicle navigation to the nearest public EV charger, a website to disseminate information on various central and state-level initiatives to promote e-mobility in the country, and a web-portal to enable CPOs to register their charging details securely into the National Online Database.
- The Mobile application titled “**EV Yatra**” has been designed and developed to facilitate in-vehicle navigation to the nearest public EV charger.

#### **Geographical Indication tag sought for Beypore Uru**

- It is a wooden dhow (ship / sailing boat / sailing vessel) handcrafted by skilled artisans and carpenters in Beypore, Kerala.
- It is mainly made of Malabar teak, probably the biggest handicraft in the world.
- Beypore urus are purely made of wood, without using any modern techniques, and traditional methods are used to launch this ship into the water.
- The carpenters manually join each piece of wood to build the large boat.
- Uru making in Beypore is a centuries old tradition that was established since India began its maritime trade with Mesopotamia.
- Beypore is a town located on the banks of the Chaliyar River.
- According to records, Uru ships have been in high demand for around 2,000 years.

#### Khalasis:

- The Khalasis are the traditional artisans responsible for the manufacture of the Uru.
- They are the ones who launch these urus into the water, setting them ready for travel.
- Arab traders were especially enamoured of them, and were among the first major patrons of these vessels.
- It takes at least four years and the effort of over forty Khalasis to build an Uru.

#### **Curbing air pollution in India needs efforts across South Asia**

- According to the report, existing measures by the government can reduce particulate matter, significant reduction is possible only if the territories spanning the airsheds implement coordinated policies.
- **Currently over 60% of South Asians are exposed to an average 35 g/m<sup>3</sup> of PM<sub>2.5</sub> annually.**
- In some parts of the Indo-Gangetic Plain (IGP) it spiked to as much as 100 g/m<sup>3</sup> – nearly 20 times the upper limit of 5 g/m<sup>3</sup> recommended by the World Health Organisation.
- According to the report, India has six large airsheds, some of them shared with Pakistan, between which air pollutants move.
- **The six major airsheds in South Asia where air quality in one affected the other were:**
  - **West/Central IGP:** Punjab (Pakistan), Punjab (India), Haryana, part of Rajasthan, Chandigarh, Delhi, Uttar Pradesh;
  - **Central/Eastern IGP:** Bihar, West Bengal, Jharkhand, Bangladesh;
  - **Middle India:** Odisha/Chhattisgarh;
  - **Middle India:** Eastern Gujarat/Western Maharashtra;
  - **Northern/Central Indus River Plain:** Pakistan, part of Afghanistan; and
  - **Southern Indus Plain and further west:** South Pakistan, Western Afghanistan extending into Eastern Iran.
- When the wind direction was predominantly northwest to the southeast, 30% of the air pollution in Indian Punjab came from the Punjab Province in Pakistan and, on average, 30% of the air pollution in the largest cities of Bangladesh (Dhaka, Chittagong, and Khulna) originated in India.
- In some years, substantial pollution flowed in the other direction across borders.
- If Delhi National Capital Territory were to fully implement all air pollution control measures by 2030 while other parts of South Asia continued to follow current policies, it wouldn't keep pollution exposure below 35 g/m<sup>3</sup>.
- However if other parts of South Asia also adopted all feasible measures it would bring pollution below that number.

### **“Eco Circuit” identified as one of the 15 thematic circuits under Swadesh Darshan Scheme to promote Eco Tourism in the country**

- **Implementing Ministry:** Ministry of Tourism.
- **Type of Scheme:** Central Sector Scheme.
- **\*\*Launched in:\*\*** 2014-15.
- Developing critical tourism infrastructure to make India a world class tourist destination.
- This scheme is envisioned to synergise with other schemes like Swachh Bharat Abhiyan, Skill India, Make in India etc. with the idea of



positioning the tourism sector as a major engine for job creation, the driving force for economic growth, building synergy with various sectors to enable tourism to realise its potential.

- **Circuits:**
  - Under the Scheme 15 circuits have been identified for development namely Himalayan Circuit, North East Circuit, Krishna Circuit, Buddhist Circuit and Coastal Circuit, Desert Circuit, Tribal Circuit, Eco Circuit, Wildlife Circuit, Rural Circuit, Spiritual Circuit, Ramayana Circuit, Heritage Circuit, Tirthankar Circuit and Sufi Circuit.

#### Swadesh Darshan Scheme 2.0

- It aims to evolve Swadesh Darshan Scheme as a holistic mission to develop sustainable and responsible tourism destinations covering tourism and allied infrastructure, tourism services, human capital development, destination management and promotion backed by policy and institutional reforms.
- **Major themes have been identified for tourism under the Scheme.**
  - Culture and Heritage
  - Adventure Tourism
  - Eco-Tourism
  - Wellness Tourism
  - MICE Tourism
  - Rural Tourism
  - Beach Tourism
  - Cruises – Ocean & Inland

#### 7th Edition of 'India Water Impact Summit' is underway

- The Summit aims at giving an insight into the potential causes for divergence and formulating strategy to achieve convergence.
- It is organised by NITI Aayog at Dr Ambedkar International Centre (DAIC), 15 Janpath, New Delhi.
- Experts from the country and abroad are discussing ways to protect the small rivers in large river basins.
- **Theme:**
  - 'Restoration and Conservation of Small Rivers in a Large Basin' with emphasis on the select aspects of 'Mapping and Convergence of 5Ps' - People, Policy, Plan, Programme and Project.
- **Finance Forum:**
  - The summit will also host the "Finance Forum", a special track that will bring together global financial institutions and investors interested in river restoration and conservation programmes.
- The 2022 summit, like earlier summits, will also provide an opportunity



to dozens of technology and innovation companies from around the world that are keen to bring their solutions to India to address various issues and concerns pertinent to our river basins.

### **Centre awards nine GI tags to take total to 432, Kerala bags five**

- **Attappady Attukombu Avara (beans), Attappady Thuvara (red gram), Onattukara Ellu (sesame), Kanthalloor-Vattavada Veluthulli (garlic), and Kodungalloor Pottuvellari (snap melon) are the latest Geographical Indications that have been registered.**
- The unique features of the products, imparted by the agro-climatic conditions of the geographical area of their production, are the basis for getting geographical indication tag.

Attappady Attukombu Avara:

- Attappady Attukombu Avara, cultivated in the Attappady region of Palakkad, is curved like a goat's horn as its name indicates.
- Its higher anthocyanin content compared to other dolichos beans imparts violet colour in the stem and fruits.
- Anthocyanin is helpful against cardiovascular diseases along with its antidiabetic properties.
- Other than this, calcium, protein, and fibre content are also high.
- The higher phenolic content of Attappady Attukombu Avara imparts resistance against pest and diseases, making the crop suitable for organic cultivation.

Attappady Thuvara:

- Attappady Thuvara is having seeds with white coat.
- Compared to other red grams, Attappady Thuvara seeds are bigger and have higher seed weight.
- This delicious red gram, which is used as vegetable and dal, is rich in protein, carbohydrate, fibre, calcium and magnesium.

Kanthalloor-Vattavada Veluthulli (garlic):

- Compared to the garlic produced in other areas, the garlic from the Kanthalloor-Vattavada area of Devikulam block panchayat in Idukki contains higher amount of sulphides, flavonoids, and proteins.
- It is rich in allicin, which is effective against microbial infections, blood sugar, cancer, cholesterol, heart diseases, and damages to blood vessels.
- The garlic cultivated in this area is also rich in essential oil.

Onattukara Ellu (sesame):

- Onattukara Ellu and its oil are famous for its unique health benefits.
- Relatively higher antioxidant content in Onattukara Ellu helps in fighting the free radicals, which destroy the body cells.
- Also, the high content of unsaturated fat makes it beneficial for heart patients.

Kodungalloor Pottuvellari (snap melon):

- Kodungalloor Pottuvellari cultivated in Kodungalloor and parts of Ernakulam is consumed as juice and in other forms.
- This snap melon, which is harvested in summer, is an excellent for quenching thirst.
- It contains high amount of Vitamin C.
- Compared to other cucurbits, nutrients such as calcium, magnesium, fibre and fat content are also high in Kodungalloor Pottuvellari.

**India is confident of forming a bio-fuel alliance with other countries, says Petroleum Minister Hardeep Singh Puri**

- **The E20 fuel is a twenty percent blend of Ethanol and eighty percent of fossil based fuel.**
- The introduction of E20 fuel has the motive of reducing the reliance on fossil based fuels for building a more sustainable society for the future and to reduce vehicular emissions.
- It is expected to reduce air pollution, being lesser polluting than petrol.
- The government foresees oil import savings to the tune of Rs. 30,000 crores annually.

Ethanol fuel

- Ethanol fuel is ethyl alcohol, the same type of alcohol found in alcoholic drinks.
- It is most commonly utilized as a motor fuel, primarily as a biofuel addition in gasoline. Biomass is commonly utilized for making ethanol, such as corn or sugarcane. India's abundance of sugarcane production is pivotal to the push towards ethanol based fuel.

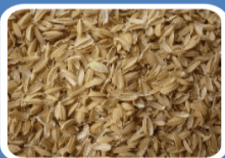
Flex engines:

- Flex engines are those that can run at any ratio of ethanol blending from **E20 to E100**.
- These types of engines and cars are not new.
  - The Fiat 147, launched in 1978 in Brazil, was the first production car to run solely on ethanol.



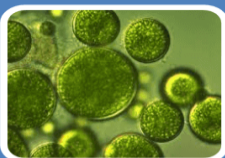
### 1<sup>st</sup> Generation Biofuel

- It has **High Carbon Content**.
- Made from Edible Items. Eg- **Sugar, Corn, Starch** etc.



### 2<sup>nd</sup> Generation Biofuel

- **Greenhouse Gas content less than 1<sup>st</sup> Generation Biofuel**
- Made from leftover of Food Crops. Eg- **Rice Husk, Wood Chips** etc.



### 3<sup>rd</sup> Generation Biofuel

- It is **Carbon Neutral** in. ( $\text{CO}_2$  Emitted =  $\text{CO}_2$  Sequestered)
- Produced using Microorganisms. Eg. **Algae**



### 4<sup>th</sup> Generation Biofuel

- Made from '**Genetically Engineered Crops**'.
- They are **Carbon Negative**.

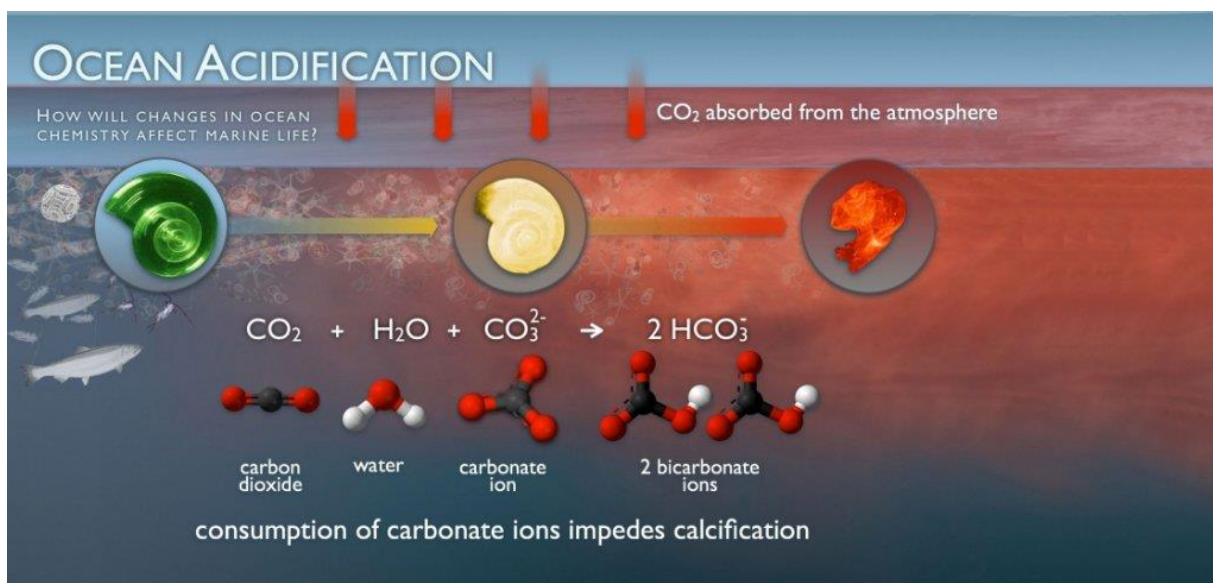
## Acidification Of Great Lakes :By NOAA

- Recently, a study by the National Oceanic and Atmospheric Administration (NOAA)'s Ocean, Coastal, and Great Lakes Acidification Research Plan said, by 2100 even the Great Lakes of North America might approach acidity at the same rate as the oceans.
- The increase in atmospheric carbon dioxide has caused the world's oceans to turn more acidic, but the new finding that the freshwater bodies are also turning acidic is a shock.
- Scientists are building a sensor network to measure the carbon dioxide and pH levels of the Lakes, starting with developing a system to detect the water chemistry trends of Lake Huron, one of the five Great Lakes.

## Acidification

- It is a phenomenon resulting from the release of protons from certain substances into the ecosystem. These emissions increase the acidity (decrease in pH) of water and soils.
- Acidification of oceans or freshwater bodies takes place when excess carbon dioxide in the atmosphere gets rapidly absorbed into them. The absorption of carbon dioxide leads to a lowering of the pH, which makes the water bodies more acidic.

- **Consequences of acidification**
- It will decrease native biodiversity,
- It will create physiological challenges for organisms,
- There are possibilities of permanently altering the structure of the ecosystem.



### Great Lakes

- The Great Lakes of North America, or simply the Great Lakes, are **five interconnected bodies of water straddling the US-Canada border**. They are the largest group of freshwater lakes in the world.
  - The Great Lakes are **Superior, Michigan, Huron, Erie, and Ontario**. The US-Canada border passes through Lakes Superior, Huron, Erie, and Ontario. **Lake Michigan lies entirely in the US**.
  - They drain into the Gulf of St Lawrence in the North Atlantic through the St Lawrence River.
- **Formation:** The Great Lakes are believed to be formed some 20,000 years ago when the Earth started to warm and water from melting glaciers filled the basins on its surface, according to NOAA.
- **Significance :**
- Today, the Great Lakes contain a fifth of the world's total freshwater and are a crucial source of irrigation and transportation.
- The Great Lakes also serve as the habitat for more than 3,500 species of plants and animals.

### Rashtriya Gokul Mission envisages development and conservation of indigenous bovine breeds

- **The Department of Animal Husbandry and Dairying** is implementing

RGM for development and conservation of indigenous bovine breeds since December 2014.

- The scheme is important for enhancing milk production and productivity of bovines to meet the growing demand of milk and making dairying more remunerative for the rural farmers of the country.
- **Objectives**
  - **To enhance productivity of bovines** and increasing milk production in a sustainable manner using advance technologies.
  - **To propagate use of high genetic merit bulls** for breeding purposes.
  - **To enhance Artificial insemination coverage** through strengthening breeding network and delivery of Artificial insemination services at farmers doorstep.
  - **To promote indigenous cattle & buffalo rearing** and conservation in a scientific and holistic manner.
- **Funding Pattern:** All the components of Scheme will be implemented on **100% grant-in-aid basis except the components of:**
  - **accelerated breed improvement programme** under the component subsidy of Rs 5000 per IVF pregnancy will be made available to participating farmers as GoI share;
  - **promoting sex sorted semen** under the component subsidy upto 50% of the cost of sex sorted semen will be made available to participating farmers and
  - **establishment of breed multiplication farm** under the component subsidy upto 50% of the capital cost maximum upto Rs.2.00 crore of the project will be made available to entrepreneur.

### **Polar bears in key Canada region dying: Causes, effects**

- Polar bears in Canada's Western Hudson Bay, an inland sea connected to the Arctic Ocean, are dying at a fast rate, according to a new government survey, the Associated Press reported recently. It also revealed that females and younger polar bears are the worst affected.
- At the time of the survey, conducted by air in 2021, researchers calculated that there were 618 bears left in Western Hudson Bay — the region includes Churchill, the town that is known as '**the Polar Bear Capital of the World**'.
- When the last survey took place in 2016, there were 842 bears in the area.
- According to the researchers, Western Hudson Bay has witnessed a drop of around 50% in the population of polar bears since the 1980s.

Importance of polar bears:

- Polar bears are one of the most significant predators in the Arctic region



- and they keep biological populations in balance.
- The big kills made by them serve as a food resource for scavengers like Arctic foxes and Arctic birds.
  - If polar bears aren't able to hunt animals like seals, it can severely impact the food chain and health of the ecosystem.
  - Researchers have also found that once polar bears can't find seals to eat, they would quickly move to kill and survive on other creatures in the Arctic region.
  - This would threaten the existence of species like the Arctic fox or the walrus.
  - Moreover, it might also cause the overpopulation of seals, which could endanger the existence of crustaceans and fish that are an important food source for local human populations as well as other Arctic wildlife.
  - The polar bear is classified as “**vulnerable**” on the **IUCN Red List**.

### **Fewer polluted river stretches but worst stretches unchanged**

- The CPCB network monitors water quality at 4,484 locations in 28 States and seven Union Territories including rivers, lakes, creeks, drains and canals.
- The number of polluted river stretches categorised in 'Priority 1 to 5'.
  - **\*\*Priority 1:\*\*** River stretches with a BOD exceeding 30 mg/L are considered the most polluted and thus need the most urgent remediation.
  - **Priority 2:** Indicating a BOD of 20-30 mg/L.
  - **Priority 3:** BOD between 10-20 mg/l
  - **Priority 4:** BOD between 6-10 mg/l.
  - **Priority 5:** Indicating 3-6 mg/L.
- While **Gujarat and Uttar Pradesh** had the **maximum number** of 'Priority 1' river stretches (6), Maharashtra had the maximum number of polluted river stretches i.e. 55, followed by Madhya Pradesh (19), Bihar (18), Kerala (18), Karnataka (17) and Uttar Pradesh (17).

### **What is Biological Oxygen Demand (BOD)**

- BOD is defined as the amount of dissolved oxygen needed by bacteria in decomposing the organic wastes present in water. The higher value of BOD indicates low dissolved oxygen content of water.

### **Central Pollution Control Board (CPCB)**

- The Central Pollution Control Board (CPCB) of India is a **statutory organisation** under the Ministry of Environment, Forest and Climate Change.
- It was established in 1974 under **the Water (Prevention and Control of Pollution) Act, 1974**.



- CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

### **Bomb cyclone continues to batter US as death toll mounts to 34, millions still without power**

- A bomb cyclone is a **mid-latitude storm** in which the **central pressure drops fast at one millibar per hour for at least 24 hours**. However, the millibar readings can change based on where the storm is forming.
- This quickly increases the pressure difference, or gradient, between the two air masses, making the winds stronger. This process of rapid intensification has a name: **bombogenesis**.
- As the winds blow, the rotation of the Earth creates a cyclonic effect. The direction is counterclockwise in the Northern Hemisphere (when viewed from above).
- **Formation:**
  - A bomb cyclone is formed when the air of different air masses (cold, dry) comes together.
  - As the warm air rises, it creates a cloud system lowering air pressure and forming into a storm circulating counterclockwise around the low-pressure area.
- **Characteristics:**
  - The bomb cyclone will be characterised by cold winds, which are also expected to pick up, and wind chill temperatures could drop to dangerous lows far below zero — enough to cause frostbite within minutes.
  - The dangerous storm is expected to hit everyone east of the Rockies — around two-thirds of the country.

### **India's northern states to combat severe cold wave conditions for next two days**

- The IMD records a cold wave when the minimum temperature is equal to or less than 10 degree Celsius at a weather station in the plains, and is **5 degrees to 6.4 degrees below the normal temperature for that period**.
- **A cold wave** may also be recorded at a station in the plains when the minimum temperature is less than or equal to 4 degree Celsius.
- **For hilly regions**, a cold wave is declared when the minimum temperature is less than or equal to 0 degree Celsius and the minimum temperature is 4.5 degrees to 6.4 degrees below the normal.
- **The 'normal' temperature** is calculated for every five days by taking the

average temperature for these days over the past 30 years.

### Ratnagiri's pre-historic rock art: Why a proposed oil refinery has experts worried

- Barsu sites in the Konkan region were added to a tentative list of UNESCO's world heritage sites and protected by the state archaeology department and the Archaeological Survey of India (ASI).

#### Geoglyphs

- Geoglyphs are a **form of prehistoric rock art, created on the surface of laterite plateaus.**
- They are made by removing a part of the rock surface through an incision, picking, carving or abrading.
- They can be in the form of rock paintings, etchings, cup marks and ring marks.

#### Significance of this prehistoric rock art?

- Clusters of geoglyphs are spread across the Konkan coastline in Maharashtra and Goa, spanning around 900 km. Porous laterite rock, which lends itself to such carving, is found on a large scale across the entire region.
- It has more than 1,500 pieces of such art, also called "**Katal Shilpa,**" spread across 70 sites.
- This is evidence of the continued existence of human settlements from the Mesolithic (middle Stone Age) to the early historic era.
- UNESCO's tentative world heritage list mentions **seven sites** with petroglyphs in **Ratnagiri district — Ukshi, Jambharun, Kasheli, Runde Tali, Devihsol, Barsu and Devache Gothane, one in Sindhudurg district –Kudopi village, and nine sites at Phansamal in Goa.**
- The figures depicted in the geoglyphs **include humans and animals** such as deer, elephant, tiger, monkey, wild boar, rhinoceros, hippopotamus, cattle, pig, rabbit, and monkey.
- They also include a high number of reptilian and amphibian creatures such as tortoises and alligators, aquatic animals such as sharks and sting rays, and birds like peacocks.

### International Relations

## **G-20 Sherpa meeting to be held at Udaipur in Rajasthan from Dec 5 to 7**

- This will be the **first G20 Sherpa Meeting in India**.
- The meeting is aimed at fostering growth and building bonds amongst the twenty nations.
- The Sherpa Meeting of the G20 Summit is a preliminary meeting of the government representatives before the main G20 Summit.
- Here the representatives of the member nations hold discussions to firm up possible agreements.
- The final decisions are taken at the G20 summit by the Heads of States.
- Ahead of the main G20 Summit, the Sherpas meeting ensures that the time and resources required at the time of negotiations of the larger heads of state at the final summit are minimized.
- The former CEO of NITI Aayog, **Amitabh Kant** is the G20 Sherpa from India.

## **Iran Abolishes Its Morality Police After Months of Mass Protests**

- The morality police is known formally as the Gasht-e Ershad or "Guidance Patrol".
- They were established under hardline president Mahmoud Ahmadinejad, to "spread the culture of modesty and hijab", the mandatory female head covering.
- The unit began patrols in 2006.
- The Gasht-e Ershad are part of the police force and supervised by Supreme Leader Ayatollah Ali Khamenei, but the elected government has a say in their activities through the Interior Ministry.
- Both men and women officials are part of the morality police.

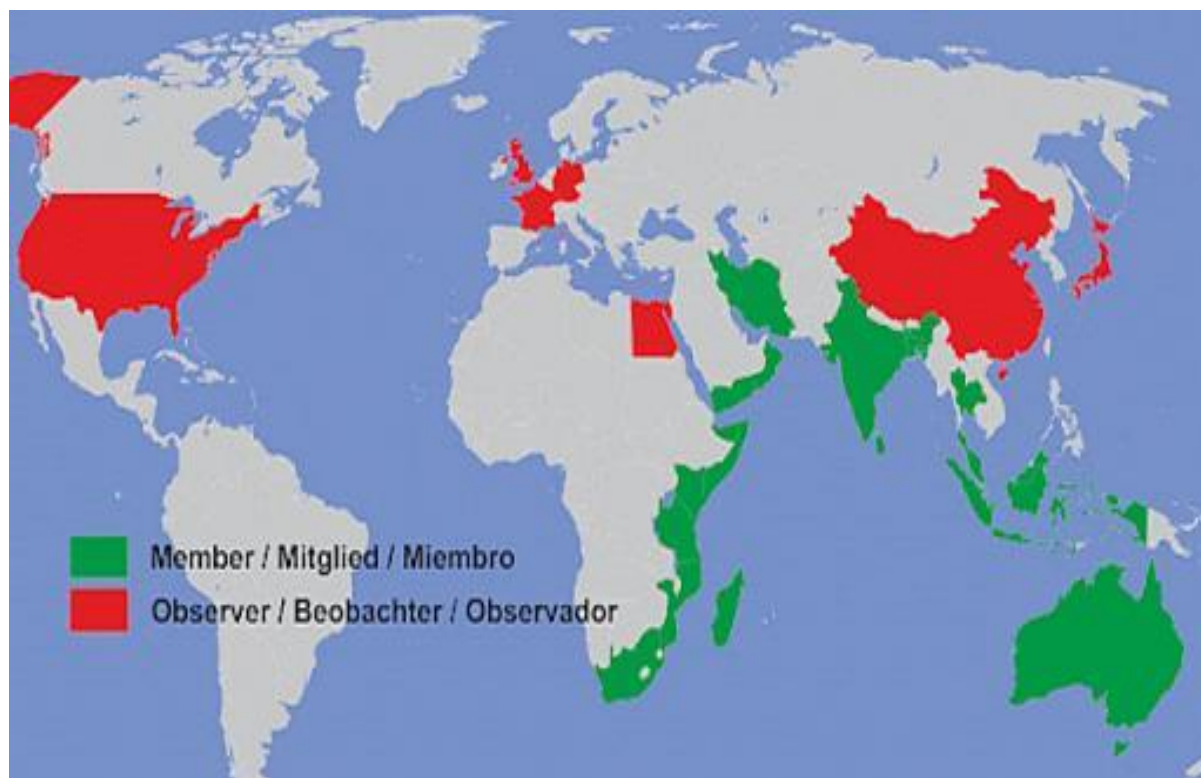
### Functions:

- It was constituted to enforce the rules on morality and the public appearance of women, especially wearing the hijab.
  - The hijab became mandatory four years after the **1979 revolution** that overthrew the US-backed monarchy and established the Islamic Republic of Iran.
- Not only the enforcement of hijab, but the implementation of other rules on public appearance and conduct, according to the Iranian authorities' interpretation of the Sharia, are also the responsibility of the police.
- In 2010, for instance, Iran's Ministry of Culture and Islamic Guidance issued a template for suitable haircuts for men in order to halt Western influence on culture, and the morality police were tasked with enforcement at salons.

### India is the lone absentee at China's Indian Ocean forum of 19 countries

- The meet organised by the China International Development Cooperation Agency (CIDCA).
- The forum was “the first high-level official development cooperation forum jointly held by China and countries in the Indian Ocean Region”.
- The forum underlines China's growing strategic interests in a region where its economic footprint has been deepening.
- During the forum, China “proposed to establish a marine disaster prevention and mitigation cooperation mechanism between China and countries in the Indian Ocean region”.
- All parties agreed to strengthen policy coordination, deepen development cooperation, increase resilience to shocks and disasters, and enhance relevant countries' capacity to obtain economic benefits through use of marine resources such as fisheries, renewable energy, tourism, and shipping in a sustainable way.

Indian Ocean Rim Association:



### What is St Edward's Crown, to be worn by King Charles III on his coronation?

- St Edward's Crown is the crown historically used at the moment of

Coronation, and was worn by Her Majesty Queen Elizabeth at her Coronation in 1953.

- **It was made for Charles II in 1661, as a replacement for the medieval crown** which had been melted down in 1649. The original was thought to date back to the eleventh-century royal saint, Edward the Confessor – the **last Anglo-Saxon king of England**.
- **Edward the Confessor** (reigned 1042-66), who deposited his Royal ornaments for safe-keeping in Westminster Abbey, may have been the **first monarch to assemble the regalia**, or the distinct objects worn exclusively by royals.
- **Britain is the only European monarchy still using its regalia for the consecration** ceremony of crowning the Sovereign.
- Other items included in the regalia are the **Coronation Chair** (used at every coronation since 1300), the **two Royal maces, three swords** and St Edward's Staff (dating from 1661).

### Imperial State Crown

- It is worn by the monarch at the end of the coronation ceremony and at formal occasions like the State Opening of Parliament, reminding us the Crown Jewels is a working collection.
- It has the **Cullinan diamond** (also known as **the Star of Africa**) embedded in it, considered among the **biggest diamonds ever discovered**.
- Another stone featured in it is the Black Prince's Ruby, believed to have origins in or around Afghanistan.

### Four-day meeting of G20 Development Working Group to begin tomorrow in Mumbai

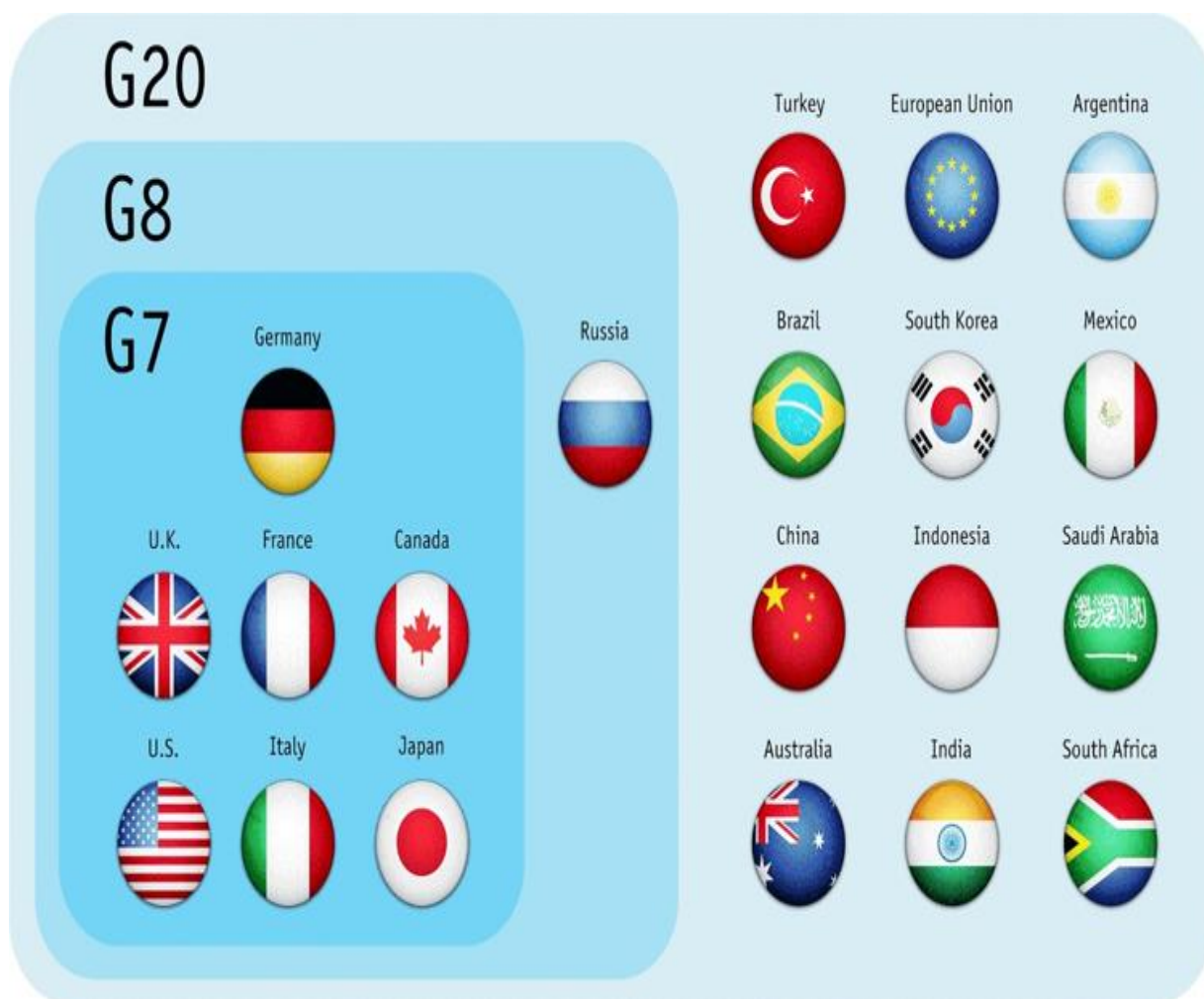
- The Development Working Group meetings aims to discuss developmental issues in Developing Countries, Least Developed Countries and Island Countries.
- Its a platform for G-20 member countries to come together and prioritize multilateralism, share solutions that promote growth, remap development plans and achieve the Sustainable Development Goal's targets.
- In these meetings, sessions on Data For Development, Role of G-20 in Advancing the 2030 Agenda, Infusing New LiFE into Green Development and Accelerating Progress on the Sustainable Development Goals are organised.

### G20 Finance and Central Bank Deputies (FCBD) meeting:

- The first G20 Finance and Central Bank Deputies (FCBD) meeting will begin on December 12, 2022 in Bengaluru.



- This meeting, which will mark the start of discussions on the Finance Track agenda under the Indian G20 Presidency, will be hosted jointly by the **Ministry of Finance and the Reserve Bank of India**.
- The discussions during the 3-day meeting will focus on the agenda for the **Finance Track under the Indian G20 Presidency**.
- This includes reorienting international financial institutions to meet the shared global challenges of the 21st century, financing cities of tomorrow, managing global debt vulnerabilities, advancing financial inclusion and productivity gains, financing for climate action and SDGs.



**UK, France, and UAE extend support for India's permanent membership at UNSC**

- The United Nations Charter established six main organs of the United Nations, including the UN Security Council (UNSC).
- UNSC has the primary responsibility for the maintenance of international peace and security.

- Under the Charter of the United Nations, all Member States are obligated to comply with Council decisions.
- The Security Council takes the lead in determining the existence of a threat to the peace or act of aggression.
- The Security Council has permanent residence at the **United Nations Headquarters in New York City.**

Powers:

- Establishment of peacekeeping operations
- Establishment of international sanctions
- Authorization of military action through Security Council resolutions

Members:

- The U.N. Charter provides for **15 members on the UNSC:**
  - 5 permanent members known as P5, including **United Kingdom, China, France, Russia and the US.**
  - They have **veto power** over decisions of UNSC.
- **10 non-permanent members**
- UNSC non-permanent membership:
  - Each year the **193-member General Assembly** elects five non-permanent members for a two-year term at the UNSC.
  - **The 10 non-permanent seats are distributed on a regional basis:**
    - 5 for African and Asian countries (3 are for Africa and 2 for Asia)
      - **Note:** There is an informal understanding between the Africa and Asia to reserve one for an Arab country. The Africa and Asia Pacific group takes turns every two years to put up an Arab candidate.
    - 1 for Eastern European countries
    - 2 for Latin American and Caribbean countries
    - 2 for Western European and other countries

### **China builds ropeway, roads near tri-junction**

- Doklam, or Donglang in Chinese, is an area spread over less than a 100 sq km comprising a plateau and a valley at the trijunction between India, Bhutan and China.
- It is surrounded by the Chumbi Valley of Tibet, Bhutan's Ha Valley and Sikkim.
- Doklam is strategically located close to the Siliguri Corridor, which connects mainland India with its north-eastern region.
- The corridor, also called Chicken's Neck, is a vulnerable point for India.

Areas of differing perception:

- These are the areas where both sides patrol the area upto their claim lines.
- This “has been the trend since 2006”.
- India and China have mutually agreed disputed areas and areas of differing perception along the 3,488 km-long LAC.
- For instance in eastern Ladakh, there are two mutually agreed disputed areas, Trig Heights and Demchok, while there are 10 areas of differing perception.
- Similarly, Yangtse is one of the eight major friction points in the eastern sector.



**Recently, the External Affairs Minister of India met with the Foreign Minister of Germany in New Delhi.**

- Germany’s minister’s visit coincided with the launch of an “oil price cap” plan by the G7 and European Union countries to withdraw shipping and

insurance services to countries that buy Russian oil above the price of USD 60 a barrel.

What are the Key Highlights of the Meeting?

- India and Germany signed a Comprehensive Partnership on Migration and Mobility meant to ease travel for research, study and work for people in both countries.
- It would be the “basis for a more contemporary partnership” to relations.
- The two sides held talks on bilateral issues, including Germany’s assistance to India on renewable energy and energy transitions, as well as international issues such as their IndoPacific strategy, and spoke about China, Afghanistan and Pakistan.

What is the Oil Price Cap by the G7?

- It is a plan by the G7 with the European Union and Australia to impose the price cap on Russian crude oil shipments, pegged at USD 60 to a barrel for now.
- The price cap is essentially aimed at preventing firms in signatory nations from extending shipping, insurance, brokering and other services to Russian crude oil shipments that are sold at any value above the designated per-barrel price i.e., USD 60 per barrel.
- Since it came into effect on 5th December 2022, the cap will only apply to shipments that are “loaded” onto vessels after the date and not apply to shipments in transit.

India’s Stand:

- Despite the United States-led sanctions on Russia post its invasion of Ukraine, India has decided to not just continue with, but also double its trade with Moscow in the “near foreseeable future”.
- India’s consumption of Russian oil was just one-sixth of European consumption and should not be compared unfavourably, defending the government’s decision to increase its intake of Russian oil since the war in Ukraine.
- How has the India Germany Relations been?

India-German Ties:

- The bilateral relations between India and Germany are founded on common democratic principles. India was amongst the first countries to establish diplomatic ties with the Federal Republic of Germany after the Second World War.
- Germany cooperates with India to the tune of 1.3 billion Euros a year in development projects, 90% of which serves the purpose of fighting climate change, saving natural resources as well as promoting clean and green energy.

- Germany has also been supporting the construction of a huge solar plant in Maharashtra with a capacity of 125 Megawatt which generates annual CO<sub>2</sub> savings of 155,000 tons.
- After the appointment of new Chancellor of Germany in December 2021, India and Germany agreed that as major democracies and strategic partners, they will step up their cooperation to tackle common challenges, with climate change on top of the agenda.

#### Economic Cooperation - A Challenge:

- There is a problem of the lack of a separate bilateral investment treaty between the two countries. Germany has a Bilateral Trade and Investment Agreement (BTIA) with India via EU, it does not have the competence to negotiate it separately.
- Also, Germany is particularly sceptical about India's trade liberalization measures, it bats for more liberal labour regulations.
- Indo-Pacific Region - Significance:
- The Indo-Pacific, with India as its centrepiece, looms large in Germany's and the European Union's foreign policy.
- The Indo-Pacific region is home to around 65% of the global population and 20 of the world's 33 megacities.
- The region accounts for 62% of global Gross Domestic Product (GDP) and 46% of the world's merchandise trade.
- It is also the source of more than half of all global carbon emissions which makes the region's countries key partners in tackling global challenges such as climate change and sustainable energy production and consumption.

#### Germany and Indo-Pacific:

- Germany is determined to contribute to buttressing the rules-based international order.
- Within the German Indo-Pacific guidelines, India is mentioned for the enhancement of engagement and fulfilment of objectives. India should now be an important node while discussing issues relating to international security.
- India is a maritime powerhouse and a strong advocate for free and inclusive trade — and, therefore, a primary partner for Germany (eventually the EU) on this mission.

### Science & Technology

#### **ChatGPT: This Elon Musk-founded AI chatbot is taking the internet by storm**

- The tool has been developed by **OpenAI, a research institute founded**



**in 2015.**

- This tool 'knew' every topic under the sun; it could answer questions and carry on a conversation.
- This tool interacts with humans in natural language and is impressive because aside from answering general queries, it has many other functions.
- **ChatGPT is much more than a chat bot.**
  - For example, you can ask it to write a program or even a simple software application.
- It can also do creative tasks such as writing a story. It can explain scientific concepts and answer any question that needs factual answers.

Language Model:

- ChatGPT is what is called a **Language Model, rather than a chat bot.**
- A language model is a software that prints out a sequence of words as output that are related to some words given as input with appropriate semantic relation; in practical terms, it means that it can perform tasks like answering questions and carrying on a conversation with humans.
- It is often used in **natural language processing (NLP) applications**, such as speech recognition, automatic translation, and text generation.
- **There are a few other language models like:**
  - **BERT (Bidirectional Encoder Representations from Transformers) from Google.**

Standard Techniques:

- The accuracy of ChatGPT or any language model can be measured using standard techniques.
- One such technique is **"Recall-Oriented Understudy for Gisting Evaluation" or the ROUGE metric** which compares ChatGPT's output of content against a standard expected content and measures the overlap as success percentage.
- For language models like GPT that are also used in translation, another metric called the **BLEU metric (Bilingual Evaluation Under Study) is employed**; this metric compares overlap in translated content with a standard translation.

Neural Network:

- It is also a neural network.
- A neural network can be thought of as a large network of computers that can fine tune its output of words based on the feedback given to it during stages of training: this training process and the technology together are called **Reinforcement Learning**.
- The input data is typically huge corpus of text.

OpenAI:

- OpenAI is a research institute and company that focuses on developing artificial intelligence technology in a responsible and safe way.
- It was founded in 2015 by a group of entrepreneurs and researchers, including Elon Musk, Sam Altman, and Greg Brockman.

### **Is lecanemab the Alzheimer's drug that will finally make a difference?**

- Lecanemab, is jointly developed by pharma companies Biogen and Eisai.
- Lecanemab belongs to a class of drugs called **monoclonal antibodies**. These antibody-mediated drugs target beta amyloid, the protein deposition that is seen in patients with Alzheimer's disease, and disrupts cells function.

Alzheimer's disease

- It is a progressive neurologic disorder that causes the brain to shrink (atrophy) and brain cells to die. It involves parts of the brain that control thought, memory, and language.
- It can seriously affect a person's ability to carry out daily activities.

India's scenario:

- In India, **only 1 in 10 people** with dementia receive any diagnosis, treatment or care for the disease, according to **the World Alzheimer's Report, 2021**.

### **New Artificial Nanostructures for Infrared Absorption Technologies can be useful in Defense, Imaging & Sensing**

Gallium Nitride (GaN) Nanostructures:

- Blue light emission from GaN has been known for some time, and it is used in LEDs, this is the first time that infrared light-matter interactions are demonstrated in GaN.
- For this demonstration, they have utilized a scientific phenomenon called **surface polariton excitations**.

Surface polariton

- These are special modes of electromagnetic waves travelling at the interface of a conductor and an insulator such as air.
- These are quasi-particles which have both **light and matter**

**characteristics.**

- By altering the morphology and shape of the nanostructures, they are also able to excite plasmon polaritons in GaN, which results in extending the light-matter coupling to further reaches of the electromagnetic spectrum.

GaN

- It is a very hard and mechanically stable wide band gap (WBG) semiconductor, as it has a **hexagonal crystal structure**.
- The critical factors of gallium nitride: Its **reliability, compact size, high efficiency, fast switching speed, low on-resistance, and high thermal conductivity**.

Applications of the GaN nanostructure

- It can be helpful in highly efficient infrared absorbers, emitters, and modulators that are useful in defence technologies, energy technologies, imaging, sensing.

**What is Strep A bacterial infection that has led to the deaths of 6 children in the UK?**

- Strep A, also known as **Group A Streptococcus**, is a **bacterium found in the throat and on the skin**.
- It can cause many different infections, ranging from mild to serious. Some of these diseases include Strep throat, Scarlet fever, Impetigo, Necrotizing fasciitis, Cellulitis etc.
- These are **communicable** and can spread through coughs, sneezes and close contact.
- These infections usually tend to be fairly harmless but in very rare circumstances when the **bacterium produces a toxin** it can gain access to the bloodstream and cause really serious illness.
- Antibiotics are usually effective at treating Strep A or iGAS infections. Currently, **there is no vaccine available to prevent them**.

**GOSH delivers world-first treatment for Leukaemia**

- Bases are the language of life.
- Just as letters in the alphabet spell out words that carry meaning, the billions of bases in one person's DNA spell out the instruction manual for his/her body.
- Base Editing treatment is a **modification of chimeric antigen**

**receptor, or CAR, T-cell therapy.**

- But instead of using the **CRISPR gene editing technique** to modify the patient's immune cells, the clinicians used the more precise base editing technique to alter donor immune cells.
- With advances in genetic technology, scientists have been able to zoom into a precise part of the genetic code to alter the molecular structure of just one base, effectively changing its genetic instructions.
- Those edited cells are given to the patient to “rapidly find and destroy T-cells in the body, including leukemic T-cells.
- Base editing is an even more precise gene editing technique than CRISPR and has fewer risks of unwanted effects on the chromosomes and thus less risk of side effects.

T-cell acute lymphoblastic leukaemia (T-ALL):

- T-ALL affects the stem cells in the bone marrow that produce a particular kind of **white blood cells (WBC) called T lymphocytes (T cells)**.
- These cells provide a person immunity by killing cells carrying infections, activating other immune cells, and regulating the immune response.
- At least 20% of these WBC are atypical– as they accumulate in the bone marrow, they crowd out “good” WBCs and hence weaken the immune system.
- These unhealthy cells can also accumulate in other parts of the body like the liver, spleen and lymph nodes.
- While found in both children and adults, T-ALL's incidence decreases with age.
- **Treatment:**
  - Typical treatment for T-ALL is similar to that of any leukaemia– chemotherapy and stem cell/bone marrow transplant.

**Starlovers watch the Geminids meteor shower, one of the brightest displays in night sky**

- Geminids comes from the constellation Gemini, from whose location in the sky the meteor shower appears to originate.
- The constellation for which a meteor shower is named only serves to aid viewers in determining which shower they are viewing on a given night.
- The constellation is not the source of the meteors.
- If their peak coincides with the new moon, and if the weather is clear, **the Geminids can produce approximately 100-150 meteors per hour for viewing.**
- This year however, the moon is bright, and so only 30-40 meteors per hour will be visible in the Northern Hemisphere.
- **The Geminids are unique because unlike most meteor showers, they originate not from a comet, but from an asteroid, the 3200**

### **Phaethon.**

3200 Phaethon:

- The 3200 Phaethon was discovered on October 11, 1983.
- It is named after the Greek mythology character Phaethon, son of the Sun God Helios.
- It takes 1.4 years to complete one round of the Sun.
- As the 3200 Phaethon moves close to the Sun while orbiting it, the rocks on its surface heat up and break off.
- When the Earth passes through the trail of this debris, the Geminids are caused.

What causes meteor showers?

- Meteors are usually fragments of comets.
- As they enter the Earth's atmosphere at high speed, they burn up, creating a spectacular "shower".
- Meteors come from leftover comet particles and bits from asteroids.
- When these objects come around the Sun, they leave a dusty trail behind them.
- Every year Earth passes through these debris trails, which allows the bits to collide with our atmosphere where they disintegrate to create fiery and colorful streaks in the sky.

### **Understanding the fusion energy breakthrough announced by the U.S.**

- Scientists at the National Ignition Facility at the Lawrence Livermore National Laboratory (LLNL) in California, US have achieved a major breakthrough in recreating higher energy in a nuclear fusion experiment than is applied in doing the fusion.
- Scientists have been able to generate higher energy in a fusion experiment than the energy applied for causing the fusion reaction.
- Nuclear fusion is described as the "**holy grail**" of energy production, as it is almost limitless, requires no fossil fuels, and leaves behind no hazardous waste.
- It is the **process that powers the Sun and other stars**.
- Nuclear fusion mimics the natural reactions occurring within the Sun, and has been a goal of scientists around the world since the 1950s.
- It works by taking pairs of light atoms and forcing them together - this "fusion" releases a lot of energy.
  - **For example**, the fusion of two nuclei of a heavier isotope of hydrogen, called **tritium**, produces at least four times as much energy as the fission of a uranium atom which is the normal process of generating electricity in a nuclear reactor.
- And importantly, the process produces **no greenhouse gas emissions**



and therefore does not contribute to climate change.

- But one of the challenges is **that forcing and keeping the elements together in fusion requires very high temperatures and pressures.**
- Until now, no experiment has managed to produce more energy than the amount put in to make it work.

Experiment:

- The experiment which cost \$3.5 billion, **forced a minuscule amount of hydrogen into a peppercorn-sized capsule.**
- For forcing the hydrogen into the capsule, scientists used a powerful 192-beam laser that could generate 100 million degree Celsius of heat.
  - **It is also called 'inertial fusion'.**
  - At some other places, including the international collaborative project in southern France called ITER in which India is a partner; very strong magnetic fields are used for the same purpose.
- The laser beam was hotter than the Sun's centre and helped to compress the hydrogen fuel to more than 100 billion times that of Earth's atmosphere.
- Under the pressure of these forces, the capsule started imploding on itself and leading to the fusion of hydrogen atoms and the release of energy.

Nuclear fission and nuclear fusion:

- Nuclear fusion is the opposite of nuclear fission, where heavy atoms are split apart.
- **Fission is the technology currently used in nuclear power stations,** but the process also produces a lot of waste that continues to give out radiation for a long time.
- It can be dangerous and must be stored safely.

### **India has highest number of cervical cancer cases in Asia: Lancet study**

- India reported 1,23,907 new cases of cervical cancer and 77,348 deaths, according to the study.
- Though the incidence of cervical cancer has decreased in many parts of the world —notably in **Latin America, Asia, Western Europe, and North America** — over the past three decades, the burden remains high in many low- and middle-income countries.
- The study found major declines in cases in **Latin American countries** including Brazil, Colombia, and Costa Rica; Asian nations like India, Thailand, and South Korea; and Poland, Slovenia, and the Czech Republic in Eastern Europe.
- Countries with the largest average declines in incidence rates per year include Brazil (8%), Slovenia (7%), Kuwait (7%), and Chile (6%).

- The highest increases in rates were seen in Latvia (4%), Japan (3%), Ireland (3%), Sweden (3%), Norway (2%), Northern Ireland (2%), Estonia (2%), and China (2%).

**Database:**

- The study used the **International Agency for Research on Cancer's (IARC) Global Cancer Observatory (GLOBOCAN) 2020 database** to estimate the burden of cervical cancer incidence and mortality rates in 185 countries.

**Incidence:**

- In 2020, overall incidence was 13 per 1,00,000 women; mortality was 7 per 1,00,000 women.
- As many as 172 out of the 185 countries saw more than the 4 cases per 1,00,000 women per year threshold for elimination set by the World Health Organisation (WHO).
- The development of effective vaccination against the human papilloma virus (HPV), which causes cervical cancer, and screening programmes have made cervical cancer a largely preventable disease.
- In 2020, the WHO announced a target to accelerate the elimination of the disease as a public health problem, aiming to reduce incidence to **less than 4 cases per 1,00,000 women per year in every country by 2030.**

**Ban on use of Glyphosate and other Pesticides**

- Glyphosate is a widely used herbicide that can kill certain weeds and grasses.
- Glyphosate works by blocking an enzyme essential for plant growth.
- **First developed in 1970**, glyphosate is scientifically N-(phosphonomethyl) glycine under the IUPAC system of nomenclature.

**Application:**

- In India, glyphosate use was approved only for tea crop and non-crop areas for control of weeds.
  - Assam, West Bengal, Tamil Nadu and Kerala are the major tea plantation states in India.
- In India it goes by various brand names, including **Roundup, Glycel, and Brake.**
- But glyphosate consumption is higher in states that do not have tea crops.
- It is being widely and indiscriminately used in paddy fields by farmers.

Consequences:

- The surface casting activity of vertically burrowing earthworms almost ceased after three weeks and reproduction of soil dwellers reduced by 56 per cent within three months after herbicide application.
- There are long-term negative consequences for honey bee navigation, contamination of water bodies and serious health hazards.

### **Pfizer's haemophilia B gene therapy succeeds in late-stage study**

- Data from the study showed that a single dose of the therapy was superior to the current standard of care in helping reduce the bleeding rate in patients with moderately severe to severe forms of hemophilia B.

Haemophilia

- It is a medical condition, **mostly inherited**, in which the ability of blood to clot is severely reduced.
- This disease is caused by **a mutation in one of the genes**, that provides instructions for making the clotting factor proteins needed to form a blood clot.
- This change or mutation can prevent the clotting protein from working properly or to be missing altogether. These genes are located on **the X chromosome**.
- Men are more vulnerable to haemophilia than women. It is a rare disease where in about 1 in 10,000 people are born with it.

### **Indian Institute of Astrophysics team surprised by their discovery on hot stars and white dwarfs**

- A team of Scientists at the Indian Institute of Astrophysics detected strange hot stars in the Globular clusters using the Ultra Violet Imaging Telescope (UVIT) images on AstroSat (India's first dedicated space observatory, which has been operating since 2015).

Globular clusters

- Globular clusters are spherical **aggregates of several thousand to millions of stars** bound by gravity. These systems are thought to have formed early on in the Universe and can serve as perfect astrophysical laboratories for astronomers to understand how stars evolve through various phases.
- Omega Centauri is a globular cluster in the constellation of Centaurus

that was first identified as a non-stellar object by **Edmond Halley** in 1677.

- Located at a distance of 17,090 light-years, it is the largest-known globular cluster in the Milky Way at a diameter of roughly 150 light-years.

## Galaxy

- A galaxy is a **huge collection of gas, dust, and billions of stars** and their solar systems bound together by gravity.
- Milky Way, is stuffed with between 100 billion and 400 billion other stars, many of them with planets of their own. The Milky Way got its name from the way it looks from the ground: like a streak of spilt milk across the sky

## Creators at Johns Hopkins envision 'gelbots' crawling through human bodies to deliver medicine

- Gelbots are **made out of gelatin**, capable of moving without requiring an extra power source because of the way their shape, dimensions and patterning of gel are designed and are reportedly a significant advance in the world of soft robotics.
- They are **created by 3D printing** and would be easy for mass production.
- The gels swell or shrink in response to temperature.
- This property can be strategically manipulated to move robots forward and backwards on flat surfaces or to have them crawl in certain directions with an undulating, wave-like motion.

## What Potential application areas

- They can be used to create smart structures.
- Even they can be used for moving on surfaces through the human body to deliver targeted medicines.
- They could also be deployed as marine robots, patrolling and monitoring the ocean's surface.
- Gelbots can be trained to crawl in response to variations in human biomarkers and biochemical.

## Organic solar cells can convert a steel roof into an energy-producing device

- An organic solar cell consisting of a combination of an **organic polymer**

**and PCBM (an organic semiconductor)** developed on steel substrates can potentially convert a steel roof into an energy-producing device.

- The devices consist of a blend of organic polymer PTB7 as a donor and PCBM as an acceptor.
- The devices were fabricated on opaque steel substrates with a **MoO<sub>3</sub>/Au/MoO<sub>3</sub>top electrode**. These electrodes offer higher optical transmission as compared to only metallic electrodes.
- The devices with multilayer electrodes showed a clear improvement in the photovoltaic performance by 1.5 times, as compared with those obtained with single-layer top metal electrodes of gold.

What is the DST-RCUK APEX project?

- It is a jointly developed programme of the **Department of Science and Technology (Under the ministry of Science and Technology)** and the Research Councils United Kingdom (RCUK) focussing on reducing energy demand in the built environment.

### **Rise in group A streptococcal infections in England**

- Group A Streptococcus (GAS), also known as Strep A, **are bacteria** commonly found on the skin or in the throat.
- Occasionally, this can lead to a condition called **scarlet fever**, which typically affects young schoolchildren and is characterized by a sore throat, high fever and rough skin rash.
- Even it can cause severe diseases such as sepsis, streptococcal toxic shock syndrome and necrotizing fasciitis.
- According to British Health Security Agency (UKHSA), in children under 10 years, the rate of GAS infection is higher than levels reported in the years preceding the COVID-19 pandemic but substantially higher than in the past two years, according to UKHSA.

## **Art & Culture**

### **Hornbill Festival begins at Naga Heritage village Kisama in Nagaland**

- The first festival was held in 2000.
- **Venue:** It is held at Naga Heritage Village, Kisama which is about 12 km from Kohima in Nagaland.
- **Organizers:** It is organized by the **State Tourism and Art & Culture Departments of the Government of Nagaland.**



- Objective: To encourage inter-tribal interaction and to promote cultural heritage of Nagaland.
- Festival highlights include the traditional Naga Morungs exhibition and the sale of arts and crafts, food stalls, song and dance shows, indigenous games etc.
- One of the major highlights of this festival is the Hornbill International Rock Festival where local and international rock bands perform.

### Nomenclature

- The festival is named after the bird "**Indian hornbill**", which is displayed in the folklore of most of the state's tribes.
- There are **9 hornbill species in India of which Great Hornbill is the most famous.**
- It is also called the '**Festival of Festivals**'.



### Great Hornbill

- **Scientific name:** Bucerus bicornis.
- **Common name:** Great Indian hornbill or great pied hornbill.
- It is found in the Indian subcontinent and Southeast Asia.
- The bulk of the population is found in India, where it is restricted to the Himalayan foothills, hill forests in northeast India and, disjunctly, the wet evergreen forests of west India
- **IUCN Status:** Near Threatened.
- It is listed in **Appendix I of CITES.**
- Its impressive size and colour have made it important in many tribal cultures and rituals.
- The great hornbill is the **state bird of Kerala and Arunachal in India.**
- It is not a state bird of Nagaland, although the hornbill festival is celebrated in Nagaland. **Nagaland's state bird is: Blyth's tragopan.**

## **PM addresses Manipur Sangai Festival, says it 'celebrates India's biodiversity'**

- Every year the State of Manipur celebrates the “Manipur Sangai Festival” from 21st to 30th November.
- The objective is to showcase Manipur as a world class tourism destination.
- The ‘Festival’ is named after the **State animal, Sangai**, the brow-antlered deer found only in Manipur.
- It started in the year **2010**.
- The theme of this year’s Sangai festival is “**Festival of oneness**”.
- Every edition of the festival showcases the tourism potential of the state in the field of Arts & Culture, Handloom, Handicrafts, Indigenous Sports, Cuisine and Music of the state etc.

### Sangai Deer:

- **Scientific Name:** Rucervus eldii.
- **Common Name:** Sangai, Brow antlered deer, Dancing Deer.
- **Population:** About 260 (acc. to a joint census conducted by the Forest Department in 2016).
- **Habitat and Distribution:** It is found only in **Keibul Lamjao National Park** – the largest single mass of phumdi is in the Loktak Lake – in Manipur’s Bishnupur district.
- Sangai is a medium-sized deer, with uniquely distinctive antlers, with extremely long brow tine, which form the main beam.
- The forward protruding beam appears to come out from the eyebrow, hence called the brow-antlered deer.
- It has a dark reddish-brown winter coat, which turns paler in summer.
- The deer walks on the hind surface of its pasterns with mincing hops over floating foliage, and is hence also called the **Dancing Deer**.
- State animal of **Manipur**.
- Schedule-1 of **Wildlife (Protection) Act, 1972**.
- **Endangered on IUCN Red List**.

### Conservation Issues:

- Sangai faces threat from steadily degenerating habitat of phumdi as a result of continuous inundation and flooding caused due to artificial reservoir.
- There is also invasion of non-native plants like **Paragrass**.
- It also faces threats of diseases from the livestock, inbreeding depression and poaching.

## Meitei Mayek to Replace Bengali Script in Manipuri Newspapers

- The Meitei script was once patronised by Meitei rulers but which fell into disuse with the advent of Hinduism and eventually disappeared.
- The earliest epigraphic record of the script is a stone inscription from Khoibu village which was erected on the orders of Meidingu Kiyamba (1467-1508).
- The Meitei Mayek or Meitei script evolved with time and this led to conflict between various proponents. The inscriptions on the coins of the 7th and 8th Century were perhaps in the 18-letter script, which, with the advent of Hinduism in the 17th century during the reign of Meidingu Pamheiba (1709-1748), was perhaps expanded to the 36-letter script.
- With the advent of Hinduism, Bengali scripts became so popular that stone inscriptions in the 18th and 19th century were in Bengali script.

### Recent developments

- The Manipur Official Language Act, 1979, was enacted with the definition of Manipuri language as “Meiteilon written in Bengali script and spoken by the majority of Manipuri population”
- By an Amendment Act of 2021, the definition of “Manipuri language” was modified as “Meiteilon in Meitei Mayek and spoken by the majority of Manipur population” with a proviso that for 10 years, both the Bengali and Meitei Mayek scripts shall be allowed.

## Ministry of Culture has set up seven Zonal Cultural Centers for the development Of Arts, Culture and Craft across the country: Sh G. Kishan Reddy

- The centres have been set up at **Patiala, Nagpur, Udaipur, Prayagraj, Kolkata, Dimapur, and Thanjavur.**
- Government of India has provided annual grant-in-aid to conduct art programmes at these centres.
- The ministry also organises Rashtriya Sanskriti Mahotsavs (RSMs) through these ZCCs where a large number of artistes from all over India are engaged to showcase their talents.
- These ZCCs also organise a minimum 42 Regional Festivals for promotion of art and culture every year as per their programme calendar.
- For proper storage of the treasure of knowledge for posterity, several art forms including the vanishing ones are being documented by these ZCCs.
- Number of arts forms have been documented in digital format (both audio and video formats).
- Further, for preservation and promotion of various folk arts & culture of the country, these ZCCs also implement a number of schemes viz. **Award**

**to Young Talented Artists, Guru Shishya Parampara, Theatre Rejuvenation, Research and Documentation, Shilpgram, OCTAVE and National Cultural Exchange Programme.**

Zonal Centres	Head Quarters	Component States
North Central Zone Cultural Centre	Allahabad	Madhya Pradesh, Rajasthan, Haryana, Bihar, Uttar Pradesh, Uttaranchal & Delhi
North Zone Cultural Centre	Patiala	Himachal Pradesh, Jammu & Kashmir, Rajasthan, Haryana, Punjab & Union Territory of Chandigarh
West Zone Cultural Centre	Udaipur	Goa, Gujarat, Rajasthan, Maharashtra, Union Territory of Daman, Diu and Dadra, Nagar Haveli
North East Zone Cultural Centre	Dimapur	Assam, Tripura, Manipur, Arunachal Pradesh, Nagaland & Meghalaya
Eastern Zone Cultural Centre	Kolkata	Bihar, West Bengal, Orissa, Assam, Tripura, Manipur, Sikkim & Union Territory of Andaman & Nicobar Islands
South Zone Cultural Centre	Thanjavur	Kerala, Tamilnadu, Andhra Pradesh, Karnataka & Union Territory of Andaman & Nicobar Islands, Lakshadweep, Pondicherry
South Central Zone Cultural Centre	Nagpur	Madhya Pradesh, Maharashtra, Karnataka & Andhra Pradesh

### Defence & Space

**India successfully carries out night trials of nuclear-capable "Agni-five missile"**

			
<b>Agni-I</b>	<b>Agni-II</b>	<b>Agni-III</b>	<b>Agni-IV*</b>
<b>Class:</b> SRBM	<b>Class:</b> IRBM	<b>Class:</b> IRBM	<b>Class:</b> Long-range
<b>Length:</b> 14.80 m	<b>Length:</b> 20 m	<b>Length:</b> 16.7 m	<b>Length:</b> 20m
<b>Diameter:</b> 1.30 m	<b>Diameter:</b> 1.30 m	<b>Diameter:</b> 2 m	<b>Diameter:</b> 1.20 m
<b>Launch weight:</b> 12,000 kg	<b>Launch weight:</b> 16,000 kg	<b>Launch weight:</b> 48,000 kg	<b>Launch weight:</b> 17,000 kg
<b>Payload:</b> 2,000 kg	<b>Payload:</b> 1,000 kg	<b>Payload:</b> 2,000 kg	<b>Payload:</b> 800-1,000 kg
<b>Warhead:</b> Nuclear capable	<b>Warhead:</b> Nuclear capable	<b>Warhead:</b> Nuclear capable	<b>Warhead:</b> Nuclear capable
<b>Propulsion:</b> Single-stage	<b>Propulsion:</b> Two-stage	<b>Propulsion:</b> Two-stage	<b>Propulsion:</b> Two-stage
<b>Range:</b> 700-1,200 km	<b>Range:</b> 2,000-3,500 km	<b>Range:</b> 3,500 km	<b>Range:</b> 2,500-3,500 km
<b>Status:</b> Operational	<b>Status:</b> Operational	<b>Status:</b> Operational	<b>Status:</b> Development

\*Earlier called Agni-II Prima

- **Type:** It is a surface-to-surface Nuclear Capable Ballistic missile.
- **Warhead:** It can carry both nuclear and traditional weapons.
- **Range:** Agni-V, with a range of over 5,000 km, is India's longest-range ballistic missile and can reach most parts of China, making it the mainstay of India's triad to deliver nuclear weapons.
- **Dimensions:** it is a 17-meter long missile with two-meter diameter.
- **Development:** It has been indigenously developed by Defence Research and Development Organisation (DRDO).
- **Technologies:** Agni-V is the most advanced missile in the Agni series featuring many new technologies, including the very high accuracy Ring Laser Gyro based Inertial Navigation System (RINS) and Micro Navigation System (MINS) which improves the accuracy of the missile.
- With the Agni-V, India joins an elite club of countries like **US, Russia, the UK, France and China, which boast Inter-Continental Ballistic Missile (ICBM) capabilities.**

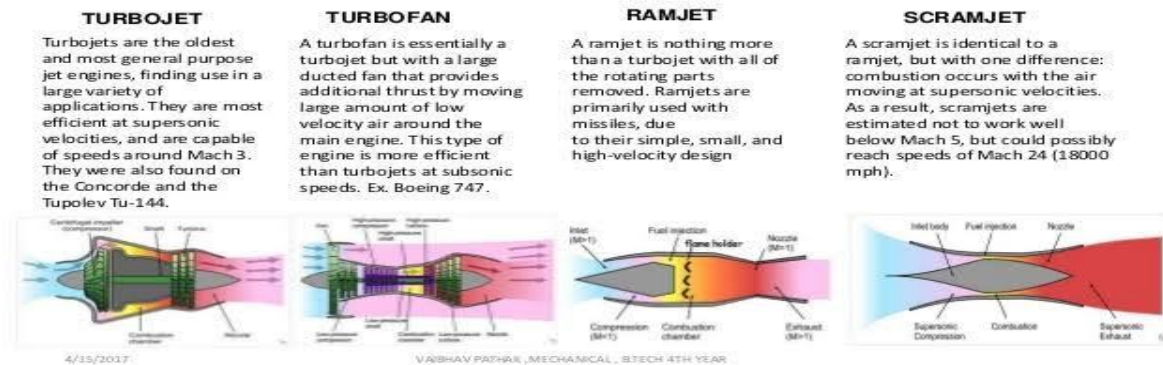
### ISRO Successfully Conducts Hypersonic Vehicle Trials

- In an air-breathing scramjet engine, air from the atmosphere is rammed into the engine's combustion chamber at a supersonic speed of more than Mach two.
- In the chamber, the air mixes with the fuel to ignite a supersonic combustion but the cruiser's flight will be at a hypersonic speed of Mach six to seven.
- So it is called **supersonic combustion ramjet or Scramjet.**
- Air from the atmosphere was then rammed into the scramjet engine's combustion chamber at a supersonic speed.
- The air mixed with the atomised fuel, the fuel was ignited and the scramjet engine revved into action.
- Mastering the air-breathing scramjet technology will lead to the development of hypersonic missiles, faster civilian air transportation and



facilities for putting satellites into orbit at a low cost.

## TYPES OF ATMOSPHERIC JET ENGINES

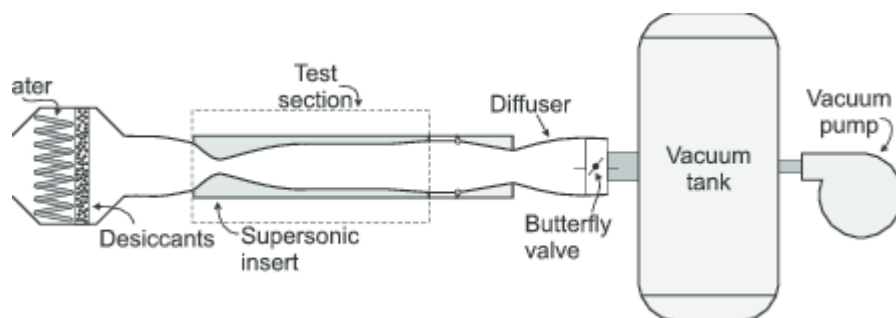


## ISRO completes 1st blow down test of Trisonic Wind Tunnel

- The massive structure, which can perform tests in three speed regimes, equips the Indian Space Research Organisation (ISRO) with a robust in-house support system for space missions.
- Trisonic Wind Tunnel is a system to aid aerodynamic design of rockets and re-entry spacecrafts by characterising a scaled model by evaluating forces, moments, load distribution, unsteady pressures, acoustic levels etc.
- The tunnel has an overall length of about 160m and has a maximum cross section of 5.4m.
- The tunnel can be used for testing various space vehicles in three flight regimes —
  - **below the speed of sound (subsonic),**
  - **at the speed of sound (transonic) and**
  - **above the speed of sound (supersonic),**
- hence the **name trisonic wind tunnel**
- The tunnel can **simulate flight conditions from 0.2 times the speed of sound (68 m/s) to 4 times the speed of sound (1360 m/s).**
- Its parts include air storage vessels, a settling chamber where the airflow is 'smoothened' out, and nozzles for releasing the air into the test section.
- **Implementation:** The trisonic wind tunnel was implemented through M/s Tata Projects India Ltd with the assistance of industries across the country.
- For years, ISRO had depended on the trisonic wind tunnel at the National Aerospace Laboratory (NAL), Bengaluru.
- **Hypersonic wind tunnel:**
  - The VSSC is already equipped with a hypersonic wind tunnel for testing parameters of re-entry missions.



- Commissioned in 2017, this tunnel can simulate flow speeds up to Mach 12.



### UAE successfully launches first-ever Arab-Built lunar spacecraft

- It was launched from the Cape Canaveral Space Force Station in Florida.
- The Rashid Rover named after the late Sheikh Rashid Al Saeed, the former ruler of Dubai.

#### Development:

- The Rashid Rover was built by Dubai's Mohammed bin Rashid Space Centre (MBRSC), in the United Arab Emirates (UAE), and is being delivered by the HAKUTO-R lander, engineered by Japanese lunar exploration company ispace.
- The mission is taking a low energy route to the moon and is due to arrive around April 2023.
- If the landing is successful, HAKUTO-R will also become the first commercial spacecraft ever to make a controlled landing on the moon.
- Scheduled to touch down in the Atlas crater the northeast part of the moon, the rover has been designed to withstand the lunar night, when temperatures can reach as low as  $-183^{\circ}\text{C}$ , or  $-297.4^{\circ}\text{F}$ .
- It will analyze the plasma on the lunar surface and conduct experiments to understand more about lunar dust.
- Razor-sharp lunar dust particles can stick to and erode spacesuits and equipment, causing operational problems for astronauts.

### Pralay — India's first tactical quasi-ballistic missile, a step towards own rocket force

- Pralay is an **indigenous short-range ballistic surface-to-surface missile**. The missile will be **India's first tactical quasi-ballistic missile** and will give the armed forces the capability to hit enemy positions and key installations in actual battlefield areas.
- **Developed by:** The solid-fuel, battlefield missile developed by the Defence Research Development Organisation (DRDO) is based on Prithvi Defence Vehicle from the Indian ballistic missile programme.

- **Features:**
  - Pralay' is powered with a solid propellant rocket motor and other new technologies. The missile guidance system includes state-of-the-art navigation and integrated avionics, according to the DRDO.
  - The advanced missile has been developed in a way to be able to defeat interceptor missiles. It has the ability to change its path after covering a certain range mid-air.
  - It is capable of **carrying a conventional warhead of about 350 kg to 700 kg**, which gives it a deadly punitive capability.
- **Range:** The canisterised Pralay missile, has a range of **150-500 kilometres**.
- **Ballistic missiles:** They are initially powered by a rocket or series of rockets in stages, but then follow an unpowered trajectory that arches upwards before descending to reach its intended target at high speed. Unlike intercontinental ballistic missiles that exit the Earth's atmosphere, short-range ballistic missiles stay within it.

### **PM Modi posts first images of Gujarat sent by newly-launched satellite from space**

- ISRO's PSLV-C54 rocket launched the Oceansat-3 along with eight nano satellites, including the Bhutan-SAT, from Sriharikota.
- Oceansat-3 is the **third in its set of ocean satellites that are part of India's ocean observation programme**.
- It is a **multi-sensor observation satellite**, which is expected to operate till 2027.
- The Oceansat-3 is envisaged to **observe ocean colour data, sea surface temperature (SST) and wind vector data** to use in oceanography, climatic and meteorological applications. It also supports **value-added products such as potential fishing zones**.
- Oceansat-3, in tandem with Oceansat-2, will improve the receptivity of ocean colour measurements to every 24 hour and wind vector measurements to every 12 hour and help predict cyclones better.

### **IAF successfully test fires extended range version of Brahmos missile from SU-30MKI fighter**

- The missile achieved the desired mission objectives in the Bay of Bengal region. With this, IAF has achieved a significant capability boost to carry out precision strikes from SU-30MKI aircraft **against land or sea targets** over very long ranges.
- The capability of **striking the targets** located at **around 350 kilometres** compared to around 290 kilometres for the initial version.

- **The first test** of the initial version of the Brahmos Air Launched Cruise Missile was **conducted in 2017**.

### Brahmos missiles

- Brahmos is a joint venture between the **Defence Research and Development Organisation of India and NPOM of Russia**. It is named after the rivers **Brahmaputra and Moskva**.
- It is a **two-stage**, solid propellant engine in the first stage and a liquid ramjet in the second.
- **It can be launched from land, air, and sea** and multi a capability missile with pinpoint accuracy that works both day and night irrespective of the weather conditions.
- It operates on the **"Fire and Forgets" principle** it does not require further guidance after launch.
- These are called **"standoff range weapons"**,\*\*e fired from a range far enough to allow the attacker to evade defensive counter-fire.
- Brahmos is one of the fastest cruise missiles currently operationally deployed with the speed of Mach 2.8, which is nearly 3 times more than the speed of sound.


Technical Specifications	
Maximum range	<b>400+ km</b>
Velocity	<b>Mach 2.8</b>
Weight	<b>2.5 tonnes</b>
Warhead mass	<b>200-300 kg</b>
Altitude	<ul style="list-style-type: none"> <li>■ Cruise: <b>15 km</b></li> <li>■ Terminal: <b>10-15 metre</b></li> </ul>

**Special Features**

- Universal for multiple platforms
- "Fire and Forget" principle of operation
- High supersonic speed all through the flight
- Long flight range with varieties of flight trajectories
- Low radar signature
- Shorter flight times leading to lower target dispersion and quicker engagement
- Pin point accuracy with high lethal power aided by large kinetic energy on impact

**Compared to existing state-of-the-art subsonic cruise missiles, BrahMos has**

- 3 times more velocity
- 2.5 to 3 times more flight range
- 3 to 4 times more seeker range
- 9 times more kinetic energy



### Facts for Prelims

**United Nations Development Programme to help waste segregation workers access government schemes**

- As part of the initiative, the UNDP will distribute the 'Jan Dhan' account kits to waste segregation workers.
- The opening of the 'Jan Dhan' accounts has been facilitated through the **UNDP's plastic waste management programme.**
- The waste management promotes the collection, segregation, and recycling of all plastics to move towards a circular economy for the same.
- This is done at **'Swachhta Kendra' or material recovery facilities.**
- The plastic collected and processed so far has already crossed 1,38,000 metric tonnes.
- The programme also ensures the well-being and financial inclusion of the 'Safai Sathis' or waste-pickers, by linking them to the social protection schemes.
- According to the UN agency, a key **objective of the programme is to help move the sector from informal to formal.**
- This is done by **linking them to social protection schemes** like the Jan Dhan' accounts, Aadhar cards, Ayushman Bharat', pension schemes, and scholarships for children, among others.

### **Bird Survey: Around 200 Bird Species In Kanger Valley Park**

- It is located in the state of **Chhattisgarh**. The name of Kanger Ghati National Park is derived from the **Kangar river**, which flows in its length.
- Kanger Valley got the **status of a national park in the year 1982.**
- Kanger Valley National Park is a **typical mixed humid deciduous type of forest**, in which the Sal, Saugaun, teak and bamboo trees are available in abundance.
- The most popular species in this area is **Bastar Maina** (The state bird of Chattisgarh). Bastar Maina, is a **type of Hill maina (gruncula Dhariosoa), which is capable of emulating the human voices.**
- **This National Park is home to three exceptional caves** – famous for their amazing geological structures of **Kutumbasar, Kailash and Dandak**Stellagmites and Stalactites. National Park is known for the presence of **underground limestone caves with dripstone and flowstone.**
- **Tirathgarh Waterfall** is located in Kanger Valley National Park.

### **SHE STEM 2022 encourages students to 'Unleash their imagination' as part of the Sweden India Nobel Memorial Week**

- SHE STEM is a flagship event of the Nobel Memorial Week and aims to amplify the contribution of women innovators, technologists, scientists, and founders in the fields of STEM and sustainability
- The annual event is organised by the **Embassy of Sweden in India in**

**partnership with the Atal Innovation Mission**, NITI Aayog and the German Centre of Innovation and Research (DWIH New Delhi).

- Its objective is to encourage young female leaders to join and pursue careers in the fields of STEM , as well as to nudge others to interact with women in leadership positions in STEM fields.

### **World Soil Day - the United Nations**

- It aims to highlight the value of healthy soil and to promote the sustainable management of soil resources.
- In 2014, the United Nations Food and Agricultural Organization (FAO) declared December 5 as 'World Soil Day'.
- The day was chosen as it coincides with the birthday of Thailand's king, HM King Bhumibol Adulyadej, who led the programme and made it happen.
- Theme: "Soils: Where food begins".

### **Armed Forces Flag Day**

- It aims to honour the martyrs, veterans, and serving personnel of the Indian military.
- The day has been marked every year since 1949 to celebrate the valiant efforts undertaken by military personnel to safeguard the country's borders and raise funds to ensure their and their family's well-being.
- It aims to raise donations for the welfare of the Armed Forces Staff.
- It is observed to enable more public participation in Armed Forces.

History:

- The Defense Minister's Committee on August 28, 1949, created the Armed Forces Flag Day Fund.
- In 1993, the Defense Ministry of India amalgamated all relevant welfare funds, including funds for war victims, the Kendriya Sainik Board Fund, the ex-welfare servicemen's fund, and other units, to establish the Armed Forces Flag Day fund.

### **Uttarakhand plans genetic enhancement of its indigenous Badri cow**

- The Badri breed derived its name from the holy shrine of Char Dham at Badrinath.
- It is **found only in the hill districts of Uttarakhand** and was earlier



known as the 'pahadi' cow.

- The cattle breed is small in size with **long legs and varied body colours**— black, brown, red, white or grey.
- The USP of the Badri **cow's produce is indigenouness and environment** (in the Himalayas), as it eats medicinal herbs and is far away from toxic pollution, polythene and other harmful things that cows in the plains are subject.
- As the cow **grazes only on herbs and shrubs available in the mountains, its milk has rich medicinal content and high organic value.**
- This cattle of Uttarakhand clinched the coveted title of being the first certified cattle breed of Uttarakhand after National Bureau Of Animal Genetic Resource included it as Badri breed.

### **Union Minister Dr Jitendra says, ISRO has taken initiatives for feasibility studies on missions to Venus as well as Aeronomy studies**

- The term "aeronomy," coined and introduced about 60 years ago.
- It refers to the scientific study of the upper atmospheric regions of the Earth and other solar system bodies.
- It includes the distribution of temperature, density, and chemical constituents, and the chemical reactions that occur.
- It also includes the studies of aurora, airglow, the ionosphere, Van Allen radiation belts, cosmic rays, and radiative and photochemical phenomena.
- It covers the chemistry, dynamics and energy balance of both neutral and charged particles.

### **16th Edition of Indo-Nepal joint army training exercise begins**

- It is an Indo-Nepal joint army training exercise.
- It is conducted annually between India and Nepal with the aim to enhance inter-operability in jungle warfare and counter-terrorism operations in mountainous terrain and Humanitarian Assistance and Disaster Relief (HADR) under UN mandate.
- Nepal Army soldiers of Shree Bhawani Baksh Battalion and Indian Army soldiers from the 5 GR are participating in the exercise.

### **Pradhan Mantri Matsya Sampada Yojana envisages insurance coverage to**



## fishers

- PMMSY was launched in September 2020 with an aim to double the income of fish farmers and fishers in the country. It focuses on sustainable development of India's fisheries sector and is a part of the **Atmanirbhar Bharat scheme**.
- The scheme focuses on activities with **potential to generate employment** such as seaweed and ornamental fish cultivation. It also emphasises on the **breeding technique** for quality brood, seed & feed and species diversification.

### Implementation Strategy

- It is an **umbrella scheme with two separate Components namely (a) Central Sector Scheme (CS) and (b) Centrally Sponsored Scheme (CSS)**.
- The CSS Component is further segregated into **Non-beneficiary oriented and beneficiary orientated** subcomponents/activities under the following three broad heads:
  - Enhancement of Production and Productivity
  - Infrastructure and Post-harvest Management
  - Fisheries Management and Regulatory Framework
- PMMSY will be **implemented in all the States and Union Territories for a period of 5 (five) years from FY 2020-21 to FY 2024-25**.

### Key Initiatives and Progress

- **PMMSY includes key activities** such as fishing vessel insurance, support for new/upgrade of fishing vessels, aquaculture in saline/alkaline areas, Sagar Mitras, nucleus breeding centres, fisheries and aquaculture start-ups, incubators, and integrated aqua parks.
- **PMMSY inter-alia provides insurance coverage to fishers** which includes fish workers, fish farmers and any other categories of persons directly involved in fishing and fisheries related allied activities. **The insurance coverage provided under the PMMSY includes**
  - 5,00,000/- against accidental death or permanent total disability
  - 2,50,000/- for permanent partial disability
  - Hospitalization expenses in the event of accident for a sum of Rs. 25,000/-.

### Funding Plan:

- **Central Sector Scheme** – The **entire scheme cost will be borne by the central govt.** Also, in cases of direct beneficiary-oriented activities undertaken by central government entities such as the NFDB, central assistance will be up to 40% of the project cost for the general category and 60% for the SC/ST/women category.
- **Centrally Sponsored Scheme (CSS)** – In case of CSS components and

subcomponents implemented by the states/UTs, the entire project cost will be shared between the centre and state.

### **PM Modi takes part in program marking 'Veer Bal Diwas'**

- On December 26, 1707, Sahibzada Zorawar Singh and Sahibzada Fateh Singh attained martyrdom when they were executed on the orders of Aurangzeb.

Guru Gobind Singh

- He was the **10th Sikh guru**.
- He became the Sikh guru at the age of nine, following the demise of his father, Guru Tegh Bahadur, the ninth Sikh Guru.
- Also known for his significant contributions to the Sikh religion, including the introduction of the turban to cover hair.
- He is renowned for founding the principles of Khalsa or the Five '**K's i.e kesh (uncut hair), kanga (wooden comb), kara (iron or steel bracelet), kirpan (dagger) and kachera (short breeches)**.
- He fought against the Mughals later in the **battle of Muktsar in 1705**.
- Guru Gobind Singh was killed by a Mughal assassin in 1708, a year after the death of Aurangzeb.

### **PM says, soon India will completely eradicate Kala Azar disease**

- Kala Azar or black fever is a disease caused by **infection with Leishmania parasites**. It is transmitted by . It is also known as visceral leishmaniasis or black fever or Dum-Dum fever.

female sandfly - Phlebotomus argentipes

- **Types:**
  - **Cutaneous leishmaniasis:** This is another form of Kala-azar which results in skin lesions – mainly ulcers on the exposed parts of the body, which creates scars and serious disability. The lesions usually are painless but can be painful, particularly if open sores become infected with bacteria. Types of Cutaneous leishmaniasis:
  - **Mucosal Leishmaniasis:** In this type of Cutaneous leishmaniasis, the infection results from the dissemination of parasites from the skin to the naso-oropharyngeal mucosa.
- **Symptoms**

- Initially, leishmania parasites cause skin sores or ulcers at the site of the bite. If the disease progresses, it attacks the immune system.
- Kala azar presents after two to eight months with more generalized symptoms including prolonged fever and weakness.
- **Treatment:** Treatment of Kala Azar is done through liposomal AmB – this is the drug of choice for immunocompetent patients. There are other treatment options available such as paromomycin, miltefosin and multidrug therapy treatment.

### What is Good Governance Day, and how is it marked?

- It is observed on the occasion of former Prime Minister **Atal Bihari Vajpayee's birth anniversary**.
- It aims to increase awareness of government services and accountability among people and inculcate “good governance” as a habit for civil servants.
- The day is celebrated to ensure that the country's residents are treated fairly by the government and they receive advantages of various government services.
- In **2019**, the government launched the **Good Governance Index** on this occasion.
- The GGI is a scientifically prepared tool based on various parameters of good governance which assess the level of any state at a given point of time and help in shaping future development.

### Indonesia's Mount Semeru volcano erupts, top alert status triggered

- It is located in Indonesia.
- It is one of the East Java Island's tallest volcano.
- Semeru's last major eruption was in December 2021.
- Semeru, also known as Mahameru, has erupted numerous times in the past 200 years.

Indonesia:

- An archipelago of 270 million that sits along the Pacific Ring of Fire, Indonesia is one of the most disaster-prone nations on earth.
- Pacific “Ring of Fire”: It is a horseshoe-shaped series of fault lines, and is prone to earthquakes and volcanic activity.

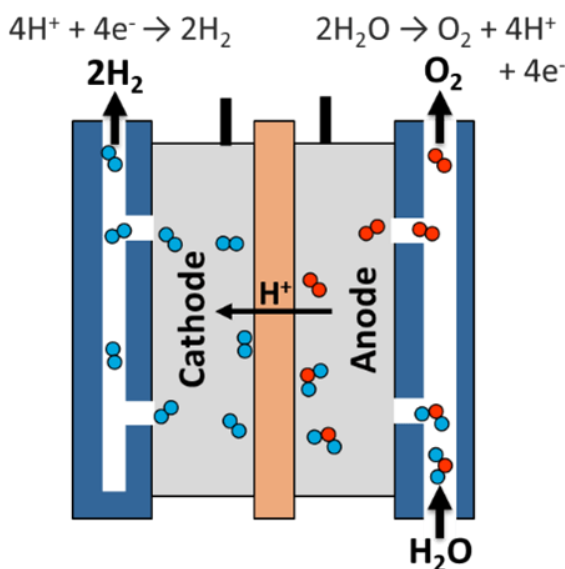
- With 142 volcanoes, Indonesia has the largest population globally living in close range to a volcano, including 8.6 million within 10km (6.2 miles).

### **India can be a global leader in electrolyzer, green hydrogen, says G20 Sherpa Amitabh Kant**

- Hydrogen electrolyzers are devices that use electricity to split water into hydrogen and oxygen.
- When electricity input to the electrolyser is obtained from renewable sources like wind and solar, then the hydrogen produced is called **green hydrogen**.
- Typically, electrolyzers consume 50-55 kilowatt-hours or units of electricity to produce one kilogram of hydrogen.
- Electrolysers produce hydrogen at about 50-90 degree Celsius and at a pressure of 30-50 bar.
- Electrolysers are commercially available at a size of a few kilowatts (kW) to megawatts (MW).

### **Electrolyser technologies**

- There are various electrolyser technologies available currently.
- Alkaline electrolyzers and polymer electrolyte membrane (PEM) electrolyzers are commercially available technologies.
- Alkaline electrolyzers use liquid alkaline electrolyte solution of sodium or potassium hydroxide while PEM electrolyzers are based on solid polymer membrane.
- In addition to these, there are other proprietary technologies like electrochemical, thermally-activated chemical (E-TAC) and anion exchange membrane (AEM) that claim to be more efficient than existing technology options.



### Centre urges States to create awareness and take steps for prevention of cervical cancer among girl students

- Cervical cancer starts in the cells of the cervix. The cervix is the lower, narrow end of the uterus (womb).
- Various strains of the Human papillomavirus (HPV) play a role in causing most **cervical cancer that is transmitted through sexual contact**.
- When exposed to HPV, the body's immune system typically prevents the virus from harming.
- In a small percentage of people the virus survives for years, contributing to the process that causes some cervical cells to become cancer cells.

HPV Vaccines:

- **Quadrivalent vaccine (Gardasil):** It protects against four types of HPV (HPV 16, 18, 6 and 11). The latter two strains cause genital warts.
- **Bivalent vaccine (Cervarix):** It protects against HPV 16 and 18 only.
- **Non-valent vaccine (Gardasil 9):** It protects against nine strains of HPV.

Cervical cancer in India:

- In India, cervical cancer is the second most common cancer in women, after breast cancer.
- India contributes the largest share of the global cervical cancer burden. India accounts for nearly one in every four deaths globally due to cervical cancer.

World Health Organisation's Global strategy to eliminate cervical cancer

proposes:

- The following 90-70-90 targets must be met by 2030 for countries to be on the path towards cervical cancer elimination:
  - 90% of girls are fully vaccinated with the HPV vaccine by the age of 15 years.
  - 70% of women are screened with a high-performance test by 35 years of age and again by 45 years of age.
  - 90% of women identified with the cervical disease receive treatment (90% of women with pre cancer treated, and 90% of women with invasive cancer managed).