



# Current Affairs (CONSOLIDATION)

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**(PART – I)**

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# Polity and Governance

## Highlights

- Fertiliser Challenge
- Andaman and Nicobar Islands to Get Gas Plant
- Regulating Digital News Intermediaries
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- US' Roe v. Wade Case 1973
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- Seven Years of Jan Suraksha Schemes
- BHARAT TAP Initiative
- Local Governments

## Fertiliser Challenge

### Why in News?

India is facing the challenge of meeting its requirement of fertilizer supply which has been disrupted ahead of kharif sowing in the wake of **Russia's invasion of Ukraine**.

### How much fertilizer does India consume?

#### ➤ About:

- India consumed about 500 LMT of fertilizer per year in the last 10 years.
- The **Centre's fertiliser subsidy bill is set to soar by 62% over the budgeted amount** to Rs 1.3 lakh crore in FY21.
  - Since **non-urea (MoP, DAP, complex) varieties cost higher**, many farmers prefer to use more urea than needed.
  - The government has **taken several measures to reduce urea consumption**. It introduced neem-coated urea to reduce illegal diversion of urea for non-agricultural uses. It also stepped up the promotion of organic and **zero-budget farming**.
- Between 2018-19 and 2020-21, India's fertiliser imports **increased almost 8% to 20.33 million tonnes** from 18.84 million tonnes.
  - In FY21, **more than a fourth of the urea requirement was imported**.

- India, the **top importer of urea**, is a major buyer of **Diammonium Phosphate (DAP)** needed to feed its huge agriculture sector which employs about 60% of the country's workforce and accounts for 15% of USD2.7 trillion economy.

#### ➤ Need of Large Quantities of Fertilisers:

- The **agricultural output of India has increased every year**, and the country's need for fertilisers has also increased.
- Despite imports, gaps remain between requirements and availability after indigenous production targets haven't been met.

### What is Fertilizer Subsidy?

#### ➤ About:

- The government **pays a subsidy to fertiliser producers** to make this critical ingredient in agriculture affordable to farmers.
- This allows **farmers to buy fertilisers at below-market rates**.
  - The difference between the cost of production/import of a fertiliser and the actual amount paid by farmers is the subsidy portion borne by the government.

- **Subsidy on Urea:** The Centre **pays subsidy** on urea to fertiliser manufacturers on the basis of cost of production at each plant and the units are required to sell the fertiliser at the government-set Maximum Retail Price (MRP).

Note:



- **Subsidy on Non-Urea Fertilisers:** The MRPs of non-urea fertilisers are decontrolled or fixed by the companies. The Centre, however, pays a flat per-tonne subsidy on these nutrients to ensure they are priced at “reasonable levels”.
  - **Examples of non-urea fertilisers:** Di-Ammonium Phosphate (DAP), Muriate of Potash (MOP).
  - All Non-Urea based fertilisers are regulated under Nutrient Based Subsidy Scheme.

### ***What has been the Impact of Pandemic on Fertiliser Supply?***

- The pandemic has **impacted fertiliser production, import and transportation** across the world during the last two years.
- China, who is the **major fertiliser exporter**, has **gradually reduced their exports in view of a dip in production**.
  - This has **impacted countries such as India**, which sources 40–45% of its phosphatic imports from China.
- Besides, **there has been a surge in demand in regions** like Europe, America, Brazil and Southeast Asia.
- Demand has increased, but **supply has been constrained**.

### ***What are the Related Government Initiatives and Schemes?***

- **Neem Coating of Urea:**
  - The Department of Fertilizers (DoF) has **made it mandatory for all the domestic producers** to produce 100% urea as **Neem Coated Urea (NCU)**.
  - The benefits of use of NCU are as under:-
    - Improvement in soil health.
    - Reduction in usage of plant protection chemicals.
    - Reduction in pest and disease attack.
    - An increase in yield of paddy, sugarcane, maize, soybean, Tur/Red Gram.
    - Negligible diversion towards non-agricultural purposes.
    - Due to slow release of Nitrogen, Nitrogen Use Efficiency (NUE) of Neem Coated Urea increases resulting in reduced consumption of NCU as compared to normal urea.
- **New Urea Policy (NUP) 2015:**
  - Objectives of the policy are-
    - To maximize indigenous urea production.

- To promote energy efficiency in the urea units.
- To rationalize the subsidy burden on the Government of India.

### ➤ **New Investment Policy-2012:**

- The Government announced New Investment Policy (NIP)-2012 in January, 2013 and made amendments in 2014 to facilitate fresh investment in the urea sector and to make India self-sufficient in the urea sector.

### ➤ **Policy on Promotion of City Compost:**

- Approved a policy on promotion of City Compost, notified by the DoF in 2016 granting Market Development Assistance of Rs. 1500/- for scaling up production and consumption of city compost.
- **To increase sales volumes, compost manufacturers** willing to market city compost were allowed to sell city compost in bulk directly to farmers.
- Fertilizer companies marketing city compost are covered under the **Direct Benefit Transfer (DBT)** for Fertilizers.

### ➤ **Use of Space Technology in Fertilizer Sector:**

- DoF commissioned a **three year Pilot Study on “Resource Mapping of Rock Phosphate using Reflectance Spectroscopy and Earth Observations Data”** by National Remote Sensing Centre under **ISRO**, in collaboration with Geological Survey of India (GSI) and the Atomic Mineral Directorate (AMD).

### ➤ **The Nutrient Based Subsidy (NBS) Scheme:**

- It has been implemented from **April 2010 by the DoF**.
- Under **NBS**, a **fixed amount of subsidy decided on an annual basis**, is provided on each grade of subsidized Phosphatic & Potassic (P&K) fertilizers depending on its nutrient content.
- It aims at **ensuring the balanced use of fertilizers**, improving agricultural productivity, promoting the growth of the indigenous fertilizers industry and also reducing the burden of Subsidy.

## **Andaman and Nicobar Islands to Get Gas Plant**

### ***Why in News?***

The Ministry of Environment, Forest and Climate Change has approved an **exemption to the laws governing**

Note:



the regulation of coastal zones and has paved the way for gas-powered plants to be set up at **Andaman and Nicobar islands**.

### What are the Key Points?

- The Island Coastal Zone Regulation (ICRZ), 2019, limits infrastructure development on vulnerable coastal stretches.
- The National Coastal Zone Management Authority (NCZMA) has recommended that gas-based power plants be permitted within the Island Coastal Regulation Zone area only on islands with geographical areas greater than 100 sq. km.
- A dual-fuel power plant that runs on both diesel and LNG is expected to be commissioned.
- There has been an increased interest in the development of the Andaman region following a policy push by the NITI Aayog. A proposed project plans to develop the Greater Andaman region or the southernmost stretch of the island group.
  - Proposals include a 22-sq.km airport complex, a TransShipment Port (TSP) at South Bay at an estimated cost of Rs 12,000 crore, a parallel-to-the-coast mass rapid transport system and a free trade zone and warehousing complex on the southwestern coast.

### What is ICRZ 2019?

- The Central Government **declared certain coastal stretches as Coastal Regulation Zone and restrictions were imposed on the setting up and expansion of industries, operations and processes in the said zone.**
- The Central Government has received **representations from Andaman and Nicobar Administration regarding re-categorisation of Great Nicobar Island from Group –I to Group –II islands** under the provisions of the Island Coastal Regulation Zone (ICRZ) notification.
  - Group-I: Islands with geographical areas >1000 sq.km such as South Andaman, Middle Andaman, North Andaman and Great Nicobar.
  - Group-II: Islands with geographical areas >100 sq.km but < 1000 sq.km such as Baratang, Little Andaman, Havelock and Car Nicobar.
  - The land area from High Tide Line to 200 meters on the landward side along the sea front for Group-I Islands and 100 meters on the landward side along the sea front for Group-II Islands.

### What is Coastal Regulation Zone?

- The coastal areas of seas, bays, creeks, rivers, and backwaters which get influenced by tides up to 500 m from the high tide line (HTL) and the land between the low tide line (LTL) and the high tide line **have been declared as coastal regulation zone (CRZ) in 1991.**
  - HTL means the **line on the land up to which the highest water line reaches** during the spring tide.
  - Low Tide Line means the **line on the land up to which the lowest water line reaches** during the spring tide.
- The coastal regulation zones have been declared by the Ministry of Environment, Forest and Climate change under the Environment Protection Act 1986.
- While the CRZ Rules are made by the Union environment ministry, implementation is to be ensured by state governments through their Coastal Zone Management Authorities.

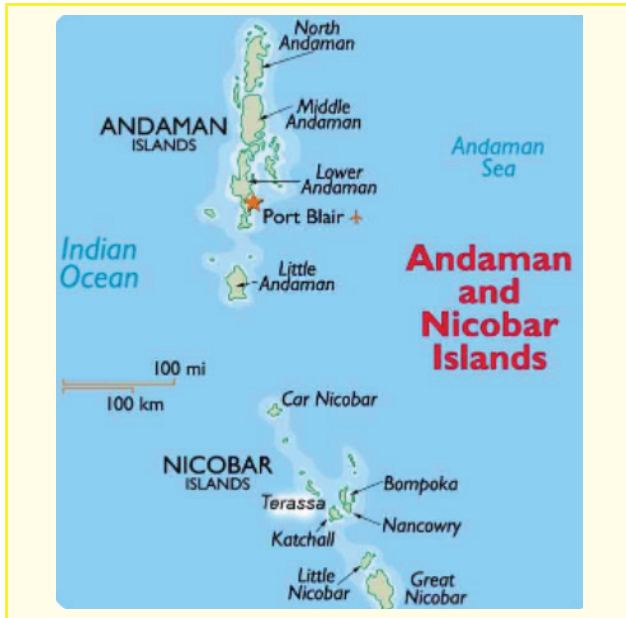
### Andaman & Nicobar Islands

- The Andaman & Nicobar Islands is a union territory of India. This territory is known as A & N Islands, or ANI.
- It is located in the Indian Ocean, in the southern reaches of the Bay of Bengal, nearer to Indonesia and Thailand. This comprises of two island groups - the Andaman Islands and the Nicobar Islands - which separates the Andaman Sea to the east from the Indian Ocean.
- These two groups are separated by the 10° N parallel, the Andamans lying to the north of this latitude, and the Nicobars to the south. The capital of this territory is the Andamanese town of Port Blair.
- Hindi and English are the official languages of the islands. Bengali is the dominant and most spoken language, with 26% of the population speaking Bengali.
- **Particularly vulnerable Tribal Groups (PTGs)** who have been identified in the Andaman & Nicobar Islands. They are:
  - Great Andamanese of Strait Island
  - Onges of Little Andaman
  - Jarawas of South and Middle Andaman
  - Sentinelese of Sentinel Islands
  - Shompens of Great Nicobar

Note:







## Regulating Digital News Intermediaries

### Why in News?

Recently, Canada introduced a Bill that **seeks to make Internet platforms** such as Google and Facebook pay news publishers for use of their content.

### What is the underlying Idea?

- The bill seeks to **regulate digital news intermediaries** “to enhance fairness in the Canadian digital news marketplace and contribute to its sustainability.”
- The legislation is **expected to produce four outcomes**.
  - A framework that supports fair business relationships between digital platforms and news outlets.
  - Sustainability in the news ecosystem.
  - Maintenance of press independence.
  - Diversity within the news landscape.

### What is the Nature of Publisher-Platform Relationships?

- **Use of Tools and Strategies:**
  - Their relationship has till recently been largely about how **publishers can use tools and strategies to better use the reach** provided by these platforms.
  - **Google and Facebook provide much of the traffic** for a lot of traditional news publishers.

### ➤ Making Money:

- All over the world the platforms are **able to make much of the money from this arrangement** while publishers struggle.
- The publishers also **have to contend with frequent changes to the platform algorithm**, which comes with the real threat of them losing a large amount of readers all of a sudden.

### What is the importance of Such Law for India?

#### ➤ About:

- The Canadian order on the issue is likely to **boost the chances of India’s news publishers getting a fair revenue-sharing system** in the country.
- India in December 2021 said that it **had no plans to make tech giants, such as Facebook and Google, pay local publishers** for news content.
- However, following a **complaint by Digital News Publishers’ Association (DNPA)** the **Competition Commission of India** ordered investigations into Google earlier in 2022.
  - In the process of the order, the watchdog did take note of the legislations in Australia and France.

#### ➤ Need to Regulate:

- India, once the **world’s largest unconnected country**, will soon be one of the world’s biggest internet-enabled nations, with over 800 million online.
- Technology will **likely be a big part of our economy**, accounting for almost a fifth of our overall output.
- Unregulated social and digital media could **pose a threat to India’s rise as a trustworthy and responsible nation**, as also Indian democracy, the world’s largest.
- These challenges can be **addressed by regulating social media efficiently** and modernizing our laws and institutions.

### What is the Status in Other Countries?

- Google and Facebook **face legal battles over compensation for using news content worldwide**.
  - They also face antitrust lawsuits from regulators and publishers.
- With news publishers in Australia, the UK, the **European Union**, and France having enacted or planning to enact laws to enforce a fair revenue-sharing model, the tech giants seem to be fighting desperately to hang on to their alleged monopolistic system to rake in huge revenues.

Note:





## MPLAD Scheme

### Why in News?

Recently, the Ministry of Finance has revised the **Member of Parliament Local Area Development Scheme (MPLADS)** rules, where the interest that the fund accrues will be deposited in the Consolidated Fund of India.

- So far, the interest accrued on the **fund used to be added to the MPLADS account and could be used for the development projects.**

### What is Consolidated Fund of India?

- All revenues received by the Government by way of taxes like Income Tax, Central Excise, Customs and other receipts flowing to the Government in connection with the conduct of Government business i.e. Non-Tax Revenues are credited into the Consolidated Fund constituted under **Article 266 (1) of the Constitution of India.**
- Similarly, all loans raised by the Government by issue of Public notifications, treasury bills (internal debt) and loans obtained from foreign governments and international institutions (external debt) are credited into this fund.
- All expenditure of the government is incurred from this fund and no amount can be withdrawn from the Fund without authorization from the Parliament.

### What is MPLAD Scheme?

- **About:**
  - It is a **Central Sector Scheme** which was announced in December 1993.
- **Objective:**
  - To enable **MPs to recommend works of developmental nature with emphasis on the creation of durable community assets** in the areas of drinking water, primary education, public health, sanitation and roads, etc. primarily in their Constituencies.
    - Since June 2016, the MPLAD funds can also be used for implementation of the schemes such as **Swachh Bharat Abhiyan, Accessible India Campaign (Sugamya Bharat Abhiyan)**, conservation of water through rain water harvesting and **Sansad Aadarsh Gram Yojana**, etc.

### Implementation:

- The process under MPLADS starts with the Members of Parliament recommending works to the Nodal District Authority.
- The Nodal District concerned is responsible for implementing the eligible works recommended by the Members of Parliament and maintaining the details of individual works executed and amount spent under the Scheme.

### Functioning:

- Each year, **MPs receive Rs. 5 crore in two instalments of Rs. 2.5 crore each.** Funds under MPLADS are non-lapsable.
- Lok Sabha MPs have to recommend the district authorities projects in their Lok Sabha constituencies, while Rajya Sabha MPs have to spend it in the state that has elected them to the House.
- Nominated Members of both the Rajya Sabha and Lok Sabha can recommend works anywhere in the country.

### How does MPLADS work?



### What are the Issues with MPLADS?

- **Implementation Lapses:** The **Comptroller and Auditor-General of India (CAG)** has flagged instances of financial mismanagement and artificial inflation of amounts spent.
- **No Statutory Backing:** The scheme is not governed by any statutory law and is subject to the whims and fancies of the government of the day.
- **Monitoring and Regulation:** The scheme was launched for promoting participatory development but there is no indicator available to measure level of participation.
- **Breach of Federalism:** MPLADS encroaches upon the domain of local self governing institutions and thereby violates **Part IX and IX-A of the Constitution.**
- **Conflict with Doctrine of Separation of Powers:** MPs are getting involved in executive functions.

Note:



# National Physical Literacy Mission

## Why in News?

Recently, the **Supreme Court** has asked the **Centre and States** to respond to a report **recommending sports to be expressly made a fundamental right under Article 21 of the Constitution**.

- Further, the report submitted by the **court's amicus curiae** (friend of the court) suggested that the **"narrow" phrase 'sport' be replaced by 'physical literacy'**, which is a term "firmly established as a right in the leading sporting nations of the world".

## What is the Premise of the Supreme Court's Ruling?

- The report was filed in a **Public Interest Litigation (PIL)** to amend the Constitution to make sports a **fundamental right** and amend the **Directive Principles of State Policy** to include an obligation to **"strive for promotion of sports education"**.
- It had urged that sports should be transferred to the **Concurrent List** to facilitate cooperative work between the Centre and states (at present, sports is a state subject).

## What did the Report Suggest?

- **Responsibility Matrix:** Central Government should launch **'National Physical Literacy Mission'**.
  - The mission should implement a responsibilities' matrix that includes curriculum design, compliance monitoring, and review, grievance redressal and self-correction mechanisms which starts at the school level to groom children for various sports.
- **Dedicated Time for Sports:** All school boards including CBSE, ICSE, State Boards, IB, IGCSE should be directed to ensure that from the academic year commencing 2022-2023, at least 90 minutes of every school day will be dedicated to free play and games.
- **Sports Facilities for Free:** State governments ought to ensure that from the current academic year, all educational institutions in their non-working hours, should allow neighborhood children to use their playgrounds and sports facilities for free.

- **Draft 'Physical Literacy Policy':** A 180 days' time should be given to educational institutions to draft **'Physical Literacy Policy'**.
  - The policy will include the institution's commitment to a **'no-child-left-behind' approach**.
  - It should ensure that the institution's physical literacy activities are designed and delivered in a manner that is inclusive of students.
- **Internal Committee:** There is a need to create an internal committee to address specific cases where there is a failure in responsibilities to deliver the right to physical literacy of students.
- **Dashboard:** There is a need to create a dashboard with real time data on mapping of available playgrounds and open spaces and their utilization rates, availability and qualifications of physical education teachers, curricula, timetables, and equipment in educational institutions across the country.

## International Charter of Physical Education, Physical Activity and Sport

- The International Charter of Physical Education, Physical Activity and Sport is a rights-based reference that orients and supports policy- and decision-making in sport.
- It promotes inclusive access to sport by all without any form of discrimination. It sets ethical and quality standards for all actors designing, implementing and evaluating sport programmes and policies.
- Adopted at the 20<sup>th</sup> session of the UNESCO's General Conference (1978).

## NEP 2020 and Sports

- Sports have been given a place of pride in the recent **National Education Policy (NEP 2020)**.
- Sports, which was considered extra-curricular activity earlier is now being treated as part of the curriculum and grading in sports will be counted in the education of the children.
- Institutes of higher education and sports university are being established. There is a need to take sports sciences and sports management to the school level as that will improve the career prospects of the youth and will enhance India's presence in the sports economy.

## Schemes to Promote Sports

- Sports Authority of India (Ministry of Youth Affairs & Sports)

Note:



- **Khelo India Scheme**
- Assistance to National Sports Federations;
- Special Awards to Winners in International sports events and their Coaches;
- National Sports Awards, Pension to Meritorious Sports Persons;
- Pandit Deendayal Upadhyay National Sports Welfare Fund;
- National Sports Development Fund; and
- Running Sports Training Centres through Sports Authority of India.

## J&K Delimitation

### Why in News?

Recently, a commission set up by the Centre Government **submitted its final report for the delimitation of Assembly and parliamentary constituencies** in Jammu and Kashmir.

### Why was the Commission Set Up?

- Delimitation became necessary when the **Jammu and Kashmir Reorganization Act, 2019** increased the number of seats in the Assembly.
- The erstwhile **J&K state had 111 seats — 46 in Kashmir, 37 in Jammu, and 4 in Ladakh — plus 24 seats reserved for Pakistan-occupied Kashmir (PoK).**
- In the erstwhile state, delimitation of parliamentary constituencies was governed by the Constitution of India and that of Assembly seats was carried out by the then state government under the **Jammu and Kashmir Representation of the People Act, 1957.**
- After abrogation of J&K's special status in 2019, the delimitation of both Assembly and parliamentary seats is governed by the Constitution.
- The Delimitation **Commission was set up on 6<sup>th</sup> March 2020.**
- It was headed by retired **Supreme Court Justice Ranjana Prakash Desai**, it has the **Chief Election Commissioner and J&K's Chief Electoral Officer** as members, and **J&K's five MPs** as associate members.

### What Changes Have Been Made?

- **Legislative Assembly:** The Commission has increased seven Assembly seats — **six in Jammu (now 43 seats) and one in Kashmir (now 47).**

- It has also made massive changes in the structure of the existing Assembly seats.
- **Lok Sabha:** There are **five Parliamentary Constituencies** in the region. The Delimitation Commission has seen the Jammu & Kashmir region as one single Union Territory.
  - The Commission has **redrawn the boundaries of Anantnag and Jammu seats.**
  - **Jammu's Pir Panjal region, comprising Poonch and Rajouri districts** and formerly part of Jammu parliamentary seat, has now been added to Anantnag seat in Kashmir.
  - Also, a **Shia-dominated region of Srinagar** parliamentary constituency has been transferred to Baramulla constituency.
- **Kashmiri Pandits:** The Commission has recommended **provision of at least two members from the community of Kashmiri Migrants (Kashmiri Hindus)** in the Legislative Assembly.
  - It has also recommended that Centre should consider giving representation in the J&K Legislative Assembly to the displaced persons from Pakistan-occupied Kashmir, who migrated to Jammu after Partition.
- **Scheduled Tribes:** Total nine seats reserved for **Scheduled Tribes** for the first time.

### Why has Exercise been Controversial?

- Constituency boundaries are **being redrawn only in J&K when delimitation for the rest of the country has been frozen until 2026.**
- The last delimitation exercise in **J&K was carried out in 1995.**
- In 2002, the then J&K government **amended the J&K Representation of the People Act to freeze the delimitation exercise until 2026**, as in the rest of the country.
- This was challenged in the J&K High Court and then the **Supreme Court, both of which upheld the freeze.**
- Also, while **delimitation as a rule is carried out on the basis of Census population**, the Commission said it would take certain other factors into consideration for J&K, including size, remoteness and closeness to the border.

### What do the Changes in Assembly Seats Mean?

- While the **basis for delimitation is the 2011 Census**, the changes mean that **44% of the population (Jammu)**

Note:



will vote in 48% of the seats, while the 56% living in Kashmir will vote in the remaining 52% of the seats.

### What is Delimitation?

- Delimitation is the **act of fixing or redrawing the limits or boundaries of territorial constituencies** (Assembly or Lok Sabha seat) in a country or a province having a legislative body, as per the **Election Commission**.
- The delimitation exercise is **carried out by an independent high-powered panel known as the Delimitation Commission** whose orders have the force of law and cannot be questioned by any court.
- The exercise has been carried out over the years to redefine the area of a constituency based on its population size (based on the last **Census**).
- Aside from changing the limits of a constituency, **the process may result in a change in the number of seats in a state**.
- This exercise also involves reservation of Assembly seats for **SC & ST** in accordance with the Constitution.
- The **key aim is to have equal representation to equal segments of the population** in order to ensure a fair division of geographical areas so that all political parties or candidates contesting elections have a level playing field in terms of a number of voters.

### What is the Constitutional Basis for Delimitation?

- Under **Article 82**, the Parliament enacts a Delimitation Act after every Census.
- Under **Article 170**, States also get divided into territorial constituencies as per Delimitation Act after every Census.
- Once the Act is in force, the Union government sets up a Delimitation Commission.
  - The delimitation commission is an **independent body constituted under Article 82** after the Parliament enacted a Delimitation Act after every census.
- However, the first delimitation exercise was carried out by the President (with the help of the Election Commission) in 1950-51.
  - The Delimitation Commission Act was enacted in 1952.
- Delimitation Commissions **had been set up four times** — 1952, 1963, 1973 and 2002 under the Acts of 1952, 1962, 1972 and 2002.
  - There was **no delimitation after the 1981 and 1991 Censuses**.

### Who is Included in a Delimitation Commission?

- The Delimitation Commission is **appointed by the President of India** and works in collaboration with the Election Commission of India.
- **Composition:**
  - Retired **Supreme Court** judge
  - Chief Election Commissioner
  - Respective State Election Commissioners.

## US' Roe v. Wade Case 1973

### Why in News?

Recently, a leak by political journalism company **Politico** has revealed that, the **US Supreme Court** has decided to **overturn Roe v. Wade, 1973** the court's landmark 1973 judgment that made **abortion a constitutional right**.

### What is Roe v. Wade Judgment?

- In 1973, in the landmark **Roe vs Wade** judgment, the Supreme Court of the United States made the **right to abortion a constitutional right**, establishing a benchmark for **abortion laws across the world**.
- In this case, the US Supreme Court struck down laws that **made abortion illegal in several states** and ruled that abortion would be allowed up to the **point of foetal viability**, that is, **the time after which a foetus can survive outside the womb**.
  - Foetal viability was around **28 weeks (7 months)** at the time of the **Roe judgment**; experts now agree that advances in medicine have brought the threshold down to **23 or 24 weeks (6 months or a little less)**.
- Foetal viability is often seen as the point at which the **rights of the woman can be separated from the rights of the unborn foetus**.
- Abortion laws across the world rely on this metric but those **opposing abortions argue that this is an arbitrary timeframe** that legislation and the court in Roe adopted.

### What is the Debate Regarding Abortion?

- The abortion debate is the ongoing controversy surrounding the moral, legal, and religious status of induced abortion.

Note:





- In many western countries, the sides involved in the debate are the self-described “**pro-choice**” and “**pro-life**” movements.
  - Pro-choice emphasizes the **woman’s choice whether to terminate a pregnancy**.
  - On the contrary, the pro-life position **stresses the humanity of both the mother and fetus**, arguing that a fetus is a human person deserving of legal protection.
- Each movement has, with varying results, **sought to influence public opinion and to attain legal support for its position**.
- Many people believe that abortion is **essentially a moral issue**, concerning the beginning of **human personhood, rights of the fetus, and bodily integrity**.

### ***What is the Present case?***

- The current case pertains to challenging the **Mississippi law on abortion**.
- In 2018, the state of **Mississippi banned most abortions after 15 weeks** — much before fetal viability, and sooner than was allowed by Roe — throwing a direct challenge to the **1973 judgment**.
- In 2019, “**heartbeat**” **abortion law** was passed in Mississippi, an even more restrictive measure that banned most abortions once fetal cardiac activity could be detected — which is about six weeks.
- The **heartbeat law** said that physicians who performed an **abortion after a fetal heartbeat** was detected could have their medical licenses revoked.
  - The law made **no exceptions for pregnancies caused by rape or incest**.
- This law too was blocked by a district judge, and in **February 2020, the 5<sup>th</sup> Circuit Court of Appeals in New Orleans agreed with the decision**.

### ***What will be the Impact of the Judgement?***

- Since there is **no federal law** protecting the right to abortion in the US, the overturning of Roe **would leave abortion laws entirely up to the states**.
- In essence, in overlooking the checks and balances of **Roe vs Wade** and in **disabling personal agency**, the matter will no longer be set within the **paradigm of women’s rights**.
- It is also likely to impact the **larger framework of human rights**, tilting it away from the poor and the voice-less.

### ***What are Abortion Laws in India?***

- Under the **Indian Penal Code, 1860**, abortion remains a criminal offence under **Section 312**.
  - However, the **Medical Termination of Pregnancy Act, 1971 (MTP)** and its amendment simply provides an exception to the criminalization.
- The MTP Act, 1971 allows **abortion until 20 weeks of pregnancy**.
- Through an amendment in 2021, the **ceiling for abortions was raised to 24 weeks**, but only for special categories of pregnant women such as **rape or incest survivors, that too, with the approval of two registered doctors**.
- In the case of fetal disability, **there is no limit to the timeline for abortion**, but that is allowed by a medical board of specialist doctors set up by the governments of states and union territories.

## **World Press Freedom Index 2022**

### ***Why in News?***

- On the **World Press Freedom Day (WPDF)** (3<sup>rd</sup> May), the 20<sup>th</sup> edition of the **World Press Freedom Index** was published by **Reporters Without Borders (RSF)**.
- **India ranked 150<sup>th</sup>** among the 180 countries.

### ***What are the Highlights of the World Press Freedom Day?***

- **About:**
  - The day was proclaimed by the **UN General Assembly in 1993**, following the recommendation of UNESCO’s General Conference in 1991.
  - The day also marks the **1991 Windhoek Declaration (adopted by UNESCO)**.
  - It aimed **towards the ‘development of a free, independent and pluralistic press’**.
- **Theme for 2022:**
  - Journalism under digital siege.

### ***What is the World Press Freedom Index?***

- **About:**
  - It has been **published every year since 2002** by Reporters Sans Frontieres (RSF) or Reporters Without Borders.

- Based in Paris, **RSF** is an independent NGO with consultative status with the **United Nations**, **UNESCO**, the Council of Europe and the International Organization of the Francophonie (OIF).

- OIF is a 54 french speaking nations collective.

- The Index ranks **countries and regions according to the level of freedom available to journalists**. However, it is **not an indicator on the quality of journalism**.

➤ **Scoring Criteria:**

- The Index's rankings are **based on a score ranging from 0 to 100** that is assigned to each country or territory, with 100 being the best possible score (the highest possible level of press freedom) and 0 the worst.

➤ **Evaluation Criteria:**

- Each country or territory's score is **evaluated using five contextual indicators** : political context, legal framework, economic context, sociocultural context and safety.

### ***What are the Highlights of the Performance of the World?***

➤ **About:**

- The report **reveals a two-fold increase in "polarisation"** amplified by information chaos, that is, media polarisation fuelling divisions within countries, as well as polarisation between countries at the international level.

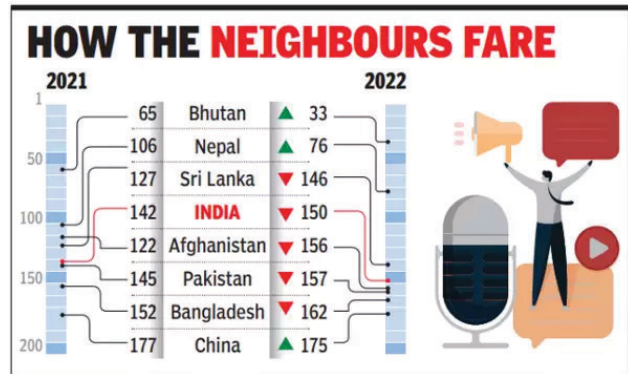
➤ **Ranking of Countries:**

○ **Top and Worst Performers:**

- Norway (1<sup>st</sup>)** **Denmark (2<sup>nd</sup>)**, **Sweden (3<sup>rd</sup>)** **Estonia (4<sup>th</sup>)** and **Finland (5<sup>th</sup>)** grabbed the top positions.
  - North Korea** remained at the **bottom** of the list of the 180 countries.
  - Russia** was placed at **155<sup>th</sup> position**.

○ **India's Neighbours:**

- Nepal has **climbed up by 30 points** in the global ranking at **76<sup>th</sup> position**.
  - The index placed **Pakistan at 157<sup>th</sup> position**, Sri Lanka 146<sup>th</sup>, Bangladesh 162<sup>nd</sup> and Myanmar at 176<sup>th</sup> position.
  - China** was ranked at **175<sup>th</sup> position**.



### ***What about the Performance of India?***

➤ **About:**

- India has **fallen eight places from 142<sup>nd</sup> to 150<sup>th</sup> in the 2022** among the 180 countries.
  - India's position has **been consistently falling in the index since 2016** when it was ranked 133.
  - The reasons behind fall in ranking is the **increased "violence against journalists"** and a **"politically partisan media"**.

➤ **Reasons behind the Fall in Ranking of India:**

○ **Pressure from Government:**

- According to the index the **media in India, among nations reputed to be more democratic**, faces pressure from **"increasingly authoritarian and/or nationalist governments"**.

○ **Faults in Policy Framework:**

- Although the **policy framework is protective in theory**, it resorts to using **defamation, sedition, contempt of court**, and endangering national security against journalists critical of the government, branding them as **"anti-national"**.

○ **India is World's Most Dangerous Countries for Mediapersons:**

- According to the report, **India is also one of the world's most dangerous countries for mediapersons**.
    - Journalists are **exposed to all kinds of physical violence** including police violence, ambushes by political activists, and deadly reprisals by criminal groups or corrupt local officials.

○ **On Kashmir Issue:**

- The situation in Kashmir remains **"worrisome"** and reporters are often harassed by police and paramilitaries.

Note:



### What about the Freedom of Press in India?

- The Constitution, the supreme law of the land, guarantees **freedom of speech and expression under Article 19**, which deals with 'Protection of certain rights regarding freedom of speech, etc.
- Freedom of press is not expressly protected by the **Indian legal system** but it is impliedly protected under **article 19(1) (a) of the constitution**, which states - "All citizens shall have the right to freedom of speech and expression".
- In 1950, the Supreme Court in **Romesh Thappar v. State of Madras** observed that freedom of the press lay at the foundation of all democratic organisations.
- However, **Freedom of press is also not absolute**. It faces certain restrictions under **Article 19(2)**, which are as follows-
  - Matters related to interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality or in relation to contempt of court, defamation or incitement to an offence.

## New Delhi Dual Governance Conundrum

### Why in News?

Due to the absence of statehood for Delhi, there has been a prolonged confrontation on the relative powers between the elected government of **New Delhi and Lieutenant Governor (L-G)** (appointed by the Union Government) for the territorial administration of New Delhi.

- The dispute between the two occurred on many occasions including control over agencies, namely the Anti-Corruption Bureau, the Civil Services and the Electricity Board, etc.
- Further, **the 2021 amendment to the Government of National Capital Territory of Delhi Act, 1991**, points out that the possibility of conflict is not over.

### What is the Governance Model of New Delhi?

- The status of Delhi being a Union Territory under Schedule 1 of the Constitution but christened the '**National Capital Territory**' under **Article 239AA**, engrafted by the Constitution (69<sup>th</sup> Amendment) Act.

## Centre vs Delhi govt again

### WHAT THE Act PROPOSES

- The term "Government" in any law by the legislative assembly will mean "Lieutenant Governor"
- The assembly shall not make rules or committees to consider day-to-day administration or conduct inquiries
- Rule or committee made before the new amendment comes into force "shall be void"
- Before taking any executive action, opinion of the L-G shall be obtained by a general or special order
- L-G shall have power to reserve for consideration any Act, and any of the matters outside the purview of the powers conferred on the legislative assembly



Act will define responsibilities in line with the constitutional scheme of governance of national Capital, as interpreted by SC  
— AMIT SHAH, UNION HOME MINISTER

### DELHI GOVT'S RESERVATIONS

- Article 239AA says legislature can make laws on any matters on state and concurrent list except for issues relating to public order, police and land.
- SC's Constitution bench in 2018 recognised assembly's right, and said Union has exclusive powers only in the above 3 issues.
- SC said L-G should work with aid and advice of council of ministers
- SC order clarified that L-G has not been entrusted with any independent decision-making power
- While any matter of dispute can be sent to President, the SC said it does not mean every matter should be



After being rejected by people of Delhi, BJP seeks to drastically curtail powers of elected govt. Act is dilution of SC judgment.  
— ARVIND KEJRIWAL, CM

- The 69<sup>th</sup> amendment to the Constitution of India inserted **Article 239AA**, which declared the **Union Territory of Delhi to be administered by a L-G who works on aid and advice of the elected legislative assembly**.
  - However, the 'aid and advice' clause pertains only to matters on which the elected Assembly has powers under the **State and Concurrent Lists** With the **exception of public order, police, and land**.
- Further, the Article 239AA also notes that L-G has to **either act on the aid and advice of the Council of Ministers**, or he is **bound to implement the decision taken by the President** on a reference being made by him.
- Also, Article 239AA, empowers the L-G to refer a **difference of opinion on 'any matter' with the Council of Ministers to the President**.
- Thus, this dual control between L-G and the elected government leads to a **power tussle**.

### What is the Judiciary's Opinion on this matter?

- The **Delhi High Court decided in favour of the Central Government** relying on the status of Delhi as a Union Territory.
- However, the Supreme Court **referred the matter to a Constitution Bench** to decide on the substantial questions of law pertaining to the powers of the elected **government of Delhi vis-a-vis the Lieutenant Governor (L-G)**.
- The case referred to the Constitutional bench is known as **NCT vs UOI case, 2018**. The five-judge Bench opened a new jurisprudential chapter in the Administration of NCT.

Note:





- **Purposive Construction:** The court invoked the **rule of purposive construction to say that the objectives behind the Constitution (69<sup>th</sup> Amendment) Act** shall guide the interpretation of Article 239AA.
  - This means the **principles of federalism and democracy into Article 239AA**, thereby finding a parliamentary intent to accord a sui generis (of its own kind) status in distinction from other Union Territories.
- **L-G to Act on Aid and Advice:** The Court declared that the L-G is bound by the **“aid and advice” of the Council of Ministers**, noting that the Delhi Assembly also has the power to make laws over all subjects that figure in the Concurrent List, and all, **except three excluded subjects, in the State List**.
  - The L-G ought to act on the “aid and advice” of the Council of Ministers, except when he refers a matter to the President for a final decision.
- **Any Matter is Not Every Matter:** Regarding the L-G’s power to refer to the President any matter on which there is a difference of opinion between L-G and the Council of Ministers, the Supreme Court ruled that **“any matter” cannot be construed to mean “every matter”,** and such a reference shall arise only in exceptional circumstances.
- **L-G as facilitator:** L-G shall act as a **facilitator rather than anointing himself as an adversary** to the elected Council of Ministers.
- **New Delhi Cannot be Given Statehood:** At the same time, the Court ruled that the National Capital Territory of Delhi **cannot be granted the status of a State under the constitutional scheme.**

## Mandate Document for National Curriculum Framework

### Why in News

Recently, the **Ministry of Education** has released the **“mandate document”** for a **National Curriculum Framework** under the **new National Education Policy (NEP), 2020**.

- The mandate document is envisaged to bring about a **paradigm shift with focus on holistic development of children, emphasis on skilling, vital role of teachers, learning in mother tongue, cultural rootedness.**

- It is also a step towards **decolonization of the Indian education system.**

### What is the National Curriculum Framework?

- Central to the implementation of the transformative **National Education Policy 2020** is the new **National Curriculum Framework (NCF)** which will empower and **enable outstanding teaching and learning in the country, by converting the vision of the NEP 2020 into reality in our schools and classrooms.**
- The development of the NCF is being guided by the **National Steering Committee (NSC)**, chaired by **Dr K Kasturirangan**, supported by the Mandate Group, along with the **National Council for Education Research and Training (NCERT).**
- The NCF will include:
  - The **National Curriculum Framework for School Education (NCFSE)**,
  - The **National Curriculum Framework for Early Childhood Care & Education (NCFECE)**,
  - The **National Curriculum Framework for Teacher Education (NCFTE)**,
  - The **National Curriculum Framework for Adult Education (NCFAE).**
- The government held that the **NEP is the philosophy, National Curriculum Framework is the pathway and the mandate document released today is the constitution** to champion the changing demands of the 21<sup>st</sup> century and positively impact the future.
- The mandate group has set **28<sup>th</sup> February 2023** as the **deadline** for the revision of syllabi based on the new NCF.

### What are the Highlights of the Mandate Document?

- **Consultative Process:** It sets the mechanisms for the development of a **coherent and comprehensive NCF**, fully leveraging the widespread consultations already under way.
- **Multi-Disciplinary Education:** The process designed **ensures the seamless integration** imagined - vertically (across Stages) and horizontally in the NEP 2020 – to ensure holistic, integrated, and multi-disciplinary education.
- **Conducive Environment for Teaching:** It enables the **critical linkage between the curriculum of schools with the curriculum of Teacher Education** as an

Note:



integral part of the transformative reforms envisioned by the NEP 2020.

- Thus, enabling rigorous preparation, continuous professional development, and a positive working environment for all our teachers
- **Life-long Learning:** It informs the creation of opportunities for **life-long learning for all citizens in the country.**
- **Focus on Cutting-edge Research:** Anchored and informed by sound theory and **cutting-edge research yet using simple language with real-life illustrations** from classrooms and schools in a variety of contexts.
- **Addressing Huge Learning Loss:** The states and the Centre “**must act urgently**” to address the “**huge learning loss**” among students due to the interruptions in regular teaching and learning caused by the **pandemic** over the last two years.

### ***What is meant by***

### ***Decolonization of Indian education system?***

- Industrialization and its consequential imperialism and colonialism have impacted this world for three centuries.
- India has been a colony of the British Empire for two centuries.
- These eventful two centuries of Indian history did see the influence of not only the **political and economic might of Britain** but its influence on every milieu of Indian life.
- India's indigenous education system was **gradually displaced, and the colonial model of education pervaded under the patronage from the colonial-state.**
- The **language, pedagogy, evaluation and knowledge** of the colonizer became *naturalis obligato* (Natural Obligation) for the population of the colony.
- Although **India got independence in 1947**, still Indian education system is heavily dominated by **western world.**

### **What is NCERT?**

- NCERT is an **autonomous organization of the Government of India** which was **established in 1961** as a literary, scientific and charitable Society under the **Societies Registration Act, 1860.**
- It aims at reforming the school education system through research, training, policy formulation and curriculum development.
- **Headquarters:** New Delhi

- Hence, there is a need to decolonize Indian education System immediately.

## **PMFME Scheme**

### ***Why in News?***

Recently, the Ministry of Food Processing Industries and **NAFED (National Agricultural Cooperative Marketing Federation of India Limited)** launched **Three One District One Product (ODOP) brands** under the **Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme.**

- The Ministry of Food Processing Industries has signed an agreement with NAFED for developing 10 brands of selected 20 ODOPs under the branding and marketing component of the PMFME scheme.

### ***What is PMFME Scheme?***

- **About:**
  - Launched under **Atmanirbhar Abhiyan** (in 2020), it aims to **enhance the competitiveness of existing individual micro-enterprises** in the unorganised segment of the **food processing industry** and to promote formalisation of the sector and provide support to **Farmer Producer Organisations, Self Help Groups**, and Producers Cooperatives along their entire value chain.
  - The scheme **adopts the One District One Product (ODOP) approach** to reap the benefit of scale in terms of procurement of inputs, availing common services and marketing of products.
  - It will be implemented over a period of **five years from 2020-21 to 2024-25.**
- **Features:**
  - **One District One Product (ODOP) Approach:**
    - The States would identify food products for districts keeping in view the existing clusters and availability of raw material.
    - The ODOP could be a perishable produce based or cereal based or a food item widely produced in an area. E.g. mango, potato, pickle, millet based products, fisheries, poultry, etc.
  - **Other Focus Areas:**
    - Waste to wealth products, minor forest products and **Aspirational Districts.**

Note:



- **Capacity building and research:** Academic and research institutions under MoFPI along with State Level Technical Institutions would be provided support for training of units, product development, appropriate packaging and machinery for micro units.
- **Financial Support:**
  - Existing individual micro food processing units desirous of upgrading their units can avail **credit-linked capital subsidy at 35%** of the eligible project cost with a maximum ceiling of Rs. 10 lakh per unit.
  - Support would be provided through **credit linked grants at 35% for development of common infrastructure** including common processing facility, lab, warehouse, etc. through FPOs/SHGs/cooperatives or state owned agencies or private enterprise.
  - A **seed capital (initial funding) of Rs. 40,000-per Self Help Group (SHG)** member would be provided for working capital and purchase of small tools.
- **Funding:**
  - It is a **centrally sponsored scheme** with an outlay of Rs. 10,000 crore.
  - The expenditure under the scheme would be shared in 60:40 ratio between Central and State Governments, in 90:10 ratio with North Eastern and Himalayan States, 60:40 ratio with UTs with legislature and 100% by Centre for other UTs.

### What is the Need of the Scheme?

- The unorganised food processing sector comprising nearly 25 lakh units contributes to 74% of employment in the **food processing sector**.
- Nearly 66% of these units are located in rural areas and about 80% of them are family-based enterprises supporting livelihood of rural households and minimising their migration to urban areas.
  - These units largely fall within the category of micro enterprises.
- The unorganised food processing sector faces several challenges which limit their performance and their growth. The challenges include lack of access to modern technology & equipment, training, access institutional credit, lack of basic awareness on quality control of products, and lack of branding & marketing skills etc.

### What is NAFED?

#### ➤ About:

- It is an **apex organisation of marketing cooperatives** for agricultural produce in India.
- It was founded on **2<sup>nd</sup> October 1958** and is registered under the Multi-State Co-operative Societies Act, 2002.
- NAFED is one of the largest procurement as well as marketing agencies for agricultural products in India.

#### ➤ Objectives:

- To organise, promote and develop marketing, processing and storage of agricultural, horticultural and forest produce.
- To distribute agricultural machinery, implements and other inputs, undertake inter-state, import and export trade, wholesale or retail as the case may be.
- To act and assist for technical advice in agricultural production for the promotion and the working of its members, partners, associates and cooperative marketing, processing and supply societies in India.

## Sedition Law

### Why in News?

The Government has sought more time to submit its written response to petitions challenging the **constitutional validity of Section 124A of the Indian Penal Code** dealing with the offense of **sedition**.

- In the year 2021, the **CJI (Chief Justice of India)** had questioned **why a colonial law used against Mahatma Gandhi and Bal Gangadhar Tilak continued to survive** in the law book after 75 years of Independence.
- The Chief Justice had said sedition or Section 124A of the Indian Penal Code **was prone to misuse by the government**.

### What is Sedition Law?

#### ➤ Historical Background:

- Sedition laws were **enacted in 17<sup>th</sup> century England** when lawmakers believed that **only good opinions of the government should survive**, as bad opinions were detrimental to the government and monarchy.

Note:



- The law was **originally drafted in 1837 by Thomas Macaulay**, the British historian-politician, but was inexplicably omitted when the **Indian Penal Code (IPC)** was enacted in 1860.
- Section 124A was **inserted in 1870 by an amendment** introduced by Sir James Stephen when it felt the need for a specific section to deal with the offence.
- Today the Sedition is a crime under Section 124A of the Indian Penal Code (IPC).

#### ➤ **Sedition Law Today:**

- **Section 124A IPC:**
  - It defines **sedition as an offence committed** when “any person by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the government established by law in India”.
  - Disaffection includes disloyalty and all feelings of enmity. However, comments without exciting or attempting to excite hatred, contempt or disaffection, will not constitute an offence under this section.
- **Punishment for the Offence of Sedition:**
  - It is a **non-bailable offence**. Punishment under Section 124A ranges from imprisonment up to three years to a life term, to which a fine may be added.
  - A person **charged under this law is barred from a government job**.
    - They have to live without their passport and must produce themselves in the court at all times as and when required.

#### **What are the Significance and Issues with the Sedition Law?**

##### ➤ **Significance:**

- **Reasonable Restrictions:**
  - The constitution of India prescribes reasonable restrictions (**under Article 19(2)**) that can always be imposed on this right (Freedom of Speech and Expression) in order to ensure its responsible exercise and to ensure that it is equally available to all citizens.
- **Maintaining Unity & Integrity:**

- Sedition law helps the government in combating anti-national, secessionist and terrorist elements.

##### ○ **Maintaining Stability of State:**

- It helps in **protecting the elected government from attempts to overthrow the government** with violence and illegal means. The continued existence of the government established by law is an essential condition of the stability of the State.

##### ➤ **Issues:**

##### ○ **Relic of Colonial Era:**

- Colonial administrators used sedition to lock up people who criticised the British policies.
- Stalwarts of the freedom movement such as **Lokmanya Tilak, Mahatma Gandhi, Jawaharlal Nehru, Bhagat Singh, etc.**, were convicted for their “seditious” speeches, writings and activities under British rule.
- Thus, rampant use of the sedition law recalls the colonial era.

##### ○ **Stand of Constituent Assembly:**

- The Constituent Assembly did not agree to include sedition in the Constitution. The members felt it would curtail freedom of speech and expression.
- They argued that the sedition law can be turned into a weapon to suppress people’s legitimate and constitutionally guaranteed right to protest.

##### ○ **Disregarding Supreme Court’s Judgement:**

- Supreme Court in **Kedar Nath Singh vs State of Bihar** case 1962, limited application of sedition to “acts involving intention or tendency to create disorder, or disturbance of law and order, or incitement to violence”.
- Thus, invoking sedition charges against academicians, lawyers, socio-political activists and students is in disregard of the Supreme Court’s order.

##### ○ **Repressing Democratic Values:**

- Increasingly, India is being described as an elected autocracy primarily because of the callous and calculated use of sedition law.

#### **What are Recent Developments?**

- **In February 2021**, the Supreme Court (SC) protected a political leader and six senior journalists from arrest, for allegedly tweeting and sharing unverified news, in multiple sedition FIRs registered against them.

Note:





- In June 2021, the SC while protecting two Telugu (language) news channels from coercive action by the Andhra Pradesh government emphasized on defining the limits of sedition.
- In July 2021, a petition was filed in the SC, that sought a relook into the Sedition Law,
  - The court ruled that “a statute criminalizing expression based on unconstitutionally vague definitions of ‘disaffection towards Government’ etc. is an unreasonable restriction on the fundamental right to free expression guaranteed under Article 19 (1)(a) and causes constitutionally impermissible ‘Chilling Effect’ on speech”.

## Office of Profit

### Why in News?

Recently, the Election Commission issued notice to Jharkhand chief minister on a reference that he held an “office of profit” by granting a mining lease to himself in 2021.

- The chief minister is accused of violating a provision of the Representation of the People Act.

### What is the Concept of ‘Office of Profit’?

- MPs and MLAs, as members of the legislature, hold the government accountable for its work.
- The essence of disqualification under the office of profit law is if legislators holds an ‘office of profit’ under the government, they might be susceptible to government influence, and may not discharge their constitutional mandate fairly.
- The intent is that there should be no conflict between the duties and interests of an elected member.
- Hence, the office of profit law simply seeks to enforce a basic feature of the Constitution-
  - The principle of separation of power between the legislature and the executive.

### What Constitutes an ‘Office of Profit’?

- About:
  - The law does not clearly define what constitutes an office of profit but the definition has evolved over the years with interpretations made in various court judgments.

- An office of profit has been interpreted to be a position that brings to the office-holder some financial gain, or advantage, or benefit.
  - The amount of such profit is immaterial.
- In 1964, the Supreme Court ruled that the test for determining whether a person holds an office of profit is the test of appointment.
- Factors which are considered in this determination includes:
  - Whether the government is the appointing authority
  - Whether the government has the power to terminate the appointment
  - Whether the government determines the remuneration
  - What is the source of remuneration
  - Power that comes with the position

### What does the Constitution

#### say about holding an ‘Office of Profit’?

- Under Article 102 (1) and Article 191 (1) of the Constitution, an MP or an MLA (or an MLC) is barred from holding any office of profit under the central or state government.
  - The articles clarify that “a person shall not be deemed to hold an office of profit under the government of India or the government of any state by reason only that he is a minister”.
- Provisions of Articles 102 and 191 also protect a legislator occupying a government position if the office in question has been made immune to disqualification by law.
- Parliament has also enacted the Parliament (Prevention of Disqualification) Act, 1959, which has been amended several times to expand the exempted list.

### What are the Related

#### Judgments of the Supreme Court?

- CM will be disqualified under Section 9A of the Representation of Peoples’ Act, 1951 in view of three judgments of the apex court.
  - Under that section, a contract has to be made for the supply of goods or the execution of any work undertaken by the government.
- A constitution bench of the Supreme Court in 1964 in the case of CVK Rao vs Dentu Bhaskara Rao has held that a mining lease does not amount to a contract of supply of goods.

- In 2001, a three-judge bench of the apex court in the case of **Kartar Singh Bhadana vs Hari Singh Nalwa & others** also made it clear that a mining lease does not amount to execution of a work undertaken by the government.
- Even if the **CM is disqualified by any authority**, he can challenge it in the **high court** and in that case and as per a Supreme Court order, the adjudication **has to be completed within four months**.
  - **Under Article 164 (4)**, one person can be a **minister for six months** without being a member.

## Seven Years of Jan Suraksha Schemes

### Why in News?

Recently, the **Pradhan Mantri Suraksha Bima Yojana (PMSBY)**, **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)** and **Atal Pension Yojana (APY)** completed 7 years of providing social security net.

- To ensure that the people from the **unorganised section** of the country are **financially secure**, the Government launched **two insurance schemes – PMJJBY and PMSBY**; and **introduced APY to cover the exigencies in old age**.
- These schemes were launched by the Prime Minister in **May 2015** from Kolkata, West Bengal.

### What is Pradhan Mantri Suraksha Bima Yojana (PMSBY)?

- **Scheme:** It is a **one-year accidental insurance scheme** renewable from year to year offering coverage for death or disability due to accident.
- **Eligibility:** Individuals in the **age group of 18-70 years** having a savings bank or a post office account are entitled to enroll under the scheme.
- **Benefits:** Accidental death cum disability **cover of Rs.2 lakh** (Rs.1 lakh in case of partial disability) for death or disability due to an accident.
- **Achievements:** As of today, the cumulative enrolments under the scheme have been more than 28.37 crore and an amount of Rs. 1,930 crore has been paid for 97,227 claims.

### What is Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)?

- **About:** It is a one-year life insurance scheme renewable from year to year offering coverage for **death due to any reason**.
- **Eligibility:** Individuals in the **age group of 18-50 years** having a savings bank or a post office account are entitled to enroll under the scheme.
- **Benefits:** Life cover of **Rs. 2 Lakh in case of death due to any reason** against a premium of Rs. 330/- per annum.
- **Achievements:** As of today, the cumulative enrolments under the scheme have been more than 12.76 crore and an amount of Rs. 11,522 crores have been paid for 5,76,121 claims.

### What is Atal Pension Yojana (APY)?

- **Background:** The Atal Pension Yojana (APY) was launched **to create a universal social security system for all Indians**, especially the poor, the under-privileged and the workers in the unorganised sector.
  - It is an initiative of the Government to **provide financial security** and cover future exigencies for the people in the unorganized sector.
- **Administered By:** **Pension Fund Regulatory and Development Authority (PFRDA)** through the National Pension System (NPS).
- **Eligibility:** This scheme is **open to all bank account holders in the age group of 18 to 40 years** and the contributions differ, based on the pension amount chosen.
- **Benefits:** Subscribers would receive the **guaranteed minimum monthly pension** of Rs. 1000 or Rs. 2000 or Rs. 3000 or Rs. 4000 or Rs. 5000 at the age of 60 years, based on the contributions made by the subscriber after joining the scheme.
- **Contribution by Central Government:** The minimum pension would be guaranteed by the Government, i.e., if the accumulated corpus based on contributions earns a lower than estimated return on investment and is inadequate to provide the minimum guaranteed pension, the **Central Government would fund such inadequacy**.
  - Alternatively, if the returns on investment are higher, the subscribers would get enhanced pensionary benefits.
- **Payment frequency:** Subscribers can make contributions to APY on a monthly / quarterly / half-yearly basis.

- **Achievements:** As of today, more than 4 crore individuals have subscribed to the scheme.

#### **Pension Fund Regulatory and Development Authority (PFRDA)**

- It is the **Statutory Authority** established by an enactment of the Parliament, to regulate, promote and ensure orderly growth of the **National Pension System (NPS)**.
- It works under the Department of Financial Services under the Ministry of Finance.

#### **What are the Significances of these Schemes?**

- These three social security schemes are **dedicated to the welfare of the citizens**, recognising the need for securing human life from unforeseen risks/losses and financial uncertainties.
- The PMJJBY and PMSBY **provide access to low-cost life/accidental insurance cover** to the people, the APY provides **an opportunity for saving** in the present for getting a regular pension in old age.
- The number of people who have enrolled and benefitted from these schemes over the last seven years is a testimony to their success.
- These low-cost insurance schemes and the guaranteed pension scheme are ensuring that financial security, which was available to a select few earlier, is **now reaching the last person of the society**.

## **BHARAT TAP Initiative**

#### **Why in News?**

Recently, the Minister for Housing and Urban Affairs launched the **BHARAT TAP initiative** at the '**Plumbex India**' exhibition. This exhibition is aimed at products and services **related to the plumbing, water, and sanitation industry**.

- At the exhibition, NAREDCO (National Real Estate Development Council) MAHI's 'Nirmal Jal Prayas' initiative was also launched.

#### **What is BHARAT TAP Initiative?**

- It is a concept to use low flow tap and fixtures.
  - It will provide low-flow, sanitary-ware at scale, and thereby **reduce water consumption** at the source considerably.

- It is estimated to save approximately 40% of water. This will in turn result in water saving and energy saving due to less water and energy will be required for pumping, transporting, and purification.
- This initiative will also be accepted quickly in the country and will lead to a **renewed focus on water conservation efforts**.

#### **What is NAREDCO MAHI?**

- It seeks to help solve the global water crisis, removing the financial barriers that stand between people in need and **access to safe water and sanitation at home**.
  - Nirmal Jal Prayas' initiative will look into **mapping ground water** as it is very important to save underground water and will work to save 500 crore litres of water per year.
- The women wing of NAREDCO, was set up in 2021 with an aim to empower women entrepreneurs and encourage the **participation of women in the real estate sector** and allied fields.
  - It strives to create an environment where women in the real estate sector can come together to share experiences, harnesses their skills, draw on their resources, influence, grow and bring about lasting change.
  - Such an initiative in water conservation will be of immense importance to save water.

#### **What is the Need to Conserve Water?**

- **Increased Demand:** There is an increased demand for water for domestic, industrial, and agricultural needs and limited surface water resources.
- **Limited Storage:** Limited storage facilities owing to the hard rock terrain, along with the added disadvantage of lack of rainfall, especially in central Indian states.
- **Over-extraction of Groundwater:** **Green Revolution** enabled water-intensive crops to be grown in drought-prone/ water deficit regions, leading to over-extraction of groundwater.
  - Frequent pumping of water from the ground without waiting for its replenishment leads to **quick depletion**.
- **Contamination:** Water contamination, as in the case of pollution by landfills, septic tanks, leaky underground gas tanks, and from overuse of fertilizers and pesticides leads to damage and depletion of groundwater resources.

Note:





- **Inadequate Use:** Inadequate regulation of groundwater encourages the exhaustion of groundwater resources without any penalty.
- **Deforestation & Unscientific Methods:** Deforestation, unscientific methods of agriculture, chemical effluents from industries, and lack of sanitation also lead to pollution of groundwater, making it unusable.

### **What are the other Initiatives for Water Conservation?**

- **Swachh Bharat Mission:**
  - In contrast to the construction or supply led programs of the past (Central Rural Sanitation Programme), SBM is a demand-centric model. It focuses on behaviour change to generate demand for sanitation services by the rural population which is then followed by supply.
- **Atal Mission for Rejuvenation and Transformation (AMRUT):**
  - The purpose of this mission is to ensure that every household has access to a tap with an assured supply of water and a sewerage connection.
    - To ensure that every household has access to a tap with an assured supply of water and a sewerage connection.
- **AMRUT 2.0:**
  - AMRUT 2.0 aims to provide 100% coverage of water supply to all households in around 4,700 ULBs (Urban Local Bodies).
  - It also seeks to promote **Atmanirbhar Bharat** through encouraging Startups and Entrepreneurs (**Public Private Partnership**).
- **The National Aquifer Mapping and Management Program (NAQUIM):**
  - It envisages mapping of aquifers (water-bearing formations), their characterization, and the development of Aquifer Management Plans to facilitate **sustainable management of groundwater** resources.
- **Mahatma Gandhi National Rural Employment Guarantee Act:**
  - Aims to improve groundwater harvesting, build water conservation and storage mechanisms, and has enabled the government to introduce water conservation as a project under the Act.
- **Jal Kranti Abhiyan:**

- Active efforts to revolutionise villages and cities through block-level water conservation schemes.
- For example, the **Jal Gram Scheme** under it aimed at developing two model villages in water-starved areas for water conservation and preservation.
- **National Water Mission:**
  - Aims to conserve water, minimise wastage and ensure more equitable distribution both across and within states through integrated water resources development and management.
- **NITI Aayog's Composite Water Management Index:**
  - Aims to achieve effective utilization of water.
- Jal Shakti Ministry and **Jal Jeevan Mission:**
  - Jal Shakti Ministry was formed to tackle water issues holistically.
  - Jal Jeevan mission aims to provide piped water to all rural households by 2024.
- **Atal Bhujal Yojana:**
  - Central sector scheme for sustainable management of groundwater with community participation through the formation of Water User Associations, water budgeting, preparation and implementation of Gram-panchayat-wise water security plans, etc.
- **Jal Shakti Abhiyan:**
  - Launched in July 2019 as a campaign for water conservation and water security in the country.
- **National Water Awards:**
  - Organised by the Department of Water Resources, River Development, and Ganga Rejuvenation, Ministry of Jal Shakti.
  - Focus on the good work and efforts made by individuals and organisations across the country, and the government's vision for the path to **Jal Samridh Bharat**.

## **Local Governments**

### **Why in News?**

- Recently, the **Supreme Court** declared that State Election Commissions across the country cannot skip their constitutional obligation to conduct polls to **Local Bodies** every five years.
- Election commissions **cannot reel out grounds like ongoing delimitation or formation of new wards to delay elections** where it was due or even overdue.

Note:



- The court found that besides a “staggering” 23,000 rural local bodies, polls had not been held in 321 urban local bodies in Madhya Pradesh since 2019-2020.

### What is Local Government?

#### ➤ About:

- Local Self Government is the management of local affairs by such local bodies who have been elected by the local people.
- The local self-Government includes **both rural and urban government**.
- It is the **third level of the government**.
- There are **2 types of local government in operation** – panchayats in rural areas and Municipalities in urban areas.

#### ➤ Rural Local Governments:

- Panchayati Raj Institution (PRI) is a system of rural local self-government in India.
- PRI was constitutionalized through the **73<sup>rd</sup> Constitutional Amendment** Act, 1992 to build democracy at the grass roots level and was entrusted with the task of rural development in the country.
  - This act has added a new Part-IX to the Constitution of India. This part is entitled as ‘The Panchayats’ and consists of provisions from **Articles 243 to 243 O**.
  - In addition, the act has also added a new Eleventh Schedule to the Constitution. This schedule contains 29 functional items of the panchayats. It deals with Article 243-G.
- In its present form and structure PRI has completed 30 years of existence. However, a lot remains to be done in order to further decentralization and strengthen democracy at the grass root level.

#### ➤ Urban Local Governments:

- **Urban Local Governments** were established with the purpose of democratic decentralisation.
- There are **eight types of urban local governments in India** - Municipal Corporation, Municipality, Notified Area Committee, Town Area Committee, Cantonment Board, township, port trust, special purpose agency.
- At the Central level the subject of ‘urban local government’ is dealt with by the following three Ministries.

- The Ministry of Urban Development was created as a separate ministry in 1985 (now Ministry of Housing and Urban Affairs).
- Ministry of Defense in the case of cantonment boards.
- Ministry of Home Affairs in the case of Union Territories.
- The 74<sup>th</sup> Amendment Act pertaining to urban local government was passed during the regime of P.V. Narsimha Rao’s government in 1992. It came into force on 1<sup>st</sup> June, 1993.
  - Added Part IX -A and consists of provisions from articles 243-P to 243-ZG.
  - Added 12<sup>th</sup> Schedule to the Constitution. It contains 18 functional items of Municipalities and deals with Article 243 W.

### What are the Salient Features of 73<sup>rd</sup> Constitutional Amendment?

#### ➤ Compulsory Provisions:

- Organisation of Gram Sabhas;
- Creation of a three-tier Panchayati Raj Structure at the Zila, Block and Village levels;
- Almost all posts, at all levels to be filled by direct elections;
- Minimum age for contesting elections to the Panchayati Raj institutions be twenty one years;
- The post of Chairman at the Zila and Block levels should be filled by indirect election;
- There should be reservation of seats for Scheduled Castes/ Scheduled Tribes in Panchayats, in proportion to their population, and for women in Panchayats up to one-third seats;
- State Election Commission to be set up in each State to conduct elections to Panchayati Raj institutions;
- The tenure of Panchayati Raj institutions is five years, if dissolved earlier, fresh elections to be held within six months;
- A State Finance Commission is set up in each State every five years.

#### ➤ Voluntary:

- Giving voting rights to members of the Central and State legislatures in these bodies;
- Providing reservation for backward classes; and
- The Panchayati Raj institutions should be given financial powers in relation to taxes, levy fees etc.

and efforts shall be made to make Panchayats autonomous bodies.

### ***What are the Salient***

### ***Features of 74<sup>th</sup> Amendment Act?***

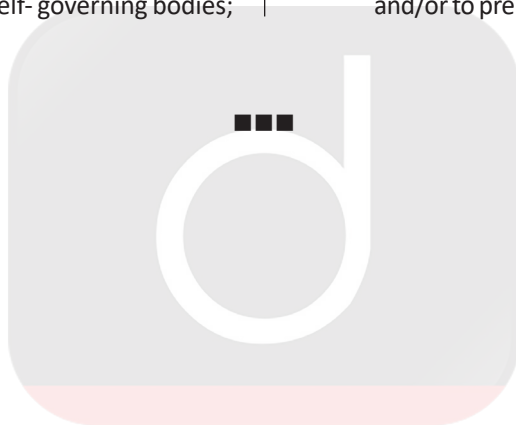
#### ➤ **Compulsory:**

- Constitution of nagar panchayats, municipal councils and municipal corporations in small, big and very big urban areas respectively;
- Reservation of seats in urban local bodies for Scheduled Castes / Scheduled Tribes roughly in proportion to their population;
- Reservation of seats for women up to one-third seats;
- The State Election Commission, constituted in order to conduct elections in the Panchayati raj bodies (see 73<sup>rd</sup> Amendment) will also conduct elections to the urban local self-governing bodies;

- The State Finance Commission, constituted to deal with financial affairs of the panchayati raj bodies also looks into the financial affairs of the local urban selfgoverning bodies;
- Tenure of urban local self-governing bodies is fixed at five years and in case of earlier dissolution fresh elections are held within six months;

#### ➤ **Voluntary:**

- Giving voting rights to members of the Union and State Legislatures in these bodies;
- Providing reservation for backward classes;
- Giving financial powers in relation to taxes, duties, tolls and fees, etc;
- Making the municipal bodies autonomous and devolution of powers to these bodies to perform some or all of the functions enumerated in the Twelfth Schedule added to the Constitution through this Act and/or to prepare plans for economic development.



Note:



# Economic Scenario

## Highlights

- Cryptocurrency
- Ethanol Blending
- Depreciation of Indian Rupee
- Purchasing Managers Index
- Jute Industry
- RBI hikes Repo Rate and CRR
- India Semiconductor Mission
- Indian Pharma Sector
- Foreign Portfolio Investors (FPI) and Forex Reserve
- MoU for Strategic Partnership on Agriculture, Crop Insurance and Credit

## Cryptocurrency

### Why in News?

Recently, the **Central African Republic (CAR)** became the **second country after El Salvador to adopt Bitcoin as legal tender**.

- The **Union Budget 2022-2023** of India has also proposed to introduce a digital currency in the coming financial year.
- It was also announced that "any income from transfer of any virtual digital asset shall be taxed at the rate of 30%".

### What is Cryptocurrency?

- **Cryptocurrency**, sometimes called crypto-currency or crypto, is any form of currency that **exists digitally or virtually** and uses cryptography to secure transactions.
- Cryptocurrencies don't have a central issuing or regulating authority, instead use a decentralized system to record transactions and issue new units.
  - It is supported by a decentralized peer-to-peer network called the **blockchain**.

### What are the Benefits Associated with Cryptocurrency?

- **Fast and Cheap Transactions:** Cryptocurrencies are way cheaper to use to execute international transactions because the transactions don't have to be handled by a series of intermediaries before they reach their destinations.
- **Investment Destination:** There is a limited supply of cryptocurrency – partially like gold. Moreover, the

last few years have seen the price of cryptocurrencies rising faster than other financial instruments.

- Due to this, cryptocurrencies can become a preferred investment destination.

- **Anti-Inflationary Currency:** Due to the high demand for cryptocurrency its prices have largely remained on a growing trajectory. In this scenario, people tend to hold more cryptocurrency than spending it.
  - This will cause a deflationary effect on the currency.

### Why are Countries like CAR Adopting Cryptocurrencies as a Legal Tender?

- **Strong and Inclusive Growth:** The measure would enable "strong and inclusive growth" and place the African country on the "map of the most courageous and visionary countries in the world".
  - Having a population of 5 million, CAR is **among the poorest and most economically fragile countries globally**.
    - As per the World Bank estimates provided in July 2021, 71% of its population was living below the international poverty line of USD 1.90/day.
- **Positive Growth:** There is potentially a direct relationship between inflation and countries permitting the use of cryptocurrencies.
  - Cryptocurrencies bear the potential to **convert inflation-related decline from legal currencies into positive growth**.
  - This potentially direct relationship would be relevant for CRA. As per the IMF, inflation in the country is **expected to accelerate to 4% in 2022** because of rising food and fuel prices.

Note:



### How is this About Geopolitics?

- **Dependency on the Other Country:**
  - The two countries that regularised Bitcoin as a legal tender **do not have a currency of their own**.
  - El Salvador uses the US dollar and CAR's franc is the mutual currency for 14 African nations. Together these countries—most of which were once French colonies constitute the '**Franc Zone**'.
  - Franc can be exchanged into foreign currencies via the exchange market of Paris which creates a dependency on the European country.
- **Circumvent the Sanctions and Embargos Imposition:**
  - As a consequence of the blockade imposed by the U.S., countries such as **Cuba are cut off from global financial systems** and cannot acquire financial instruments such as debit or credit cards, in turn, struggling to go abroad and obtain materials and services from outside.

### What are the Drawbacks?

- **Extremely Volatile:** Cryptocurrencies are highly volatile assets and have acquired popularity for their unregulated nature and the risk of volatility has established concerns over the potential impact on a country's macroeconomic stability, especially those with weak socio-economic fundamentals.
  - Recently, several countries have considered **instituting laws that regulate the use of cryptocurrencies**, particularly those not having well-devised currency mechanisms and experiencing prolonged inflation.
- **Unregulated Nature:** **International Monetary Fund (IMF)** had also urged El Salvador to limit the scope of unregulated assets as there are large risks associated with the use of Bitcoin on financial stability, financial integrity, and consumer protection, as well as the associated fiscal contingent liabilities.
- **Paying Taxes in Cryptocurrencies:** For countries like CRA, risks associated with paying taxes in cryptocurrencies would be exposed when taxes are paid using crypto assets but expenditures remain in local currency.
  - For example, the government collects \$100 worth taxes using crypto denominations, but a downward slide of the asset makes available \$40 to spend.
- **Not a Definite Mechanism:** Unlike equities or currencies, cryptos are not subject to a definite mechanism and are speculative assets, therefore, central banks would not have any reference point to devise their interest rates in accordance with their domestic requirements.

- **Counterproductive Utility:** Blockchains may help trace the transactions but not the parties involved. Hence, it could potentially be used for money laundering, terrorist financing, or other illegal activities.

## Ethanol Blending

### Why in News?

The level of ethanol blending in petrol in India has reached **9.99%**.

### What is Ethanol Blending?

- **Ethanol:** It is one of the principal **biofuels**, which is **naturally produced by the fermentation of sugars by yeasts** or via petrochemical processes such as ethylene hydration.
- **Ethanol Blending Programme (EBP):** It is aimed at **reducing the country's dependence on crude oil imports**, cutting **carbon emissions** and **boosting farmers' incomes**.
- **Blending Target:** The Government of India has **advanced the target for 20% ethanol blending in petrol** (also called E20) to 2025 from 2030.

### What is the Significance of Ethanol Blending?

- **Reduce dependency on Petroleum:**
  - By blending ethanol into gasoline, it can reduce the amount of petrol required to run a car, thereby **reducing dependence on imported, expensive, and polluting petroleum**.
    - Today, **India imports 85%** of its oil requirements.
- **Save Money:**
  - India's net import of petroleum was **185 million tonnes in 2020-21** at a cost of USD551 billion.
  - Most of the petroleum products are **used in transportation and therefore, the E20 programme can save the country USD4 billion annually**.
- **Less Polluting:**
  - Ethanol is a **less polluting fuel and offers equivalent efficiency at a lower cost** than petrol.
    - Availability of large arable land, rising production of foodgrains and sugarcane leading to surpluses, availability of technology to produce ethanol from plant-based sources, and the feasibility of making vehicles compliant to ethanol blended petrol

Note:





(EBP) are some of the supporting arguments used in the roadmap for E20, which refers to the target as “not only a national imperative, but also an important strategic requirement”.

### What are the Related Issues?

- **National Policy on Biofuel:**
  - The **new ethanol blending target primarily focuses** on food-based feedstocks, in light of grain surpluses and wide availability of technologies.
    - The blueprint is a departure from the **2018 National Policy on Biofuels**, which prioritized grasses and algae; cellulosic material such as bagasse, farm and forestry residue; and, items like straw from rice, wheat and corn.
- **Risk of Hunger:**
  - The food grains meant for the impoverished are being sold to distilleries at prices cheaper than what states pay for their public distribution networks.
    - Competition **between the distilleries and the public distribution system** for subsidized food grains could have adverse consequences for the rural poor and expose them to enhanced risk of hunger.
    - India ranked 101<sup>st</sup> of 116 countries on the **World Hunger Index 2021**.
- **Cost:**
  - Production of biofuels requires land, this **impacts the cost of biofuels as well as that of food crops**.
- **Water use:**
  - **Massive quantities of water are required for proper irrigation** of biofuel crops as well as to manufacture the fuel, which could strain local and regional water resources.
- **Efficiency:**
  - **Fossil Fuels produce more energy** than some of the biofuels. E.g. 1 gallon of ethanol produces less energy as compared to 1 gallon of gasoline (a fossil fuel).

## Depreciation of Indian Rupee

### Why in News?

The Indian rupee fell to an all-time low of **77.44** against the **U.S. Dollar**.

### What is Depreciation?

- **About:**
  - Currency depreciation is a **fall in the value of a currency in a floating exchange rate system**.
  - Rupee depreciation means that the **rupee has become less valuable with respect to the dollar**.
    - It means that the rupee is now weaker than what it used to be earlier.
    - **For example: USD 1 used to equal to Rs. 70, now USD 1 is equal to Rs. 77**, implying that the rupee has depreciated relative to the dollar i.e. it takes more rupees to purchase a dollar.
- **Impact of Depreciation of Indian Rupee:**
  - Depreciation in rupee is a **double-edged sword for the Reserve Bank of India**.
    - **Positive:**
      - Weaker rupee **should theoretically give a boost to India's exports**, but in an environment of uncertainty and weak global demand, a fall in the external value of rupee may not translate into higher exports.
    - **Negative:**
      - It **poses risk of imported inflation**, and may make it difficult for the central bank to maintain interest rates at a record low for longer.
      - India meets **more than two-thirds of its domestic oil requirements through imports**.
      - India is **also one of the top importers of edible oils**. A weaker currency will further **escalate imported edible oil prices** and lead to a higher food inflation.

### Appreciation Vs Depreciation

- In a floating exchange rate system, **market forces (based on demand and supply of a currency)** determine the value of a currency.
- **Currency Appreciation:** It is an increase in the value of one currency in relation to another currency.
  - Currencies appreciate against each other for a variety of reasons, including government policy, interest rates, trade balances and business cycles.
  - **Currency appreciation discourages a country's export activity** as its products and services become costlier to buy.

**Depreciation Vs Devaluation:**

- If the value of the **Indian Rupee** is weakened through **administrative action**, it is devaluation.
  - While the **process is different for depreciation and devaluation**, there is no difference in terms of impact.
- India used to **follow the administered or fixed rate of exchange until 1993**, when it moved to a **market-determined process or floating exchange rate**.
  - **China still adheres to the former.**

### **What are the Reasons for Current Depreciation of Indian Rupee?**

- **Sell-off of the Equity:**
  - A **sell-off in the global equity markets** which was triggered by the hike in **interest rates by the U.S. Federal Reserve** (central bank), the war in Europe and growth concerns in China due to the **Covid-19** surge, led to the rupee depreciation.
- **Outflow of Dollar:**
  - The outflow of dollars is a result of **high crude prices** and the correction in **equity markets** is also causing **adverse flow of dollars**.
- **Tightening of Monetary Policy:**
  - Steps taken by **RBI to tighten the monetary policy** to counter rising **inflation** has also led to depreciation.

### **How the Depreciation of Rupee Impact the Overall Economy?**

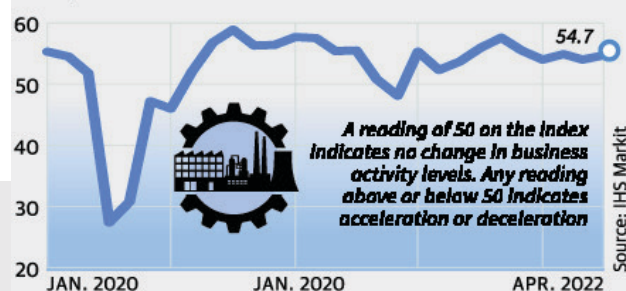
- The **current account deficit** is bound to widen, depleting **foreign exchange reserves** and **weakening the rupee**.
- With higher landed prices of crude oil and other crucial imports, the economy is **definitely inching towards cost-push inflation**.
  - Cost-push inflation (also known as wage-push inflation) occurs **when overall prices increase (inflation) due to increases** in the cost of wages and raw materials.
- **Companies may not be allowed to fully pass on the burden of high costs** to consumers, which, in turn, affects government dividend earnings, raising questions about budgeted **fiscal deficits**.

## **Purchasing Managers Index**

### **Why in News?**

According to the S&P Global India Manufacturing **Purchasing Managers' Index (PMI)**, **India's manufacturing sector** recorded a slight acceleration in new orders and output which rose to 54.7 in April 2022 from 54 in March 2022.

### **Nuts and bolts** | A look at the Purchasing Managers' Index for manufacturing between January 2020 and April 2022



### **What are the Key Highlights of the Index?**

- April data showed a rebound in new export orders, following the first contraction for nine months in March.
  - **Contraction**, in economics, refers to a **phase of the business cycle in which the economy is in decline**.
  - A contraction generally occurs after the business cycle peaks, but before it becomes a trough.
- **Inflationary pressures meanwhile intensified**, owing to rising commodity prices, the **Russia-Ukraine war** and greater transportation costs.
- **Input prices increased at the fastest pace in five months**, while output charge **inflation** hit a 12-month high.
- A major insight from the latest results was an **intensification of inflationary pressures**, as energy price volatility, global shortages of inputs and the war in Ukraine pushed up purchasing costs.
- On the job front, there was **only a mild increase in employment during April 2022**.

### **What is the PMI?**

- It is a **survey-based measure** that asks the respondents **about changes in their perception of key business variables** as compared with the previous month. It

Note:





is an **index of the prevailing direction of economic trends in the manufacturing and service sectors.**

- The purpose of the PMI is to **provide information about current and future business conditions** to company decision makers, analysts, and investors.
- It is **calculated separately for the manufacturing and services sectors** and then a composite index is also constructed.
- The PMI is a **number from 0 to 100.**
  - A **print above 50 means expansion**, while a score below that denotes contraction.
  - A reading at 50 indicates no change.
- If the **PMI of the previous month is higher than the PMI of the current month**, it represents that the economy is contracting.
- It is **usually released at the start of every month.** It is, therefore, considered a good leading indicator of economic activity.
- PMI is compiled by IHS Markit for more than 40 economies worldwide.
  - IHS Markit is a global leader in information, analytics and solutions for the major industries and markets that drive economies worldwide.
  - IHS Markit is **part of S&P Global.**
- As the official data on industrial output, **manufacturing and Gross Domestic Product (GDP) growth comes much later**; PMI helps to make informed decisions at an earlier stage.
- It is different from the Index of **Industrial Production (IIP)**, which also gauges the level of activity in the economy.
  - **IIP covers the broader industrial sector** compared to PMI.
  - However, **PMI is more dynamic** compared to a standard industrial production index.

### **What is the Significance of PMI?**

- **Provides a Reliable Expectation of Economy:**
  - The PMI is **becoming one of the most tracked indicators** of business activity across the world.
  - It provides a **reliable expectation of how an economy is doing** as a whole and manufacturing in particular.
- **Indicator of Economic Activity:**
  - It is a **good gauge of boom-and-bust cycles in the economy** and closely watched by investors,

business, traders and financial professionals besides economists.

- PMI is also **regarded as a leading indicator of economic activity** since it is released at the beginning of every month.
- It **comes before the official data on industrial output**, core sector manufacturing and GDP growth.

### ➤ **Helps in Decision Making:**

- The PMI is **used by central banks to set interest rates.**
- Besides influencing equity market movements, **PMI releases also impact bond and currency markets.**

### ➤ **Enhances Attractiveness of the Economy:**

- A **good reading of PMI enhances the attractiveness of an economy** vis-a-vis other competing economies.
- **Suppliers can decide on prices** depending on PMI movements.

## **Jute Industry**

### **Why in News?**

West Bengal is experiencing a crisis that has led to the closure of several Jute Mills.

### **What is the Issue?**

#### ➤ **High Rate of Procurement by Mills:**

- Mills are **procuring raw jute at prices higher than** what they are selling them at after processing.
- Mills do not acquire their raw material directly from the farmers because:

#### ● **Farmers are far-off from the mills locations:**

- Mills would have to go to multiple farmers to acquire the requisite quantity as no single farmer produces enough to fulfil the requirements of the entire mill.

#### ● **Procurement Process is Cumbersome:**

- The procurement now flows through middlemen or traders.
- As a standard practice, the middlemen charge mills for their services, which involves procuring jute from farmers, grading, bailing and then bringing the bales to the mills.

#### ➤ **Hoarding:**

Note:



- The government has a fixed **Minimum Support Price (MSP)** for raw jute procurement from farmers, which is Rs. 4,750 per quintal for the 2022-23 season.
- However, **this reaches the mill at Rs. 7,200 per quintal**, that is, Rs. 700 more than the Rs. 6,500 per quintal cap for the final product.
- **Impact of Cyclone:**
  - The situation particularly has **become worrisome recently** with the **occurrence of Cyclone Amphan in May 2020** and the subsequent rains in major jute producing States.
    - These events **led to lower acreage**, which in turn **led to lower production and yield** compared to previous years.
  - Also, this **led to production of a lower quality of jute fibre in 2020-21** as water-logging in large fields resulted in farmers harvesting the crop prematurely.

### What are the Related Concerns?

- As the **jute sector provides direct employment to 3.70 lakh workers in the country** and supports the livelihood of around 40 lakh farm families, closure of the mills is a direct blow to workers and indirectly, to the farmers whose production is used in the mills.
- **West Bengal, Bihar and Assam** account for almost 99% of India's total production.

### What are the Related Initiatives for the Jute Sector?

- **Golden Fibre Revolution and Technology Mission** on Jute and Mesta are two of the government initiatives to boost jute production in India.
  - **Due to its high cost**, it is losing market to synthetic fibres and packing materials, particularly nylon.
- **Jute Packaging Materials Act, 1987:**
  - Through the **Jute Packaging Materials (JPM) Act**, the Government is protecting the interests of about 4 lakh workers and 40 lakh farm families.
    - The Act provides for the **compulsory use of jute packaging material** in the supply and distribution of certain commodities in the interests of production of raw jute and jute packaging material, and of persons engaged in the production thereof, and for matters connected therewith.

### ➤ Jute Geo-Textiles (JGT):

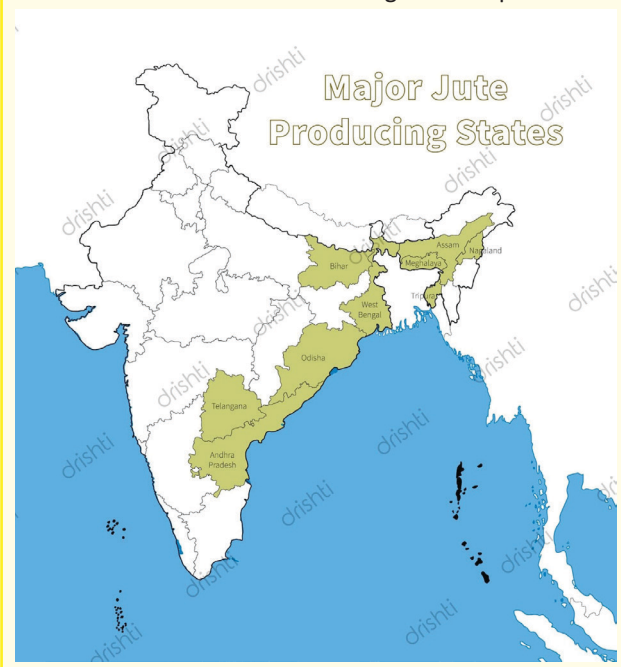
- The **Cabinet Committee on Economic Affairs (CCEA)** has approved a **Technical Textiles Mission** which includes Jute **Geo-Textiles**.
- JGT is **one of the most important diversified jute products**. It can be applied in many fields like civil engineering, soil erosion control, road pavement construction and protection of river banks.

### ➤ Jute SMART:

- It is an **e-government initiative** which was launched in December 2016 to promote transparency in the jute sector.
- It **provides an integrated platform for procurement of sacking** by Government agencies.

### What are the key Highlights about Jute?

- **Temperature:** Between 25-35°C
- **Rainfall:** Around 150-250 cm
- **Soil Type:** Well drained alluvial soil.
- **Production:**
  - India is the **largest producer of jute followed by Bangladesh and China**.
    - However, in terms of acreage and trade, **Bangladesh takes the lead accounting for three-fourth of the global jute exports** in comparison to India's 7%.
  - It is mainly concentrated in eastern India because of the rich alluvial soil of Ganga-Brahmaputra delta.



- Major jute producing states include West Bengal, Bihar, Odisha, Assam, Andhra Pradesh, Meghalaya and Tripura.

➤ **Uses:**

- It is known as the **golden fibre**. It is used in making gunny bags, mats, ropes, yarn, carpets and other artefacts.

## RBI hikes Repo Rate and CRR

### Why in News?

The **Reserve Bank of India's** Monetary Policy Committee (MPC) has increased the policy **Repo Rate by 40 basis points** to 4.40%, with immediate effect and **Cash Reserve Ratio (CRR)** of banks by 50 basis points to 4.5% of **Net Demand and Time Liabilities (NDTL)**.

- This is the first increase in the policy repo rate by RBI since May 2020.

### What is the Monetary Policy Committee?

- It is a **statutory and institutionalized framework** under the **Reserve Bank of India Act, 1934**, for maintaining price stability, while keeping in mind the objective of growth.
- The **Governor of RBI is ex-officio Chairman** of the committee.
- The MPC determines the policy interest rate (repo rate) required to achieve the inflation target (4%).
- An RBI-appointed committee led by the then deputy governor Urjit Patel in 2014 recommended the establishment of the Monetary Policy Committee.

### What are the Rates Now?

- **Policy Repo Rate: 4.40%**
  - Repo rate is the rate at which the central bank of a country (Reserve Bank of India in case of India) lends money to commercial banks in the event of any shortfall of funds. Here, the central bank purchases the security.
- **Standing Deposit Facility (SDF): 4.15%**
  - The SDF is a liquidity window through which the RBI will give banks an option to park excess liquidity with it.
  - It is different from the reverse repo facility in that it does not require banks to provide collateral while parking funds.

### ➤ **Marginal Standing Facility Rate: 4.65%**

- MSF is a window for scheduled banks to borrow overnight from the RBI in an emergency situation when interbank liquidity dries up completely.
  - Under interbank lending, banks lend funds to one another for a specified term.

### ➤ **Bank Rate: 4.65%**

- It is the rate charged by the RBI for lending funds to commercial banks.

### ➤ **CRR: 4.50%** (Effective from 21<sup>st</sup> May, 2022)

- Under CRR, the commercial banks have to hold a certain minimum amount of deposit (NDTL) as reserves with the central bank.

### ➤ **SLR: 18.00%**

- Statutory Liquidity Ratio or SLR is **the minimum percentage of deposits that a commercial bank has to maintain** in the form of **liquid cash, gold or other securities**.

### Why has RBI hiked Repo Rate and CRR?

- The decision has been taken in view of the global scenario, wherein **there has been a sharp rise in inflation due to current geopolitical tensions**.
  - **Inflation** has risen to its highest level in the last 3-4 decades in major economies with global crude oil prices remaining volatile and above USD 100 per barrel.
- The hike in Repo rate and CRR is aimed **at reining in elevated inflation amid the global turbulence** in the wake of the **Ukraine war**.
- The RBI aimed to keep inflation – which is already close to 7% — at its desired level and **control and monitor money flow** into the banking system.
  - There has also been a spike in fertiliser prices and other input costs, which has a direct impact on food prices in India.
  - There was a spike in the headline **CPI (Consumer Price Inflation) inflation** to 6.95% in March 2022.
- There is the collateral risk if inflation remains elevated at these levels for too long.
  - Collateral Risk: The risk of loss arising from errors in the nature, quantity, pricing, or characteristics of collateral securing a transaction with credit risk.
  - Collateral is an item of value used to secure a loan (credit).

Note:



### What would be the Impact of Repo Rate and CRR Hike?

- **Repo Rate:**
  - It is **expected to push up interest rates** in the banking system. Equated Monthly Installments (EMIs) on home, vehicle and other personal and corporate loans are likely to go up.
  - **Deposit rates**, mainly fixed term rates, are also **set to rise**.
  - **Consumption and demand** can be impacted by the Repo rate hike.
- **CRR:**
  - The hike in CRR will **suck out Rs 87,000 crore from the banking system**. The **lendable resources of banks will come down** accordingly.
  - It also means the **cost of funds will go up and banks' net interest margins could get adversely impacted**.
    - Net interest margin (NIM) is **a measure of the difference between the interest income earned by a bank or other financial institution and the interest it pays out to its lenders** (for example, depositors), relative to the amount of their assets that earn interest.

## India Semiconductor Mission

### Why in News?

Recently, **Ministry of Electronics & Information Technology** has inaugurated the first ever **Semicon India 2022 Conference** under **India Semiconductor Mission** in Bengaluru.

- **Semicon India – 2022** has been organized to take forward the vision of the Prime Minister to make India **a leader in the electronics manufacturing, semiconductor design, manufacturing & innovation**.
- **Theme of the Conference:** Catalyzing India's Semiconductor Ecosystem.

### What is the India Semiconductor Mission?

- **About:**
  - The ISM was launched in 2021 with a total financial outlay of Rs76,000 crore under the aegis of the Ministry of Electronics and IT (MeitY).

### What are Semiconductors?

- Any of a class of crystalline solids intermediate in electrical conductivity between a conductor and an insulator.
- Semiconductors are employed in the manufacture of various kinds of electronic devices, including diodes, transistors, and integrated circuits. Such devices have found wide application because of their compactness, reliability, power efficiency, and low cost.
- As discrete components, they have found use in power devices, optical sensors, and light emitters, including solid-state lasers.

- It is part of the **comprehensive program for the development of sustainable semiconductor and display ecosystem** in the country.
- The programme **aims to provide financial support to companies investing in semiconductors, display manufacturing and design ecosystem**.
- Envisioned to be led by **global experts in the Semiconductor and Display industry**, **ISM will serve as the nodal agency** for efficient, coherent and smooth implementation of the schemes.

### ➤ Components:

- **Scheme for setting up of Semiconductor Fabs in India:**
  - It provides fiscal support to eligible applicants for setting up of Semiconductor Fabs which is aimed at attracting large investments for setting up **semiconductor wafer fabrication facilities** in the country.
- **Scheme for setting up of Display Fabs in India:**
  - It provides fiscal support to eligible applicants for setting up of Display Fabs which is aimed at attracting large investments for **setting up TFT LCD / AMOLED based display fabrication facilities** in the country.
- **Scheme for setting up of Compound Semiconductors / Silicon Photonics / Sensors Fab and Semiconductor Assembly, Testing, Marking and Packaging (ATMP) / OSAT facilities in India:**
  - The Scheme provides **a fiscal support of 30% of the Capital Expenditure to the eligible applicants for setting up** of Compound Semiconductors / Silicon Photonics (SiPh) / Sensors (including MEMS) Fab and Semiconductor ATMP /

Note:





OSAT(Outsourced Semiconductor Assembly and Test) facilities in India.

➤ **Design Linked Incentive (DLI) Scheme:**

- It offers financial incentives, design infrastructure support across various stages of development and deployment of semiconductor design for Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores and semiconductor linked design.

➤ **Vision:**

- To build a vibrant semiconductor and display design and innovation ecosystem to enable India's emergence as a global hub for electronics manufacturing and design.

➤ **Significance:**

- ISM is of paramount importance to organize efforts for promoting semiconductors and display industry in a more structured, focused, and comprehensive manner.
- It will formulate a comprehensive long-term strategy for developing semiconductors & display manufacturing facilities and semiconductor design ecosystem in the country.
- It will **facilitate the adoption of trusted electronics** through secure semiconductors and display supply chains, including raw materials, specialty chemicals, gasses, and manufacturing equipment.
- It will **enable a multi-fold growth of Indian semiconductor design** industry by providing requisite support in the form of Electronic Design Automation (EDA) tools, foundry services and other suitable mechanisms for early-stage startups.
- It will **also promote and facilitate indigenous Intellectual Property (IP) generation** and encourage, enable and incentivize Transfer of Technologies (ToT).
- ISM will **enable collaborations and partnership programs with national and international agencies**, industries and institutions for catalyzing collaborative research, commercialization and skill development.

### ***Why is the need of Promoting Semiconductor Industry So Much?***

- Semiconductor is **the heart of modern economics**.
- In today's world of technology, **when almost everything revolves around electronic gadgets, one cannot overstate the importance** these microchips hold.

Also known as Integrated Circuits (ICs), **these chips are primarily made out of silicon and germanium**.

- Without these chips, **there would be no smartphones, radios, TVs, laptops, computers or even advanced medical equipment**.
- They are used **to fabricate electronic devices**. Also, with the **emergence of e-vehicles, the demand for semiconductors is expected to see a big boom**.
- The Covid-19 pandemic has shown that the **demand for electronic gadgets will only go uphill from here**.
- In all this, **the industry seems to be an attractive place to make early inroads into**.
  - India's own consumption of semiconductors is expected to cross USD 80 billion by 2026 and to USD 110 billion by 2030.
- There are **not many countries in the world that manufacture these chips**.
  - The industry is dominated by the **United States of America, Taiwan, South Korea, Japan and the Netherlands**.
  - Germany is also an emerging producer of ICs.
- In all this, **it might actually be a good idea for India to get on the bus early**.

#### **What are the Initiatives related to Semiconductors?**

➤ **Semi-conductor Laboratory (SCL):**

- MeitY will take requisite steps for modernization and commercialization of Semi-conductor Laboratory (SCL).

➤ **For Compound Semiconductors:**

- Government will support fiscal support of 30% of capital expenditure to approved Compound Semiconductors units.

➤ **Production Linked Incentives:**

- Incentive support to the tune of Rs.55,392 crore (7.5 billion USD) have been approved under **Product Linked Incentive (PLI)** for Largest Scale Electronics Manufacturing, PLI for IT Hardware, SPECS Scheme and Modified **Electronics Manufacturing Clusters** (EMC 2.0) Scheme.

## **Indian Pharma Sector**

### ***Why in News?***

Recently, the Ministry of Chemical & fertilizers released **guidelines on pharmaceutical innovation and**

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### **entrepreneurship** for academic institutions to Catalyze **Indian Pharma Sector.**

- The Department of Pharmaceuticals has established NIPERs (National Institutes of Pharmaceutical Education and Research) as institutes of national importance for providing quality education and conducting high-end research.
- The Department is also soon coming up with a 'Policy to catalyze Research & Development and Innovation in the Pharma- MedTech Sector in India'.

### **What Do the Policy Guidelines Seek?**

- These policy guidelines **aim to transform academic research into innovative and commercially applicable technologies.**
- It seeks to **build a strong ecosystem for entrepreneurial activities** and contribute to a **Self-Reliant India Mission.**
- The policy guidelines will **encourage faculty, staff and students to pursue entrepreneurship.**
- The **availability of resources needs** to be ensured for pre-incubation and providing common facilities for prospective inventors and entrepreneurs.
  - Budgetary provisions should be available in terms of allocation of a fixed percentage (such as not less than 1%) of institute's annual budget for funding, promoting and supporting innovation and startup-related activities.
  - In return for the services and facilities provided, an institute may take a fixed percentage of (2 - 9.5%) equity in the startup/spin-off company, based on employee contribution, support provided and use of the institute's Intellectual Property.
- The **entrepreneurial initiatives shall be evaluated on a regular basis** using well-defined impact assessment parameters such as **IP (Intellectual Property)** filed, products developed and commercialized and number of employments generated, and startups created.
- To encourage students, **relaxation in attendance should be provided** to enable them to dedicate time for entrepreneurial activities, and they should be allowed to sit for the examination, even if their attendance is less than 75%, adding institutes should provide relaxation to the PhD students in terms of a semester/year break or more, if needed, to devote time on startup ventures.

### **What is the Status of the Indian Pharma Sector?**

- India is the **largest provider of generic drugs globally.** It supplies over 50% of global demand for various vaccines, 40% of generic demand in the US and 25% of all medicine in the UK.
- The **Indian pharmaceutical market is estimated at USD 40 billion** and pharma companies export another USD 20 billion.
  - However, this is a miniscule portion of the USD 1.27-trillion global pharmaceutical market.
- Globally, **India ranks 3<sup>rd</sup> in terms of pharmaceutical production by volume and 14<sup>th</sup> by value.**
- India has more than 30% share in the global generic market but less than 1% share in the new molecular entity space.
  - **New Molecular Entity:** A novel compound that has not previously been approved for use in humans.
- According to the **Economic Survey 2021**, the domestic market is expected to grow three times in the next decade.

### **What are the Issues with the Indian Pharma Sector?**

- **Lack of Capabilities in Innovation Space:** India is rich in its manpower and talent but still lags in innovation infrastructure. The government needs to invest in research initiatives and talent to grow India's innovation.
  - The government should support the clinical trials and subjectivity in certain regulatory decision-making.
- **Effect of External Markets:** Reports comments that India is heavily dependent on other countries for **Active Pharmaceutical Ingredients (API)** and other intermediates. 80% of the APIs are imported from China.
  - So India is, therefore, at the mercy of supply disruptions and unpredictable price fluctuations. Implementation of infrastructure improvement in the field of internal facilities is necessary to stabilize supply.
- **Quality compliance inquiry:** India has undergone the highest number of Food and Drug Administration (FDA) inspections since 2009; therefore, continuous investment for upgrading quality standards will distract the capital away from other areas of development and growth is reduced.

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- **Lack of Stable Pricing and Policy Environment:** The challenge created by unexpected and frequent domestic pricing policy changes in India. It has created a vague environment for investments and innovations.

### ***What is the Need for Innovation in the Pharma Sector?***

- Changing perspective and increasing the use of technology were the need of the hour. But now it is essential that innovation is at the core of business, and there is a dire need to embrace it if India wants to continue to be of relevance in the global pharmaceutical space.
- India playing at scale in the innovation space will not just help the country but will create a source of sustainable revenues, bringing new solutions to unmet healthcare needs.
  - In India, this would lead to reduction in disease burden (development of drugs for India-specific concerns like **tuberculosis and leprosy** does not get global attention), creation of new high-skilled jobs, and probably around USD 10 billion of additional exports from 2030.
  - Countries like China have already leapfrogged ahead, skipping the generic medicine based development.

### ***What are Government Initiatives?***

- **Strengthening of Pharmaceutical Industry Scheme:**
  - A total financial outlay of Rs. 500 crore (USD 665.5 million) for the period FY 21-22 to FY 25-26 were announced under the Scheme.
- **First Global Innovation Summit of the pharmaceuticals sector:**
  - In November 2021, Indian PM inaugurated the first Global Innovation Summit of the pharmaceutical sector, where national and international speakers deliberated on a range of subjects including regulatory environment, funding for innovation, industry-academia collaboration and innovation infrastructure.
- **Production Linked Incentive (PLI) Scheme:**
  - The PLI scheme aims to promote domestic manufacturing of critical Key Starting Materials (KSMs)/Drug Intermediates and Active Pharmaceutical Ingredients (APIs) in the country.
- **Promotion of Bulk Drug Parks Scheme:**

- The government aims to develop 3 mega Bulk Drug parks in India in partnership with States to reduce manufacturing cost of bulk drugs in the country and dependency on other countries for bulk drugs.

## **Foreign Portfolio Investors (FPI) and Forex Reserve**

### ***Why in News?***

The **Reserve Bank of India (RBI)** added another 16.58 tonnes of gold to the country's **foreign exchange reserves** in the last six months, bringing the country's gold holdings to more than 700 tonnes (around 760.42).

- Gold was acquired by the RBI at a time when **Foreign Portfolio Investors (FPIs)** left India, and forex reserves **dropped by USD44.73 billion** from USD 642.45 billion in September 2021 to USD 597.72 billion on April 29, 2022.
- Now, India is the **ninth-largest holder of gold reserves**.

### ***What are Foreign Portfolio Investment?***

- Foreign portfolio investment (FPI) **consists of securities and other financial assets** passively held by foreign investors. It **does not provide the investor with direct ownership** of financial assets and is relatively liquid depending on the volatility of the market.
  - Examples of FPIs include stocks, **bonds, mutual funds, exchange traded funds**, American Depositary Receipts (ADRs), and Global Depositary Receipts (GDRs).
- FPI is part of a **country's capital account** and is shown on its **Balance of Payments (BOP)**.
  - The BOP **measures the amount of money** flowing from one country to other countries over one monetary year.
- The **Securities and Exchange Board of India (SEBI)** brought **new FPI Regulations, 2019**, replacing the erstwhile FPI Regulations of 2014.
- FPI is **often referred to as "hot money"** because of its **tendency to flee at the first signs of trouble** in an economy. FPI is **more liquid, volatile and therefore riskier** than FDI.

### ***What are the Benefits of FPIs?***

- **Accessibility to International Credit:**

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- Investors may be **able to reach an increased amount of credit** in foreign countries, enabling the investor to utilize more leverage and generate a higher return on their equity investment.
- **Increases the Liquidity of Domestic Capital Markets:**
  - As **markets become more liquid**, they become more profound and broader, and a more comprehensive range of investments can be financed.
  - As a result, **investors can invest with confidence** knowing that they can promptly manage their portfolios or sell their financial securities if access to their savings is required.
- **Promotes the Development of Equity Markets:**
  - Increased competition for financing **leads to rewarding superior performance**, prospects, and corporate governance.
  - As the market's liquidity and functionality evolve, equity prices will become value-relevant for investors, ultimately driving market efficiency.

### What is the Difference between FPI and FDI?

- FPI and FDI are **both important sources** of funding for most economies.
- A **Foreign Direct Investment (FDI)** is an **investment made by a firm or individual in one country** into business interests located in another country. **FDI lets an investor purchase a direct business interest** in a foreign country.
  - **Example:** Investors can make FDI in a number of ways. Some common ones include establishing a subsidiary in another country, acquiring or merging with an existing foreign company, or starting a joint venture partnership with a foreign company.

### What are Foreign Exchange Reserves?

- Foreign exchange reserves are **assets held on reserve by a central bank** in foreign currencies, which can include bonds, treasury bills and other government securities.
  - It needs to be noted that most foreign exchange reserves are held in US dollars.
- **India's Forex Reserve include:**
  - Foreign Currency Assets
  - Gold reserves
  - Special Drawing Rights
  - Reserve Tranche Position with the **International Monetary Fund (IMF)**.

### Differences Between FDI and FPI

Parameters	FDI	FPI
Definition	FDI refers to the investment made by foreign investors to obtain a substantial interest in the enterprise located in a different country.	FPI refers to investing in the financial assets of a foreign country, such as stocks or bonds available on an exchange.
Role of investors	Active Investor	Passive Investor
Type	Direct Investment	Indirect Investment
Degree of control	High Control	Very low control
Term	Long term investment	Short term investment
Management of Projects	Efficient	Comparatively less efficient
Investment has done on	Physical assets of the foreign country	Financial assets of the foreign country
Entry and exit	Difficult	Relatively easy
Leads to	Transfer of funds, technology, and other resources to the foreign country	Capital inflows to the foreign country
Risks Involved	Stable	Volatile

### What is the Significance of Rising Forex Reserves?

- **Comfortable Position for the Government:**
  - The rising forex reserves give comfort to the government and the RBI in managing India's external and internal financial issues.
- **Managing Crisis:**
  - It serves as a cushion in the event of a **Balance of Payment (BoP)** crisis on the economic front.
  - **Limits external vulnerability** by maintaining foreign currency liquidity to absorb shocks during times of crisis or when access to borrowing is curtailed.
- **Rupee Appreciation:**
  - The rising reserves have also helped the rupee to strengthen against the dollar.
  - **Provides the capacity** to intervene in support of the national or union currency.
- **Confidence in Market:**
  - Reserves will **provide a level of confidence to markets** and investors that a country can meet its external obligations.
- **Role in Policy Making:**
  - **Supporting and maintaining confidence** in the policies for monetary and **exchange rate** management.

Note:



## MoU for Strategic Partnership on Agriculture, Crop Insurance and Credit

### Why in News?

Recently, the Ministry of Agriculture & Farmers Welfare (MoA&FW) and the **United Nations Development Programme (UNDP)** have signed a Memorandum of Understanding (MoU).

### What is the Purpose of the MoU?

- UNDP will **provide technical support towards Centre's aspirational Pradhan Mantri Fasal Bima Yojana (PMFBY) scheme & Kisan Credit Card Scheme.**
- Under the MoU, **UNDP will leverage its expertise in systems** and global know-how for supporting the Ministry of Agriculture for the implementation of combined agriculture credit and crop insurance.

### What is the PMFBY scheme?

#### ➤ Pradhan Mantri Fasal Bima Yojana (PMFBY):

- **About:**
  - It provides a **comprehensive insurance cover against failure of the crop** thus helping in stabilising the income of the farmers.
  - The scheme was **compulsory for loanee farmers availing Crop Loan/Kisan Credit Card (KCC)** account for notified crops and voluntary for others.
- **Scope:** **All food & oilseed crops** and annual commercial/horticultural crops for which past yield data is available.
- **Premium:** The **prescribed premium is 2%** to be paid by farmers for all Kharif crops and 1.5% for all rabi crops. In the case of annual commercial and horticultural crops, the premium is 5%.
  - **Premium cost over** and above the farmer share was equally subsidized by States and GoI.
  - However, **GoI shared 90% of the premium subsidy** for North Eastern States to promote the uptake in the region.

#### ➤ Coverage:

- The **Scheme covers over 5.5 crore farmer applications** on average per year.

- **Aadhar seeding** (linking Aadhaar through Internet banking portals) has helped in speedy claim settlement directly into the farmer accounts.
- One notable example is **mid-season adversity claims** of nearly Rs. 30 crore in Rajasthan during Rabi 2019-20 **Locust attack.**

#### ➤ PMFBY 2.0:

- In order to **ensure more efficient and effective implementation of the scheme**, the central government had revamped PMFBY in the 2020 Kharif season.
- This overhauled PMFBY is often called **PMFBY 2.0**, it has the following features:
  - **Completely Voluntary:** Enrolment 100% voluntary for all farmers from 2020 Kharif.
  - **Limit to Central Subsidy:** The Cabinet has **decided to cap the Centre's premium subsidy** under the scheme for premium rates up to 30% for unirrigated areas/crops and 25% for irrigated areas/crops.
  - **More Flexibility to States:** The government has **given the flexibility to states/UTs to implement PMFBY** and given them the option to select any number of additional risk covers/features.
  - **Investing in ICE Activities:** Insurance companies have to **now spend 0.5% of the total premium collected** on information, education and communication (IEC) activities.

#### ➤ Use of Technology under PMFBY:

- **Crop Insurance App:**
  - Provides for easy enrollment of farmers.
  - Facilitate easier reporting of crop loss within 72 hours of occurrence of any event.
- **Latest Technological Tools:**
  - To assess crop losses, satellite imagery, remote-sensing technology, **drones, artificial intelligence** and machine learning are used.
- **PMFBY Portal:**
  - For integration of land records.

### What is a Kisan Credit Card Scheme?

#### ➤ About:

- It was introduced in 1998 for **providing adequate and timely credit support** from the banking system

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under a single window with flexible and simplified procedures to the farmers for their cultivation and other needs like purchase of agriculture inputs such as seeds, fertilizers, pesticides etc. and draw cash for their production needs.

- The scheme was further extended in the year 2004 for the investment credit requirement of farmers viz allied and non-farm activities.

➤ **Objectives:**

- Kisan Credit Card is provided with the following objectives:
  - The short term credit requirements for cultivation of crops;
  - Post harvest expenses
  - Produce marketing loan; Consumption requirements of farmer household.

- Working capital for maintenance of farm assets and activities allied to agriculture, like dairy animals, inland fishery, etc.
- Investment credit requirement for agriculture and allied activities like pumpsets, sprayers, dairy animals, etc.
- However, this segment forms the long term credit limit portion.

➤ **Implementing Agency:**

- The Kisan Credit Card Scheme is implemented by **Commercial Banks, RRBs, Small Finance Banks and Cooperatives.**
- The short term credit support is **not given to farmers for Purchase of combine harvesters**, tractors and mini trucks and Construction of family house and setting up of village cold storage facility.



Note:



# International Relations

## Highlights

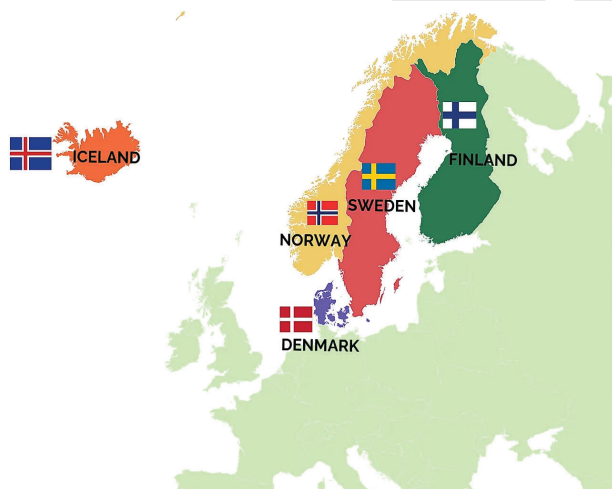
- India-Nordic Countries Bilateral Talks
- India and Denmark
- Indian PM's Visit to European Countries
- Transnistria in the Russia-Ukraine War

## India-Nordic Countries Bilateral Talks

### Why in News?

Recently, the Prime Minister of India held a series of bilateral meetings with his counterparts from Denmark, Norway, Sweden, Iceland and Finland.

- At the meetings, a discussion was made regarding ways to further **deepen bilateral ties and views were exchanged on regional and global developments.**
- The meeting was organized on the sidelines of the **second India-Nordic Summit in the Danish capital, Copenhagen.**



### What is the Background of Second India-Nordic Summit?

- The **second edition** held against the backdrop of the **two most significant events that affected the world.**
  - One is **post-pandemic economic recovery**, and the other is the **ongoing war between Ukraine and Russia.**

- Besides **economy, trade and investment**, the summit can be seen from the perspective of the **concept of the welfare state** that goes along with **capitalism and democratic practices, blending the welfare model with the market economy.**
- India invited Nordic companies for **investing in the blue economy sector, especially in Sagarmala Project.**
  - India's **Arctic Policy** provides a good framework for expansion of India-Nordic cooperation in the Arctic region.
- The Nordic countries reiterated their **support for India's permanent membership of a reformed and expanded United Nation Security Council.**
- At the **inaugural edition of the summit in 2018**, the focus of the leadership was on **global security, economic growth, innovation and climate change while emphasizing innovation and digital transformation as a driver of growth.**
  - The first summit sought to explore an extension of the application to New Delhi's flagship programmers like **Make in India, Startup India, Digital India and Clean India**, besides the support of the **Nordic countries' Sustainable Cities Project to India's Smart Cities project.**
  - At the first summit, the Nordic countries welcomed India's application for membership in the **Nuclear Suppliers' Group.**

### What are the Highlights of the Meeting?

- **India-Denmark:** Discussed a wide range of issues of mutual interest to boost bilateral relations, including the war in Ukraine, the India-European Union (EU) free trade deal and the situation in the Indo-Pacific.
  - Agreed to further strengthen the **Green Strategic Partnership** with a focus on **green hydrogen, renewable energy and wastewater management.**

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- **India-Norway:** Both leaders discussed the potential for deepening engagement in areas like Blue Economy, renewable energy, green hydrogen, solar and wind projects, green shipping, fisheries, water management, rainwater harvesting, space cooperation, long term infrastructure investment, health and culture.
  - Indian PM asserted that Norway is a key pillar of India's recently announced **Arctic Policy**.
- **India-Sweden:** During the meeting, the two leaders took stock of the progress in the Joint Action Plan and appreciated the expanding scope of the jointly launched **Leadership Group on Industry Transition (LeadIT) initiative**.
  - This was an India-Sweden joint global initiative to set up a **Leadership Group on Industry Transition (LeadIT) in September 2019 at the UN Climate Action Summit** to help guide the world's heaviest greenhouse gas emitting industries toward a low-carbon economy.
  - **During the 2018 visit of Prime Minister Modi to Sweden**, the two sides adopted a wide-ranging **Joint Action Plan** to take forward a wide range of initiatives in defense, trade and investment, renewable energy, smart cities, women's skill development, space and science and healthcare etc.
- **India-Iceland:** Both leaders discussed ways to further strengthen economic cooperation especially in the sectors of geothermal energy, Blue Economy, Arctic, renewable energy, fisheries, food processing, education including digital universities, and culture.
  - Discussions also took place on expediting the **India-European Free Trade Association (EFTA) trade negotiations**.
- **India-Finland:** Discussions were done regarding opportunities to expand cooperation in the fields of new and emerging technologies like **Artificial Intelligence, quantum computing**, future mobile technologies, clean technologies and smart grids.
  - Indian PM invited Finnish companies to partner with **Indian companies and take advantage of the enormous opportunities** that the Indian market presents, particularly in telecom infrastructure and digital transformations.

### ***What is the Significance of Nordic Countries for India?***

- India and Nordic countries enjoy robust business

partnerships though the economics of these countries individually is much smaller than those of the **G20 countries**.

- The combined GDP is over USD **1.6 trillion**, with a **per capita income of around USD 54,000**.
- The total bilateral trade and services between India and the Nordic countries is **USD 13 billion**.
- **Areas of Cooperation:** The countries which have technological prowess and growing business ties will explore cooperation in **five areas of mutual interest**.
  - These include **green partnership, digital and innovation economy, trade and investment linkages, sustainable development**, and collaboration regarding the Arctic region.
  - Apart from the United States, **India is the only other country with which the Nordic countries have summit-level meetings**.

## **India and Denmark**

### ***Why in News?***

During the **Indian Prime Minister's Visit to Denmark**, India and Denmark agreed to further strengthen the **Green Strategic Partnership** with a focus on **green hydrogen, renewable energy and wastewater management**.

- Further, India conveyed its acceptance of the Danish invitation to join the **International Center for Anti-microbial Resistance Solutions (ICARS)** as a **Mission Partner**.
- The Danish Prime Minister confirmed Danish accession to the **Global Digital Health Partnership** on India's invitation to **improve public health and well-being through evidence-based digital technologies**.



### What is the Status of India-Denmark Ties?

- **Background:** The diplomatic relations between **India and Denmark**, established in September 1949, are marked by **regular high-level exchanges**.
  - Both countries **share historical links, common democratic traditions and a shared desire for regional**, as well as international peace and stability.
  - Bilateral relations were elevated to the level of “Green Strategic Partnership” during the Virtual Summit held in 2020.

#### What is Green Strategic Partnership?

- The Green Strategic Partnership is a mutually beneficial arrangement to advance political cooperation, expand economic relations and green growth, create jobs, and strengthen cooperation on addressing global challenges and opportunities; with a focus on an ambitious implementation of the **Paris Agreement and the United Nations Sustainable Development Goals**.
- India and Denmark both have **ambitious goals within the climate agenda**.
- India is the world's **third-largest CO<sub>2</sub> emitter and by 2030**, the country is expected to have doubled its carbon emissions.
- The Danish government has the ambition to reduce **CO<sub>2</sub> emissions by 70% by 2030** and aims to undertake international leadership on SDG 7 on affordable and clean energy.
- By partnering, India and Denmark will demonstrate to the world that delivering on ambitious climate and sustainable energy goals is possible.
- **Commercial and Economic Relations:** Bilateral trade in goods and services between India and Denmark has grown by 78%, from USD 2.8 billion in 2016 to USD 5 billion in 2021.
  - The **major export items from India** to Denmark are textiles, apparels and yarns related, vehicles and components, metal goods, iron and steel, footwear, and travel goods.
  - Major **Danish exports to India** are medicinal/ pharmaceutical goods, power generating machinery, industrial machinery, metal waste and ore, and organic chemicals.
- **Cultural Exchange:** India's 75<sup>th</sup> Independence Day was celebrated in Copenhagen with a great enthusiasm with a flag hoisting ceremony and vibrant Azadi Ka

Amrit Mahotsav celebrations, attended by a large number of the diaspora.

- Indian community in Denmark include IT professionals, doctors and engineers.
- Important streets and public places have been named after Indian leaders which include the **Gandhi Plaene (Gandhi Park)**, Copenhagen and a **Nehru Road** near Aarhus University in Aarhus.

#### International Center for Antimicrobial Resistance Solutions (ICARS)

- The idea of an **international independent research and knowledge centre** focusing on intervention and implementation research in **low- and middle-income countries** was fostered through talks between Denmark and the World Bank during fall 2017 and spring 2018.
- At a meeting in **March 2018**, it was agreed that there was an unmet need in this area, and that it was important to pursue the idea further, **exploring whether Denmark could initiate and host such a centre given its long history of working in One Health**.
- In November 2018, the Danish Government formally announced its ambition to establish ICARS.

#### Global Digital Health Partnership

- The **Global Digital Health Partnership (GDHP)** is an **international collaboration of governments, government agencies and multinational organisations** dedicated to improving the health and well-being of their citizens through the best use of evidence-based digital technologies.
- It was established in February 2018, to **provide an opportunity for transformational engagement between its participants**.
- **Australia was the host country** for the inaugural summit in 2018.
- The '**4<sup>th</sup> Global Digital Health Partnership Summit**' was held in February, 2019 in New Delhi.

## Indian PM's Visit to European Countries

### Why in News?

The **Prime Minister (PM) of India** is on visit to **three European countries namely, Germany, Denmark and**

Note:



**France.** This foreign visit comes at a time Europe is witnessing the **Russia-Ukraine War**.

- The visit of Indian PM highlights the **importance India attaches to its ties with Europe**.



### What is the Significance of the Visit?

#### ➤ India-Germany Relations:

- **Background:** **Germany is one of India's most important partners in Europe**, with deep bilateral relations, and because of its key role in the **European Union**.
- India was among the first countries to establish diplomatic ties with the Federal Republic of Germany after **World War II (WWII)**.
- India and Germany have a '**Strategic Partnership**' since **May 2000**, and it has been strengthened with the launch of the **Inter-Governmental Consultations (IGC)** in 2011 at the level of heads of government.
- India is among a select group of countries with which Germany has such a **dialogue mechanism**.
- **Significance:** Germany has made key strategic choices in the **Russia-Ukraine war**.
  - It has promised to reduce its **energy dependence on Russia** and decided to increase defence

**spending** — a significant move, given its **post-WWII posture**.

- With India too dependent on **Russia for defence supplies**, it will be important for India and Germany to exchange notes on strategic choices — and **moving away from Russia for their respective needs**.

#### ➤ India-Denmark Relations:

- **Background:** Bilateral relations were elevated to the level of a "**Green Strategic Partnership**" during the Virtual Summit held in September 2020.
- The **first India-Nordic Summit** took place in April 2018 to explore new areas of cooperation.
- This format is special; the only other country with which the **Nordic countries** — **Sweden, Finland, Norway, Denmark, Iceland** — have this kind of engagement is with the US.
- **Significance:** Nordic countries are pioneers in **innovation, clean energy, green technologies, education, health-care, human rights, rule of law**. This presents enormous opportunities for India to expand its own strengths by collaborating with these countries.
- Also, India presents an ideal opportunity to these countries because of its large market.
- Many new flagship schemes have been launched by India — like **Make in India, Smart Cities Mission, Start-up India, Clean Ganga** etc — in which Nordic countries can take active part and provide their expertise.

#### ➤ India-France Relations:

- **Background:** India and France have **traditionally had close relations**.
- In 1998, the two entered into a **Strategic Partnership**, with defence & security cooperation, space cooperation and civil nuclear cooperation being its pillars.
- India and France also have a **robust economic partnership**, and are increasingly engaged in new areas of cooperation.
- France was among the few western countries to not condemn India after the **1998 Pokhran tests**.
- It has continued to support India's claim for permanent membership of the **United Nations Security Council**.

Note:





- France's support was vital in India's accession to the **Missile Technology Control Regime, Wassenaar Arrangement and Australia Group.**
- France continues to support India's bid for accession to the **Nuclear Suppliers Group.**
- France has also supported India's requests to block attempts by Pakistan to enlist Indian citizens under the **UNSC 1267 Sanctions Committee.**

○ **Significance:**

- **Indian Ocean, the Common Shared Interest:** France needs to protect its colonial territorial possessions like reunion island and Indian ocean being the zone of influence for India.
- **Counter Terrorism:** France backed the India's proposal for a global conference on terrorism.
  - Both the countries also support organizing a new "No Money for Terror" - an International Conference on Fighting Terrorist Financing.
- **France Backing India:** France also continues to steadfastly back India on Kashmir while its relations with Pakistan have plummeted in the recent past and China has become an object of suspicion.
- **Defense Cooperation:** India and France have entered in the phase of close defense partnership. For example, recently, the Indian Air Force (IAF) has inducted **French Rafale multi-role combat aircraft.**

➤ **India-Europe Relations:**

- **Background:** India in 1962 had been one of the first countries to establish diplomatic relations with the European Economic Community — the precursor of the European Union.
- A Cooperation Agreement signed in 1994 broadened the relationship to include **ministerial meetings and a political dialogue.**
- These ties have expanded to include political and security issues, climate change and clean energy, information and communications technology, space and nuclear, health, agriculture and food security, and education and culture.
- **Significance of the Visit:** The visit to Europe is likely to set the stage for the India-EU summit and a **boost in Free Trade Agreement negotiations,** which have been ongoing for a decade and a half now.

## Transnistria in the Russia-Ukraine War

### Why in News?

As the **Russia-Ukraine War** completes over two months, **Transnistria**, the tiny breakaway region of **Moldova**, risks being dragged into the conflict.

- **Transnistria is a de facto state lying between Moldova to its west and Ukraine towards its east.**

### Tensions in Transnistria

The small region wedged between Moldova to its west and Ukraine to its east risks being dragged into the ongoing conflict

#### TRANSNISTRIA FACTFILE

- Split from Moldova in 1991-92 war, amid collapse of the Soviet Union. Becomes a self-declared independent state not recognised internationally
- Referendum in 2006 saw 97.2% vote in favour of joining Russia
- Its a separatist region that permanently hosts estimated 1,500 Russian "peacekeeping" troops
- Population: **4,70,000**
- Area: **4,000 sq km**

#### RECENT DEVELOPMENTS

**Apr 25-27, 2022:** Transnistria officials claim series of incidents:

- Explosions hit state security HQ in Tiraspol. Separatist authorities blame Ukrainian "infiltrators"
- Blasts at Mayak radio centre damage Soviet-era masts used to broadcast Russian news
- Attack on military unit in village of Parcani, just outside Tiraspol
- Shots fired from Ukraine towards Kolbasna village, location of large Russian arms depot

Sources: AFP, BBC



■ **Russia could use flare-up of tensions as pretext for invasion. If Russia reinforces Transnistria, it might then move on to Ukraine's key port city of Odesa**

© GRAPHIC NEWS

### What is Transnistria's History?

- Transnistria is described as a **"remnant of the Soviet Union"**, Transnistria declared independence like Moldova did soon after the break-up of the Soviet Union.
- When Moldovan troops attempted to take over the territory in **1990-1992**, Transnistria was able to **resist them because of Russian soldiers based in Transnistria.**
  - Since then, it has **remained free of Moldovan control.**

Note:





- However, most countries continue to see Transnistria as part of Moldova. It is **not recognized as independent even by Russia**.
- Most Transnistrians have **dual citizenship** of Russia and Transnistria or **triple citizenship** of Moldova, Transnistria, and Russia.
- Its economy is dependent on **Russia for subsidies and free gas**.
- It has its **own government (which is pro-Russian), Parliament, armed force, constitution, flag, anthem, etc.**
  - In a referendum held in 2006, over **97% of Transnistrians voted for future integration with Russia** and after the **annexation of Crimea**, the government asked if it could be absorbed into Russia.
- There are fears in the West and in **Ukraine that Transnistria** could be used as a staging ground in the **conflict between Russia and Ukraine**.
- Russia might use Transnistria to **cut off the southwestern corner of Ukraine**, leading to direct Russian intervention inside Moldova.
  - If Transnistria comes under Russian control, it will **enable Russia to create a Russian-controlled corridor along Ukraine's Black Sea coast**.
  - If Russia succeeds in linking the **Black Sea port of Odessa with Transnistria**, the rest of Ukraine would become completely landlocked.
- Moldova, on its part, fears that Russia will use Transnistria to launch an attack on it as Russia has long wanted **Moldova to be in its sphere of influence**.
  - Moldova is **not a member of the European Union & North Atlantic Treaty Organisation (NATO)**.
  - So, there is little chance of **NATO coming to its rescue, particularly since NATO** cannot give membership to countries which have border disputes with other countries.

### ***What is the Strategic***

### ***Importance of Transnistria for Russia?***

- Transnistria's strategic location is important to the **next phase of Russia's war on Ukraine**.

# Science and Technology

## Highlights

- First Indigenous mRNA Vaccine Technology
- W Boson
- Monkey Pox
- Direct Seeding of Rice
- Air Independent Propulsion Technology
- Tissue Culture Plants
- Open-RAN Architecture

## First Indigenous mRNA Vaccine Technology

### Why in News?

**Council of Scientific & Industrial Research - Centre for Cellular & Molecular Biology (CSIR-CCMB)** has announced the success of 'proof of principle' of the first indigenous Messenger RNA (mRNA) vaccine technology.

- This is different from the mRNA vaccine being developed by Genovio Bio based on self-replicating RNA.
- According to the researcher, the technology is ready to be transferred to any interested company to take it to the next step of performing human trials and bringing the vaccine to market with regulatory approval.

### Proof of Principle

Proof of Principle, also called Proof of concept, is a realization of a certain method or idea in order to demonstrate its feasibility, or a demonstration in principle with the aim of verifying that some concept or theory has practical potential.

### What is mRNA Vaccine Technology?

- **About:**
  - mRNA vaccines use mRNA to teach our cells how to make a protein or a protein that triggers an immune response inside our bodies. That immune response, which produces antibodies, is what protects us from getting infected if the real virus enters our bodies.
  - The researchers developed indigenous potential mRNA vaccine candidate against **SARS-CoV-2**.

- It is based on the **Moderna model**, but has been built with the information available in the open and indigenous technology and materials.

### ➤ Efficacy:

- "Robust immune response" has been observed against the Covid-19 **spike protein** in mice upon administration of two doses of the mRNA.
- The anti-spike antibodies generated were found to be more than 90% efficient in preventing the human ACE2 receptor binding to the coronavirus
  - Angiotensin converting enzyme 2 (ACE-2), known as ACEH (ACE homolog), is an integral membrane protein.
  - ACE-2 serves as the receptor for the SARS-CoV and SARS-CoV-2 viruses.
  - It provides the entry point for the coronavirus to hook into and infect a wide range of human cells.

### ➤ Significance:

- The indigenous grown mRNA vaccine platform holds promise to deal with other infectious diseases such as **Tuberculosis**, Dengue fever, Malaria, Chikungunya, Rare Genetic diseases and others.
  - The vaccines can be used for covering a pan-Covid-19 vaccine with different variants.
  - With that, vaccines can be developed for other diseases.

### What are Different Types of vaccines?

#### ➤ Indigenously Developed Vaccines:

- **ZyCoV-D**: Designed and developed by Zydus (a pharmaceutical company) with support from the DBT.
- **Covaxin**: Developed by Bharat Biotech in collaboration with the ICMR.

Note:



### ➤ Globally Developed Vaccines:

- **Covishield**: Name given to an Oxford-AstraZeneca Covid-19 vaccine candidate which is technically referred to as AZD1222 or ChAdOx 1 nCoV-19.
- **Sputnik V**: The first vaccine to be officially registered and has been developed by Moscow's Gamaleya Institute in collaboration with Russia's defence ministry.

### **How are mRNA Vaccines**

#### **Different From Traditional Vaccines?**

- Vaccines work by training the body to recognise and respond to the proteins produced by disease-causing organisms, such as a virus or bacteria.
- Traditional vaccines are made up of small or inactivated doses of the whole disease-causing organism, or the proteins that it produces, which are introduced into the body to provoke the immune system into mounting a response.
- mRNA vaccines tricks the body into producing some of the viral proteins itself.
  - They work by using mRNA, or messenger RNA, which is the molecule that essentially puts DNA instructions into action. Inside a cell, mRNA is used as a template to build a protein.

### **What are the Advantages of Using mRNA Based Vaccines?**

- mRNA vaccines are considered safe as mRNA is non-infectious, non-integrating in nature, and degraded by standard cellular mechanisms.
- They are highly efficacious because of their inherent capability of being translatable into the protein structure inside the cell cytoplasm.
- Additionally, mRNA vaccines are fully synthetic and do not require a host for growth, e.g., eggs or bacteria. Therefore, they can be quickly manufactured inexpensively to ensure their "availability" and "accessibility" for mass vaccination on a sustainable basis.

## **W Boson**

### **Why in News?**

Recently, researchers from Collider Detector at Fermilab (CDF) Collaboration, in the US, announced that

they have made a precise measurement of the mass of the **W boson**.

- It has been stated that this **precisely determined value did not match with the estimates** from the standard model of particle physics.

### **What is W Boson?**

- The W boson was **first seen in 1983 at CERN**, located on the Franco-Swiss border.
  - In contrast to the **photon, which is massless**, the **W bosons are quite massive**, so the weak force they mediate is very short ranged.
  - **European Organisation for Nuclear Research (CERN)** is the world's largest nuclear and particle physics laboratory and best known as operator of the Large Hadron Collider, which found the elusive Higgs boson in 2012.
- Unlike the photon, which is **electrically neutral**, the **W-plus and W-minus are both massive and charged**.
- **By exchanging such W bosons**, a neutron can change into a proton, for example:
  - **This is what happens in beta decay**, a radioactive interaction that takes place in the sun.
- Thus, the **W boson facilitates the interactions that make the sun burn** and produce energy.

### **What is the Standard Model of Elementary Particle Physics?**

- The standard model of elementary particles is a **theoretical construct in physics** that describes particles of matter and their interaction.
- It describes the **elementary particles of the world as being connected by mathematical symmetry**, just as two objects are connected by bilateral (left-right) symmetry.
- These are **mathematical groups** generated by continuous transformations from, say, one particle to another.
- According to this model there are a **finite number of fundamental particles** which are represented by the characteristic "eigen" states of these groups.
- The particles predicted by the model, such as the **Z boson, have been seen in experiments**.
  - The last to be discovered, in 2012, was the **Higgs boson** which gives mass to the heavy particles.

Note:



### Why is the Standard

#### Model believed to be Incomplete?

- Because it **gives a unified picture of only three of the four fundamental forces** of nature — electromagnetic, weak nuclear, strong nuclear and gravitational interactions — it totally omits gravity.
  - So, in the grand plan of unifying all forces so that a single equation would describe all the interactions of matter, the standard model was found to be lacking.
- Also, it **does not include a description of dark matter particles**.
  - So far these have been detected only through their gravitational pull on surrounding matter.

#### Fundamental Force Particles

Force	Particles Experiencing	Force Carrier Particle	Range	Relative Strength*
<b>Gravity</b> acts between objects with mass	all particles with mass	graviton (not yet observed)	infinity	much weaker ↓
<b>Weak Force</b> governs particle decay	quarks and leptons	$W^+$ , $W^-$ , $Z^0$ (W and Z)	short range	
<b>Electromagnetism</b> acts between electrically charged particles	electrically charged	$\gamma$ (photon)	infinity	
<b>Strong Force**</b> binds quarks together	quarks and gluons	$g$ (gluon)	short range	much stronger

#### How are the Symmetries related to Particles?

- The **symmetries of the standard model are known as gauge symmetries**, as they are generated by “gauge transformations”.
  - Gauge transformations are a **set of continuous transformations** (like rotation is a continuous transformation). Each symmetry is associated with a gauge boson.
  - For example, the gauge boson associated with electromagnetic interactions is the photon. The gauge bosons associated with weak interactions are the W and Z bosons. There are two W bosons —  $W^+$  and  $W^-$ .

## Monkey Pox

### Why in News?

Recently, Health authorities in the **United Kingdom** have confirmed a case of monkeypox, a rare viral infection

similar to smallpox, in an individual who **recently travelled to that country from Nigeria**.

- Monkeypox is a **viral zoonosis** (a virus transmitted to humans from animals) with symptoms similar to those seen in the past in **smallpox patients**, although it is clinically less severe.
- With the eradication of smallpox in 1980 and subsequent cessation of smallpox vaccination, it has emerged as the most important **orthopoxvirus**.
- The genus Orthopoxvirus contains four species that infect humans: variola (smallpox), monkeypox, vaccinia (includes buffalopox), and cowpox.

### What is Monkey Pox?

- **About:** Monkeypox is a **viral zoonotic disease** that occurs primarily in tropical rainforest areas of **Central and West Africa** and is occasionally exported to other regions.
  - Monkeypox virus infection has been **detected in squirrels, Gambian poached rats, dormice, and some species of monkeys**.
  - Monkeypox is **caused by monkeypox virus**, a member of the Orthopoxvirus genus in the family Poxviridae.
- **Background:** Monkey Pox infection was **first discovered in 1958** following two outbreaks of a pox-like disease in colonies of monkeys kept for research — which led to the **name ‘monkeypox’**.
- **Symptoms:** Monkeypox typically presents clinically with fever, rash and swollen lymph nodes.
  - It causes the **lymph nodes to swell (lymphadenopathy)**, which smallpox does not.
- **Transmission:** Monkeypox virus is mostly transmitted to people from **wild animals such as rodents and primates**, but human-to-human transmission also occurs.
- **Human to Human Transmission:** The first human case was recorded in 1970 in the **Democratic Republic of the Congo (DRC)** during a period of intensified effort to eliminate smallpox.
  - Monkeypox virus is transmitted from **one person to another by contact** with lesions, body fluids, respiratory droplets and contaminated materials such as bedding.
- **Incubation Period:** The incubation period (time from infection to symptoms) for monkeypox is usually **7-14 days but can range from 5-21 days**.

Note:





- **Fatality Rate:** Typically, up to a tenth of people ill with monkeypox may die, with most deaths occurring in younger age groups.
- **Treatment:** The clinical presentation of monkeypox resembles that of smallpox, a related orthopoxvirus infection which was declared eradicated worldwide in 1980.
  - **Vaccinia vaccine** used during the **smallpox eradication programme was also protective against monkeypox.**
  - A new third generation vaccinia vaccine has now been approved for prevention of smallpox and monkeypox. Antiviral agents are also being developed.

## Direct Seeding of Rice

### Why in News?

Recently, the Punjab government announced **Rs 1,500 incentive per acre** for farmers opting for **Direct Seeding of Rice (DSR).**

- In 2021, 18% (5.62 lakh hectares) of the total rice area in the state was under DSR against the government target of bringing 10 lakh hectares under it.

### What is DSR and How is it Different from Normal Transplanting of Paddy?

- **Transplanting Paddy:**
  - In transplanting paddy, farmers **prepare nurseries where the paddy seeds are first sown** and raised into young plants.
  - The nursery seed bed is **5-10%** of the area to be transplanted.
  - These seedlings are then **uprooted and replanted 25-35 days later in the puddled field.**
- **Direct Seeding of Rice (DRS):**
  - In DSR, the **pre-germinated seeds are directly drilled into the field** by a tractor-powered machine.
  - There is **no nursery preparation or transplantation involved** in this method.
  - Farmers have to **only level their land and give one pre-sowing irrigation.**

### What is the need for DSR?

- During the transplanting of Paddy **watering has to be done practically daily** to ensure submerged/flooded conditions in the first three weeks.

- Under DSR, the first irrigation (apart from the pre-sowing) is **necessary only 21 days after sowing.**
- According to Punjab Agriculture Department data for last Kharif season (2021-22), **31.45 lakh hectares** were under paddy and basmati.
- As per the studies, around **3,600 litres to 4,125 litres of water** are required to grow one kg of rice depending upon the paddy variety.
  - Long duration varieties **consume more water.**
- In Punjab, 32% of the area is under the long duration (around 158 days) paddy varieties, and the rest comes under paddy varieties that take 120 to 140 days to grow.

### How much Water can DSR Save?

- According to an analysis, DSR technique can help **save 15% to 20% water.**
  - In some cases, water saving can reach 22% to 23%.
- With DSR, **15-18 irrigation rounds are required against 25 to 27 irrigation rounds in traditional methods.**
  - DSR can **save 810 to 1,080 billion litres of water** every year if the entire rice crop is brought under the technique.

### What are the Advantages of DSR?

- **Require Less Number of Labours:** DSR can **solve labour shortage problems** because like the traditional method it does not require a paddy nursery and transplantation of 30 days old paddy nursery into the main puddled field.
- **Avenues for Groundwater:** It offers avenues for ground water recharge as it **prevents the development of hard crust** just beneath the plough layer due to puddled transplanting.
  - It **matures 7-10 days earlier than the puddle transplanted crop**, therefore giving more time for management of paddy straw.
- **Increase in Yield:** According to the results from research trials and farmers' field survey, after this technique the yield is **one to two quintals per acre higher than puddled transplanted rice.**

### What are the Disadvantages of DSR?

- **Suitability:** It is the most important factor as farmers **must not sow it in the light textured soil** as this technique is suitable for medium to heavy textured soils including sandy loam, loam, clay loam, and silt loam which accounts for around 80% area of the state.

Note:



- It is recommended to **avoid this technique in fields which are under crops other than rice (like cotton, maize, sugarcane) in previous year** as DSR in these soils is likely to suffer more from iron deficiency and weed problems.
- **Laser and Levelling are Compulsory:** The field should be laser levelled.
- **Use of Herbicides:** The spraying of herbicides **must be done simultaneously** along with sowing, and the first irrigation.

### Rice

- Rice is a staple food for most of the population in India.
- It is a **kharif crop** which requires **high temperature, (above 25°C)** and **high humidity** with annual rainfall **above 100 cm**.
  - In the **areas of less rainfall, it is grown with the help of irrigation**.
- In **southern states and West Bengal, the climatic conditions allow the cultivation of two or three crops** of rice in an agricultural year.
  - In West Bengal farmers grow three crops of rice called 'aus', 'aman' and 'boro'.
- About **one-fourth of the total cropped area in India is under rice cultivation**.
  - **Leading producer states:** West Bengal, Uttar Pradesh, and Punjab.
  - **High Yielding States:** Punjab, Tamil Nadu, Haryana, Andhra Pradesh, Telangana, West Bengal and Kerala.
- India is the **second-largest producer of rice after China**.

## Air Independent Propulsion Technology

### Why in News?

Recently, France's Naval Group declined the bid for the **P-75I Project**, citing it does not use **AIP (Air-Independent Propulsion) Technology** yet.

- Around 10 countries have developed or are close to building AIP technology, and almost 20 nations have AIP submarines.

### What is the P-75I project?

- In June 1999, the Cabinet Committee on Security approved a 30-year plan for the Navy to indigenously build and induct 24 submarines by 2030.
- In the first phase, two lines of production were to be established — the first, P-75; the second, P-75I. Each line was to produce six submarines.
  - While the six P-75 submarines are diesel-electric, they can be fitted with AIP technology later in their lives.
- This P-75I project envisages indigenous construction of submarines equipped with the state-of-the-art Air Independent Propulsion system at an estimated cost of Rs. 43,000 crore.

### What is AIP?

- **About:**
  - AIP is a technology for **conventional non-nuclear submarines**.
  - Submarines are essentially of **two types: conventional and nuclear**.
  - The **conventional submarines use diesel-electric engines**, which require them to surface almost daily to get atmospheric oxygen for fuel combustion.
  - If fitted with an AIP system, the **submarine will need to take in oxygen only once** a week.
  - The indigenously developed AIP, which is one of the key missions of the Naval Materials Research Laboratory (NMRL - DRDO), is considered one of the ambitious projects of the DRDO (Defence Research and Development Organisation) for the Navy.
- **Fuel Cell Based AIP system:**
  - In a **fuel cell** based AIP, an electrolytic fuel cell releases energy by combining hydrogen and oxygen, with only water as the waste product ensuring less marine pollution.
  - The cells are highly efficient, and do not have moving parts, thus ensuring that the submarine has a low acoustic emission of sound.

### What are the Advantages and Disadvantages of AIP?

- **Advantages:**
  - AIP has a **force multiplier effect on lethality of a diesel electric submarine** as it enhances the submerged endurance of the boat several fold.

Note:



- Fuel cell-based **AIP has merits in performance** compared to other technologies.
- AIP technology allows a conventional submarine to remain submerged for much longer than ordinary diesel-electric submarines.
  - All conventional submarines have to surface to run their generators that recharge the batteries that allow the boat to function under water.
  - However, the more frequently a submarine surfaces, the higher the chances of it being detected.
  - AIP allows a submarine to remain submerged for more than a fortnight, compared to two to three days for diesel-electric boats.
- **Disadvantages:**
  - Installing AIP **increases the length and weight of the boats**, requires pressurised liquid oxygen (LOX) storage on-board and supply for all three technologies.
  - MESMA (Autonomous Submarine Energy Module) and the Stirling engine have some acoustic noise from moving parts; and the **submarine's unit cost increases by around 10%.**

### What submarines does India have now?

- India has **16 conventional diesel-electric submarines, which are classified as SSKs.** After the last two Kalvari Class subs are commissioned under P-75, **this number will go up to 18.**
- India also has **two nuclear ballistic submarines, classified SSBN (Submersible Ship Ballistic Missile Nuclear).**

Diesel-Electric Submarines (SSK)	Nuclear-Powered Attack Submarine (SSN)	Nuclear-Powered Ballistic Missile Submarine (SSBN)
<ul style="list-style-type: none"> <li>▪ Diesel-electric submarines use electric motors charged by diesel engines to move. These engines require air and fuel to operate, which means they <b>need to resurface more frequently</b>, making them easier to detect.</li> <li>▪ Of the SSKs, <b>four are Shishumar Class</b>, which were bought and then built in India in collaboration with the Germans starting in the 1980s.</li> <li>▪ <b>Eight are Kilo Class or Sindhughosh Class</b> bought from Russia (including erstwhile USSR) between 1984 and 2000.</li> <li>▪ <b>Three are Kalvari Class Scorpene submarines (P-75)</b> built at India's Mazagon Dock in partnership with France's Naval Group.</li> </ul>	<ul style="list-style-type: none"> <li>▪ SSNs can stay and operate under water almost indefinitely; their endurance is limited only by food supplies for the crew. They are also equipped with a range of tactical weapons, such as torpedoes, anti-ship cruise missiles and land-attack cruise missiles.</li> <li>▪ <b>India is among six nations that have SSNs</b>, alongside the US, the UK, Russia, France and China.</li> <li>▪ India has <b>INS Chakra 2 SSN Submarine</b> leased from Russia until 2022.</li> </ul>	<ul style="list-style-type: none"> <li>▪ A <b>slow-moving 'bomber' and a stealthy launch platform</b> for nuclear weapons.</li> <li>▪ The <b>Arihant and three more SSBNs</b> under construction are part of the <b>Strategic Forces Command.</b></li> </ul>

- By the time P-75I is completed under the 30-year project, **India is projected to have six diesel-electric, six AIP-powered, and six nuclear attack submarines.**

## Tissue Culture Plants

### Why in News?

Recently, the Centre through the **Agricultural and Processed Food Products Export Development Authority (APEDA)** conducted a webinar on **"Export Promotion of Tissue Culture Plants"** such as Foliage, Live Plants, Cut Flowers, and Planting Material" with **Department of Biotechnology (DBT)** accredited tissue culture laboratories spread across India.

- The aim is to **boost exports of tissue culture plants.**

### What is Tissue Culture?

- It is the **production of new plants from a small piece of plant tissue or cells** removed from the growing tips of a plant in a suitable growth medium.
- In this process the **growth medium or culture solution is very important** as it is used for growing plant tissue because it contains various plant nutrients in the form of 'jelly' known as agar and plant hormones which are necessary for the growth of plants.

### What are the

### Applications of Plant Tissue Culture?

- To **study the respiration and metabolism** of plants.
- For the **evaluation of organ functions in plants.**
- To **study the various plant diseases** and work out methods-for their elimination.
- **Single cell clones are useful for genetic, morphological and pathological studies.**
- Embryonic cell suspensions can be used for large scale clonal propagation.
- Somatic embryos from cell suspensions can be stored for long term in germplasm banks.
- In the production of **variant clones with new characteristics**, a phenomenon referred to as somaclonal variations.
- **Production of haploids** (with a single set of chromosomes) for improving crops.
- **Mutant cells can be selected from cultures** and used for crop improvement.

Note:



- **Immature embryos can be cultured in vitro to produce hybrids**, a process referred to as embryo rescue.

### **What is the Scope of Tissue Culture in India?**

- India is **bestowed with knowledge, biotech experts with vast tissue culture experience** as well as with a **low-cost labour force** to help produce export-oriented quality planting material.
- All these factors make **India a potential global supplier of an extended and diversified range of quality flora** to the international market and, in turn, earn foreign exchange.
- APEDA is running a **Financial Assistance Scheme (FAS) to help laboratories upgrade themselves** so as to produce export quality tissue culture planting material.
  - It also **facilitates exports of tissue culture planting material to diversified countries** through market development, market analysis and promotion and exhibition of tissue culture plants at international exhibitions and by participating in buyer-seller meets at different international forums.
- The **top ten countries importing tissue culture plants from India are:**
  - Netherlands, USA, Italy, Australia, Canada, Japan, Kenya, Senegal, Ethiopia and Nepal.
- In 2020-2021, **India's exports of tissue culture plants stood at USD17.17 million**, with the Netherlands accounting for around 50% of the shipments.

### **What are the Issues Faced by Tissue Culture Exporters in India?**

- Increasing power costs
- Low efficiency levels of the skilled workforce in the laboratories
- Contamination issues in the laboratories
- Cost of transportation of micro-propagated planting material
- Lack of harmonization in the HS code of Indian planting material with other nations
- Objections raised by the forest and quarantine departments

## **Open-RAN Architecture**

### **Why in News?**

The Ministry of Communications has signed a

Memorandum of Understanding (MoU) with M/s VVDN Technologies Private Limited to facilitate registered startups, innovators and MSMEs working in the field of **Open RAN (Radio Access Network)** to get their product tested at the existing lab of M/s VVDN.

- Such testing certification shall **accelerate the research innovation in domestic design and manufacturing**. It is aimed that India shall be emerging as a design leader in **5G/O-RAN**. This test certification eco system will make India as design testing and certification hub of Asia.

### **What is O-RAN?**

- **About:**
  - Open-RAN is not a technology, **but rather an ongoing shift in mobile network architecture** that allows networks to be built **using subcomponents from a variety of vendors**.
    - O-RAN has an **open, multi-vendor architecture** for deploying mobile networks, as opposed to the single-vendor proprietary architecture.
    - O-RAN **uses software to make hardware manufactured by different companies** work together.
  - The key concept of Open RAN is **"opening" the protocols and interfaces between the various subcomponents (radios, hardware and software) in the RAN**.
    - **Radio Access Network (RAN):**
      - It is the part of a telecommunications system that connects individual devices to other parts of a network through radio connections.
      - A RAN resides between user equipment, such as a mobile phone, a computer or any remotely controlled machine, and provides the connection with its core network.
  - As a technical matter this is what the industry refers to as a disaggregated RAN.
- **Elements of RAN:**
  - The Radio Unit (RU) is where the radio frequency signals are transmitted, received, amplified and digitized. The RU is located near, or integrated into, the antenna.
  - The Distributed Unit (DU) is where the real-time, baseband processing functions reside. The DU can be centralized or located near the cell site.



- The Centralized Unit (CU) is where the less time-sensitive packet processing functions typically reside.

➤ **Functioning of Open RAN:**

- It is the interface between the RU, DU and the CU that are the main focus of Open RAN.
- By opening and standardizing these interfaces (among others in the network), and incentivizing implementation of the same, networks can be deployed with a more modular design without being dependent upon a single vendor.
- Making these changes can also allow the DU and CU to be run as virtualized software functions on vendor-neutral hardware.

➤ **Traditional RAN:**

- In a traditional RAN system, the radio, hardware and software are proprietary.
  - This means that nearly all of the equipment comes from one supplier and that operators are unable to, for example, deploy a network using radios from one vendor with hardware and software from another vendor.
- **Problems:**
  - Mixing and matching cell sites from different

providers typically leads to a performance reduction.

- The result is that most network operators, while supporting multiple RAN vendors, will deploy networks using a single vendor in a geographic region which can create vendor lock-in with high barriers to entry for new innovators.

***What are the Advantages of O-RAN?***

➤ **Innovation and Options:**

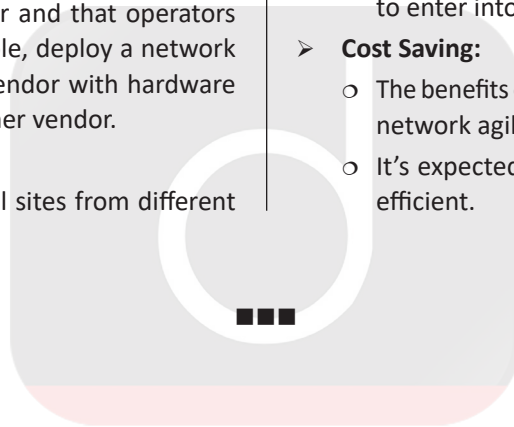
- An open environment expands the ecosystem, and with more vendors providing the building blocks, there is more innovation and more options for the Operators. They can also add new services.

➤ **New Opportunities:**

- It will open new opportunities for Indian entities to enter into the network equipment market.

➤ **Cost Saving:**

- The benefits of this approach also include increased network agility and flexibility, and cost savings.
- It's expected to make **5G** more flexible and cost efficient.



Note:



# Environment and Ecology

## Highlights

- UNCCD Conference of Parties (COP15)
- International Conference on Disaster Resilient Infrastructure
- Grey Slender Loris
- Sloth Bear
- Heatwaves and Wet Bulb Temperature
- State of the World's Birds
- National Mission for Clean Ganga
- Global Annual to Decadal Climate Update Report

## UNCCD Conference of Parties (COP15)

### Why in News?

Recently, the Union Minister for Environment, Forest and Climate Change addressed the **fifteenth session of the Conference of the Parties (COP15)** of the **United Nations Convention to Combat Desertification (UNCCD)** in Cote d'Ivoire (Western Africa).

### What are the Highlights of the COP15?

#### ➤ About:

- COP 15 is a **key moment in the fight against desertification, land degradation and drought**.
- It will **build on the findings of the second edition of the Global Land Outlook** and offer a concrete response to the interconnected challenges of **land degradation, climate change** and biodiversity loss.
  - The Global Land Outlook (GLO), the **UNCCD flagship publication, underscores land system challenges**, showcases transformative policies and practices, and points to cost-effective pathways to scale up sustainable land and water management.

#### ➤ Top Agenda:

- **Drought, land restoration, and related enablers** such as land rights, gender equality and youth empowerment are among the top items on the Conference agenda.

#### ➤ Theme: 'Land. Life. Legacy: From scarcity to prosperity'

### What is Desertification?

#### ➤ About:

- Land degradation is defined as the **reduction or loss of the biological or economic productivity of drylands**.
- Land degradation in arid, semiarid and dry subhumid areas resulting from various factors, including climatic variations and human activities.

#### ➤ Causes:

##### ○ Loss of Soil Cover:

- **Loss of soil cover, mainly due to rainfall** and surface runoff, is one of the biggest reasons for desertification.
- Cutting forests adversely affect the soil and cause degradation. As urbanization increases, the demand for resources is also increasing.

##### ○ Vegetation Degradation:

- Vegetation degradation is defined as, **"the temporary or permanent reduction in the density, structure, species composition or productivity of vegetation cover"**.

##### ○ Water Erosion:

- It results in **Badland Topography** which itself is an initial stage of desertification.
  - Badlands are a type of dry terrain where softer sedimentary rocks and clay-rich soils have been extensively eroded.

##### ○ Wind Erosion:

- **Sand encroachment by wind reduces fertility of the soil** making the land susceptible to desertification.
- It was found to be responsible for 5.46% of the desertification in India.

##### ○ Climate Change:

Note:



- It may exacerbate desertification through alteration of spatial and temporal patterns in temperature, rainfall, solar radiation and winds.

### What are the Related Efforts Taken?

#### ➤ Global Efforts:

- **United Nations Convention to Combat Desertification (UNCCD):** It was established in 1994, the sole legally binding international agreement linking environment and development to sustainable land management.
  - The **Delhi Declaration of 2019**, signed by 14<sup>th</sup> CoP of the UNCCD, called for better access and stewardship over land, and emphasised gender-sensitive transformative projects.
- **The Bonn Challenge:** To bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030.
- **Great Green Wall:** Initiative by Global Environment Facility (GEF), where eleven countries in Sahel-Saharan Africa have focused efforts to fight against land degradation and revive native plant life to the landscape.

#### ➤ India's Efforts to Check Land Degradation:

- **India is focusing on sustainable land and resource management** for livelihood generation at community level for making the local lands healthier and productive for providing a better homeland and a better future for its inhabitants.
- The **National Action Programme for combating desertification** was prepared in 2001 to take appropriate action in addressing the problems of desertification.
- Following the **global call for the submission of nominations for World Restoration Flagships**, India endorsed **six restoration flagships** that target the restoration of 12.5 million hectares of degraded land.
- Some of the **major programmes which address issues related** to land degradation and desertification, being implemented currently are as follows:
  - **Integrated Watershed Management Programme (IWMP)** (Pradhan Mantri Krishi Sinchayee Yojana)
  - National Afforestation Programme (NAP)
  - National Mission for Green India (GIM)

- The **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)**,
- Soil Conservation in the Catchment of River Valley Project
- National Watershed Development Project for Rainfed Areas (NWDPA)
- Fodder and Feed Development Scheme-component of Grassland Development including Grass Reserves.
- Command Area Development and Water Management (CADWM) programme,
- **Soil Health Card Scheme**, etc.

## International Conference on Disaster Resilient Infrastructure

### Why in News?

Recently, the Prime Minister addressed the inaugural session of the **fourth edition of the International Conference on Disaster Resilient Infrastructure** via video message.

- ICDRI is the annual international conference of the **Coalition for Disaster Resilient Infrastructure (CDRI)** in partnership with member countries, organizations and institutions to strengthen the global discourse on disaster and climate resilient infrastructure.

### What is CDRI?

- The **Coalition for Disaster Resilient Infrastructure (CDRI)** is a **multi-stakeholder global partnership** of national governments, **UN (United Nations)** agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions.
  - The **Prime Minister of India** launched CDRI during his speech at the **UN Climate Action Summit** on 23<sup>rd</sup> September 2019.
- It aims to **promote the resilience of new and existing infrastructure systems** to climate and disaster risks in support of sustainable development.
- **Members:** 30 countries and 8 organizations.
- **Thematic Areas:** Governance and Policy, Risk Identification and Estimation, Standards and Certification, Capacity building, Innovation & Emerging Technology, Recovery and Reconstruction, Finance and Community based approaches.

Note:



### How is Disaster Resilient Infrastructure (DRI) different from Climate Resilient Infrastructure (CRI)?

- DRI also includes addressing disaster risk due to geophysical and geomorphological hazards **such as earthquakes, landslides**, tsunami and volcanic activity. Since infrastructure systems are built for long life cycles, **it is imperative that DRI addresses risks emanating from such low-frequency high impact events.**
- DRI must **deal with technological hazards** like nuclear radiation, dam failures, chemical spills, explosions which are **not directly linked to climate.**
- More than 90% of disasters are a **manifestation of weather and climate-related extreme events.** So, making infrastructure climate-resilient also **contributes to making it disaster resilient.**
- Some **CRI efforts may focus on reducing carbon footprint of Infrastructure.** While this may be a byproduct of DRI, DRI does not explicitly address these aspects.

- The CDRI Secretariat is based in **New Delhi, India.**

### What is the Need for CDRI?

- The **Sendai Framework for Disaster Risk Reduction (SFDRR)** highlights the role of improved disaster resilience of infrastructure as a cornerstone for sustainable development.
- The SFDRR includes **four specific targets** related to loss reduction:
  - Reduce global disaster mortality;
  - Reduce the number of affected people;
  - Reduce direct disaster economic loss; and
  - Reduce disaster damage to critical infrastructure.
- **Target (4)** on infrastructure is an important prerequisite to achieving the other loss reduction targets set out in the framework.
- Between 2016 and 2040, the global annual infrastructure investment needs are estimated at **USD 3.7 trillion per year.**
  - Thus, there is a clear case for ensuring that all future **infrastructure systems are resilient in the face of disasters** in order to protect our investments.
- The **challenges faced by island states** due to climate change are a key focus of efforts under the CDRI initiative.

- Initiative on 'Infrastructure for Resilient Island States' was **launched at COP-26.**

### What is the Initiative on Infrastructure for Resilient Island States?

- India launched this initiative as a part of the CDRI that would focus on building capacity, having pilot projects, especially in small island developing states.
- Small Island Developing States or SIDS face the biggest threat from climate change, India's space agency **ISRO** will build a special data window for them to provide them with timely information about cyclones, coral-reef monitoring, coast-line monitoring etc. through satellite.

### What is its Significance for India?

- Provide a platform for **India to emerge as a global leader on climate Action and Disaster Resilience.**
  - CDRI boosts India's soft power, but more importantly it has wider connotation than just economics, as synergy between disaster risk reduction, **Sustainable Development Goals (SDGs)** and Climate Accord provides for sustainable and inclusive growth.
- Complement the **International Solar Alliance (ISA).**
- Facilitate India's support to resilient infrastructure in Africa, Asia, etc.
- Provide access to knowledge, technology, and capacity development for infra developers.
- Create opportunities for Indian infrastructure & technology firms to expand services abroad.

## Grey Slender Loris

### Why in News?

Recently, scientists from the **Salim Ali Centre for Ornithology and Natural History (SACON)** in Coimbatore carried out a survey of Grey slender loris populations in **Tamil Nadu's Dindigul forest division.**



### What is Grey Slender Loris?

- **About:**
  - The Grey slender loris belongs to the **family Loridae.**
    - It is a **species of primate.**

Note:





- It has got a **lean and lanky appearance**, with **longer and slender limbs**, **larger ears**, **pointed snout** and eyes circled with black or dark brown.
  - The fur is **soft and woolly**. The colour varies from **dark grey to earthy brown**.
- The Grey slender loris is a **nocturnal animal**. It is also a slow-moving animal. It comes down into the **bushes to feed and crosses open stretches of ground** to enter isolated groves or to cross from one tree to another.
- Though it is **insectivorous**, it is fond of berries also.
- **Habitat:**
  - They are found in **tropical rainforests, scrub forests, semi-deciduous forests, and swamps**.
  - Grey Slender Loris generally inhabits **dry and drought-prone areas of Dindigul district of Tamil Nadu**.
    - It is found in acacia and tamarind-dominated thorn and scrub forests near cultivated fields.
  - The species occurs in southern and eastern India (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) and Sri Lanka.
- **Types:**
  - There are **two species of Slender Loris**, the only members of the genus 'Loris':
    - **Red Slender Loris** (*Loris tardigradus*)
    - **Grey Slender Loris** (*Loris lydekkerianus*)
- **Threat:**
  - The loris has become **threatened mainly because of habitat loss**.
  - The disappearance of the **acacia tree**, a **preferred tree species of the loris**, hunting for the **pet trade and for their meat**, **road kills**, **superstitious kills**, **traditional medicine and habitat fragmentation** pose serious threats to this primate.
- **Protection Status:**
  - **IUCN:** Near Threatened
  - **CITES:** Appendix II
  - **Wildlife (Protection) Act of India, 1972:** Schedule I

#### What is Salim Ali Centre for Ornithology and Natural History (SACON)?

- SACON, established in 1990 at **Anaikatti, Coimbatore (Tamil Nadu)** is a national centre for **information, education and research in ornithology and natural history in India**.

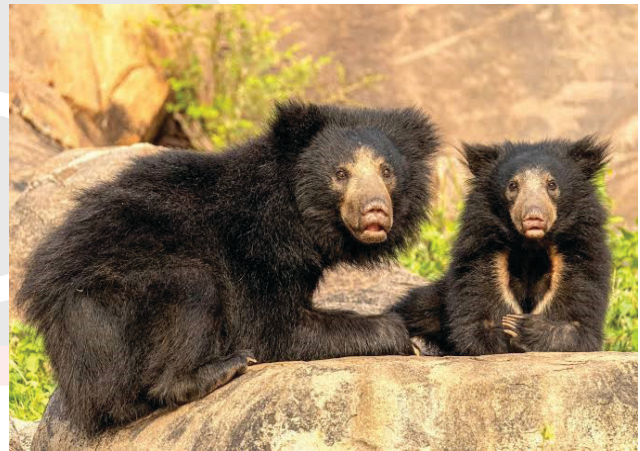
- It was named after Dr. Salim Ali in appreciation of his lifelong services to **India's bird life and conservation of natural resources**.
- It designs and conducts research in ornithology covering all aspects of biodiversity and natural history.

## Sloth Bear

### Why in the News?

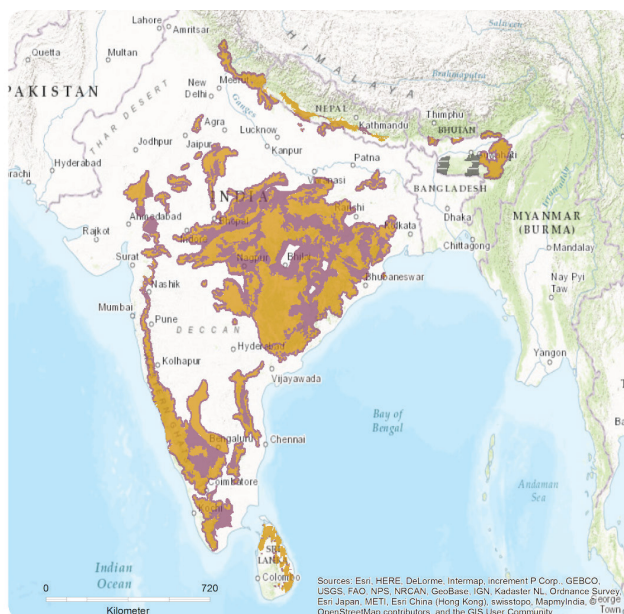
Recently, **two sloth bears** were rescued by forest officials from a village in Jharkhand by the **People for Animals group**.

- The **People for Animals (PFA)** is an animal welfare organization founded by Maneka Gandhi.
- The PFA was informed by **Madaris**. Madaris is a **nomadic community that earns a living by performing street acts with animals**.



### What is a Sloth bear?

- **About:** Sloth bears are found in **Sri Lanka, India, Bhutan and Nepal**, predominantly in lowland areas.
  - Sloth bears primarily **eat termites and ants**, and unlike other bear species, they routinely carry their cubs on their backs.
  - They are also very fond of honey, hence their alternative name of **"honey bear"**.
  - Sloth bears **do not hibernate**.
- **Scientific Name:** *Melursus ursinus*
- **Habitat:** It is a forest-dwelling member of the family Ursidae (comprises 8 species of bears) that inhabits tropical or subtropical regions of India and Sri Lanka.



- **Protection Status:**
  - **IUCN Red List:** Vulnerable
  - **CITES** listing: Appendix I
  - **Indian Wildlife Protection Act, 1972:** Schedule I
- **Threats:** Habitat loss, poaching for body parts and are sometimes captured for use in performances or hunted because of their aggressive behavior and destruction of crops.

## Heatwaves and Wet Bulb Temperature

### Why in News?

The recently published **Intergovernmental Panel on Climate Change (IPCC) Report AR6** (Sixth Assessment Report) has emphasised that **humidity is very important factor** while estimating the physiological stress that extreme heat puts on the human body.

- Instead of the **“dry bulb” temperature** which is usually measured using a regular thermometer, an alternative metric known as the **“wet bulb temperature”** has been used to measure exposure to extreme heat.
- Since March 2022, the consecutive **heatwaves** over South Asia have continued the disturbing tradition of breaking historical temperature records.

### What are Heatwaves?

- A heatwave is a period of **abnormally high temperatures**, more than the normal maximum temperature that occurs during the summer season in the North-Western and South Central parts of India.
- Heatwaves typically occur between March and June, and in some rare cases even **extend till July**.
- **India Meteorological Department (IMD)** classifies heatwaves according to regions and their temperature ranges.

### What is the Criteria for Heatwaves?

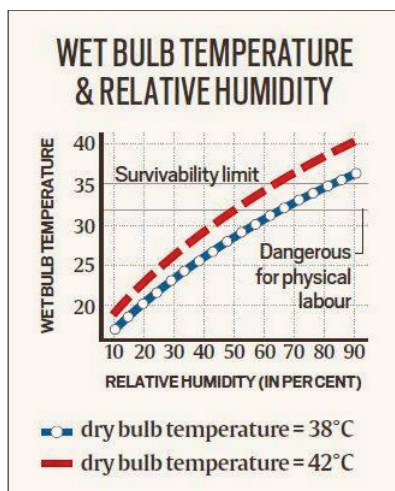
- The heatwave is considered when the maximum temperature of a station reaches **at least 40°C for Plains and at least 30°C for Hilly regions**.
- If the normal maximum temperature of a station is less than or equal to 40°C, then an increase of 5°C to 6°C from the **normal temperature is considered to be heat wave condition**.
  - Further, an increase of 7°C or more from the normal temperature is considered a **severe heat wave condition**.
- If the normal maximum temperature of a station is more than 40°C, then an increase of **4°C to 5°C from the normal temperature** is considered to be heat wave condition. Further, an increase of 6°C or more is considered a severe heat wave condition.
- Additionally, if the **actual maximum temperature remains 45°C or more** irrespective of normal maximum temperature, a heat wave is declared.

### Why is Humidity such a Critical factor while Measuring Heat Exposure?

- Humans lose heat generated within their bodies by **producing sweat that evaporates on the skin**.
  - The cooling effect of this evaporation is essential in maintaining a **stable body temperature**.
- As humidity rises, sweat does not evaporate and makes it difficult to regulate body temperature. This is why humans **feel more discomfort in humid places**.
- The wet bulb temperature is usually **lower than the dry bulb temperature**, and the difference **between the two increases** dramatically as the air becomes dry.
  - The report mentions that sustained exposures to wet bulb temperatures **above 35°C are fatal**, while sustained exposures to wet bulb temperatures **above 32°C are dangerous for intense physical activity**.

Note:





- The humidity required to reach wet bulb temperatures in excess of 35°C over land is exceedingly **difficult to achieve**.
  - According to the report, such conditions are **rarely observed** nowadays.
- The findings also suggest that it is unlikely to experience sustained exposure to wet bulb temperatures **beyond the threshold of survivability**.
- The hype around survivability thresholds and wet bulb temperatures hides deeper issues, **both physiological and political**.
  - Firstly, the **inability of the body to stabilise its core temperature** can have multiple reasons.
    - Increased strain on the heart during periods of elevated temperature could be fatal for those with **pre-existing cardiac conditions** which is the **leading cause of deaths** during heatwaves.
  - **Pre-existing respiratory problems and diabetes** too are potential causes of death.
    - Such conditions **impair the body's ability to efficiently transfer heat to the environment**.

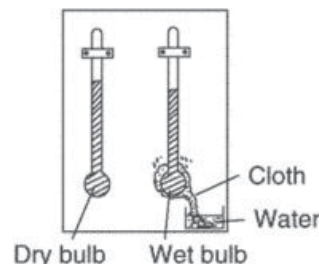
### What is the Wet Bulb Temperature?

- Wet bulb temperature is the **lowest temperature to which air can be cooled** by the evaporation of water into the air at a constant pressure.
- WBT is a limit that **considers heat and humidity beyond which humans can not tolerate** high temperatures.
- The Wet Bulb temperature is the **temperature of adiabatic saturation**. This is the temperature indicated by a moistened thermometer bulb exposed to the air flow.

○ An adiabatic process is one in which **no heat is gained or lost by the system**.

- Wet Bulb temperature can be **measured by using a thermometer with the bulb wrapped in wet muslin**.

- The adiabatic evaporation of water from the thermometer and the cooling effect is indicated by a **"wet bulb temperature" lower than the "dry bulb temperature"** in the air.



- The rate of evaporation from the wet bandage on the bulb, and the temperature difference between the dry bulb and wet bulb, **depending on the humidity of the air**.
  - The evaporation is reduced when the air contains more **water vapour**.
- The wet bulb temperature is always lower than the dry bulb temperature but will be **identical with 100% relative humidity** (the air is at the saturation line).

### What is Dry Bulb Temperature?

- The Dry Bulb temperature usually referred to as **"air temperature"**, is the air property that is most commonly used. When people refer to the temperature of the air they are normally referring to the dry bulb temperature.
- The Dry Bulb Temperature refers basically to the **ambient air temperature**. It is called "Dry Bulb" because the air temperature is **indicated by a thermometer not affected by the moisture of the air**.
- Dry-bulb temperature **can be measured using a normal thermometer** freely exposed to the air but shielded from radiation and moisture.
- The dry-bulb temperature is an **indicator of heat content**.

## State of the World's Birds

### Why in News?

According to the **new review 'State of the World's Birds'**, **approximately 48% of existing bird species worldwide** are known or suspected to be undergoing population declines.

- State of the World's Birds is an **annual review of environmental resources**.

Note:





- Since birds are highly visible and are sensitive indicators of environmental health, **their loss signals a much wider loss of biodiversity** and threat to human health and well-being.

### What are the Key Highlights of the Review?

- **About:**
  - **Overall:**
    - The threat has been **attributed to almost half of the 10,994 recognised extant species of birds to the expanding human footprint** on the natural world and **climate change**.
    - While **4,295 or 39% of the species** had stable trends, about 7% or 778 species had increasing population trends. The trend of 37 species was unknown.
    - The study **reviewed changes in avian biodiversity** using data from the **International Union for Conservation of Nature's Red List** to reveal the changes in fortunes of all the global bird species.
  - **India:**
    - The trend towards **declining bird diversity is just as alarming in India**, where recent annual trends have been calculated for 146 species.
      - Of these, **nearly 80% are declining in numbers**, and **almost 50% plummeting strongly**.
      - Just over **6% of the species studied show stable populations** and 14% show increasing population trends.
    - **Among the most threatened species** were endemic species, birds of prey, and those living in forests and grasslands.
- **Reasons for the Decline:**
  - **Degradation and loss of natural habitats as well as direct overexploitation** of many species are the key threats to avian biodiversity.
  - The **use of 37% of the surviving bird species as common or exotic pets** and **14% as food** are examples of direct overexploitation.
  - Also, humans eat 14% of the world's surviving species of birds.
  - Apart from **tropical forests**, the threat of natural grasslands has been particularly worrying for North America, Europe and India.

### What are the Recommendations?

- Conducting reliable estimates of population abundance and change.
- Novel and more effective solutions applied at scale for demand reduction for over harvested wild birds.
- Monitoring green energy transitions that can impact birds if inappropriately implemented
- Eradication of populations of invasive alien species.
- Shifting human societies to economically sustainable development pathways.

## National Mission for Clean Ganga

### Why in News?

The **National Mission for Clean Ganga (NMCG)** has organised the 6<sup>th</sup> Edition of the monthly 'Webinar with Universities' series on 'Igniting Young Minds, Rejuvenating Rivers'.

- The theme for the webinar was '**Wastewater Management**.'

### What is NMCG?

- **About:**
  - The National Mission for Clean Ganga (NMCG) is implemented by the **National Council for Rejuvenation, Protection and Management of River Ganga** also known as the **National Ganga Council**.
  - This mission was established on 12<sup>th</sup> August 2011 under the **Societies Registration Act, 1860** as a registered society.
- **Objectives:**
  - The mission incorporates **rehabilitating and boosting the existing STPs (Sewage Treatment Plants) and instant short-term steps** to curb pollution at exit points on the riverfront in order to check the inflow of sewage.
  - To maintain the continuity of the water flow without changing the natural season variations.
  - To restore and maintain the surface flow and groundwater.
  - To regenerate and maintain the natural vegetation of the area.

Note:





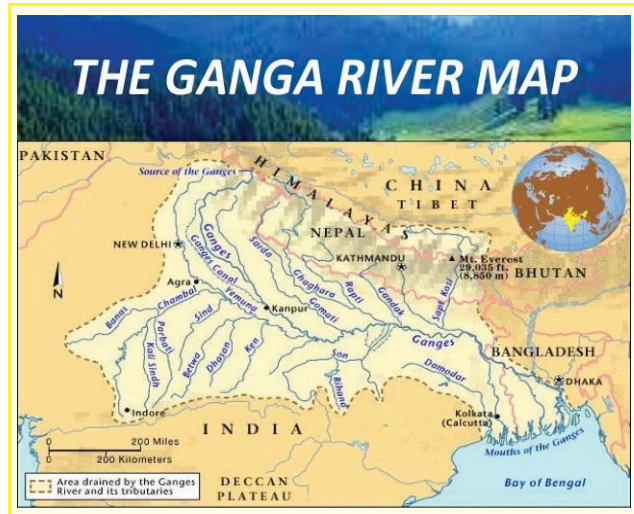
- To conserve and regenerate the aquatic biodiversity as well as the riparian biodiversity of the river Ganga basin.
- To allow participation of the public in the process of protection, rejuvenation and management of the river.

### What are the Initiatives Related to Ganga?

- **Namami Gange Programme:** It is an Integrated Conservation Mission, approved as a 'Flagship Programme' by the Union Government in June 2014 to accomplish the twin objectives of effective abatement of pollution and conservation and rejuvenation of National River Ganga.
- **Ganga Action Plan:** It was the first River Action Plan that was taken up by the Ministry of Environment, Forest and Climate Change in 1985, to improve the water quality by the interception, diversion, and treatment of domestic sewage.
  - The National River Conservation Plan is an extension to the Ganga Action Plan. It aims at cleaning the Ganga river under Ganga Action Plan phase-2.
- **National River Ganga Basin Authority (NRGBA):** It was formed by the Government of India in the year 2009 under Section-3 of the Environment Protection Act, 1986.
  - Ganga was declared as the 'National River' of India in 2008.
- **Clean Ganga Fund:** In 2014, it was formed for cleaning up of the Ganga, setting up of waste treatment plants, and conservation of biotic diversity of the river.
- **Bhuvan-Ganga Web App:** It ensures involvement of the public in monitoring of pollution entering into the river Ganga.
- **Ban on Waste Disposal:** In 2017, the **National Green Tribunal** banned the disposal of any waste in the Ganga.

#### What is the Ganga River System?

- The headwaters of the Ganga called the 'Bhagirathi' are fed by the Gangotri Glacier and joined by the Alaknanda at Devprayag in Uttarakhand.
- At Haridwar, Ganga emerges from the mountains to the plains.
- The Ganga is joined by many tributaries from the Himalayas, a few of them being major rivers such as the Yamuna, the Ghaghara, the Gandak and the Kosi.



## Global Annual to Decadal Climate Update Report

### Why in News?

According to the global annual to decadal climate update report issued by the **World Meteorological Organisation (WMO)**, India could be among the few regions globally where **below normal temperatures have been predicted for the year 2022** and the next four years.

- The year 2022 will be cooler (compared to the 1991 – 2020 average) over India, along with Alaska and Canada.
- The annual update harnesses the expertise of internationally acclaimed climate scientists and the best prediction systems from leading climate centres around the world to produce actionable information for decision-makers.

### What is World Meteorological Organization (WMO)?

- It is an **intergovernmental organization** with a membership of 193 Member States and Territories.
  - **India** is a member of WMO.
- It originated from the **International Meteorological Organization (IMO)**, which was established after the **1873 Vienna International Meteorological Congress**.
- Established by the ratification of the WMO Convention on 23<sup>rd</sup> March 1950, WMO became the **specialized agency** of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences.
- WMO is **headquartered in Geneva, Switzerland**.

Note:



### What are the Major Findings?

- **Temperature above 1.5°C:** There is a **50:50 chance of the annual average global temperature temporarily reaching 1.5°C above the pre-industrial level** for at least one of the next five years.
- **Warmest Year:** There is a 93% likelihood of at least one year between 2022-2026 becoming **the warmest on record** and dislodging 2016 from the top ranking.
  - The chance of the five-year average for 2022-2026 being higher than the last five years (2017-2021) is also 93%.
- **La Nina and El Nino Events:** Back-to-back **La Niña events** at the start and end of 2021 had a cooling effect on global temperatures, but this is only **temporary and does not reverse the long-term global warming trend**.
  - Any development of an **El Niño event** would immediately fuel temperatures, as it did in 2016, which is until now the warmest year on record.
- **Precipitation Patterns:** Predicted precipitation patterns for the November to March 2022/23-2026/27 average, compared to the 1991-2020 average, suggest increased precipitation in the tropics and reduced precipitation in the subtropics, consistent with the patterns expected from climate warming.

### What are the India Specific Findings?

- One of the primary reasons for the lowering of temperatures over India from next year is the **possible increase in rainfall activity** in this decade.

- As per the **India Meteorological Department (IMD)**, the Indian monsoon will soon enter a positive period after remaining in a negative period since 1971.
  - Many parts of India will **receive above-normal rainfall**. This will keep temperatures low.
- The future trend suggests that the decadal mean value will be **close to near normal from 2021 to 2030**.
  - It will then turn positive, the decade 2031-2040 will be the **beginning of a wet period**.

### What are the Concerns?

- According to the study, the world is getting measurably closer to temporarily reaching the lower target of the **Paris Agreement on Climate Change**.
  - The 1.5°C is probably an indicator of the point at which climate impacts will become **increasingly harmful for people and indeed the entire planet**.
- The Paris Agreement sets **long-term goals** to guide all nations to substantially reduce global greenhouse gas emissions **to limit the global temperature increase** in this century to 2 °C while pursuing efforts to limit the increase even further to 1.5 °C.
- For as long as people continue to emit greenhouse gases, **temperatures will continue to rise**. And alongside that, oceans will continue to become warmer and more acidic, sea ice and glaciers will continue to melt, sea level will continue to rise and our weather will become more extreme.
  - **Arctic warming** is disproportionately high and what happens in the Arctic will affect everyone.



# History

## Highlights

- Excavations of Iron in Tamil Nadu
- Rabindranath Tagore
- Basava Jayanti
- Gopal Krishna Gokhale

## Excavations of Iron in Tamil Nadu

### Why in News?

Recent **carbon dating** of excavated finds in Tamil Nadu pushes evidence of **iron being used in India back to 4,200 years ago**.

- Before this, the **earliest evidence of iron use was from 1900-2000 BCE** for the country, and from 1500 BCE for Tamil Nadu.
- The latest evidence dates the findings from Tamil Nadu to 2172 BCE.

### What are the Findings?

- The **excavations are from Mayiladumparai** near Krishnagiri in Tamil Nadu.
- **Mayiladumparai is an important site** with cultural material dating back between the Microlithic (30,000 BCE) and Early Historic (600 BCE) ages.
- Among the other important findings is **evidence that the late Neolithic phase in Tamil Nadu has been identified** to have begun before 2200 BCE, based on a cultural deposit of 25 cm below the dated level.
  - Archaeologists also found that **black and red ware pottery was introduced in the late Neolithic phase itself**, rather than the widely held belief that this occurred in the **Iron Age**.

### What is the Historical Significance?

- **Production of Agricultural Tools:**
  - Invention of iron technology led to the **production of agricultural tools and weapons**, leading to production required for a civilisation ahead of economic and cultural progress.

- There is **no known record of iron** being used in the Indus Valley, where copper was first utilized by Indians (1500 BCE).

### ➤ Useful in Deforestation:

- Deforestation occurred **only after humans began using iron tools to clear dense forests** and bring land into agriculture, because copper tools would have been difficult to use to clear dense forests and bring land into agriculture.

### ➤ Socio-economic Changes:

- With the **latest evidence tracing our Iron Age to 2000 BCE from 1500 BC**, it can be assumed that the cultural seeds were laid in 2000 BCE.
- Around 600 BCE, iron technology led to massive production triggered by socio-economic changes - the **Tamil Brahmi script**.
- The Tamil Brahmi scripts were **once believed to have originated around 300 BCE**, until a landmark finding in 2019 pushed the date back to 600 BCE.
- This dating narrowed the gap between the Indus Valley civilisation and Tamilagam/South India's Sangam Age.

### Stone Ages

#### ➤ Palaeolithic (Old Stone) Age:

- Basically a **hunting and food gathering culture**.
- **Palaeolithic tools** include sharpened stone, chopper, hand axe, scraper, spear, bow and arrow, etc. and were generally made up of hard rock quartzite.
- Rock paintings and carvings found at Bhimbetka, Madhya Pradesh reflect upon hunting as the main subsistence activity.
- Palaeolithic age in India is **divided into three phases**: Early or Lower Palaeolithic (50,000-100,000 BC), Middle Palaeolithic (100,000-40,000 BC) and Upper Palaeolithic (40,000-10,000 BC).

Note:



- Homo sapiens mark their presence in upper palaeolithic age.

➤ **Mesolithic (Middle Stone) Age:**

- The age is marked by **transition from Pleistocene period to Holocene period** and favorable changes in the climate.
- The early period of Mesolithic age marks the hunting, fishing and food gathering.
- Domestication of the animals began in this age.
- The tools called Microliths were smaller and had improved geometry than the Palaeolithic age.

➤ **Neolithic (New Stone) Age:**

- Referred to as the **concluding phase of the Stone Age**, the age heralded the beginning of food production.
- Sedentism (living in one place for a long time) use of pottery, and invention of crafts are characteristics feature of neolithic age.
- The neolithic tools composed of heavy ground tools like pestles, grinders, pounders and also axes and sickles.

➤ **Megalithic culture:**

- Megaliths refer to **large stone structures** that were constructed either as burial sites or as commemorative sites.
- In India, **archaeologists trace the majority of the megaliths to the Iron Age** (1500 BC to 500 BC), though some sites precede the Iron Age, extending up to 2000 BC.
- **Megaliths are spread across the Indian subcontinent.** Majority of them are found in peninsular India, concentrated in the states of Maharashtra (mainly in Vidarbha), Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Telangana.

## Rabindranath Tagore

### **Why in News?**

The Prime Minister on 9<sup>th</sup> May, 2022 paid tribute to Gurudev Rabindranath Tagore on his birth anniversary.

- According to the Bengali calendar, the Tagore Jayanti falls on the 25<sup>th</sup> day of the Boishakh month.

### **What do we know about Rabindranath Tagore?**

➤ **Birth:**

- He was born in **Calcutta on 7<sup>th</sup> May 1861.**

➤ **About:**

- He was also referred to as '**Gurudev**', '**Kabiguru**', and '**Biswakabi**'.
- He is regarded as the outstanding creative artist of modern India and hailed by W.B Yeats, Rabindranath Tagore was a **Bengali poet, novelist, and painter**, who was highly influential in introducing Indian culture to the west.
- He was an exceptional **literary figure and a renowned polymath** who singlehandedly reshaped the region's literature and music.
- He was a **good friend of Mahatma Gandhi** and is said to have **given him the title of Mahatma**.
- He had always stressed that **unity in diversity** is the only possible way for India's national integration.
- He had spoken at the **World Parliament for Religions in the years 1929 and 1937.**

➤ **Contributions:**

- He is said to have **composed over 2000 songs** and his songs and music are called '**Rabindra Sangeet**' with its own distinct lyrical and fluid style.
- He is responsible for modernising Bengali prose and poetry. His notable works include **Gitanjali, Ghare-Baire, Gora, Manasi, Balaka, Sonar Tori**, He is also remembered for his song '**Ekla Chalo Re**'.
  - He published his first poems aged 16 under the pen-name '**Bhanusimha**'.
- He not only gave the **national anthems for two countries, India and Bangladesh**, but also inspired a **Ceylonese student of his, to pen and compose the national anthem of Sri Lanka**.
- Besides all his literary achievements he was also a philosopher and educationist who in **1921 established the Vishwa-Bharati University**, a university that challenged conventional education.

➤ **Awards:**

- In **1913** he was awarded the **Nobel Prize in Literature** for his work on Gitanjali.
  - He was the **first non-European** to receive the Nobel Prize.
- In 1915 he was awarded **knighthood** by the British King George V. In 1919, following the **Jallianwalla Bagh massacre**, he renounced his Knighthood.

Note:





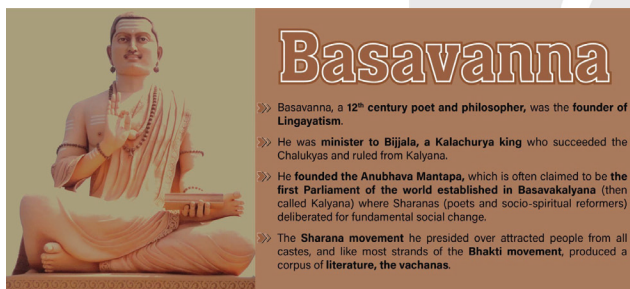
- **Death:**
  - He died on **7<sup>th</sup> August 1941** in **Calcutta**.
- **Quotes by him:**
  - "You can't cross the sea merely by standing and staring at the sea."
  - "Don't limit the child to your own learning, for he was born in another time."
  - "If I can't make it through one door, I'll go through another door- or I'll make a door. Something terrific will come no matter how dark the present."
  - "Facts are many, but the truth is one."

## Basava Jayanti

### Why in News?

The Prime Minister paid **tributes to Jagadguru Basaveshwara (Basavanna)** on the sacred occasion of **Basava Jayanti**.

- As per the Hindu calendar, the birth of Basavanna falls on the 3<sup>rd</sup> day of Vaisahaka month in the Shukla paksha. This usually falls either in April or May of the English calendar.



### Who is Basavanna?

- **About:** Basaveshwara was **born in Bagevadi (of undivided Bijapur district in Karnataka)** in 1131 AD.
  - A 12<sup>th</sup>-century poet and philosopher, who is celebrated and held in high regard, especially by the **Lingayat community**, as he was the **founder of Lingayatism**.
    - The term Lingayat denotes a **person who wears a personal linga**, an iconic **form of God Shiva**, on the body which is received during the initiation ceremony.
  - In Kalyana, the **Kalachurya king Bijjala (1157-1167, AD)** appointed Basaveshwara as a **karanika (Accountant)** in the initial stage, in his court and later as the **Prime minister**.

- **Main Teachings:** His spiritual discipline was based on the principles of **Arivu (true knowledge)**, **Achara (right conduct)**, and **Anubhava (divine experience)** and it brought a social, religious and economic revolution in the **12<sup>th</sup> century**.
  - This path advocates a **holistic approach to Lingangayoga** (union with the divine).
  - This comprehensive discipline encompasses **bhakti (devotion)**, **jnana (knowledge)**, and **kriya (action)** in a well-balanced manner.
- **Social Reforms:** Basaveshwara is known to have brought about several social reforms.
  - He believed in a society free of the caste system, with **equal opportunity for all and preached about manual hard work**.
  - He also founded the **Anubhava Mantapa**, loosely translated as the forum of experiences, an academy which included Lingayat mystics, saints, and philosophers.
- **Other Socio-Economic Principles:** Basaveshwara gave two more very important socio-economic principles.
  - **Kayaka (Divine work):**
    - According to this, every individual in society should take up the job of his choice and perform it with all sincerity.
  - **Dasoha (Equal distribution):**
    - There must be an equal income for equal work.
    - The worker (Kayakajeevi) may lead his day-to-day life by his hard-earned income. But he should not preserve the money or property for tomorrow. He must utilize the surplus money for society and the poor.

### Anubhava Mantapa

- Basaveshwara established the **Anubhava Mantapa**, which was a common forum for all to discuss the prevailing problems of **socio, economic and political strata** including religious and spiritual principles along with personal problems.
- Thus, it was the first and foremost **Parliament of India**, where Sharanas (citizens of welfare society) sat together and discussed the **socialistic principles of a Democratic set up**.
- All those discussions of Sharanas **were written in the form of Vachanas**.
  - Vachanas were an innovative literary form written in simple Kannada language.

Note:



- His practical approach and act of establishment of 'Kalyana Rajya' (Welfare state) brought a new status and position for all the citizens of the society, irrespective of class, caste, creed and sex.
- Recently, the Chief Minister of Karnataka has laid the **foundation stone for the 'New Anubhava Mantapa'** in Basavakalyan.

## Gopal Krishna Gokhale

### Why in News?

The Prime Minister of India paid tribute to Gopal Krishna Gokhale on his Jayanti.

- Gopal Krishna Gokhale was a **great social reformer and educationist** who provided exemplary leadership to India's freedom movement.

### What do we know about Gopal Krishna Gokhale?

- **Birth:** 9<sup>th</sup> May 1866 in Kotluk village in present-day Maharashtra (then part of the Bombay Presidency).
- **Ideology:**
  - Gokhale worked towards social empowerment, expansion of education, struggle for freedom in India for three decades and rejected the use of reactionary or revolutionary ways.
- **Role in Colonial Legislatures:**
  - **Between 1899 and 1902**, he was a member of the **Bombay Legislative Council** followed by work at the **Imperial Legislative Council from 1902 till his death (1915)**.
  - At the Imperial legislature, Gokhale played a key role in framing the **Morley-Minto reforms of 1909**.
- **Role in INC:**
  - He was **associated with the Moderate Group of Indian National Congress** (joined in 1889).
  - He became **president of INC in 1905 in Banaras session**.
    - This was the time when bitter differences had arisen between his group of '**Moderates**' and



the '**Extremists**' led by **Lala Lajpat Rai** and **Bal Gangadhar Tilak** among others. The two factions **split at the Surat session of 1907**.

- Despite the ideological difference, **in 1907**, he intensely **campaigns for the release of Lala Lajpat Rai**, who was imprisoned that year by the British at Mandalay in present-day Myanmar.

### What is Morley-Minto Reforms 1909?

- The reforms included the **admission of Indians to the Secretary of State's council, to the viceroy's executive council**, and to the executive councils of Bombay and Madras, and the **introduction of an elected element into legislative councils** with provision for **separate electorates for Muslims**.
  - The reforms were regarded by Indian nationalists as too cautious, and the provision of separate electorates for Muslims was resented by Hindu.
- The **legislative councils at the Centre and the provinces** were increased in size.
  - The Act increased the maximum **additional membership of the Imperial Legislative Council from 16 to 60**.
- The legislative councils at the Centre and the provinces were to have **four categories of members** as follows:
  - **Ex officio members:** Governor-General and members of the executive council.
  - **Nominated official members:** Government officials who were nominated by the Governor-General.
  - **Nominated non-official members:** Nominated by the Governor-General but were not government officials.
  - **Elected members:** Elected by different categories of Indians.
    - The elected members were **elected indirectly**.
- **Indians were given membership** to the Imperial Legislative Council for the **first time**.
- It introduced **separate electorates for the Muslims**.
  - Some constituencies were earmarked for Muslims and only Muslims could vote for their representatives.
- **Satyendra P Sinha** was appointed the first Indian member of the **Viceroy's Executive Council**.

Note:



➤ **Related Societies and Other Works:**

- He **established the Servants of India Society in 1905** for the expansion of Indian education.
- He was **also associated with the Sarvajanik sabha journal** started by Govind Ranade.
- In 1908, Gokhale **founded the Ranade Institute of Economics.**

- He started English weekly newspaper, **The Hitavada** (The people's paper).

➤ **Mentor to Gandhi:**

- As a liberal nationalist, he is **regarded by Mahatma Gandhi as his political guru.**
- Gandhi wrote a book in Gujarati dedicated to the leader titled '**Dharmatma Gokhale**'.



Note:



# Geography

## Highlights

- Cyclone Asani

## Cyclone Asani

### Why in News?

The **India Meteorological Department (IMD)** has predicted the **Cyclone Asani** to intensify into a 'severe cyclone' over Southeast regions of Bay of Bengal.

- The name **Cyclone Asani** has been given by Sri Lanka. It means 'wrath' in Sinhalese.
- Cyclones that Hit India in 2020-21: **Tauktae, Yaas, Nisarga, Amphan.**

### What is the Occurrence of Cyclones in India?

- India has a **bi-annual cyclone season that occurs between March to May and October to December.** But on rare occasions, cyclones do occur in June and September months.
  - Cyclone Gulab became the third cyclone of the 21<sup>st</sup> century to make landfall over the east coast in September, after tropical cyclone Daye in 2018 and Pyarr in 2005.
- Typically, **tropical cyclones in the North Indian Ocean region** (Bay of Bengal and Arabian Sea) develop during the **pre-monsoon** (April to June) and post-monsoon (October to December) periods.
- May-June and Oct-Nov are known to produce cyclones of severe intensity that affect the Indian coasts.

### What is Classification?

- The IMD classifies cyclones **on the basis of the Maximum Sustained Surface Wind Speed (MSW)** they generate.

- The cyclones are classified as severe (MSW of 48-63 knots), very severe (MSW of 64-89 knots), extremely severe (MSW of 90-119 knots) and super cyclonic storm (MSW of 120 knots or more). One knot is equal to 1.8 kmph (kilometers per hour).

### What are the Tropical Cyclones?

- A **tropical cyclone** is an intense circular storm that originates over warm tropical oceans and is characterized by low atmospheric pressure, high winds, and heavy rain.
- A **characteristic feature of tropical cyclones is the eye**, a central region of clear skies, warm temperatures, and low atmospheric pressure.
- Storms of this type are called **hurricanes in the North Atlantic and eastern Pacific** and **typhoons in SouthEast Asia and China.** They are called **tropical cyclones in the southwest Pacific and Indian Ocean region** and **Willy-willies in north-western Australia.**
- Storms **rotate counterclockwise in the northern hemisphere** and clockwise in the southern hemisphere.
- The **conditions favourable** for the formation and intensification of tropical storms are:
  - Large sea surface with temperature higher than 27°C.
  - Presence of the **Coriolis force.**
  - Small variations in the vertical wind speed.
  - A pre-existing weak low- pressure area or low-level-cyclonic circulation.
  - Upper divergence above the sea level system.



Note:





# Social Issues

## Highlights

- NFHS-5 National Report
- Global Report on Food Crises 2022
- Global Food Policy Report: IFPRI
- Hypertension

## NFHS-5 National Report

### Why in News?

Recently, the National Report of the 2<sup>nd</sup> phase of fifth round of **National Family Health Survey (NFHS-5)** was released.

- The **National Family Health Survey (NFHS)** is a large-scale, multi-round survey conducted in a representative sample of households throughout India.

### What is the NFHS-5 Report?

- **About:**
  - It comprises **detailed information on key domains of population, health and family welfare and associated domains** like characteristics of the population; fertility; family planning; infant and child mortality; maternal and child health; nutrition and **anaemia**; morbidity and healthcare; women's empowerment etc.
  - The **scope of NFHS-5 is expanded in respect of the earlier round of the survey (NFHS-4)** by adding new dimensions such as:
    - Death registration, pre-school education, expanded domains of child immunization, components of micro-nutrients to children, menstrual hygiene, frequency of alcohol and tobacco use, additional components of **Non-Communicable Diseases (NCDs)**, expanded age range for measuring hypertension and diabetes among all aged 15 years and above.
  - Thus, **NFHS-5 provides information on important indicators** which are helpful in tracking the progress of **Sustainable Development Goals (SDGs)** in the country.
  - The national report also **provides data by socio-economic and other background characteristics;**

useful for policy formulation and effective programme implementation.

- The NFHS-5 National Report **lists progress from NFHS-4 (2015-16) to NFHS-5 (2019-21).**
- **Objective:**
  - The main objective of successive rounds of the NFHS has been **to provide reliable and comparable data relating to health and family welfare** and other emerging areas in India.

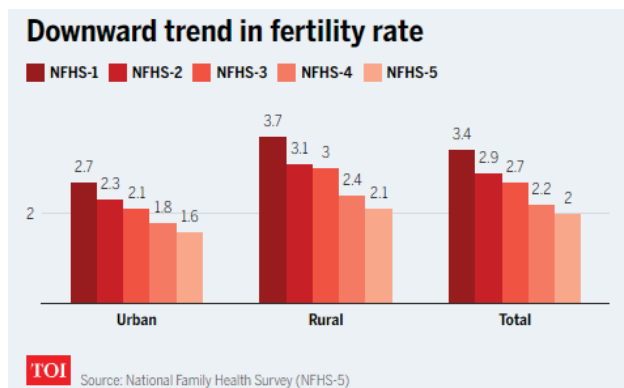
### What are the Key Highlights of the NFHS-5 National Report?

- **Total Fertility Rate (TFR):**
  - **Overall:**
    - The **Total Fertility Rate (TFR)**, has further **declined from 2.2 to 2.0** at the national level between NFHS 4 and 5.
    - There are **only five States in India** which are **above replacement level of fertility of 2.1**. These states are **Bihar, Meghalaya, Uttar Pradesh, Jharkhand and Manipur**.
      - Replacement level fertility is the **total fertility rate**—the average number of children born per woman—at which a **population exactly replaces itself from one generation to the next, without migration**.
  - **Highest and Lowest Fertility Rate:**
    - Bihar and Meghalaya have the highest fertility rates in the country, while Sikkim and Andaman and Nicobar Islands have the lowest.
  - **Area wise:**
    - In **rural areas**, TFR has declined from 3.7 children per woman in 1992-93 to 2.1 children in 2019-21.
    - The **corresponding decline among women in urban areas** was from 2.7 children in 1992-93 to 1.6 children in 2019-21.

Note:



- **Community Wise:**
  - **Muslims' fertility rate has seen the sharpest decline** among all religious communities over the past two decades.



### ➤ **Underage Marriages:**

- **Overall:**
  - National average of underage marriages has **come down**.
  - According to NFHS-5, **23.3% women surveyed got married** before attaining the legal age of 18 years, down from 26.8% reported in NFHS-4.
  - The figure for underage marriage among men is 17.7% (NFHS-5) and 20.3% (NFHS-4).
- **Highest Surge:**
  - **The rate has increased in Punjab, West Bengal, Manipur, Tripura and Assam.**
  - **Tripura has seen the largest jump in marriages** for women from 33.1% (NFHS-4) to 40.1%, and from 16.2% to 20.4% among men.
- **Highest Rate of Underage Marriages:**
  - West Bengal, along with Bihar, remains one of the states with highest rate of underage marriages.
- **Lowest Rate of Underage Marriages:**
  - J&K, Lakshadweep, Ladakh, Himachal Pradesh, Goa, Nagaland, Kerala, Puducherry and Tamil Nadu.

### ➤ **Teenage Pregnancies:**

- Teenage pregnancies are **down from 7.9% to 6.8%.**

### ➤ **Use of Contraceptive Method:**

- **Employment Factor:** **66.3% women who are employed** use a modern contraceptive method, compared with 53.4% women who are not employed.
- Contraceptive use increases in communities and regions that have seen more socioeconomic progress.

- **Income Factor:** The **“unmet need for family planning methods”** is highest among the lowest wealth quintile (11.4%) and lowest among the highest wealth quintile (8.6%).

- Use of **modern contraceptives also increases with income** from 50.7% women in the lowest wealth quintile to 58.7% women in the highest quintile.

### ➤ **Domestic Violence Against Women:**

- **Overall:** Domestic violence has **come down marginally from 31.2% in 2015-16 to 29.3% in 2019-21.**
- **Highest and Lowest (States):**
  - Domestic violence against women is **highest in Karnataka at 48%**, followed by Bihar, Telangana, Manipur and Tamil Nadu.
  - **Lakshadweep has the least** domestic violence at 2.1%.

### ➤ **Institutional Births:**

- **Overall:** It increased from **79% to 89% in India.**
- **Area Wise:** In **rural areas** around **87%** births being delivered in institutions and the same is **94% in urban areas.**

### ➤ **Immunisation Level:**

- **More than three-fourths (77%) children age 12-23 months** were fully immunised, compared with 62% in NFHS-4.

### ➤ **Stunting:**

- The level of stunting among children under five years has **marginally declined from 38% to 36% in the country** since the last four years.
- Stunting is higher among **children in rural areas (37%)** than urban areas (30%) in 2019-21.

### ➤ **Obesity:**

- Compared with NFHS-4, the **prevalence of overweight or obesity has increased in most States/UTs in NFHS-5.**
- At the national level, it **increased from 21% to 24% among women** and 19% to 23% among men.

### ➤ **SDG Goal:**

- **NFHS-5 shows an overall improvement in Sustainable Development Goals indicators** in all States/Union Territories (UTs).
- The **extent to which married women usually participate in three household decisions** indicates that their participation in decision-making is high.

Note:



- **Household decisions include** health care for herself, making major household purchases, visiting her family or relatives.
- Participation in decision making rises **ranging from 80% in Ladakh to 99% in Nagaland and Mizoram.**
- Rural (77%) and urban (81%) differences are found to be marginal.
- The **prevalence of women having a bank or savings account** that they use has increased from 53% to 79% in the last four years.

## Global Report on Food Crises 2022

### Why in News?

Recently, an annual report named Global Report on Food Crises 2022 was launched by the **Global Network Against Food Crises (GNAFC).**

- The report is the **flagship publication of the GNAFC** and is facilitated by the **Food Security Information Network (FSIN).**

#### What is Food Security Information Network?

- FSIN is a **global initiative co-sponsored by Food and Agriculture Organization (FAO), World Food Programme (WFP) and International Food Policy Research Institute (IFPRI)** to strengthen food and nutrition security information systems for producing reliable and accurate data to guide analysis and decision-making.

#### What is GNAFC?

- It was Founded by the **European Union, FAO and WFP** in 2016.
- It is an **alliance of humanitarian and development actors** working together to prevent, prepare for and respond to food crises and support the **Sustainable Development Goal to End Hunger (SDG 2).**

### What are the Key Highlights of the Report?

- **About:**
  - Some **40 million more people globally experienced acute food insecurity** at crisis or worse levels in 2021 than 2020.

- **Over half a million Ethiopians, southern Madagascar, South Sudanese and Yemenese** are suffering from acute food insecurity.

- **Over 193 million people in 53 countries** or territories experienced acute food insecurity at crisis or worse levels in 2021.
- **Main Drivers for Food Insecurity:**
  - **Conflict:**
    - Conflict forced **139 million people in 24 countries / territories into acute food insecurity.**
    - This is an **increase from 99 million** in 23 countries / territories in 2020.
  - **Weather Extremes:**
    - It forced over **23 million people in eight countries / territories into acute food insecurity**, up from 15.7 million in 15 countries / territories in 2020.
  - **Economic Shocks:**
    - Over **30 million people in 21 countries / territories suffered acute food insecurity** in 2021 due to economic shocks, down from over 40 million people in 17 countries / territories in 2020.

### What are the Suggestions?

- **Need to have an Integrated Approach:**
  - There is a need to have an **integrated approach to prevention, anticipation, and better targeting to sustainably address the root causes of food crises**, including structural rural poverty, marginalization, population growth and fragile food systems.
- **Need to Prioritize Smallholder Agriculture:**
  - The report demonstrated the **need for a greater prioritization of smallholder agriculture** as a frontline humanitarian response, to overcome access constraints and as a solution for reverting negative long-term trends.
- **Strengthening a Coordinated Approach:**
  - The need is to **strengthen a coordinated approach** to ensure that humanitarian, development and peacekeeping activities are delivered in a holistic and coordinated manner.

### What is the State of Food Insecurity in India?

- **About:**
  - According to the **State of Food Security and Nutrition in the World (SOFI) report, 2021** India,

Note:



the **country with the largest stock of grain in the world**; 120 million tonnes (as of 1<sup>st</sup> July 2021) accounts for a **quarter of the world's food-insecure population**.

- Estimates show that, in 2020, over 237 crore people were grappling with food insecurity globally, an increase of about 32 crores from 2019.

- **South Asia alone accounts for 36% of global food insecurity.**

#### ➤ **Related Initiatives:**

- **PM Garib Kalyan Ann Yojana (PMGKAY)**
- **One Nation One Ration Card**
- **Atmanirbhar Bharat Rozgar Yojana**
- **Pradhan Mantri Kisan Samman Nidhi**
- **Intensified Mission Indradhanush 3.0 Scheme**

## **Global Food Policy Report: IFPRI**

### **Why in News?**

Recently, the International Food Policy Research Institute (IFPRI) has released **Global Food Policy Report: Climate Change & Food Systems**, showing India's risk for hunger could increase 23% by 2030 due to Climate Change.

### **What are the Findings?**

#### ➤ **India:**

- India's food production could drop 16% and the number of those at risk for hunger could increase 23% by 2030 due to climate change.
  - Projections are part of a model that was used to evaluate the impact of climate change on aggregate food production, food consumption(kcal per person per day), net trade of major food commodity groups, and the population at risk of going hungry.
- The number of Indians **at risk from hunger in 2030 is expected to be 73.9 million in 2030** and, if the effects of climate change were to be **factored in, it would increase to 90.6 million**.
- The aggregate food production index would, under similar conditions, drop from 1.6 to 1.5.
  - Food production index covers food crops that are considered edible and that contain nutrients.

Coffee and tea are excluded because, although edible, they have no nutritive value.

- On a positive note, **climate change will not impact the average calorie consumption of Indians** and this is projected to remain roughly the same at 2,600 kcal per capita per day by 2030 even in a climate change scenario.
- The average temperature across India is projected to rise by between 2.4°C and 4.4°C by 2100. Similarly, summer heat waves are projected to triple by 2100 in India.

#### ➤ **Global:**

- Baseline projections indicate that **global food production will grow by about 60% over 2010 levels by 2050** in the context of climate change.
- Production and demand are projected to grow more rapidly in developing countries, particularly in Africa, than in developed countries, due to projected growth in population and incomes.
- Diets are also shifting toward higher-value foods, including more fruits and vegetables, processed foods, and animal-source foods, outside of high-income countries.
- Meat production is projected to double in South Asia and West and Central Africa by 2030 and triple by 2050.
- Despite this growth, **per capita consumption levels in developing countries will remain less than half of those in developed countries.**
- The **demand for processed foods also shows up in the growing production of oil crops:** by 2050 production is expected to more than double in Southeast Asia and West and Central Africa.

### **How food production impacts climate change?**

- Food system activities, including producing food, transporting it, and storing wasted food in landfills, produce **Greenhouse Gas (GHG) Emissions** that contribute to climate change.
- Of these sources, L production is the largest, accounting for an **estimated 14.5% of global GHG emissions** from human activities.
  - Meat from ruminant animals, such as cattle and goats, **are particularly emissions-intensive.**
- If global trends in **meat and dairy intake continue, our chances of staying below the 2° Celsius threshold will still be extremely slim.**

Note:





- This is why **urgent and dramatic reductions in meat and dairy consumption, alongside reductions in GHG emissions from energy use, transportation, and other sources, are crucial to avoiding catastrophic climate change.**
- The responsibility for eating lower on the food chain falls most heavily on countries like the U.S. with the highest per capita consumption of meat and dairy. Changing diets on an international scale will require more than just educating consumers – national policies will need to shift in ways that support more plant-centric diets.

### ***What are the Recommendations of Global Food Policy Report?***

- **Investment in Research and Development:**
  - There is a need for more **investment in research and development for “disruptive” technology innovations, such as in irrigation systems and the cold chain, which “could accelerate sustainable food systems transformation.”**
  - **Public investment in such innovations should be doubled** from current levels, ensuring at least \$15 billion goes toward food systems in low- and middle-income countries.
- **Management of Land and Water Resources:**
  - There must be **improved management of land and water resources.**
  - Policy should ensure **there are no “undesirable trade-offs” in development goals**, finding a balance between the additional energy required to increase productivity while not contributing further to fossil fuel emissions.
- **Healthy Diets and Sustainable Food Production:**
  - Healthy diets and sustainable food production **must also be prioritized.**
  - Reducing consumption of highly processed foods and red meats **will improve food’s ecological footprint.**
- **Efficient Value Chain:**
  - Value chains need to be made more efficient and support “free and open” trade, which the report calls “an integral part of climate-smart agricultural and food policies.”
- **Social Protection:**
  - Social protection **programs must guard poor rural populations**, which make their living from

agriculture, against the worst effects of climate change.

- These **programs are “another way to deal with the more uncertain future** that we expect.
- **Financing Sustainable Production:**
  - The report stresses the importance of adequately financing a shift to more sustainable production and consumption while increasing livelihoods.

#### **What is International Food Policy Research Institute?**

- Established in 1975, IFPRI provides **research-based policy solutions to sustainably reduce poverty and end hunger and malnutrition in developing countries.**
- IFPRI’s vision is **a world free of hunger and malnutrition.**
- It focuses on **five strategic research areas:**
  - Fostering Climate-Resilient and Sustainable Food Supply.
  - Promoting Healthy Diets and Nutrition for All.
  - Building Inclusive and Efficient Markets, Trade Systems, and Food Industry.
  - Transforming Agricultural and Rural Economies.
  - Strengthening Institutions and Governance.

## **Hypertension**

### ***Why in News?***

According to a project called the **India Hypertension Control Initiative (IHCI)**, **nearly 23% out of 2.1 million Indians** have uncontrolled blood pressure.

- Managing blood pressure for 2.5 crore individuals can prevent up to five lakh deaths due to cardiovascular disease in the next 10 years.

### ***What is Hypertension?***

- **About:**
  - Blood pressure is the **force exerted by circulating blood** against the walls of the body’s arteries, the major blood vessels in the body.
    - Hypertension is **when blood pressure is too high.**
  - It is defined as **having systolic blood pressure level greater than or equal to 140 mmHg** or diastolic blood pressure level greater than or equal to 90 mmHg or/and taking anti-hypertensive medication to lower his/her blood pressure.

Note:



➤ **Prevalence:**

- **Southern States have a higher prevalence** of hypertension than the national average.
  - **Kerala** (32.8% men and 30.9% women) has the **highest number followed by Telangana**.
- 21.3% of women and 24% of men aged above 15 have hypertension in the country.

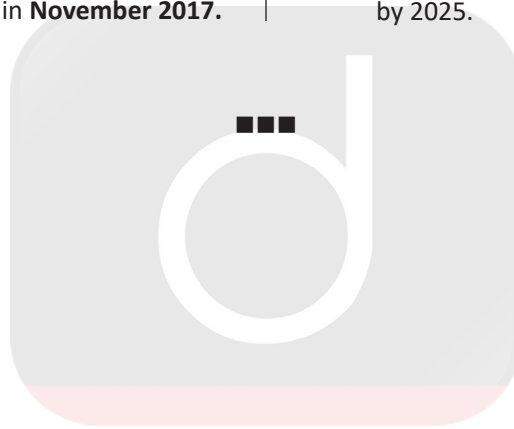
➤ **WHO Response:**

- In 2021, the **World Health Organization (WHO)** released a new guideline on the pharmacological treatment of hypertension in adults.
  - The publication **provides evidence-based recommendations** for the initiation of treatment of hypertension, and recommended intervals for follow-up.

**What is the IHCI?**

- The programme was launched in **November 2017**.

- In the first year, **IHCI covered 26 districts** across five States — Punjab, Kerala, Madhya Pradesh, Telangana, and Maharashtra.
- By December 2020, IHCI was **expanded to 52 districts across ten States** — Andhra Pradesh, Chhattisgarh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Telangana and West Bengal.
- The Health Ministry, the **Indian Council of Medical Research**, State Governments, and WHO-India began a **five-year initiative** to monitor and treat hypertension.
- India has committed to a **“25 by 25” goal**.
  - The goal **aims to reduce premature mortality** due to **Non-Communicable Diseases (NCDs)** by 25% by 2025.
  - One of the nine voluntary targets includes reducing the prevalence of high blood pressure by 25% by 2025.



# Art & Culture

## Highlights

- Martand Sun temple

## Martand Sun temple

### Why in News?

The Jammu and Kashmir Lieutenant Governor participated in a religious ceremony held in the ruins of the **8<sup>th</sup> century Martand Sun temple**, a protected monument under the Archaeological Survey of India. This temple has been recognised as a **"Site of national importance"**.



### What is the Martand Sun Temple?

- The Martand Sun Temple also known as **Pandou Laidan** is a **Hindu temple dedicated to Surya (the chief solar deity in Hinduism)** and built during the 8<sup>th</sup> century CE. Martand is another Sanskrit synonym for Surya.
- It was built by the **third ruler of the Karkota Dynasty, Lalitaditya Muktapida**.
- It is now in ruins, as it **was destroyed by the orders of Muslim ruler Sikandar Shah Miri**.
- The temple is **located five miles from Anantnag in the Indian union territory of Jammu and Kashmir**.
- From the ruins and related archaeological findings, it can be said it was an excellent specimen of Kashmiri architecture, which had blended the Gandharan, Gupta and Chinese forms of architecture.

- The temple **appears in the list of centrally protected monuments** as Kartanda (Sun Temple).

### Who was Lalitaditya Muktapida?

- Lalitaditya was born in the year of **699 AD** as the **third son of Durlabhak-Pratapaditya of Kashmir**.
- He was from the **Nagvanshi Karkota Kayastha Dynasty of Kashmir**.
  - Karkota **Kayastha families were mainly serving in the army of the kings of Kashmir since decades. They were known for their remarkable courage in the battlefield.**
  - The Kings of Kashmir had given them the **title Sakhasena for their immense contribution.**
- Lalitaditya's birth name was Muktapida and his older brothers were Chandrapida and Tarapida.
- Muktapida **took over the Kingdom of Kashmir in the year 724 AD.**
- It was the same time, when the **western invasion had begun in India and the Arabs had already occupied the province of swat, multan, peshawar and the Kingdom of Sindh.**
- The Arab king Mohammad Bin Qasim, the Arab ruler was already threatening to occupy Kashmir and central India.
- He fought the **daradas, kabhojas and bhuttas of ladakh who were under Tibetan rule.**

### What are the Key Points of the Karkota Dynasty?

- The Karkota dynasty established their power in Kashmir (early 7<sup>th</sup> century) and it emerged as **a power in central Asia and northern India.**
- Durlabh Vardhana was the founder of the Karkota dynasty.
- The Karkota rulers were **Hindus and built spectacular Hindu temples at Parihaspur (capital).**
- They also patronised Buddhism as some stupas, chaityas and viharas have been found in the ruins of their capital.

Note:



- Lalitaditya **himself led the army into the war defeating all Kings and established control over the regions of Ladakh.**
  - The alliance between **Lalitaditya and Yashovarman defeated the Arabs from entering Kashmir.**
  - He later invaded Turkestan via Kabul. Lalitaditya acquired most of the places in the west and south of India starting from Rashtrakutas in Maharashtra, Pallavas and Kalinga in the southern part.
  - He also extended his kingdom to central China after defeating the Chinese. **After which he was compared with Alexander the great.**
- The **Kashmir Kingdom gained enormous wealth and Lalitaditya utilized the wealth to build massive infrastructure** in Kashmir, construction of temples were taken up and Kashmir saw extensive development under Lalitaditya.
  - Lalitaditya was a very liberal King, though **he was a strong follower of Hindu tradition, he respected all religions. He is said to be a very compassionate ruler who responded to people's voices.**
  - In the year 760 AD, the Lalitaditya era came to an end by his sudden death.



Note:





# Miscellaneous

## Highlights

- Association of Asian Election Authorities (AAEA)
- Shigella Bacteria Outbreak
- Pradhan Mantri Garib Kalyan Anna Yojana
- Anang Tal Lake
- Anabolic Steroids
- Meeting of Project Elephant
- Atal New India Challenge 2.0
- Birth Anniversary of Maharana Pratap
- AIM-PRIME Playbook
- Sagittarius A\*: Black Hole at Centre of Milky Way
- Gallantry Awards
- National Technology Day

## Association of Asian Election Authorities (AAEA)

### Why in News?

Recently, India has been **unanimously elected as the new Chair of the Association of Asian Election Authorities (AAEA)** for 2022-2024 at the recently held meeting of the Executive board and General Assembly at Manila, Philippines.

- The newly added members to the Executive board include **Russia, Uzbekistan, Sri Lanka, Maldives, Taiwan and Philippines.**

### What is AAEA?

- It was established in 1998 in **pursuance of the resolution passed by participants** of the Symposium on Asian Elections in the 21<sup>st</sup> century held from January 26-29, 1997 in Manila, Philippines.
- Currently 20 Asian Election Monitoring Bodies are members of AAEA.
- **Election Commission of India** is a **founder member EMB of the AAEA** and also served on the Executive Board of the AAEA as the Vice Chair during 2011-13 and Chair during 2014-16.
- AAEA is also an Associate Member of the 118 member **Association of World Election Bodies (A-WEB).**

### What is the objective of AAEA?

- To **provide a non-partisan forum** in the Asian region for sharing experiences and best practices among election authorities.

- To discuss and act upon ways to promote open and transparent elections with the objective of supporting **good governance** and democracy.

### What Role India Plays in AAEA?

- India has **regularly organised several international training programmes** for the member countries at the International Institute for Democracy and Election Management (IIDEM).
- The IIDEM has been **instrumental in training over 250 officials** from AAEA member countries since 2019.
- The ECI has also **organized the International Election Visitors Programme** and International Virtual Election Visitors Programme (IEVP), which was held during Assembly elections in 2022, for the member countries.

### What is Election Commission of India?

- The **Election Commission of India (ECI)** is a **constitutional body** envisaged to uphold the values of equality, equity, impartiality, independence enshrined in the Indian Constitution and the rule of law in superintendence, direction, and control over the electoral governance.
- Part XV of the Indian constitution deals with elections, and provides for the establishment of the ECI.
- **Article 324 to 329** of the constitution deals with powers, function, tenure, eligibility, etc of the commission and the members.
- The members of the ECI are **appointed by the President of India** based on the recommendations made by the Prime Minister.

- However, **Article 324(2)** provides that the Parliament is entitled to enact legislation regarding the appointment of Election Commissioners (ECs).

## Shigella Bacteria Outbreak

### Why in News?

An **outbreak of shigella bacteria** is believed to be the reason behind the recent incident of suspected food poisoning in **Kasaragod district, Kerala**.

- Earlier in 2019, the bacteria were found in **Koyilandy district, Kerala**.

### What is Shigella Bacteria?

- **About:** Shigella is a genus of bacteria that causes an **infection called shigellosis**. It is the **second leading cause of diarrhea (after Rotavirus)** worldwide and the third leading cause of death in children less than 5 years old.
  - The annual number of shigellosis episodes **throughout the world is estimated to be 164.7 million**.
- **Possible Symptoms:** Symptoms include diarrhoea, fever, stomach cramps which can last for seven days.
- **Transmission:** Shigella is generally transmitted through **contaminated food or water, or through person-to-person contact**.
  - Shigellosis is primarily a disease of **poor and crowded communities** that do not have adequate sanitation or safe water.
- **Incubation Period:** The incubation period of shigellosis is **typically 1–4 days**.
- **Different Species:** The severity of the disease varies by the infecting species:
  - **Shigella dysenteriae infections** usually cause dysentery, which may also occur in infection with Shigella flexneri.
  - **Shigella boydii and Shigella sonnei** often have self-limited watery diarrhea.
- **Vaccines:** Currently, there are **no vaccines** available for shigellosis.
- **Medium Priority Bacteria:** Due to the increasing rate of multidrug resistance, in particular resistance to **fluoroquinolone** in Asian and African regions, this has been classified as a medium priority for research

and development of new and effective antibiotic treatments by the **WHO Priority Pathogens List of antibiotic-resistant bacteria**.

### What is the Treatment Protocol?

- **Hydration:** The cornerstone of shigella treatment is the maintenance of hydration and electrolyte balance.
  - In young children, **oral rehydration with a reduced osmolarity solution** is indicated to treat the WHO-defined category of some dehydration and is preferable to intravenous fluids unless severe dehydration is present.
- **Use of Antibiotics:** Although shigellosis is primarily **self-limiting**, **antibiotics** are recommended for reducing illness duration and for preventing transmission.
  - The current drugs of choice are **third-generation cephalosporins (ceftriaxone or cefixime) and macrolides (azithromycin)**.
- **Public Hygiene:** Handwashing is said to reduce **shigella transmission by 70%**. Recommended public health control measures are exclusion of ill people with shigellosis from work, food preparation, and childcare.

## Pradhan Mantri Garib Kalyan Anna Yojana

### Why in News?

Recently, the Ministry of Consumer Affairs, Food and Public Distribution revised the **PMKGAY (Pradhan Mantri Garib Kalyan Anna Yojana)** allocation of rice and wheat for all the 36 states/UTs for the remaining five months — from May to September 2022.

### What is PMGKAY?

- PMGKAY is a part of **Pradhan Mantri Garib Kalyan Package (PMGKP)** to help the poor fight the battle against **Covid-19**.
  - Its nodal Ministry is the Ministry of Finance.
- It was initially announced **for a three-month period (April, May and June 2020)**, covering 80 crore ration cardholders. Later it was extended till November 2020.
  - The scheme has been extended several times with the **recent one until September 2022**.
- The scheme aimed at providing each person who is covered under the **NFSA (National Food Security Act)**

**2013**) with an additional 5 kg grains (wheat or rice) for free, in addition to the 5 kg of subsidized food grain already provided through the **Public Distribution System (PDS)**.

- The new version of the PMGKAY lacks one of its important components which was there in 2020 PMGKAY i.e free-of-cost 1 kg pulses per month to each household covered under the NFSA.

### ***What are the Significance and Challenge?***

- **Significance:**
  - It is significant in a view of daily wagers and informal sector entrepreneurs who lost their job in the wake of **Covid-19** induced **Lockdown**.
- **Challenge:**
  - A key issue is that the beneficiaries of the National Food Security Act are based on the last **census** (2011). The number of food-insecure people has increased since then and they remain uncovered.

## **Anang Tal Lake**

### ***Why in News?***

Recently, the Ministry of Culture has ordered the restoration of Historic Anang Tal lake in South Delhi.

- **National Monuments Authority (NMA)** and **Archaeological Survey of India (ASI)** have asked officials to expedite conservation work so the site could be declared a **National Monument**.

### ***What are the Key Points?***

- The lake is situated in Mehrauli, Delhi and is claimed to be created by **Tomar King, Anangpal II**, in 1,060 AD.
  - He is known to have established and populated Delhi in the 11<sup>th</sup> century.
- The millennium old Anang Tal signifies the beginning of Delhi.
- Anang Tal **has a strong Rajasthan connection** as **Maharaja Anangpal is known as nana (maternal grandfather) of Prithviraj Chauhan** whose fort Rai Pithora is on the list of the ASI.

### ***Who was Anangpal II?***

- Anangpal II, popularly known as **Anangpal Tomar**, belonged to the Tomar dynasty.

- He was the founder of Dhillika Puri, which eventually became Delhi.
  - Evidence about the early history of Delhi is inscribed on the iron pillar of Masjid Quwaatul Islam, adjacent to Qutub Minar.
- Multiple inscriptions and coins suggest **Anangpal Tomar was the ruler of present-day Delhi and Haryana** in between the **8<sup>th</sup>-12<sup>th</sup> centuries**.
  - He had built the city from ruins and under his supervision, Anang Tal Baoli and Lal Kot were constructed.
- Anangpal Tomar II was **succeeded by his grandson Prithviraj Chauhan**.
  - Delhi Sultanate was established in 1192 after Prithviraj Chauhan's defeat in the Battle of Tarain (present-day Haryana) by the Ghurid forces.

### ***What are the Key Points About the Tomar Dynasty?***

- Tomara dynasty is **one of the minor early medieval ruling houses** of northern India.
- Puranic evidence (writings of the Puranas) gives its early location in the Himalayan region. According to bardic tradition, **the dynasty was one of the 36 Rajput tribes**.
- The history of the family spans the **period between the reign of Anangpal, who founded the city of Delhi in the 11<sup>th</sup> century CE**, and the incorporation of Delhi within the Chauhan (Chahamana) kingdom in 1164.
- Although Delhi subsequently became decisively a part of the Chauhan kingdom, numismatic and comparatively late literary evidence indicates that **Tomara kings such as Anangpal and Madanpal continued to rule as feudatories**, presumably until the final conquest of Delhi by the Muslims in 1192-93.

## **Anabolic Steroids**

### ***Why in News?***

Two of India's track-and-field Tokyo Olympians failed dope tests for using banned anabolic steroids and are facing bans up to four years.

### ***What are Anabolic Steroids?***

- **About:**
  - Anabolic steroids are **usually used by bodybuilders**.

Note:



- They are **essentially lab-made versions of the male hormone testosterone** and have a **similar effect of increasing muscle mass** as the natural hormone does.
- It also **increases male characteristics in a person**, such as facial hair and a deeper voice.
- **Different from Corticosteroids:**
  - These are, however, **very different from the steroids that are prescribed by doctors** for inflammations, several autoimmune diseases, or to suppress the body's immune system during a **Covid-19 infection**.
  - These medicines are called **corticosteroids and are lab-made molecules that mimic the action of the hormone called cortisol** that controls the body's stress response, metabolism, and inflammation.
  - Unlike corticosteroids, anabolic steroids have limited medical use.

### **What are they prescribed for?**

- The anabolic steroids have a **very limited medical role and are mainly used by doctors to help patients gain weight after a severe illness or injury**.
- It could **also be prescribed in small doses to the elderly** to build muscle mass and in some cases also helps to treat anemia.
- Doctors may also prescribe the medicine to men who have **low levels of natural testosterone**.
- Some doctors use it for the treatment of osteoarthritis (a condition where bones wear down over time).

### **How are anabolic steroids misused?**

- The anabolic steroids **are misused mainly by those who want to bulk up as it helps increase one's muscle mass**.
- A 2019 study from Bhubaneswar of anabolic steroid users showed that only one of the 74 participants was a professional bodybuilder, with 18.9 % being students, indicating that **it is used by people other than professional athletes**.
- Although no concrete estimate exists of the number of people using the drug across India, a **2018 study from Jammu and Kashmir found that 7.1 % of athletes used it**.

### **What are the health impacts?**

- Use of anabolic steroids in the **short-term can cause acne and hairfall**.

- Extended misuse of the substance **can also lead to gynaecomastia** (growth of breasts in men) and **erectile dysfunction**.
- In women, **it can lead to growth of facial hair**. It may also cause extreme anger, paranoia, and impaired judgment.

## **Meeting of Project Elephant**

### **Why in News?**

At the 16<sup>th</sup> Steering Committee meeting of **Project Elephant**, the Ministry of Environment, Forest and Climate Change launched a **field manual named-Field Manual for Managing Human-Elephant Conflicts (HEC) in India** to guide forest staffers dealing with HEC in major elephant range states.

- The manual has been prepared by the ministry, along with the **Wildlife Institute of India (WWI)** and **World Wide Fund for Nature (WWF India)**.
- It contains the detailed best practices of **minimizing human-elephant conflict**. It is drafted with the aim of providing forest officials/ departments and other stakeholders with guidance towards interventions to help mitigate Human Elephant Conflict, both in emergencies and when conflict poses a recurring challenge.

### **What are the Key Points Related to Elephants?**

- **Current Data on Elephants in India:**
  - India is home to approximately around **27,000 Asian Elephants**, which is the world's largest population of the species.
  - As per Elephant Census (2017), **Karnataka has the highest number of elephants** (6,049), followed by Assam (5,719) and Kerala (3,054).
- **Asian Elephants:**
  - **About:**
    - There are **three subspecies of Asian elephant** which are the **Indian, Sumatran and Sri Lankan**.
    - The Indian subspecies has the widest range and accounts for most of the remaining elephants on the continent.
      - The **elephant herd is led by the oldest and largest female member** (known as the matriarch). This herd includes the daughters of the matriarch and their offspring.

Note:





- Elephants have the **longest-known gestational (pregnancy) period** of all mammals, lasting up to **680 days (22 months)**.
- **Females between 14 - 45 years may give birth to calves** approximately every four years with the mean interbirth intervals increasing to five years by age 52 and six years by age 60.
- **Global Population:** Estimated 20,000 to 40,000.
- **Protection Status:**
  - **IUCN Red List:** Endangered.
  - **Wildlife (Protection) Act, 1972:** Schedule I.
  - **CITES:** Appendix I
- **African Elephants:**
  - **About:**
    - There are **two subspecies** of African elephants, the **Savanna (or bush) elephant** and the **Forest elephant**.
    - **Global Population:** Around 4,00,000.
    - Earlier in July 2020, **Botswana (Africa) witnessed the death of hundreds of elephants**.
  - **Protection Status:**
    - **IUCN Red List Status:**
      - **African Savanna Elephant:** Endangered.
      - **African Forest Elephant:** Critically Endangered
    - **CITES:** Appendix II
  - **Threats:**
    - Escalation of poaching.
    - Habitat loss.
    - **Human-elephant conflict.**
    - Mistreatment in captivity.
    - Abuse due to elephant tourism.
    - Rampant mining, Corridor destruction.

### What are the Steps Taken for Conservation?

- Plans and programmes to **arrest their poachers and killers**.
- Declaration and **establishment of various elephant reserves** across the states. For example, Mysuru and Dandeli elephant reserves in Karnataka.
- **Cleaning areas from lantana and eupatorium (invasive species)** as they prevent the growth of grass for elephants to feed on.
- **Barricades** to prevent man-elephant conflicts.

- Measures for **establishment of a cell to study forest fire** prevention.
- **Gaj Yatra** which is a **nationwide awareness campaign** to celebrate elephants and highlights the necessity of securing elephant corridors.
- The **Monitoring the Illegal Killing of Elephants (MIKE) programme**, launched in 2003, is an international collaboration that tracks trends in information related to the illegal killing of elephants from across Africa and Asia, to monitor effectiveness of field conservation efforts.
- **Project Elephant:** It is a **centrally sponsored scheme** and was launched in February 1992 for the **protection of elephants**, their habitats and corridors.
  - The Ministry of Environment, Forest and Climate Change **provides financial and technical support to major elephant range states** in the country through the project.
- Even **mahouts** (people who work with, ride and tend to elephants) and their families play an important part in the welfare of elephants.
- Recently, the **Supreme Court (SC)** upheld the 2011 order of the Madras High Court (HC) on the Nilgiris elephant corridor, affirming the **right of passage** of the animals and the closure of resorts in the area.

## Atal New India Challenge 2.0

### Why in News?

- **Atal Innovation Mission** launched the phase 1 of the 2<sup>nd</sup> edition of the **Atal New India Challenge (ANIC 2.0)**.
- **ANIC 1.0** was launched in 2018 for the **clarion call to bring innovations and technologies relevant to the people**.

### What is Atal New India Challenge?

- **About:**
  - Atal New India Challenge is a flagship program of Atal Innovation Mission, **NITI Aayog**.
  - The program aims **to seek, select, support and nurture technology-based innovations** that solve sectoral challenges of national importance and societal relevance.
  - ANIC **solicits innovations in the prototype stage and supports the selected start-ups through to the commercialization stage over a course of 12-18 months**.

Note:



- **Vision:**
  - Help create **products from existing technologies that solve problems of national importance** and societal relevance (productization)
  - Help **new solutions find markets and early customers** (commercialization) in the context of India.
- **Objectives:**
  - To **incentivize innovations in areas critical to India's development and growth** – Education, Health, **Water and Sanitation** Agriculture, **Food Processing**, Housing, **Energy, Mobility**, Space Application etc.
  - To address the **Commercialization Valley of Death (Gap between the research and commercialization)** - **supporting innovators scale over the risks associated with access to resources for testing, piloting and market creation.**
- **ANIC 1.0:**
  - **ANIC 1.0** followed an open innovation challenge format where challenge statements were put out in the public domain and a call for application was made.
  - The winning start-ups / individual innovators **are supported through a tranche-based grant-in-aid of up to Rs.1 crore and through AIM's innovation network.**
- **ANIC 2.0:**
  - The 1<sup>st</sup> phase of **ANIC 2.0** will see **18 challenges** being thrown open from 7 **sectors**, which are, **E-mobility, Road Transportation, Space Technology and Application**, Sanitation Technology, Medical Devices and Equipment, **Waste Management**, Agriculture.

#### What is Atal Innovation Mission?

- AIM is Government of India's **flagship initiative to promote a culture of innovation and entrepreneurship** in the country.
- Its **objective is to develop new programmes and policies for fostering innovation in different sectors of the economy**, provide platform and collaboration opportunities for different stakeholders, **create awareness and create an umbrella structure** to oversee the innovation ecosystem of the country.
- **Major Initiatives:**
  - **Atal Tinkering Labs:** These are creating problem solving mindset across schools in India.

- **Atal Incubation Centers:** Fostering world class startups and adding a new dimension to the incubator model.
- **Atal New India Challenges:** Fostering product innovations and aligning them to the needs of various sectors/ministries.
- **Mentor India Campaign:** A national mentor network in collaboration with the public sector, corporates and institutions, to support all the initiatives of the mission.
- **Atal Community Innovation Center:** To stimulate community centric innovation and ideas in the unserved/underserved regions of the country including Tier 2 and Tier 3 cities.
- **Atal Research and Innovation for Small Enterprises (ARISE):** To stimulate innovation and research in the MSME industry.



## Birth Anniversary of Maharana Pratap

### Why in News?

The Prime Minister of India paid tributes to Maharana Pratap on his Jayanti.

### What do we know about Maharana Pratap?

- **Description:**
  - **Rana Pratap Singh**, also known as **Maharana Pratap**, was **born on 9<sup>th</sup> May 1540** in **Kumbhalgarh, Rajasthan.**

Note:



- He was the **13<sup>th</sup> King of Mewar** and was the eldest son of **Udai Singh II**
  - Maharana Udai Singh II ruled the kingdom of Mewar, with his capital at Chittor.
  - Udai Singh II was also a founder of the city of Udaipur (Rajasthan).
- **Battle of Haldighati:**
  - The Battle of Haldighati was fought in **1576 between Rana Pratap Singh of Mewar and Raja Man Singh of Amber** who was the general of the Mughal emperor Akbar.
  - Maharana Pratap fought a brave war but was **defeated by Mughal forces**.
  - It is said that **Maharana Pratap's loyal horse named Chetak**, gave up his life as the Maharana was leaving the battlefield.
- **Reconquest:**
  - **After 1579**, the Mughal pressure relaxed over Mewar and Pratap recovered Western Mewar including Kumbhalgarh, Udaipur and Gogunda.
  - During this period, he also built a **new capital, Chavand**, near modern Dungarpur.
- **Death:**
  - He died on 19<sup>th</sup> January 1597. He was **succeeded by his son Amar Singh**, who submitted in 1614 to Emperor Jahāngīr, son of Akbar.

## AIM-PRIME Playbook

### Why in News?

Recently, the **AIM-PRIME** (Program for Researchers in Innovation, Market Readiness, and Entrepreneurship) **Playbook** was launched by **NITI Aayog**.

- The playbook was aimed at promoting early-stage science-based, deep technology ideas to market through **training and guidance over a period of 12 months** using a blended learning curriculum.

### What is AIM-PRIME?

- **Objective:**
  - Promoting science-based, **deep technology ideas** to market through training and guidance over a period of 12 months.
    - Deep technology is based on tangible engineering innovation or scientific advances and discoveries. Deep Tech is often set apart by its profound

enabling power, the differentiation it can create, and its potential to catalyse change.

#### ➤ Focus Area:

- Science-based, knowledge-intensive, deep technology entrepreneurship.

#### ➤ Launching & Implementing Agency:

- AIM has collaborated with **Bill & Melinda Gates Foundation (BMGF)** to launch this nationwide programme which will be implemented by Venture Centre - a non-profit technology business incubator hosted by **Council Of Scientific And Industrial Research**—National Chemical Laboratory (CSIR-NCL).

#### ➤ Beneficiaries:

- Technology developers (early-stage deep tech start-ups, and scientists/ engineers/clinicians) with **strong science-based deep tech business ideas**.
- Chief Executive Officers and Senior incubation managers of **AIM Funded Atal Incubation Centers** that are supporting deep tech entrepreneurs.

#### ➤ Significance:

- Candidates selected for the programme will get access to **in-depth learning** via a comprehensive lecture series, live team projects, exercises, and project-specific mentoring.
- They will also have **access to a deep tech start-up playbook**, curated video library, and plenty of peer-to-peer learning opportunities.

## Sagittarius A\*: Black Hole at Centre of Milky Way

### Why in News?

Recently, Scientists from the **Event Horizon Telescope (EHT)** facility, revealed the first image of the black hole named Sagittarius A\* at the centre of our galaxy - the Milky Way.

- Nearly all galaxies have these giant black holes at their centre, where light and matter cannot escape, making it extremely hard to get images of them.
- Researchers called the black hole "**the gentle giant in the centre of our galaxy**".

### What does Black Hole Image Unveil?

- This image of the black hole referred to as **Sagittarius A\* (Sagittarius A(asterisk))** gave further support to

the idea that the compact object at the centre of our galaxy is indeed a black hole.

- It is near the border of Sagittarius and Scorpius constellations. **It is 4 million times more massive than our sun.**
- It strengthens Einstein's general theory of relativity that a point in space where matter **is so compressed as to create a gravity field from which even light cannot escape.**
- The researchers said that imaging Sagittarius A\*, the black hole at the centre of the Milky Way, was much more difficult than imaging M87.
  - In 2019, the Event Horizon Telescope made history by releasing the first ever image of a black hole **Messier 87 (M87)** – the black hole at the centre of a galaxy M87, which is a supergiant elliptic galaxy.

### What are Black Hole?

- The concept was theorized by Albert Einstein in 1915 and the term 'black hole' was coined in the mid-1960s by American physicist John Archibald Wheeler.
- Usually, the black holes belong to two categories:
  - One category ranges between a few solar masses and tens of solar masses. These are thought to form when massive stars die.
  - The other category is of supermassive black holes. These range from hundreds of thousands to billions of times that of the sun from the Solar system to which Earth belongs.

### Galaxy

- A galaxy is a huge collection of gas, dust, and billions of stars and their solar systems, all held together by gravity.
- Earth is the part of the **Milky Way Galaxy**, which also has a super Massive Blackhole in the middle.

### Event Horizon

- There is a region of space beyond the black hole called the event horizon. This is a "point of no return", beyond which it is impossible to escape the gravitational effects of the black hole.

### Event Horizon Telescope Project

- EHT is a group of 8 radio telescopes (used to detect radio waves from space) located in different parts of the world.

- In April 2019, the scientists at the Event Horizon Telescope Project released the **first-ever image of a Black Hole** (more precisely, of its shadow).
- **Gravitational waves** are created when two black holes orbit each other and merge.

## Gallantry Awards

### Why in News?

Recently, **President** conferred **13 Shaurya Chakras**, including six posthumous, to the personnel of Armed Forces during Defence Investiture Ceremony (Phase-1).

- The President also conferred Param Vishisht Seva Medals, Uttam Yudh Seva Medals and Ati Vishisht Seva Medals for distinguished service of exceptional order.

### What are the Gallantry Awards in India?

- Post-Independence, **first three gallantry awards namely Param Vir Chakra, Maha Vir Chakra and Vir Chakra** were instituted by the government of India on 26<sup>th</sup> January, 1950 which were deemed to have effect from 15<sup>th</sup> August, 1947.
- Thereafter, other **three gallantry awards** — the Ashoka Chakra Class-I, the Ashoka Chakra Class-II and the Ashoka Chakra Class-III — were instituted in 1952, which were deemed to have effect from 15<sup>th</sup> August, 1947.
  - These awards were renamed as **Ashoka Chakra, Kirti Chakra and Shaurya Chakra** respectively in January 1967.
- Order of precedence of these awards is the Param Vir Chakra, the Ashoka Chakra, the Mahavir Chakra, the Kirti Chakra, the Vir Chakra and the Shaurya Chakra.

### Who is Eligible for the Awards?

- All officers of all ranks of the **Army, Navy and the Air Force** or of any of the reserve forces, territorial army and any other lawfully constituted armed forces.
- In addition to the above-mentioned personnel, ma- trons, sisters, nurses, alongside the staff of the nursing services and other services pertaining to hospitals and nursing and civilians, both male and females, serving regularly or temporarily under the orders, directions or supervision of any of the above-mentioned forces.

### What is Wartime Highest Gallantry Awards?

- **Param Vir Chakra:**

Note:





- It is **India's highest military decoration** awarded for displaying distinguished acts of valor during wartime whether on land, at sea or in the air.

➤ **Maha Vir Chakra:**

- It is the **second highest gallantry award** for acts of conspicuous gallantry in the presence of the enemy whether on land, at sea or in the air.

➤ **Vir Chakra:**

- It is the **country's third-highest wartime gallantry award** after Param Vir Chakra and Maha Vir Chakra.

### ***What are Peacetime Highest Gallantry Awards?***

➤ **Ashoka Chakra:**

- It is the **highest military award** during peacetime for valor, courageous action or sacrifice.
- It is **awarded for most conspicuous bravery** or some act of daring or pre-eminent act of valor or self-sacrifice otherwise than in the face of the enemy.

➤ **Kirti Chakra:**

- It is the **second highest peacetime gallantry award** and is awarded for valor, courageous action or self-sacrifice away from the field of battle.

➤ **Shaurya Chakra:**

- It is **awarded to the personnel of the armed forces** for instances of extraordinary gallantry.

## **National Technology Day**

### ***Why in News?***

The Prime Minister expressed his “gratitude” towards

the scientists and their “efforts” that led to the “**successful Pokhran tests in 1998**” on **National Technology Day (11<sup>th</sup> May)**.

### ***What is National Technology Day?***

➤ **About:**

- The day, which was **first observed on 11<sup>th</sup> May, 1999**, aims to commemorate the scientific and technological achievements of Indian scientists, engineers. **The day was named by the former Prime Minister Atal Bihari Vajpayee.**
- Every year, the **Technology Development Board of India (a statutory body under the Ministry of Science and Technology)** celebrates the day by awarding individuals with the National Award for their contribution to science and technology in India.
- The focus this year is ‘Integrated Approach in Science & Technology for Sustainable Future’.

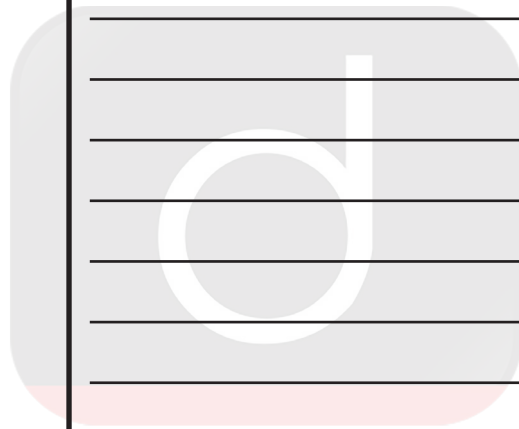
➤ **Significance:**

- It is the day India successfully tested nuclear bombs in Pokhran on 11<sup>th</sup> May, 1998.
- India successfully test-fired its Shakti-1 nuclear missile in operation called Pokhran-II, also codenamed as Operation Shakti.
- The nuclear missile was tested at the Indian Army's Pokhran Test Range in Rajasthan. This was the second test which was conducted after Pokhran-I codenamed Operation Smiling Buddha, in May 1974.
- On the same day, India performed a successful test firing of the Trishul Missile (surface to air short range missile) and had test flown the first indigenous aircraft – ‘Hansa – 3’.



## Key Points

## Details



## Summary

**Key Points**

**Details**



**Summary**