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INSPIRING INNOVATION

PT 365

Supplementary Current Affairs
Material For Prelims 2020
Classroom Study Material

Important news from PT 365 2018 & 2019 documents

DELHI   LUCKNOW   JAIPUR   HYDERABAD   PUNE   AHMEDABAD   CHANDIGARH

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SUPPLEMENTARY

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1. POLITY AND CONSTITUTION

1.1. NONE OF THE ABOVE (NOTA)

- Maharashtra State Election Commission made an order for local body polls that fresh elections should be held if NOTA 'emerges winner'.

NOTA

- NOTA was introduced in India following the **2013 Supreme Court directive**. It is an option on the voting machine, designed to allow voters to disapprove all the candidates while delivering their vote. Its symbol was introduced in 2015.
- However, NOTA in India **does not provide for a 'right to reject'**. The candidate with the maximum votes wins the election irrespective of the number of NOTA votes polled.
- The NOTA votes have **not been accounted while calculating votes** polled by candidates for making them eligible (1/6th of valid votes) for getting back their security deposits.
- Election Commission currently has **no plenary power to call a fresh election** even if NOTA secures highest votes.
- SC has ruled that **NOTA option is applicable only for direct elections** and not indirect elections such as the Rajya Sabha polls.
- To give greater sanctity to NOTA and even order a fresh election, **Rule 64 of Conduct of Election Rules** will have to be amended and can be done by the law ministry. It will not require Parliament sanction.

> **Rule 64**
> It refers to "declaration of result of election and return of election". But the rule does not consider a situation where NOTA votes may be higher than those polled by any candidate.

1.2. PARTY SYMBOL ALLOCATION

- The Delhi High Court upheld the Election Commission of India's allotment of the 'Two Leaves' symbol to the AIADMK party following a dispute between the two rival factions of the party.

Rules Governing allocation of Party Symbol

- The **Section 29A** of the **Representation of the People Act, 1951** governs the election symbols reservation, allocation order and registration of Political parties in India.

- The **Election Symbols (Reservation and Allotment) Order, 1968** empowers the EC to recognise political parties and allot symbols.

How the symbols are allotted?

- A party seeking registration has to submit an application with their **choice of a symbol** to the Commission within a period of 30 days following the date of its formation as per guidelines prescribed by the Election Commission of India.
- The allotment of symbols is made on **first come-first- served basis**. If two or more political parties apply at the same time and opt for the same symbol, then the allotment is decided based on draw of lots.
- Two or more recognised political parties can have the same symbol provided they are not contenders in the same States/UT. For example: Bahujan Samaj Party in UP and Asom Gana Parishad in Assam have 'Elephant' as their party symbol. (Federal party is defunct now).
- The **registered but unrecognised political parties do not have** the privilege of contesting elections on a fixed symbol of their own choice. They have to choose from a list of 'free symbols' issued by the ECI.
- Initially, the commission allotted symbols unilaterally. However, from 1968 onwards, parties obtained a say in the choice of their symbol, which gave them an opportunity to choose meaningful visual representations of their identity.

1.3. TRIBAL SUB PLAN

- Public Accounts Committee submitted its report on **'Tribal Sub-Plan (TSP)'.**
- TSP, now called as Scheduled Tribe Component (STC) at Central level and Tribal Sub-Scheme (TSS) at State level is dedicated source of fund for tribal development across the country.
- TSP forms a part of **annual Plan of a State/UT** and the funds provided under the TSP have to be in proportion to the ST population of each State/UT.
- The TSP funds are **allocated from the consolidated fund of India** under **article 275(I)** as a **central sector scheme** under which 100 per cent financial assistance is being provided to the states through the nodal Ministry of Tribal Affairs.

- It aims to **bridge the gap between the Schedule Tribes** (STs) and the general population with respect to all socio-economic development indicators in a time-bound manner along with their protection against exploitation.
- The benefits are in addition to what percolates from the overall Plan of a State/UT. It is not applicable to states where tribal represent more than 60% of the population.

Related Information

- **Schedules Caste Sub-Plan (SCSP)** is an umbrella strategy to ensure flow of targeted financial and physical benefits from all the general sectors of development for the benefit of Scheduled Castes. Under the strategy, States/UTs are required to formulate and implement Special Component Plan (SCP) for Scheduled Castes as part of their Annual Plans by earmarking resources.
- At present 27 States/UTs having sizeable SC population are implementing Schedules Caste Sub-Plan

1.4. NATIONAL GREEN TRIBUNAL

- The Supreme Court stopped implementation of a notification by central government which allowed the Chairperson of NGT to constitute single member benches in "exceptional circumstances".
- NGT benches consist of "two or more members" with at least one judicial member and another environmental expert.
- As not enough appointments had been made, the government issued notification to allow single member benches.

About NGT

- It was established under the **National Green Tribunal Act 2010** for effective and expeditious disposal of cases relating to environmental protection.
- The Tribunal comprises of the Chairperson, the Judicial Members and Expert Members. They shall hold office for term of five years and are not eligible for reappointment.
- Chairperson is appointed by the Central Government in consultation with Chief Justice of India (CJI).
- Only an existing or retired judge of a high court or Supreme Court can be a **judicial member.**
- **Expert members** need to have been in any environment related field with at least 15 years of administrative experience.

- The Tribunal is guided by **principles of natural justice**.
- The Tribunal is mandated to **dispose appeals within 6 months** of filing of the same.
- **New Delhi is the principal bench** with **Bhopal, Pune, Kolkata and Chennai** being other benches.
- It adjudicates matters relating to **following Acts**
  - o Water (Prevention and Control of Pollution) Act, 1974
  - o The Water (Prevention and Control of Pollution) Cess Act, 1977
  - o Air (Prevention and Control of Pollution) Act, 1974
  - o Environment (Protection) Act, 1986
  - o The Public Liability Insurance Act, 1991
  - o Forest Conservation Act, 1980
  - o Biological Diversity Act, 2002
- As per the Act, **appeals from NGT lie directly to the Supreme Court.**

1.5. REVIEW OF THE CONTEMPT OF COURTS ACT, 1971

- The Law Commission has submitted report titled "**Review of the Contempt of Courts Act, 1971**".
- The expression '**contempt of court**' has **not been defined** by the Constitution. However, the expression has been defined by the **Contempt of Court Act of 1971.** Under this, contempt of court may be **civil or criminal**.
- **Civil contempt** means willful disobedience to any judgement, order, writ or other process of a court or willful breach of an undertaking given to a court.
- **Criminal contempt** means the publication of any matter or doing an act which- (i) scandalises or lowers the authority of a court; or (ii) prejudices or interferes with the due course of a judicial proceeding; or (iii) interferes or obstructs the administration of justice in any other manner.
- However, innocent publication and distribution of some matter, fair and accurate report of judicial proceedings, fair and reasonable criticism of judicial acts and comment on the administrative side of the judiciary do not amount to contempt of court.
- Contempt of Court Act of 1971 was amended in 2006 to include the defence of truth under Section 13 of the original legislation implying that the court must permit justification by truth as a valid defence if it is satisfied that it is in the public interest.

1.6. CENTRAL CIVIL SERVICES (CONDUCT) RULES, 1964

- Several provisions of Central Civil Services (Conduct) Rules, 1964 (CCS (conduct) rules, 1964) are often used against public servants which restricts their fundamental rights.

Background about the CCS (Conduct) rules, 1964

- CCS (conduct) rules **prescribes a set of Do's and Don'ts:** These rules require them to maintain absolute integrity, devotion to duty and political neutrality which are essential requirement of any public servant but certain prohibitions may come in conflict with their fundamental rights. For instance –
  - o Prohibits government servants to take part in the editing or management of any newspaper or periodical.
  - o Prohibits speculation in stock, share or any other investment except occasional investments made through stock brokers.
  - o Public servants are barred from accepting gifts, buying and selling properties, making commercial investments, promoting companies and accepting commercial employment after retirement.
- **Rule 9 of the CCS (Conduct) Rules, 1964:** Rule 9 prohibits any public servant to publish in his own name or anonymously or pseudonymously any statement of fact or opinion which has the effect of an adverse criticism of any current or recent policy or action of the Central Government or a State Government.

2. INTERNATONAL RELATIONS

2.1. MFN STATUS

India withdrew the Most Favored Nation (MFN) status from Pakistan.

About MFN principle

- According to the MFN principle of the **WTO's General Agreement on Tariffs and Trade** (GATT), each of the WTO member countries should **"treat all the other members equally as 'most-favoured' trading partners."**
- If a special favour such as a lower customs duty rate is grant to someone by a nation, then it has to do the same for all other WTO members.
- Thus, in effect it means **non-discrimination**.
- **Exceptions to MFN Principle**
  - Right to enter Free Trade Agreements
  - Special Access to developing Countries to their markets.
  - Raise barriers against unfair trade practices
  - **General exceptions** – The nation has right to take measures which may restrict trade in goods but are necessary to protect human, animal or plant life or health.
  - **Security exceptions** – A nation has right to take measures to protect essential national security interests, which may restrict trade in goods. India could consider making use of this clause to deny the MFN status to Pakistan or bring in certain trade restrictions.
  - **Balance-of-payments** (BOP) – A nation has right to take measures to safeguard its external financial position and its BOPs.
  - **Exception in Services**: Countries are allowed to discriminate in limited circumstances.
- India accorded MFN status to all WTO member countries, including Pakistan, from the date of entry into force of the **Marrakesh Agreement (1994) which established the WTO**.
- However, Pakistan never reciprocated citing non-tariff barriers as well as huge trade imbalance.

2.2. EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT (EBRD)

India became the 69th shareholder of the European Bank for Reconstruction and Development (EBRD).

About EBRD

- It is a multilateral development bank **set up in 1991** after the fall of the Berlin Wall to promote private and entrepreneurial initiative in emerging Europe.
- It is **headquartered in London**.
- It invests in **38 emerging economies across three continents**, according to a set of criteria that aim to make its countries more competitive, better governed, greener, more inclusive, more resilient and more integrated.
- It has **members from all over the world** with the biggest shareholder being the United States, but only lends regionally in its countries of operations.
- The EBRD is different from the **European Investment Bank (EIB),** which is owned by EU member states and is used to support EU policy.
- The EBRD is unique among development banks in that it will **not finance coal power plants** due to their environmental impact. It has pledged to dedicate above 40 percent of its financing to green investment by 2020.
- India takes a shareholding in the EBRD but it will not be a recipient of EBRD financing. The membership will enable Indian companies to undertake joint investments in regions in which the EBRD operates.
- To **be eligible for EBRD funding**, "a project must be located in an EBRD country of operations (not in India), have strong commercial prospects, involve significant equity contributions in-cash or in-kind from the project sponsor, benefit the local economy and help develop the private sector and satisfy banking and environmental standards.

2.3. SAARC DEVELOPMENT FUND (SDF)

SAARC Development Fund Partnership Conclave 2018 was held in New Delhi.

About SDF

- It was established by heads of all eight SAARC member states during **16th SAARC summit at Thimphu, Bhutan in 2010.**
- Its **Secretariat is located at Thimphu**, capital of Bhutan. Its Governing Council comprises finance ministers of these eight countries.
- It was created as umbrella financial mechanism for all SAARC developmental projects and programmes.

- It funds projects in South Asia region via three windows viz. Social Window, Economic Window and Infrastructure Window.
- The SDF has a total corpus of $1.5 billion with the total capital base currently at $497 million.

2.4. ASIA-EUROPE MEETING

- 13th ASEM Summit (ASEM13), with the theme "Strengthening Multilateralism for Shared Growth" is scheduled in November, 2020, in Phnom Penh, Cambodia.

About ASEM

- It is an **intergovernmental process established in 1996** to foster dialogue and cooperation between 51 Asian and European countries plus two institutional partners (the EU and the Association of South East Asian Nations - ASEAN).
- India joined ASEM in 2006 w.e.f. 1 January 2007 and its first Summit level participation was in 2008.
- The **first summit** was held in Bangkok, Thailand.
- It **aims** at promoting a more global vision among European and Asian policymakers by allowing them to exchange views on political, economic, financial, social and cultural issues.

2.5. INDIAN OCEAN CONFERENCE

The **fourth edition of Indian Ocean Conference** was held at **Male, the capital of Maldives**.

Indian Ocean Conference

- The Indian Ocean Conference is initiated by **India Foundation** along with its partners from Singapore, Sri Lanka and Bangladesh.
- It is an annual effort to bring together Heads of States/Governments, Ministers, thought Leaders, scholars, diplomats, bureaucrats and practitioners from across the region.
- Three successful editions of the Conference have been hosted so far in **2016, 2017 and 2018** in **Singapore, Sri Lanka and Vietnam** respectively.

2.6. ASIA-AFRICA GROWTH CORRIDOR

A vision document on the Asia-Africa Growth Corridor (AAGC) was released at Africa development bank summit by **India in partnership with Japan**.

About the corridor

- The vision document was prepared jointly by Indian and Japanese think tanks, i.e. Research and Information Systems for Developing Countries (RIS), Economic Research Institute for ASEAN and East Asia (ERIA), and Institute for Development Economics - Japan External Trade Organisation (IDE-JETRO), in consultation with other think tanks in Asia and Africa.
- The main **objective** of the corridor is to enhance growth and connectivity between Asia and Africa.
- The corridor will **focus on four areas:** Development Cooperation Projects, Quality Infrastructure and Institutional Connectivity, Enhancing Skills, and People-to-People Partnership.
- Agriculture, health, technology, and disaster management have been identified as the main areas of development cooperation.

2.7. INDIA-PACIFIC ISLANDS SUSTAINABLE DEVELOPMENT CONFERENCE

Conference on sustainable development between India and Pacific islands was hosted by Ministry of External Affairs.

About the conference

- The conference is being held under the framework of the **Forum for India Pacific Islands Co-operation (FIPIC)**, with The Energy and Resources Institute (TERI) as its key knowledge partner.
- It will focus on issues such as the blue economy, adaptation-mitigation practices for climate change, disaster preparedness, health, the International Solar Alliance as well as finding practical solutions to Nationally Determined Contributions (NDC) implementation.

About FIPIC

- FIPIC was **formed in November 2014**, to strengthen India's relationship with the Pacific Island Countries.
- The **first FIPIC summit** was held at the level of Heads of Government in November 2014 in Suva, Fiji, followed by the FIPIC-II summit held in August 2015, in Jaipur, India.
- It **comprises of India and 14 Pacific Island countries** which include Tonga, Cook Islands, Tuvalu, Nauru, Kiribati, Vanuatu, Solomon Islands, Samoa, Niue, Palau, Micronesia, Marshall Islands, Fiji, and Papa New Guinea.

2.8. ASIA REASSURANCE INITIATIVE ACT (ARIA)

US President has signed ARIA act to counter the threat from China and to reinvigorate US leadership in the Indo-Pacific region.

About ARIA

- It aims to establish a **multifaceted U.S. strategy** to increase U.S. **security, economic interests, and values in the Indo-Pacific region.**
- The new law **mandates** actions countering China's illegal construction and militarization of artificial features in the South China Sea and coercive economic practices.
- ARIA recognizes the vital role of the strategic partnership between the U.S. and India in promoting peace and security in the Indo-Pacific region and it calls for strengthening diplomatic, economic, and security ties between both the countries.
- It **allocates a budget of $1.5 billion over a five-year period** to enhance cooperation with America's strategic regional allies in the region.

2.9. COUNTERING AMERICA'S ADVERSARIES THROUGH SANCTIONS ACT (CAATSA)

- The U.S. officials have warned India that with the decision to go ahead with the purchase of the Russian S-400 missile defence system, India may risk sanctions under **CAATSA.**
- CAATSA is a US Federal law enacted in 2017 which aims to **counter the aggression by Iran, Russia and North Korea** through punitive measures.
- Under the Act, the Department of State has notified almost all major 39 Russian entities from defence and intelligence sector, dealings with which could make third parties liable to sanctions.

2.10. UN GLOBAL COUNTERTERRORISM COORDINATION COMPACT

UN launched a new framework "UN Global Counter-Terrorism Coordination Compact".

About UN Global Counter-Terrorism Coordination Compact

- It is an **agreement between the UN chief, 36 organizational entities, the International Criminal Police Organisation (INTERPOL) and the World Customs Organisation**, to better serve the needs of Member States when it comes to tackling international terrorism.
- **Objective**
  o To ensure that the United Nations system provides **coordinated capacity-building support to Member States,** at their request, in implementing the UN Global Counter-Terrorism Strategy and other relevant resolutions.
  o To foster close **collaboration** between the Security Council mandated bodies and the rest of the United Nations system.
  o The **UN Global Counter-Terrorism Compact Coordination Committee** will oversee and monitor the implementation of the Compact which will be chaired by UN Under-Secretary-General for counterterrorism.
  o It will **replace the Counter-Terrorism Implementation Task Force**, which was established in 2005.

2.11. STRATEGIC POLICY GROUP

The Strategic Policy Group (SPG) has been reconstituted with National Security Advisor (NSA) as its chief.

Strategic Policy Group (SPG)

- It was set up in 1999.
- It is the **first tier of National Security Council structure**.
- It is mandated to publish **National Defense Review**- a draft of short term and long-term security threats and defense matters for consideration of NSC.
- The SPG shall be the **principal mechanism for inter-ministerial coordination** and integration of relevant inputs in the formulation of national security policies.
- The Cabinet Secretary will coordinate the implementation of SPG decisions by the Union Ministries and departments and State governments.

2.12. INDIA'S 3RD IT CORRIDOR IN CHINA

- India's National Association of Software and Services Companies (NASSCOM) entered into a partnership with **China's Xuzhou city (Jiangsu Province)** to help develop India's 3rd IT corridor in China.
- NASSCOM has already launched two such IT corridors at **Dalian**, India's first IT hub in China (in Liaoning Province) and **Guiyang** (in Guizhou province) to tap the burgeoning Chinese IT industry market.
- The **first two corridors** have paved the way for cooperation in co-create mode in the emerging technologies such as Artificial Intelligence, Internet of Things and Analytics in the Chinese market.
- It will also help to provide market access to Indian IT firms in the huge Chinese market. India has been demanding China to provide market access to Indian IT and pharmaceutical firms for several years to reduce bilateral trade deficit.

2.13. INDIA-NORDIC SUMMIT

- **First India-Nordic Summit** took place in Stockholm in April, 2018.
- **Nordic countries include** Sweden, Norway, Finland, Denmark and Iceland.
- The only instance when Nordic Countries had held such a summit was with the then President Barack Obama of USA.

3. ECONOMY

3.1. NATIONAL FINANCIAL REPORTING AUTHORITY

- National Financial Reporting Authority, a key recommendation under the Companies Act 2013 was established.

National Financial Reporting Authority (NFRA)

- It is established as an independent regulator to oversee the **auditing profession and accounting standards** with jurisdiction extending to
  a) Companies listed on any stock exchange in India or outside India;
  b) Unlisted public companies having paid-up capital of not less than Rs.500 crores or having annual turnover of not less than Rs.1000 crores or having, in aggregate, outstanding loans, debentures and deposits of not less than Rs.500 crores as on the 31st March of immediately preceding financial year;
  c) Insurance companies, banking companies, companies engaged in the generation or supply of electricity, companies governed by any special Act
  d) Any body corporate or company or person, on a reference made to the Authority by the Central Government in public interest
     o **ICAI under the Chartered Accountants Act, 1949** shall continue to audit smaller unlisted companies.
     o **Quality Review Board** will also continue quality audit in respect of private limited companies, public unlisted companies and also with respect to audit of those companies delegated by NFRA.
- It will have the power to **investigate Chartered Accountants and their companies** either suo motu or on a reference for any misconduct.
- NFRA will have the **same powers as of a Civil Court** while trying a suit.

> **Members of NFRA**
> - It shall consist of a Chairperson, three full time members, nine part-time members.
> - Chairperson and full-time members would be selected through a **search-cum-selection committee** headed by Cabinet Secretary.

3.2. PROJECT INSIGHT

Project Insight has been initiated by the income tax department recently.

Details

- It **helps in data mining, collection, collation and processing** of such information for effective risk management with a view to widen and deepen the tax base.
- It helps the department to **monitor high value transactions,** and curb the circulation of black money.
- It **uses big data analytics** to match information from social media sites to deduce mismatches between spending pattern and income declaration.
- The new technical infrastructure will also be leveraged for implementation of Foreign Account Tax Compliance Act (FATCA) and Common Reporting Standard (CRS).

FATCA IGA

- India and United States signed Inter Governmental Agreement (IGA) to implement the Foreign Account Tax Compliance Act (FATCA) to Promote Transparency on Tax Matters.
- FATCA aims to obtain information on accounts held by U.S. taxpayers in other countries.
- As per the IGA, FFIs in India will be required to report tax information about U.S. account holders directly to the Indian Government which will, in turn, relay that information to the US.

3.3. GFXC

India will soon get a seat in the newly constituted Global Foreign Exchange Committee (GFXC).

Global Foreign Exchange Committee

- It is **forum of central bankers** and experts working towards promotion of a robust and transparent **forex market.**
- It has been established under the aegis of **BIS (Bank for International Settlements).**
- It comprises of public and private sector representatives from the foreign exchange committees of 16 international forex trading centres.
- One of its major tasks is to **maintain and update the "Global Code of Conduct for the Foreign Exchange Markets".**
- The newly expanded and formalised GFXC replaces a similar but more informal organisation of eight foreign exchange committees.

3.4. FINANCIAL SYSTEM STABILITY ASSESSMENT (FSSA) AND FINANCIAL SECTOR ASSESSMENT (FSA)

As part of Financial Sector Assessment Programme (FSAP), the IMF and WB has released the Financial System Stability Assessment (FSSA) and Financial Sector Assessment (FSA) for the Indian financial system.

Financial Sector Assessment Programme

It is a joint program of the International Monetary Fund (IMF) and the World Bank, which undertakes a comprehensive and in-depth analysis of a country's financial sector.

- It was launched in 1999 in the wake of the Asian financial crisis.
- Since September 2010, it is being undertaken in 25 jurisdictions (now 29), with systemically important financial sectors, including India, every five years.
- This was the second comprehensive FSAP conducted for India. Last FSAP for India was conducted in 2011-12.

3.5. WORLD CUSTOMS ORGANIZATION

Recently, 80th Session of the **Policy Commission Meeting** of the **World Customs Organization (WCO)** was held in India. 82nd session was held in Seoul, Republic of Korea.

Details

- **WCO was established in 1952** as the Customs Co-operation Council (CCC), it's an independent intergovernmental body whose mission is to **enhance the effectiveness and efficiency of Customs administrations.**
- It's the **only global organization** which defines global standards and procedures for customs clearances at the border and their implementation.
- **Membership:** India is a member since 1971.
- In July, 2018, India became **the Vice-Chair (Regional Head)** of the Asia Pacific Region of WCO for a period of two years.

3.6. INDIA POST PAYMENT BANK

Prime Minister **launched the India Post Payments Bank (IPPB)** that offers doorstep banking to customers.

About IPPB

- It has been incorporated under the **Companies Act, 2013** as a **public limited company** with 100% Government of India equity under **Department of Posts (DoP)** and is governed by the Reserve Bank of India.
- It aims to provide banking and financial services to people in rural areas, by **linking all 1.55 lakh post office branches with IPPB.** This will **create the country's largest banking network** with a direct rural presence.
- **Objectives**
  o Provide a secure and reliable payments channel for **social security payments** under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Social Assistance Programme (NSAP) etc. and all Government to Citizen (G2C) transactions.
  o Become the preferred partner for **service delivery for Government** (Central, State and Local).
  o Tie up with various other banks, insurance companies, mutual fund houses and other financial institutions and service providers to help in **customer acquisition and distribution of third-party products** like loans, insurance etc.
  o Safe, economical and reliable money transfer to meet the **needs of migrant labourers and the unorganized sector**.
  o To provide a **payments platform for integrating services provided by Government and Private sector** for the economic upliftment of the poorer and marginalized sections in both urban and rural India.
  o Build the **most accessible** payments bank through various channels including **Mobile Point of Sale (MPoS), mobiles, Internet banking transactions at the Post Office Counters as well as at the door step of the customers** and encourage the transition to a less cash economy.
- It will **not offer any ATM debit card.** Instead, it will provide its customers a **QR Code-based biometric card.**

3.7. SWIFT NORMS

Recently the Reserve Bank of India, imposed ₹2 crore penalty on Punjab National Bank for non-compliance of regulatory directions with regard to SWIFT operations.

About SWIFT

- **SWIFT** stands for the Society for Worldwide Interbank Financial Telecommunications.
- It is a global member-owned cooperative headquartered in Brussels, Belgium.
- It is a messaging network that financial institutions use to securely transmit information and instructions through a standardized system of codes.
- **SWIFT** assigns each financial organization a unique code that has either eight characters or 11 characters. The code is called **SWIFT code.**
- The ₹14,000-crore PNB fraud perpetrated by Nirav Modi was a **case of misuse of this SWIFT software.**

3.8. BRANCH AUTHORISATION POLICY

The **Reserve Bank of India (RBI)** relaxed the branch authorization policy.

Provisions of the revised policy

- It aims to bring all branches and **fixed business correspondent outlets** under the definition of banking outlets.
- Banking outlet is a **manned service delivery point** which is open for **at least four hours a day for at least five days a week**. It should also provide services such as deposits, encashing cheques, cash withdrawal and lending.
- It is mandated that banks open **25% of these outlets in unbanked rural centres (URC)**.

Business Correspondent/ Bank Saathi

- They are individuals/entities engaged, and works as an agent of the bank for banking services at locations other than a bank branch/ATM.
- **Functions of BCs include;** identification of borrowers, loan processing, creating awareness benefit of banking and finance, nurturing and monitoring of Self Help Groups/ Joint Liability Groups, post-sanction monitoring, follow-up of recovery.
- They can also attend to collection of **small value deposit**, disbursal of small value credit, recovery of principal/collection of interest, sale of micro insurance/mutual fund products/ pension products/ receipt and delivery of small value remittances/other payment instruments.
- All business correspondents (BCs) or representative of any one particular bank can conduct business for **other banks** as well.

3.9. LEGAL ENTITY IDENTIFIER

Reserve Bank of India has made **Legal Entity Identifier** (LEI) code mandatory for all market participants, other than individuals.

What is LEI?

- It is a **20 character global reference alpha-numeric code** conceived by G20 that uniquely identifies every legal entity or structure that is party to a financial transaction, in any jurisdiction.
- Internationally LEI is implemented and maintained by **Global Legal Entity Identifier Foundation**. In India entities can obtain LEI from Legal Entity Identifier India Ltd (LEIL) (only LOU of India), subsidiary of The Clearing Corporation of India Ltd, recognized by RBI under Payment and Settlement Systems Act, 2007.
- Now, banks will **report debt details along with LEI** to Central Repository of Information on Large Credit. It will help the banks monitor debt exposure of corporate borrowers and will also prevent multiple loans against the same collateral, thus helping reduce NPAs.
- Moreover, it will help regulators like RBI to **track global financial transactions** and check money laundering.

Global Legal Entity Identifier Foundation:
- It is a not-for-profit organization established by the **Financial Stability Board** in June 2014.
- It is overseen by the LEI Regulatory Oversight Committee, representing public authorities from around the globe.
- It publishes **Global LEI Index**.

3.10. PAISA PORTAL

- Ministry of Housing launched a web portal named PAiSA- **Portal for Affordable Credit and Interest Subvention Access.**
- The portal is designed and developed by Allahabad Bank and is expected to be joined by all states, commercial banks, RRBs and Cooperative Banks.
- It acts as a centralized electronic platform for processing interest subvention on bank loans to beneficiaries under Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM).
- It will directly link government with the beneficiaries to ensure greater transparency and efficiency in delivery of services.

3.11. PETROLEUM, CHEMICALS AND PETROCHEMICAL INVESTMENT REGION

The Petroleum, Chemicals and Petrochemical Investment Regions (PCPIRs) in India have registered good progress in attracting investments for industrial development and generating employment.

About PCPIRs

- PCPIR is based on cluster-based development model for setting up manufacturing facilities for both domestic consumption and exports in Petroleum, Chemicals and Petrochemicals.
- The cluster is combination of production units, logistics handling, environmental protection mechanism and social infrastructure.
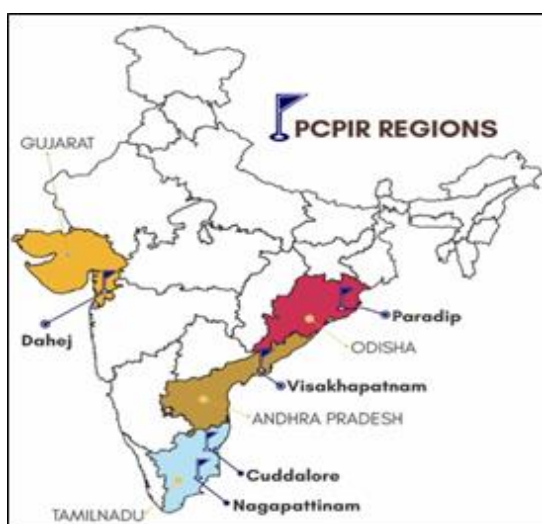
3.12. UNNATI PROJECT

Under Project UNNATI multiple initiatives have been implemented for various major ports.

About UNNATI Project

- It was launched by **Ministry of Shipping** with following objectives:
  o Benchmark operational and financial performance of the 12 major ports with selected Indian private ports and best-in-class international ports for identifying improvement areas.
  o Undertake capability maturity assessment for key processes and functional capabilities and identify gap and areas for further strengthening
  o Detailed deep-dive diagnosis and root cause analysis for the identified opportunity areas in each of the 12 major

ports to understand underlying reasons for performance bottlenecks.
  o Develop practical and actionable solutions on the basis of root cause findings, and develop a comprehensive improvement roadmap for each of the 12 major ports.

3.13. CENTRAL ROAD AND INFRASTRUCTURE FUND

- Budget 2018 amended the Central Road Fund Act, 2000, and renamed the Central Road Fund as the Central Road and Infrastructure Fund.
- Work related to the Central Road and Infrastructure Fund (CRIF) has been transferred from the Ministry of Road Transport and Highways to under the domain of Department of Economic Affairs (DEA), Finance Ministry.

About Fund

- It is a **non-lapsable fund** created under Central Road Fund Act 2000.
- It is credited with the **cess collected on high speed diesel oil and petrol**.
- The cess is distributed to state development of rural roads, national highways, railway over bridges etc.
- Central government has the power to administer the fund.

3.14. SFOORTI APP

- Ministry of Railways has launched the **Smart Freight Optimisation and Real Time Information** (SFOORTI) Application
- It helps freight managers plan traffic flows and optimize freight operations through Freight Operation Information System Map View, a Geographic Information System (GIS) based monitoring and management tool.
- It can track both passenger and freight trains (loading and utilization) over Zones/ Divisions/ Sections in single GIS View.

3.15. INTELLIGENT TRANSPORTATION SYSTEMS

Recently, NITI Aayog and the International Road Federation (IRF Geneva) signed a Statement of Intent (SoI) to cooperate in the field of Intelligent Transportation Systems (ITS).

- **Intelligent Transportation Systems (ITS) -** It visualizes information and communication technology (ICT) and advanced vehicular technologies, helping mobile vehicles and

infrastructure communicate on a real-time basis.

International Road Federation

- It is global non-governmental, not-for-profit organisation with mission to encourage and promote development and maintenance of better, safer and more sustainable roads and road networks.
- It seeks to promote social and economic benefits of sustainable and environmentally sound road transport infrastructure at all levels of society.

3.16. INTERNATIONAL ROAD TRANSPORTS (TIR) CONVENTION

India ratified **United Nations TIR** convention in June, 2017 becoming its 71st signatory. The first shipment under the United Nations TIR convention arrived in India from Afghanistan through Iran's Chabahar Port.

About TIR Convention

- TIR stands for Transports Internationaux Routiers or **International Road Transport**
- It is an **international transit system** under the auspices of the United Nations Economic Commission for Europe (UNECE).
- It facilitates **seamless movement of goods** within and amongst the parties to the Convention.
- The TIR system **secures customs duties and taxes and provides a robust guarantee mechanism**, thereby reducing **trade transaction costs**, and **facilitating higher growth** of intra-regional and inter-regional trade.

3.17. SUNREF HOUSING PROJECT

- Recently National Housing Bank (NHB) along with French Development Agency (FDA) and the European Union, have joined hands to launch SUNREF housing project in India. SUNREF (Sustainable Use of Natural Resources and Energy Finance) Housing India will provide financing of €112 million to NHB.

About National Housing Bank

- NHB was set up in 1988 under the National Housing Bank Act, 1987 as wholly owned subsidiary of RBI.
- The Head Office of NHB is at New Delhi.
- **It regulates** housing finance system and promotion of housing finance institutions.

- It also provides **refinancing** to different banks and housing finance companies and also direct lends to public housing agencies.

NHB Residex
- NHB Residex, released by NHB, tracks **housing price indicators** across Indian cities on **quarterly basis**
- Its revamped version was launched in 2017 with **wider coverage** (50 cities now, earlier 26), and a new base year(**2012-13**) and new data **source** (banks and home finance companies and market surveys).

3.18. E-SHAKTI INITIATIVE OF NABARD

- It aims for digitisation of Self Help Groups (SHGs) in 100 districts.
- It was initiated to address certain concerns like improving the quality of book keeping of SHGs and to enable banks to take informed credit decisions about the group.
- It further aims at Integrating SHG members with the national Financial Inclusion agenda.

3.19. WORLD FOOD PROGRAM

- FAO Council approved India's membership to the Executive Board of the United Nations World Food Program (WFP) for 2020 and 2021.
- World Food Program is the food-assistance branch of the United Nations and is the leading humanitarian organization saving lives and changing lives, **delivering food assistance in emergencies** and **working with communities to improve nutrition and build resilience**.
- It was formed in 1961 and is headquartered in Rome and is governed by a **36-member Executive Board**. It works closely with its two Rome-based sister organizations, the Food and Agriculture Organization of the United Nations and the International Fund for Agricultural Development.
- Funded entirely by voluntary donation, WFP partners with more than 1,000 national and international NGOs to provide food assistance and tackle the underlying causes of hunger.

3.20. INTERNATIONAL RICE RESEARCH INSTITUTE

Union cabinet recently approved establishment of International Rice Research Institute (IRRI), South Asia Regional Center (ISARC) at campus of National Seed Research and Training Center (NSRTC) in Varanasi.

Research Centre (BARC) and CSIR-National Physical Laboratory (NPL) to develop the **first gold standard**.

- While the bars will be made by the IGM, technical aspects such as measurement would be done by the BARC and certifying the purity of the bars would be the responsibility of the NPL.
- NPL is the **repository of standard units** — such as the kilogram, the second, the centimetre — in India and provides calibration services.

3.26. SOLAR ROOFTOP INVESTMENT PROGRAM (SRIP)

Asian Development Bank (ADB) and Punjab National Bank (PNB) have signed a $100 million loan to finance large solar rooftop systems on industrial and commercial buildings throughout India.

About SRIP

- SRIP aims to install solar rooftop system of around 1 gigawatt capacity in India.
- The entire cost of the project is estimated to be $1billion dollars out of which $500 million will be provided under a multi tranche facility approved by ADB.

- However, out of the $500 million $330 million will be provided by ADB and $170 million will be provided by Clean Technology Fund (CTF).

3.27. ISLAND DEVELOPMENT AGENCY

Recently Home Minister reviewed the development plans under the aegis of Island Development agency (IDA).

More about the news

- IDA was constituted in June 2017 for the holistic development of islands.
- It is **chaired by Union Home minister** and includes secretaries of various ministries.
- The IDA had identified 10 islands for development which include 5 islands in A&N Islands (i.e. Smith, Ross, Long, Avis and Little Andaman) and 5 in Lakshadweep (i.e. Minicoy, Bangaram, Thinnakara, Cheriyam, Suheli).
- It will undertake holistic development in the project islands after giving due consideration to unique maritime and territorial bio-diversity of the islands.
- In the second phase, suitable sites in 12 more islands of Andaman & Nicobar Islands and 5 islands in Lakshadweep have been covered.

3.28. MISCELLANEOUS TITS BITS

Credit-to-GDP gap (credit gap)	It is difference between credit-to-GDP ratio and the long term trend value of credit-to-GDP ratio at any point in time.
IndAS	They are recommended by National Advisory Committee on Accounting Standards (NACAS) to the Ministry of Corporate Affairs, which then issues them. These standards are at par with International Financial Reporting Standards (IFRS). Corporate entities started complying with IndAS with effect from 2016.
Algorithmic trading	- Algorithmic trading refers to orders generated at a super-fast speed by use of advanced mathematical models that involve automated execution of trade. - It helps institutional investors increase the efficiency of trade execution and spot fleeting trading opportunities. - However, there are concerns also that it may trigger a large volume of trades that magnify the trend causing wild swings and crashes in the market.
Highway Villages	- State-run fuel retailers IOCL, HPCL and BPCL recently bid for the '**Highway Village**' which is a brand name under **NHAI's Highway Amenities Scheme**. - Under the Scheme, NHAI plans to **develop a network of sites at every 50 km distance along national highways** with a **range of amenities.** - The facilities having **areas more than 5 acres** shall be developed under the **brand name 'Highway Village'** and facilities on **area smaller than 5 acres** with brand name **'Highway Nest'.** These facilities will be developed on the **public-private-partnership (PPP) model.**
Recapitalization Bonds	- A government bond is an instrument to raise money from the market with a promise to repay the face value at the maturity date and a periodic interest. A bond issued for the purpose of recapitalisation is called recapitalisation bonds. **How will recapitalization bonds work?** - The government will issue recapitalization bonds, which banks will subscribe and enter it as an investment in their books. The banks will lend money to the government for subscribing the bonds.

	• This money raised by the government through these bonds will go back to banks as capital. This will immediately strengthen the balance-sheet of the banks and show capital-adequacy. • Since the government is always solvent, the money lent to the government for subscribing recap bonds is free from becoming a bad loan.
Software Technology Park of India	• It is an autonomous society under the MeitY. • Its objective is to promote the development and export of software and software services including IT enabled services. • It is the implementing agency of Software Technology Park, BPO Promotion Scheme etc.
Inverted Duty Structure (IDS)	• It implies a situation where import duty on finished goods is low compared to the import duty on raw materials that are used in the production of such finished goods. • The issue of IDS makes it difficult for domestic electronic manufacturers to compete with foreign competitors who can access both raw material and components at lower prices.
India's First Railway University	• It was dedicated to the Nation recently in **Vadodara, Gujarat**. • India is only **third** such country in the whole world after Russia and China. This institute is located in the **National Academy of Indian Railway**.
Financial Intelligence Unit	• FIU is a central nodal agency mandated with collating, analyzing and disseminating financial intelligence on terrorist financing and money laundering. • FIU is not a regulatory authority. Its prime responsibility is to gather and share financial intelligence in cooperation with regulatory bodies like SEBI, RBI, IRDA etc. • It was set up in 2004 and works under Ministry of Finance.
Sovereign wealth fund	• It consists of pools of money derived from a country's reserves, set aside for investment purposes to benefit the country's economy and citizens. • The funding for a sovereign wealth fund comes from central bank reserves that accumulate as a result of budget and trade surpluses, and from revenue generated from the exports of natural resources.
National Skill Qualification Framework (NSQF)	• It is a framework to organize qualifications according to a series of levels of knowledge, skills and aptitude. • It aims to obtain uniformity in the outcomes associated with different qualifications across institutions. • NSQF is operationalised by National Skill Development Agency. • It will also facilitate **Recognition of Prior Learning** (RPL) that is largely lacking in the present education and training scenario.
Spice Board of India	• Spices Board is the flagship organization for the development and worldwide promotion of Indian spices. • It was constituted in 1987 under the **Spices Board Act 1986 and** has its headquarters at **Kochi**. • It is one of five statutory boards functioning under the **ministry of commerce and industry** namely Coffee board, Rubber board, Tea board, Tobacco board.
Codex Alimentarius Commission (CAC)	• The Codex Alimentarius Commission (CAC) is an **intergovernmental body** with over 180 members, within the framework of the Joint Food Standards Programme. • It was established by the **Food and Agriculture Organization** of the United Nations (FAO) **and the World Health Organization (WHO)** in 1963 with the purpose of protecting the health of consumers and ensuring fair practices in the food trade. • Codex food safety standards are also referred in the **WTO's Agreement on Sanitary and Phytosanitary measures (SPS Agreement).**
Domestic Systematically Important Bank	• DSIBs are also referred to as **"Too Big To Fail" (TBTF)** because of their size, cross-jurisdictional activities, complexity and lack of substitute and interconnection. • Banks whose assets cross **2% of the GDP** are considered DSIBs. If these banks fail, they can have a disruptive effect on the economy. • The Reserve Bank of India (RBI) has named **State Bank of India** (SBI), **ICICI Bank** and **HDFC Bank** as Domestic Systemically Important Banks. RBI comes with the list every year since 2015. • D-SIBs are categorised under **five buckets**. According to these buckets the banks have to keep aside the **Additional Common Equity Tier 1 as a percentage of Risk Weighted Assets (RWAs).** • D-SIBs are closely monitored by the central bank to ensure their better functioning and prevent the indulgence of such banks in any grey areas such as money laundering etc. • They are domestically identified by Central Banks of a country and globally by **BASEL committee on banking supervision.**
Municipal bonds	• They are **debt securities** issued by **government or semi-government institutions** who need funding for civic projects. • Normally, they are **issued and redeemed at par** and carry a fixed interest rate**.**

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	• There are two types of municipal bonds
	   o General obligation bonds are issued for enhancing civic amenities such as water, sanitation, garbage disposal, etc. They generally are not backed by revenue from a specific project.
	   o Revenue bonds are issued for a specific purpose such as construction of a toll road or a toll bridge.
	Bangalore Municipal Corporation was the first urban local body (ULB) to issue Municipal Bond in India in 1997.

Shell Companies	• Shell companies typically refer to companies **without active business operations or significant assets**. • In India Shell companies are **not defined under Companies Act, 2013** or any other legislation. • Shell companies are different from **dormant companies**. • A dormant company is a company which has chosen to get a 'dormant' status from the Registrar of companies in compliance with the requirements under Section 455 of Companies Act 2013 or the company has not filed annual returns for two financial years consecutively.

Drug Price Control Regime in India	• Drugs (Price Control) Orders [DPCO] under Essential Commodities Act 1955 aim to regulate the prices of bulk drugs and their formulations to make them more affordable.
	• National Pharmaceutical Pricing Policy (NPPP) 2012 put in place a regulatory framework for pricing of drugs.
	• NPPP was implemented through Drugs (Prices Control) Order 2013 [DPCO 2013]. The list of essential medicines, along with dosages & strengths, are included in Schedule-1 of DPCO & are subject to price ceilings.
	   o All the drugs under **National List of Essential Medicines (NLEM) given by Health Ministry** are automatically subject to price control.
	   o Under NLEM 2015, a total 376 drugs are under price control.
	• **National Pharmaceutical Pricing Authority (NPPA)** fixes prices of formulations and monitors its compliance.

Application Programming Interface Exchange	• Indian PM along with deputy PM of Singapore recently launched APIX. • APIX is a **banking technology platform** designed to reach two billion people worldwide who are still without bank accounts. • It will help people in 23 countries including the 10 ASEAN members as well as major markets such as India, and small nations including Fiji.
Banking Ombudsman	• The Banking Ombudsman is a quasi-judicial authority appointed by the RBI. • It aims to provide a **cost-effective grievance redressal mechanism** to customers. • All Scheduled Commercial Banks, Regional Rural Banks & Scheduled Primary Co-operative Banks are covered under the Scheme. • The complaint has to be first filed in the respective banks before approaching Ombudsman. The power of Appellate Authority, which is vested with a **Deputy Governor of the RBI.** • RBI has extended the scheme to **deposit taking Non-Banking Finance Companies (NBFC).**
Capital Gains Tax	• Any Income derived from a Capital asset movable or immovable is taxable under the head Capital Gains under **Income Tax Act 1961.** • Any profit or gain that arises from the sale of a 'capital asset' is a capital gain. This gain or profit is considered as income and hence charged to tax in the year in which the transfer of the capital asset takes place. This is called **capital gains tax**, which can be short-term or long-term. • Capital gains are not applicable when an asset is inherited because there is no sale, only a transfer. However, if the asset is sold by the person who inherits it, capital gains tax will be applicable. • **Short-term capital asset:** An asset which is held for a period of 36 months or less. Assets like equity or preference shares in a company listed on a recognised stock exchange in India, securities (debentures, bonds, government securities), equity oriented mutual funds, zero coupon bonds are considered short term if held for less than 12 months. • **Long-term capital asset:** An asset that is held for more than 36 months (24 months for immovable property like land, building). The Long-term capital gain is taxable at 20%.
Circular Trading	• Circular trading refers to selling and buying of goods via shell corporations to artificially inflate turnover. There is no actual change in ownership or movement of goods. • **For example**, a company "A" sold goods to another company "B**",** which sold the same goods to another company "C". Now, the third company "C" sold the goods to the first company "A". All this while, the goods were kept at a godown of first company. • Here GST credits were paid on every lap of transaction. The series of sales helped the **firms inflate turnover and avail larger valuations and loans.** This amounts to **tax evasion.** • This is illegal under **Prohibition of Fraudulent and Unfair Trade Practices Regulations** issued by **SEBI. Ketan Parekh stock market scam of 1999** was related to circular trading.

Pokkali Paddy	• Pokkali Paddy is a **saltwater-tolerant paddy** in the coastal fields of Alappuzha, Ernakulam and Thrissur districts of Kerala. It is an indigenous method of rice-fish rotational cultivation practiced in the coastal belts.
	• This **GI-Tagged paddy** is a **single-season** (only one yield in a year) paddy raised in saltwater fields between June and November followed by a season of fish-farming. After the harvest, the paddy stubble in the fields acts as food and shelter for shrimp and small fish.
Transit Oriented Development	**Transit Oriented Development** is the creation of compact, walkable, pedestrian-oriented, mixed-use communities cantered around high quality train systems. This makes it possible to live a lower-stress life without complete dependence on a car for mobility and survival
Cabotage	• Cabotage refers to shipping along coastal routes between foreign sea ports & also to the restriction on the operation of vessels between sea ports within a particular country.
	• It is governed by the Merchant Shipping Act (MSA) of 1958.
	• It aims to protect domestic shipping industry from **foreign competition** as well as for the purpose of **national security**.
	• Presently, foreign-flagged ships can transport cargo within the country, if Indian ships are not available, after obtaining a license.
Freight Village	• "A freight village is a defined area within which all activities relating to transport, logistics and the distribution of goods, both for national and international transit, are carried out by various operators".
	• India's first freight village is being developed in Varanasi.
	• The **objective of the project** is to support economic development in the hinterland of the **multimodal terminal** at Varanasi and reduce logistics cost in the Eastern Transport Corridor and its influence zone.
	• The village is being **funded by the World Bank** and it is being developed by the **Inland Waterways Authority of India.**

3.29. REPORTS AND INDICES

Human Capital Index	• The **Human Capital Index (HCI)** was released **by World Bank.** HCI is part of the World Development Report (WDR).
	• It measures the amount of **human capital** that a child born today can expect to attain by age 18. It conveys the **productivity of the next generation** of workers compared to a benchmark of complete education and full health
	• **The HCI has three components:**
	o Survival, as measured by under-5 mortality rates;
	o **Expected years of Quality**-Adjusted School which combines information on the quantity and quality of education (*quality is measured by harmonizing test scores* from major international student achievement testing programs and quantity from number of years of school that a child can expect to obtain by age 18 given the prevailing pattern of enrolment rates across grades in respective countries);
	• Health environment using two proxies of (a) adult survival rates and (b) *the rate of stunting for children under age 5.*
Inclusive Development Index	• Released by **World Economic Forum,** it measures progress of 103 economies on eleven dimensions of economic progress in addition to GDP.
	• Presenting an alternative to GDP, it also takes into account the "living standards, environmental sustainability and protection of future generations from further indebtedness"
	• India ranked 62nd in 2018.
CriSidEx	CriSidEx is a composite index, developed jointly by CRISIL & SIDBI, based on a diffusion index of 8 parameters and measures MSE business sentiment on a scale of 0 (extremely negative) to 200 (extremely positive).
Drip Index	• It is **DRIP (Deficient Rainfall Impact Parameter),** which is released by CRISIL.
	• DRIP Index move away from simply measuring rainfall volumetric data & captures the interaction between the most critical aspect of vulnerability (irrigation) and weather shocks.
	• The higher the CRISIL DRIP score, the more adverse the impact of deficient rains.
Liveability Index	• Released by Ministry of Housing and Urban Affairs, it ranks the cities in order of the **quality of life** offered by these 116 cities which includes 99 smart cities already identified, state capitals, and cities with 1 million-plus population.

	• The index comprises of 79 parameters, including 57 Core Indicators and 22 Supporting Indicators, to measure various aspects determining the liveability of a city. • The index gives different weightage to 4 aspects – institutional (25%), social (25%), economic (5%), physical (45%). • **Economist Intelligence Unit** brings out an **annual liveability index** of cities across the world.
Global Findex Report	• It is published by the **World Bank.** • It is world's most comprehensive data set on how adults save, borrow, make payments, and manage risk. It has been prepared in partnership with Gallup, Inc. with funding of Bill &Melinda Gates Foundation.

4. ENVIRONMENT

4.1. CLIMATE ENGINEERING

Stratospheric Aerosol Injection (SAI), a climate engineering method could potentially slow global warming.

Climate Engineering Solutions

- Climate Engineering or Geoengineering projects are designed to tackle the effects of climate change directly, usually by removing CO_2 from the air or limiting the amount of sunlight reaching the planet's surface.
- Various method of Geo-engineering are:
  - **Greenhouse gas removal: Examples**
    - ✓ **Carbon capture and storage (CCS),** where some of the carbon being emitted by coal-fired power stations is recaptured by physically sucking it in and transporting it elsewhere (like oilfields) to be sequestered underground.
    - ✓ **Carbon Capture Utilization Storage (CCUS):** It's a process that captures carbon emissions from sources like coal-fired power plants and either reuses or stores it so it will not enter the atmosphere.
    - ✓ In CCS, emissions are forced into underground rocks at great cost and no economic benefit while CCUS aims at using CO_2 emissions by exploiting the resource itself and creating new markets around it.
    - ✓ **Biochar making:** Partly burn materials such as logging slash or crop waste to make a carbon-rich, slow-to-decompose substance known as biochar, which can then be buried or spread on farmland. Biochar has been used for centuries to enrich the soil for farming, but of late has been drawing increased attention for its ability to sequester carbon.
  - **Solar Radiation Management or Sunlight Reflection Methods (SRM):** This method aims to reduce the amount of heat trapped by greenhouse gases by reflecting sunlight back into space, either by increasing the reflectivity of the earth's surfaces, or by deploying a layer of reflective particles in the atmosphere.
    - ✓ **Stratospheric Aerosol Injection (SAI):** It involves spraying into the stratosphere fine, light-coloured particles designed to reflect back part of the solar radiation before it reaches and warms the earth. Sulphur Dioxide gas is used for the process.
    - ✓ **Cirrus cloud manipulation:** Here the cirrus clouds are removed or thinned so that their long-wave trapping capacity is reduced and thus cools the surface.
    - ✓ **Marine cloud brightening:** The low warm clouds which are highly reflective to sunlight are modified to increase their reflectivity.
    - ✓ **Space sunshade:** Obstructing sunrays with space based mirrors.
    - ✓ **Using pale-coloured** roofing material or growing high albedo crops.

4.2. INVASIVE ALIEN SPECIES

- Recently, **National Conference on the Status of Invasive Species in India** was organised by Zoological Survey of India and the Botanical Survey of India in which ZSI announced a list of alien invasive animal species.
- **Findings of Zoological Survey of India:**
- **ZSI** has made a list of 157 species of Invasive Alien Species (IAS) out of which 58 are found on land and freshwater habitat and 99 are found in marine ecosystem.
- Common Alien Animal Species found in India are –
  - **African Apple Snail –** found in Andaman and Nicobar Island, now spread across the whole country
  - **Papaya Mealy Bug –** massively affected papaya crop in Assam, West Bengal and Tamil Nadu
  - **Cotton Mealy Bug –** threat to cotton crops in Deccan
  - **Amazon sailfin catfish –** responsible for destroying fish population in wetlands
  - **Orange Cup-Coral –** originated in Indo-East Pacific, now also found in Andaman and Nicobar Island, Gulf of Kutch, Kerala and Lakshadweep.
  - **Primrose Willow** -It is an aquatic plant native to Central and South America. It flourishes in sandy and mineral rich soil of wetlands. First seen in Karbi Anglong district of Assam and is now spreading in Tamil Nadu, Kerala, the Andaman & Nicobar Islands and West Bengal.

Steps taken to control Invasive Alien Species (IAS)

- **Article 8(h) of CBD and Aichi Target 9** aim to control or eradicate alien species which threaten ecosystems, habitats and species.
- **Global Invasive Species Program** is supporting to implement **Article 8(h) of CBD** with IUCN as partner organization and also working to address the global threat caused by IAS.
- **IUCN's Invasive Species Specialist Group** has also been working to promote and facilitate the **exchange of IAS information and knowledge** across the globe and ensure linkages between policy making and flow of knowledge.
- **IUCN** has also developed a number of global databases which provide critical information on IAS such as **Global Invasive Species Database** and **the Global Register of Introduced and Invasive Species.**

4.3. BAMBOO IS NO LONGER A TREE

- Recently, President has cleared an ordinance amending the Indian Forest Act (IFA) 1972, to exempt bamboo grown in non-forest areas from the definition of trees.
- The amendment aims to **exempt bamboo grown in non-forest areas** from definition of tree, thereby dispensing with the requirement of felling/transit permit for its economic use.
- Bamboo, though, taxonomically a grass, was defined as a tree under the Indian Forest Act, 1927 which meant that the felling and transit of bamboo grown on forest as well non-forest land for economic use required permit. This was a major impediment for bamboo cultivation by farmers on non-forest land.
- However, bamboo grown in the forest areas shall continue to be governed by the provisions of Indian Forest Act, 1927.
- The amendment will greatly aid the **National Agro-Forestry & Bamboo Mission (NABM).**

National Agro-Forestry & Bamboo Mission (NABM)

- It envisages promoting holistic growth of bamboo sector by adopting area-based, regionally differentiated strategy and to increase the area under bamboo cultivation and marketing.
- It is being implemented by the Department of Agriculture & Cooperation (DAC), Ministry of Agriculture as a sub scheme under the Mission for Integrated Development of Horticulture (MIDH).

The International Network for Bamboo and Rattan (INBAR)

- INBAR connects a global network of partners from the government, private, and not-for-profit sectors in over 50 countries to define and implement a global agenda for sustainable development through bamboo and rattan.
- India is a Founding Member.

4.4. ZERO BUDGET NATURAL FARMING

- In a first of its kind move, Andhra Pradesh government is supporting Zero Budget Natural Farming (ZBNF) through self-help groups to improve livelihood of farmers and fight climate change in drought-prone regions.

Zero Budget Natural Farming

- It is a natural farming technique developed by **Subhash Palekar** in which farming is done without use of chemicals and without using any credits or spending any money on purchased inputs.
- ZBNF reduces the cost of production down to zero due to utilisation of all the natural resources available in and around the crops. Farmers use earthworms, cow dung, urine, plants, human excreta and other biological fertilizers for crop protection.
- Under this **inter-cropping** is practised.
- **Contours and bunds** to preserve rain water as it promotes maximum efficacy for different crops.
- ZBNF also includes **replenishing water bodies** such as farm ponds to ensure water availability during dry spells.
- The ZBNF technique is built on four pillars:
  - **Jeevamrutham**, a fermented microbial culture derived primarily from cow dung and urine, jaggery, pulse flour and uncontaminated soil;
  - **Beejamrutham,** microbial coating of seed, seedlings by using cow dung, urine and lime;
  - **Acchadana,** or mulching, the process of covering the top soil with cover crops and crop residues; and
  - **Whaphasa,** or soil aeration thus reducing irrigation requirement.

4.5. GREEN AGRICULTURE (GREEN-AG) PROJECT

- Government of India in collaboration with the **Food and Agriculture Organization (FAO),** launched a **Global Environment Facility (GEF) assisted** project, **Green–Ag: Transforming Indian agriculture** for global environment benefits and the conservation of critical biodiversity and forest landscapes.

- It was launched in **high-conservation-value landscapes of five states**, namely Madhya Pradesh (Chambal landscape), Mizoram (Dampa landscape), Odisha (Similipal landscape), Rajasthan (Desert National Park landscape) and Uttarakhand (Corbett-Rajaji landscape).
- **Executive Agencies:** Ministry of Agriculture and Ministry of Environment, Forests, and Climate Change.

4.6. SEED VAULT

- The Svalbard Global Seed Vault in Norway completed 10 years of its official opening. It now contains about 1.05 million seeds and referred to as the earth's 'doomsday vault'.
- **India's seed vault** is situated at Chang La, Ladakh. Built jointly by the Defence Institute of High Altitude Research (DIHAR) and the National Bureau of Plant Genetic Resources (NBPGR) in 2010 under the aegis of Defence Research and Development Organisation (DRDO), this permafrost seed bank is the second largest in the world.
- Presently, the only other facility in India for long-term storage of seeds is the one set up by Indian Council of Agricultural Research (ICAR) New Delhi.

4.7. PACIFIC SHADOW ZONE

- According to a recent research paper it was found that at around 2km below the surface of the Indian and Pacific Oceans there is a 'shadow zone'.

What is a Shadow Zone?

- It is an area of **almost stagnant water** which is sitting between rising currents caused by the **rough topography and geothermal heat source** and shallower **wind-driven current** closer to the surface in the North Pacific.
- Carbon-14 dating has proved that there is oldest water in the North Pacific Ocean. The trapped water also traps nutrients and carbon which have a direct impact on the capacity of the ocean to modify climate over centennial time scales.

4.8. BIODIVERSITY HERITAGE SITES

Recently, Ameenpur Lake became the first water body in the country to be declared a Biodiversity Heritage Site.

- It is located on the western fringes of Hyderabad in Telangana state.
- It is a man-made lake and was constructed during the reign of Ibrahim Qutab Shah, who ruled the kingdom of Golconda between 1550 and 1580.

Biodiversity Heritage Site (BHS)

- They are well defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and, marine having rich biodiversity comprising of any one or more of the following components:
  - Richness of wild as well as domesticated species or intra-specific categories.
  - High endemism,
  - Presence of rare and threatened species, keystone species, species of evolutionary significance,
  - Wild ancestors of domestic/ cultivated species or their varieties, past pre-eminence of biological components represented by fossil beds and
  - Having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.
- Under the Biological Diversity Act, 2002 (BDA) the **State Government in consultation with local bodies** notifies Biodiversity Heritage Sites (BHS).
- Further, the State Government in consultation with the Central Government may frame rules for the management and conservation of BHS.
- The State Governments shall frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification.

4.9. NATIONAL REDD+ STRATEGY

Union Ministry for Environment, Forest and Climate Change (MoEFCC) **released National REDD+ Strategy.**

Important provisions of National REDD+ Strategy

- **REDD+** will **cover all trees** within forest areas and tree outside forest (TOF).
- **Phased approach of REDD+**
  - **Phase 1:** development of national strategies or action plans, policies and measures, and capacity-building.
  - **Phase 2:** implementation of national policies, measures and national strategies or action plans.

- **Phase 3**: evolvement into results- based actions that should be fully measured, reported and verified.
- **Sub-national REDD+ Approach:** The country has been divided into **14 physiographic zones** by the Forest Survey of India. State Governments may collaborate and develop REDD+ Action Plan in a physiographic zone.
- **REDD+ Activities for Enhancement of Forest Carbon Stocks** include Namami Ganga, Forestry Interventions for Other Major River Catchments, Green Highways (Plantation, Transplantations, beautification & Maintenance) Policy – 2015 and innovative programmes like Green Army of Maharashtra.
- **Developing strategies for addressing Deforestation and Forest Degradation through** awareness amongst stakeholders.
- **Capacity Building and Trained Human Resource** through Green Skill Development Programme.
- **Funding:** Devolution through Finance Commission, Compensatory Afforestation Fund and Green Climate Fund and Other External Sources of Funding.

REDD+
- REDD+ means **"Reducing Emissions from Deforestation and forest Degradation",** conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks in developing countries.
- **REDD+ aims** to achieve climate change mitigation by incentivizing forest conservation.

Carbon pools
- A system that has the capacity to store or release carbon.
- The **Marrakesh Accords** (regulatory framework for the implementation of the Kyoto Protocol) recognize five main carbon pools or reservoirs in forests: Above-ground biomass, below-ground biomass, dead wood, litter and soil organic matter.

4.10. MINAMATA CONVENTION

- On 18 June 2018, the Government of India deposited its instrument of ratification, thereby becoming the 93nd Party to the Minamata Convention.
- Ratification of the Minamata Convention on Mercury would ensure flexibility for continued use of mercury-based products and processes involving mercury compound up to 2025.
- The first Conference of the Parties (CoP) under the Minamata Convention took place in Geneva, Switzerland in 2017 which India attended as observer.

Details about the convention
- The Minamata Convention on Mercury is **first global legally binding** treaty to protect human health and the environment from the **adverse effects of mercury**.
- It was agreed in Geneva, Switzerland in January 2013 and came into force in August, 2017.
- The Minamata Convention requires party nations to reduce and where feasible eliminate the use and release of mercury from emissions, mining, general usage etc.
- The Convention also addresses interim storage of mercury and its disposal once it becomes waste, sites contaminated by mercury as well as health issues.

4.11. BONN CLIMATE MEET

- The 23rd meeting of the Conference of the Parties **(COP-23)** of the United Nations Framework Convention on Climate Change **(UNFCCC)** concluded in Bonn, Germany.
- Other Initiative Started during the COP-23
  - **Powering Past Coal alliance**: It was initiated by the UK and Canada. 15 countries have joined an alliance to phase out coal-based power by 2030.
  - **Below 50 initiative**: It was launched by World Business Council for Sustainable Development (WBCSD). The goal is to create the demand and market for those sustainable fuels that produce at least 50% less CO_2 emissions than conventional fossil fuels.

4.12. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC) REPORT

- The IPCC has released its Special Report titled **"Global Warming of 1.5°C".**

Related Information - Hothouse Earth: A situation in which a planet has passed a tipping point (approximately 2 degree Celsius) beyond which its own natural processes trigger uncontrollable warming.

Key Findings of the Report

- **Present global warming status**: Human induced global warming in 2017 has **already reached 1°C** above pre-industrial levels;
  - Since 2000, the estimated level of human induced warming has been equal to the level of observed warming due to

contributions from solar and volcanic activity over the historical period.

- **Impacts of global warming at 1.5°C**: World would witness greater sea level rise, increased precipitation and higher frequency of droughts and floods, hotter days and heatwaves, more intense tropical cyclones, and increased ocean acidification and salinity.
- **Impact of transition from 1.5°C to 2°C:**
  o Decline in crop yields, unprecedented climate extremes and increased susceptibility could push poverty by several million by 2050.
  o Coral reefs would decline by 70-90 percent with global warming of 1.5°C, whereas virtually all (> 99 percent) would be lost with 2°C.
  o Additional people could be at risk from malaria.
  o About 350 million additional people could be exposed to deadly heat waves.
- If global emissions continue as per the commitments made under Paris Agreement, the carbon budget (the amount of CO2 that the world can emit) for 1.5°C warming will be exhausted by 2030.
  o In order **to limit warming at 1.5°C**, the world will have to reduce CO2 emissions by 45 per cent by 2030 from the 2010 levels and reach net-zero emissions by 2050.

4.13. CLEAN AIR- INDIA INITIATIVE

- Recently, the clean air-India initiative was launched in Delhi by Prime Minister of Netherlands.
- It is a collaborative project between **Get in the Ring** (a platform for start-ups by the government of the Netherlands), **Start-up India** and **INDUS Forum** (an online matchmaking platform of Indian and Dutch businesses).
- **Aim:** To curb air pollution in Indian cities by promoting partnerships between Indian startups and Dutch companies and build a network of entrepreneurs working on business solutions for cleaner air.

4.13.1. COMPREHENSIVE ENVIRONMENTAL POLLUTION INDEX (CEPI)

- It is measured by Central Pollution Control Board for Monitoring Polluted Industrial Areas (PIAs).
- It is a rational **number between 0 and 100.**

- CEPI score of 70 or above is considered as **critically polluted cluster tag.**
- **Categorization of industrial sectors based on CEPI score:**
  o 60 and above - Red category
  o 41 to 59 – Orange category
  o 21 to 40– Green category
  o including & upto 20- White category (newly introduced)

4.14. HINDU KUSH HIMALAYA ASSESSMENT REPORT

The Kathmandu-based **International Centre for Integrated Mountain Development's (ICIMOD)** "Hindu Kush Himalaya Assessment" reveals that more than one-third of the glaciers in the region could retreat by 2100, even if the global temperature rise is capped at 1.5°C.

Some findings of the Assessment Report w.r.t. Glaciers

- **Area Changes**
  o Since 1970s, nearly 15% of the glaciers in the HKH has disappeared. **Eastern Himalaya glaciers have tended to shrink faster** than glaciers in the central or western Himalaya.
  o In contrast to the Himalayan glaciers, on average, **glacier areas in the Karakoram have not changed significantly**. Given the context of glacier retreat throughout the rest of the extended HKH region, this behaviour has been designated the **'Karakoram anomaly'.**
  o **Area loss also leads to glacier fragmentation;** the number of glaciers in the Himalaya is reported to have increased over the past five decades.
- **Glacier Projections**
  o Glacier volumes are projected to decline by up to 90% through the 21st century **in response to decreased snowfall, increased snowline elevations, and longer melt seasons**.
  o Even if warming can be limited to the ambitious target of +1.5 °C (Paris Climate Deal), this will lead to a 2.1°C rise in the HKH region due to **elevation-dependent warming**.

Impact of HKH Warming

- **River flows and water availability:** Melting glaciers will increase river flows, pushing up risks of high-altitude lakes bursting their banks causing floods (glacial lake outburst floods (GLOFs)).

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- **Drying Springs:** 30% of springs in the Indian Himalaya have dried up due to reasons including receding glaciers.
- **On Western Disturbances:** These are also likely to see increased variability.
- **Impact on Monsoon:** Shifting monsoon patterns will lead to intense precipitation which would increase the risk of floods, landslides and soil erosion.
- It may also cause **sea level rise** with its own consequences.

> **About International Centre for Integrated Mountain Development (ICIMOD)**
> - It is a regional **intergovernmental** learning and knowledge sharing centre based in Kathmandu, Nepal
> - It is serving the **eight regional member countries of the Hindu Kush Himalaya – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan**.
> - It aims to **assist mountain people** to understand the influence climate change have on the stability of fragile mountain ecosystems, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. **Elevation-dependent warming (EDW)**
> - It is one of the expressions of global warming wherein there is an enhancement of warming rates with elevation.
> - One of the possible reasons could be that reductions in mountain snow cover exposes the dark coloured earth beneath. This reduces the surface albedo and increases the absorbed solar radiation that can lead to elevation-dependent amplification of warming via the **snow albedo feedback (SAF).**

4.15. ACROSS SCHEME

The Cabinet Committee on Economic Affairs (CCEA) has approved continuation of the scheme **"Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)"** during 2017-2020 and establishment of **National Facility Airborne Research (NFAR)** during 2020-21 and beyond.

What is ACROSS?

- It pertains to the atmospheric science programs of the **Ministry of Earth Sciences (MoES)** and addresses different aspects of weather and climate services, which includes warnings for cyclone, storm surges, heat waves, thunderstorms etc. Each of these aspects is incorporated as **nine sub-schemes** under the umbrella scheme "**ACROSS**"

- o Atmospheric, Climate Science and Services.
  o Numerical Modeling of Weather & Climate.
  o Physics and Dynamics of Tropical Clouds.
  o Agro Meteorology.
  o Aviation Services.
  o Center for Atmospheric Technology.
  o High Impact Severe Weather Warning System.
  o Metropolitan Air Quality and Weather Service.
  o Monsoon Mission of India.
- It is implemented in an integrated manner through **the four institutes** - India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM), National Centre for Medium Range Weather Forecasting (NCMRWF) and Indian National Centre for Ocean Information Service (NCOIS).

National Facility for Airborne Research (NFAR)

- NAFR comes under **IITM, Pune**. Under this a state-of-the-art research aircraft equipped with instruments will be used for atmospheric research.
- It will take simultaneous measurements of aerosols, trace gases, cloud microphysics and large-scale meteorological parameters at high temporal resolution and at different altitudes in different seasons over the Indian subcontinent.

4.16. NITROGEN POLLUTION

Recently, Indian Nitrogen Assessment report highlighted the nitrogen emission scenario in India.

> **Nitrogen Emission Hotspot**
> - Recently, Greenpeace conducted a study of satellite-based data for the identification of **nitrogen emission hotspot** (NEH) around the world.
> - **South Africa's Mpumalanga** province emits the highest amounts of nitrogen dioxide and the largest number of hotspots are found in **China**.
> - **Hotspot in India: Delhi-NCR, Sonbhadra in UP** & **Singrauli in MP** (both taken as one entity) and **Talcher-Angul in Odisha**.

Highlights of the report

- In India nitrogen emissions grew at 69% from 2001 to 2011 and has **replaced methane** as the second largest Greenhouse Gas (GHG) from Indian agriculture.
- Agricultural soils contributed to over 70% of nitrous oxide (N2O) emissions, followed by waste water (12%) and residential and commercial activities (6%).

- India is globally the biggest source of ammonia emission, nearly double that of NOx emissions.
- **Health impact:** Blue Baby Syndrome, reduced functioning of the thyroid gland, Vitamin A shortages etc.
- Excessive nitrogen in the form of fertilizer **brings down the carbon content** of the soil, result in diminishing returns in terms of crop yield.
- Excessive eutrophication which turns water body into Dead Zone, substance like nitric acid is a component of acid rain.
- Nitrous oxide (N_2O) is 300 times more potent as a greenhouse gas as opposed to CO_2. It is also a dominant ozone-depleting substance and also leads to formation of smog.

Steps taken to control Nitrogen pollution

National

- **Soil Health Card** provides information to farmers on nutrient status of their soil along with recommendations on appropriate dosage of nutrients for crop.
- **Mandatory neem-coated urea production** to slow down the dissolution of nitrogen into soil, resulting into less nutrient requirement.
- **Bharat Stage Norms:** Aim to regulate the harmful emission from vehicle like carbon monoxide (CO), unburnt hydrocarbons (HC), Nitrogen Oxides (NOx) and Particulate matter (PM).
- **National Air Quality Index (NAQI)** has been implemented in which Nitrogen Dioxide is one of the eight pollutants to be controlled and monitored.

Global

- **Gothenburg Protocol:** It aims to Abate Acidification, Eutrophication and Ground level Ozone and is a part of is part of the Convention on Long-Range Transboundary Air Pollution.
  - **Objective:** To control and reduce emissions of sulphur dioxide (SO_2), nitrogen oxides (NOx), ammonia (NH_4), volatile organic compounds (VOCs), and Particulate Matter (PM) that are caused by human activities.
- **Kyoto Protocol:** It aims to reduce the emissions of the Green House Gases such as Methane (CH_4), Nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF_6) and carbon dioxide (CO_2).
- **International Nitrogen Initiative (INI):** It is an international program, set up in 2003 under

sponsorship of the Scientific Committee on Problems of the Environment (SCOPE) and from the International Geosphere-Biosphere Program (IGBP) to optimize nitrogen's beneficial role in sustainable food production.

- **South Asian Nitrogen Hub:** It is one of 12 hubs announced by the UK Research and Innovation (UKRI) under its Global Challenges Research Fund (GCRF) to address intractable challenges that nitrogen pollution pose for environment, food security, human health and the economy in South Asia. India is a major partner.

4.17. CONSERVATION OF MIGRATORY BIRDS AND THEIR HABITATS

Ministry of Environment, Forest and Climate Change (MoEFCC) has developed a **National Action Plan for Conservation of Migratory Birds and their Habitats** along Central Asian Flyway (CAF) for the period 2018-23.

About Action Plan

- It is based on **Central Asian Flyway Action Plan** which provides a common strategic framework for regional collaboration and affirmative action for protecting, conserving, restoring, and sustainably managing populations of migratory bird species and their habitats in the Indian subcontinent falling under the Central Asian Flyway region.
- **Long Term Goal:** To arrest population decline and secure habitats of migratory bird species.

A **flyway** is a geographical region within which a single or a group of migratory species completes its annual cycle - breeding, staging and non-breeding etc. This includes breeding areas, stop-over areas and wintering areas.

- **Central Asian Flyway (CAF),** one among the **nine flyways in the world**, encompasses overlapping migration routes over 30 countries for different water birds linking their northern most breeding grounds in Russia (Siberia) to the southernmost non-breeding (wintering) grounds in West and South Asia, the Maldives and the British Indian Ocean Territory.
- **India has a strategic role in the flyway**, as it provides critical stopover sites to over 90% of the bird species known to use this migratory route.
- At least 370 species of migratory birds from three flyways (**CAF, The East Asian – Australasian flyway, and Asian East African flyway**) are reported to visit the Indian subcontinent.

4.18. NATIONAL WILDLIFE ACTION PLAN (NWAP) FOR 2017-2031

- **Important Components of NWAP 2017-2031**
  - strengthening and promoting the **integrated management of wildlife and their habitats**
  - adaptation to **climate change** and promoting integrated sustainable management of **aquatic biodiversity** in India
  - promoting **eco-tourism, nature education and participatory management**
  - strengthening **wildlife research** and monitoring of **development of human resources** in wildlife conservation
  - **enabling policies and resources** for conservation of wildlife in India.
- The plan has adopted the **Landscape approach** rather than the earlier strategies more concentrated on national parks and wildlife sanctuaries.
- **The Landscape approach** is based on the importance of conservation of uncultivated flora and undomesticated fauna that had ecological value irrespective of their place of occurrence.
- Plan also highlights role of **private sector** in the wildlife protection by ensuring adequate fund flow from the **Corporate Social Responsibility (CSR) fund**.
- It also emphasizes upon preservation of **genetic diversity** and sustainable utilization of species and ecosystem.

4.19. GLOBAL WILDLIFE PROGRAM

Recently, India hosted Global Wildlife Program during which India's National Wildlife Action Plan (NWAP) for the period 2017-2031 and Secure Himalaya were released.

Global Wildlife Program

- **"Global Partnership on Wildlife Conservation and Crime Prevention for sustainable development"** program also known as **Global Wildlife Program (GWP)** was launched in response to increasing crime against animals in natural habitat.
- It works towards **wildlife conservation and sustainable development** by fighting against illicit trafficking in wildlife through a holistic comprehensive approach.

- India is a partner country of Global Wildlife Program along with other Asian and African countries.

Implementing Agencies: World Bank Group, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP) & Asian Development Bank (ADB).

Other Collaborating Partners: International Consortium to Combat Wildlife Crime (ICCWC), Wildlife Conservation Society (WCS), The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat, World Wildlife Fund (WWF), International Union for the Conservation of Nature (IUCN), TRAFFIC, WildAid.

Priorities of Global Wildlife Program

- Promoting community-based resource management, achieve biodiversity goals and tourism development
- Increasing knowledge sharing and enhance collaboration,
- Implement monitoring and evaluation framework
- Promote donor cooperation and ensure proper monitoring of international fund

Secure Himalaya

- The Ministry of Environment, forest and climate change **in collaboration with UNDP** has launched a six-year project to ensure conservation of biodiversity, land and forest resources in the high Himalayan ecosystem spread over four states in India.
- The project aims to: Sustain critical ecosystem services, Conserve vulnerable snow leopards and other endangered species and Improve knowledge, advocacy, and information systems.

4.20. IMPORTANT BIRD AND BIODIVERSITY AREAS

Recently, BirdLife International has recognised three new sites in Goa and nine in Kerala as "Important Bird and Biodiversity Areas".

- Newly identified IBAs of Kerala: Achencoil Forest Division; Anamudi Shola National Park; Camel's Hump Mountain, Wayanad; Kurinjimala Wildlife Sanctuary; Malayattoor Reserve Forest; Mankulam Forest Division; Mathikettan Shola National Park; Muthikulam-Siruvani; Pampadum Shola National Park
- **In Goa:** Bondla Wildlife Sanctuary, Navelim Wetlands and Netravali Wildlife Sanctuary.
- Kerala IBAs are home to **three critically endangered species (IUCN status)**
  - White-rumped Vulture
  - Indian Vulture
  - Red-headed Vulture

- Goa harbours a good population of the **lesser adjutant** and the **Nilgiri wood pigeon**.
- The updated list has been published by the **Bombay Natural History Society**
- Site under **Important Bird and Biodiversity Area** does not ensure that the site gets legal protection or becomes inaccessible to people.

Bird Life International
- UK based, environment conservation, Non-Profit Organisation
- Identifies: **Important Bird and Biodiversity Areas**
- Each BirdLife Partner is an independent environmental not-for-profit, or NGO.
- Publishes a quarterly magazine, **World Birdwatch.**
- Manage Red List of Birds for IUCN.

4.21. KHANGCHENDZONGA BIOSPHERE RESERVE

Recently, Khangchendzonga Biosphere Reserve was included in the UNESCO's World Network of Biosphere Reserve (WNBR) under the Man and Biosphere Programme (MAB).

Related Information
UNESCO: MAB Programme
- Launched in 1971, it is an **Intergovernmental Scientific Programme** that aims to establish a scientific basis for the improvement of relationships between people and their environments.
- It combines the natural and social sciences, economics and education to improve human livelihoods and the **equitable sharing of benefits,** and to **safeguard natural and managed ecosystems. World Network of Biosphere Reserve (WNBR) and India** It covers internationally designated protected areas, each known as biosphere reserves, that are meant to demonstrate a balanced relationship between people and nature.
- India has 18 biospheres reserves, of which 11 have been included in the WNBR.
- The **Nilgiri Biosphere Reserve** was the first reserve from the country to be included in the WNBR.

Other MAB -WNVR site in India
- Nigiri – Tamil Nadu, Kerala and Karnataka
- Gulf of Mannar- Tamil Nadu
- Sundarban- West Bangal
- Nanda Devi-Uttrakhand
- Nokrek- Meghalaya
- Pachmarchi-Madhya Pradesh
- Simlipal- Orisa
- Achanakmar-Amarkantak- Madhya Pradesh
- Great- Nicobar- Andaman and Nicobar Island
- Agasthyamala- Kerala and Tamilnadu

About Khangchendzonga Biosphere Reserve

- It is one of the **highest ecosystems** in the world and located at trijunction of India (Sikkim), bordering Nepal to the west and Tibet (China) to the north-west.
- The Khangchendzonga National Park (KNP), which comprises the core area of the KBR, was inscribed as India's first **'Mixed World Heritage Site'** in 2016.
- Over 118 species of the large number of medicinal plants found in **Dzongu Valley** in north Sikkim are of ethno-medical utility.
- **Fauna:** Red Panda, Snow Leopard, Himalayan Black Bear and herbivores species of Musk deer, Great Tibetan Sheep, Blue Sheep, Boral and Barking Deer.

4.22. NEW ELEPHANT RESERVE

- Recently, Nagaland government declared the Singphan **Wildlife Sanctuary** as an Elephant Reserve (30th in total), with the approval of central government.
- **Singhpan Elephant Reserve -** It has huge tracts of forest, strategically located in contiguity with the **Abhaypur Reserve Forest of Assam.**
- **Other Protected areas in Nagaland:** Intanki National Park, Puliebadze Wildlife Sanctuary, Fakim Wildlife Sanctuary and Rangapahar Wildlife Sanctuary.

Steps Taken for Elephant conservation
- Elephant is **National Heritage Animal** and categorised as **Endangered** under IUCN list.
- It is under **schedule I of the Indian Wildlife (Protection) Act, 1972** and in **Appendix I** of the Convention on International Trade in Endangered Species of Flora and Fauna **(CITES).** Karnataka has the highest number of elephants followed by Assam and Kerala respectively.
Project Elephant:
- It was launched in the year 1992 as a **Centrally Sponsored Scheme**.
  - **Objectives:** To protect elephants, their habitat & corridors; to address issues of man-animal conflict and welfare of captive elephants
- Elephant reserves are established across states to achieve above objectives.
- **Elephant corridors:** These are narrow strips of land that allow elephants to move from one habitat patch to another. There are approx. 100 identified elephant corridors in India.
Monitoring of Illegal Killing of Elephants (MIKE) Programme
- It was established in 2003, through a **Conference of the Parties (COP)** resolution to **the Convention on International Trade in**

Endangered Species of Wild Fauna and Flora (CITES).
- It is an international collaboration that tracks trends in information related to the illegal killing of elephants across Africa and Asia, to monitor effectiveness of field conservation efforts.

Asian Elephant Alliance
- It was launched in July 2015 in **London, United Kingdom**.
- It is an **umbrella of five NGOs**-Elephant Family, International Fund for Animal Welfare (IFAW), IUCN Netherlands, World Land Trust (WLT) and Wildlife Trust of India (WTI).
- It aims to secure a safe future for the wild elephants of India, which make up approximately half of the world's wild Asian elephants.

4.23. ANIMAL CRUELTY ISSUES NOW UNDER FARM MINISTRY

Recently the Central Government has transferred **administrative control** and matters concerning **cow shelters, Prevention of cruelty to animals and its governing laws,** from MoEF&CC to Ministry of Agriculture and Farmer's Welfare.

Prevention of Cruelty to Animals Act, 1960

- It was enacted to prevent the infliction of unnecessary pain or suffering on animals and to amend the laws relating to the **prevention of cruelty to animals.**
- The **Animal Welfare Board of India was formed under this Act.**
- **Section 22** of the PCA Act restricts the **exhibition and training of performing animals** - as per the list maintained by the **central government**.
- **MoEF&CC** published Gazette notifications under the PCA Act, in 2017, to regulate **dog breeders, animal markets**, and **aquarium and pet fish shop owners**.
- Central Government also brought **out Prevention of Cruelty to Animals (Regulation of Livestock Market) Rules, 2017** which imposes ban of sale of cattle in animal markets for the purpose of slaughter.

Animal Welfare Board of India
- Its headquarter is **in Haryana**.
- **Rukmini Devi Arundale** was instrumental in setting up the board and was its first chair.
- The Board **oversees Animal Welfare Organisations (AWOs)** by granting recognition to them if they meet its guidelines.
- **Other functions include:** Providing financial assistance to recognised AWOs, **prescribing** changes to animal welfare laws and rules, **raising** awareness among the public.

4.24. NATIONAL COMPENSATORY AFFORESTATION FUND MANAGEMENT AND PLANNING AUTHORITY (NCAFMPA)

Recently, Supreme Court directed the transfer of Rs 53,852 crore lying with the **ad-hoc Compensatory Afforestation Fund Management and Planning Authority (CAMPA)** to NCAFMPA for its utilisation.

- NCAFMPA has been created under the **Compensatory Afforestation Fund Act 2016. About Compensatory Afforestation Fund Act 2016.**
- It established **National Compensatory Afforestation Fund (NCAF)** under the **Public account of India** and State Compensatory Afforestation Funds under public accounts of states.
- These funds will receive payments for:
  o Compensatory afforestation,
  o Net present value of forest (NPV),
  o Other project specific payments.
- The **National Fund** will receive 10% of these funds, and the State Funds will receive the remaining 90%.
- The funds will be in the interest-bearing, nonlapsable and interest bearing by the rate decided by central government on a yearly basis.
- **Usage of Fund:** The fund will be used for compensatory afforestation, additional compensatory afforestation, penal compensatory afforestation, net present value, catchment area treatment plan or any money for compliance of conditions stipulated by the Central Government while according approval under the provisions of the **Forest (Conservation) Act, 1980.**
- Act provides statutory status **for two ad-hoc institution,** namely;
  o **National Compensatory Afforestation Fund Management and Planning Authority (NCAFMPA)** for management and utilisation of NCAF.
  o **State Compensatory Afforestation Fund Management and Planning Authority** for utilisation of State Compensatory Afforestation Fund.
- The act also seeks to provide for **constitution of a multidisciplinary monitoring group** to monitor activities undertaken from these funds.

- The act also provides for annual **audit of the accounts by the Comptroller and Auditor General.**

4.25. ECOSYSTEMS SERVICE IMPROVEMENT PROJECT

- India signed **Global Environment Facility (GEF) Grant** agreement with the World Bank for "Ecosystems Service Improvement Project".
- **Aim:** To protect, restore and enhance India's forest cover and help in maintaining ecological balance
- The Project will be implemented in the states of **Chhattisgarh and Madhya Pradesh** for 5 years by **MOEFCC.**

4.26. NATIONAL E-MOBILITY PROGRAMME

- Recently, Minister of Power has launched National E-Mobility Programme in India.

About the Programme

- **Aim**: To provide an impetus to the entire e-mobility ecosystem including vehicle manufacturers, charging infrastructure companies, fleet operators, service providers, etc. and to ensure that 30% of the vehicles on road are electric vehicles, by 2030.
- It will be implemented by **Energy Efficiency Services Limited (EESL)**.
- Under it, Electric Vehicles (EVs) will be procured by EESL in bulk to increase aggregate demand and ensure economies of scale.

- NITI Aayog has tasked seven ministries (heavy industries, power, new and renewable energy, road transport and shipping and highways, earth sciences, urban affairs and information technology) with framing guidelines to encourage the use of such vehicles.
- Nagpur is the first city in India which is equipped with battery swapping and charging stations.

4.27. NATIONAL MISSION ON TRANSFORMATIVE MOBILITY AND BATTERY STORAGE

The Union Cabinet has recently approved The National Mission on Transformative Mobility and Battery Storage.

About the Mission

- Aim is to promote **"clean, connected, shared and sustainable" mobility initiative** in the country.

- It will have an **inter-ministerial steering committee, chaired by CEO, NITI Aayog** that will coordinate among key stakeholders to integrate various initiatives to transform mobility in India.
- It will support and implement **Phased Manufacturing Programme** (valid for 5 years till 2024) for large scale, **export competitive integrated batteries** and **cell-manufacturing Giga plants in India**.
- The Mission will launch another programme to localize production across **entire Electric vehicle value chain** and finalise its details.
- The Mission will have **'Make in India' strategy** for Electric Vehicle components and battery technologies.

4.28. CHARGING INFRASTRUCTURE GUIDELINES

Recently, Government released guideline on **Charging Infrastructure for Electric Vehicles.**

Highlight of Guidelines

- **Promoting Private Participation in charging Infrastructure** and private charging at residences/offices shall be permitted.
- At least one charging station should be available in a grid of 3 km X 3 km in the cities and one charging station at every 25 km on both sides of highways/roads
- To address concerns in inter-city travel and long range and heavy duty EVs, fast-charging stations for vehicles like buses/trucks shall be installed every 100 km.
- **Ease of Setting:** No license will be required for setting set up a public charging station and any individual or entity is free to set up one if they follow the standards and guidelines
- **Rollout plan:** Phase I (1-3 years) will cover all mega cities with population above forty lakh, and the associated expressways and highways**. Phase II** (3-5 years) will cover state and UT capitals.
- **Tariff:** The Central or State Electricity Regulatory Commissions will determine the tariff for supply of electricity to the public charging stations.
- **Open access:** Charging station has been allowed to source electricity from any power generation company through open access.

4.29. NATIONAL POLICY ON BIOFUELS- 2018

Rajasthan has become the **first State in the country** to implement the national policy on biofuels.

Salient Features of the National Policy on Biofuels, 2018

- **Categorisation of biofuels** to enable extension of appropriate financial and fiscal incentives under each category. The two main categories are:
  - **Basic Biofuels**- First Generation (1G) bioethanol & biodiesel.
  - **Advanced Biofuels** - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, third Generation (3G) biofuels, bio-CNG etc.
- **Thrust on Advanced Biofuels: Viability gap funding scheme for 2G ethanol Bio refineries** in addition to additional tax incentives and higher purchase price as compared to 1G biofuels.
- **Expands the scope of raw material for ethanol production:** by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption for ethanol production.
- **Allows use of surplus food grains for production of ethanol** for blending with petrol to ensure appropriate price to farmers during surplus. However, it needs the approval of **National Biofuel Coordination Committee (headed by the Minister, Petroleum and Natural Gas).**

4.30. GLOBAL SOLAR COUNCIL

Chairman of National Solar Energy Federation - Pranav R. Mehta recently became the **first Indian** to be appointed chief of Global Solar Council.

Details

- Global Solar Council is **international nonprofit association** of the national, regional and international associations in solar energy and the world 's leading corporations.
- It was founded at the **2015 Paris Climate Conference**.
- National Solar Energy Federation is a **founding member** of the **Global Solar Council (GSC).**
  - It is an umbrella organization of all solar energy stakeholders of India such as international and national companies.

- It works in a complimentary manner with the Central and State Governments for achieving India's national solar target of 100 GW by 2022.

4.31. UN OCEAN CONFERENCE

- **First United Nations Ocean Conference was held in New York in 2017**, co-sponsored by Fiji and Sweden under the theme, **"Our oceans, our future: partnering for the implementation of Sustainable Development Goal 14".**

Global Ocean Commission
It is an international initiative that was launched in 2013. It raises awareness and promotes action to address the degradation of the ocean and help restore it to full health and productivity. Its focus is on the high seas, the vast ocean areas **that lie beyond the Exclusive Economic Zones (EEZs)** of individual states.

4.32. GLOBAL CLEAN SEAS CAMPAIGN

- Recently Indonesia declared a "Garbage emergency" as part of Global Clean Seas campaign.

About Clean Seas Campaign

- It is a global UN Environment initiative launched in 2017 to increase global awareness of the need to reduce marine plastic litter.
- The campaign is inspired from Mumbai's Versova beach clean-up programme of Afroz Shah who also received Champions of the Earth award for the same. Champions of the Earth award was launched in 2005 and is UN's highest environmental honour.

4.33. ARTIFICIAL REEFS TO SAVE SINKING ISLANDS

- Tamil Nadu govt in collaboration with IIT Madras have been restoring **Vaan Island in Gulf of Mannar** by deploying artificial reefs near vulnerable islands.
- Deployment of artificial reefs parallel to the sinking island in the seaward side reduces the effect of currents and waves, enhances fish habitats for higher fish production and protection of fish diversity. Natural corals get attached to artificial reefs over time and start regeneration.
- The project has been funded by **NAFCC** of the Ministry of Environment, Forests and Climate Chang.

- **Gulf of Mannar Biosphere Reserve** is the **first marine biosphere reserve in Asia.**

4.34. HAZARDOUS AND OTHER WASTES (MANAGEMENT & TRANS BOUNDARY MOVEMENT) AMENDMENT RULES, 2019

Recently Ministry of Environment, Forest and Climate Change has amended the Hazardous and Other Wastes (Management & Trans boundary Movement) Rules, 2016.

Amendments introduced

- **Prohibition on import of solid plastic waste** even in special economic zones (SEZ) and by export-oriented units (EOUs).
- **Electrical and electronic assemblies and components manufactured in and exported from India**, if found defective can be imported back into the country, within a year of export, without obtaining permission.
- The **industries that do not require consent under Water (Prevention and Control of Pollution) Act 1974 and Air (Prevention and Control of Pollution) Act 1981**, will now be exempted from requiring authorization also under the Hazardous and Other Wastes Rules, 2016, provided that hazardous and other wastes generated by such industries are handed over to the authorized actual users, waste collectors or disposal facilities.
- **Exporters of silk waste** have now been **given exemption** from requiring permission from the Ministry of Environment, Forest and Climate Change.

Salient features of Hazardous and Other Wastes (Management & Trans boundary Movement) Rules, 2016
- For the first time, the ambit of the Rules has been expanded by making a **distinction between Hazardous Waste and other wastes**. Other wastes include: Waste tyre, paper waste, metal scrap, used electronic items, etc.
- The **import of metal scrap, paper waste and various categories of electrical and electronic equipments for re-use** purpose has been exempted from the need of obtaining Ministry's permission.
- **Ban on import** of waste edible fats and oil of animals, or vegetable origin, household waste, Critical Care Medical equipment, Tyres for direct reuse purpose, Solid Plastic wastes including Pet bottles, Waste electrical and electronic assemblies scrap, other chemical wastes especially in solvent form among others.

- The rules allow the **municipalities to levy user free for waste management** and make individuals responsible for disposal of the garbage.
- The **source segregation of waste** as wet (Biodegradable), dry (Plastic, Paper, metal, wood, etc.) and domestic hazardous wastes has been made mandatory for waste generators.
- **Integration of waste / rag pickers into formal system**, the responsibility of which is on the state governments.
- **Procedure has been simplified** to merge all the approvals as a single window clearance for setting up of hazardous waste disposal facility and import of other wastes.
- **State Pollution Control Board** is mandated to prepare an annual inventory of the waste generated; waste recycled, recovered, utilised including co-processed; waste re-exported and waste disposed and submit to the Central Pollution Control Board every year.

4.35. E-WASTE (MANAGEMENT) AMENDMENT RULES, 2018

Recently, Ministry of Environment, Forest and Climate Change (MoEF&CC) amended the earlier E-Waste Management Rules, 2016. India is 5th largest producer of e-waste.

Highlights of new rules

- It aims to **formalise the e-waste recycling sector** by channelizing the E-waste generated towards authorized dismantlers and recyclers.
- **Phase wise Collection:** It introduced the phase-wise collection targets for e-waste, which shall be 10% of the quantity of waste generation as indicated in the Extended Producer Responsibility (EPR) Plan during 2017-18, with a 10% increase every year until 2023. After 2023 onwards, the target has been made 70% of the quantity of waste generation as indicated in the EPR Plan.
- Separate **e-waste collection targets** have been drafted for new producers, i.e., those producers whose number of years of sales operation is less than the average lives of their products.
- **Reduction of Hazardous Substances (RoHS):** Under this, cost for sampling and testing shall be borne by the government for conducting the RoHS test and if the product does not comply with RoHS provisions the cost will be borne by the Producers.
- **Producer Responsibility Organizations (PROs)** shall apply to the Central Pollution Control board (CPCB) for registration to undertake activities prescribed in the Rules. PROs are

organisations that helps producers meet their EPR targets through various recyclers and dismantlers.

E-waste (Management) Rules, 2016

- It is applicable to all the stakeholders such as Producer Responsiblilty Organisations, Consumers, Dismantlers, Recyclers, Dealers, Manufacturers etc**.**
- It adopted **collection mechanism-based approach** which includes collection centre, collection point, and take back system etc. for collection by Producers under EPR.
- It covered even components and spare parts of electric & electronic equipments. Mercury containing lamps like CFLs were also included.
- It has the **interest-bearing Deposit Refund Scheme** charged by the producer to the consumer at the time of purchase.
- It introduced Pan India EPR Authorization by CPCB replacing the state wise EPR authorization.

4.36. BIO-MEDICAL WASTE MANAGEMENT RULES, 2018

Recently, Ministry of Environment, Forest and Climate Change released the amendments to Biomedical Waste Management Rules, 2016

What is Bio-medical Waste?

- Bio-medical waste consists of any waste which is generated during diagnosis, treatment or immunisation of human beings or animals or in research activities.
- It includes syringes, needles, cotton swabs, vials that may contain bodily liquids and spread infections.
- It has been found that only 15% of the biomedical waste that is generated is hazardous. However, all the waste needs to be treated.

Context

- Government had notified Bio-medical Waste Management Rules in 1998 under the **Environment Protection Act 1986** which were later amended twice in 2000 and 2003.
- In 2016 government notified revamped **Biomedical Waste (BMW) Management Rules 2016** to enhance, widen and bring a comprehensive regime for **bio-waste management**.
- The latest amendments have been further introduced to improve compliance and strengthen the implementation of environmentally sound management of biomedical waste.

Features of Bio-medical Waste Management (Amendment) Rules 2018

- Bio-medical waste generators i.e. hospitals, clinics, vaccination camps etc. will now be required to phase out the use of **chlorinated plastic bags** and gloves by **March 2019**.
- Common biomedical waste treatment facility (CBMWTF) shall **establish GPS and Bar coding facility** in accordance with guidelines issued by the **CPCB**.
- **Pre-treatment of Bio-medical waste** – Every occupier of health care facility needs to pretreat the laboratory waste, microbiological waste, blood samples etc. on-site in accordance with **guidelines on safe management of wastes from health care activities by WHO** and **WHO Blue Book 2014** and then send it to CBMWTF for final disposal.
- All healthcare facilities shall provide **annual report on its website** within two years of the publication of the amended rules.

Bio-medical Waste Management Rules 2016

- **Widened jurisdiction** – The ambit of the rules was widened to include vaccination camps, blood donation camps, surgical camps etc.
- **Better segregation –** Bio-medical waste has been classified into 4 categories instead of 10 namely – Untreated human anatomical waste, Animal anatomical waste, Soiled waste and Biotechnology waste.
- **Bar-code system** for bags or containers to be established containing bio-medical waste for disposal.
- **Training and Immunisation –** Regular training to all its health care workers and immunising all health workers.
- **Stringent pollution norms** for incinerator to reduce the emission of pollutants in environment including the emission limits for Dioxins and furans.
- Phasing out of use of chlorinated plastic bags, gloves and blood bags **within 2 years**.
- **Procedure of Disposal** –The biomedical waste must be segregated in **coloured bags according to the category of the waste.** It can be **stored up till 48hrs** after which it is either needed to be t**reated at in-situ site** or collected by the worker from CBMWTF.

4.37. ECOTOURISM POLICY

The government has brought out a policy for ecotourism in Forest and Wildlife Areas.

Policy for Eco-Tourism in Forest and Wildlife Areas

- **Eco-tourism:** It can be defined as responsible travel to natural areas that conserves the

environment and improves the well-being of local people.

- **Prepared by MoEFCC,** it provides livelihood opportunities for the local communities (**homestead-based hospitality enterprises**), educate visitors and enhance their understanding of nature.
- **Coverage:** It will be developed in **Protected Areas** (PAs- wildlife sanctuaries, national parks, conservation reserves and community reserves) and areas outside designated PAs including forests, mangroves, sacred groves, mud flats, wetlands and rivers.
- **Eco-Tourism Development Board to** be established by State/Union Territory, to advise them on the modalities of eco-tourism and to oversee the implementation of the policy.

4.38. 'CULTURAL MODEL' OF CONSERVATION

Idu Mishmi tribe of Arunachal Pradesh were protesting against the declaration of Dibang Wildlife Sanctuary (DWS) as Tiger Reserve and asking for a **Cultural Model of Conservation**.

More on news

- The Idu Mishmi people traditionally follow an **animist and shamanistic faith** and believe that tigers are their elder siblings. Tigers are never hunted by Idu Mishmi and even If a tiger is killed in self-defense, it will receive the same burial as a human being.
- **Colonial versus Cultural model of conservations**
  - **Colonial Model of Conservation:** In this model, human presence is taken as threat to nature and **denies indigenous peoples' rights** and provoked long-term social conflict.
  - **Cultural model of Conservation: It respect for the rights of indigenous peoples** and other bearers of "traditional knowledge" and prevents social conflicts.
- The **Kinshasa Resolution of 1975** (under IUCN) provides international recognition to cultural model of conservation.

Application by Cultural model of conservation in different tribes of India

- **Bishnoi Tribe of Rajasthan:** Bishnois consider **trees** as sacred and protect the **entire ecosystem** including animals and birds that exists in their villages. Tribe has organized their own Tiger Force which is a brigade of youth actively pursue wildlife protection.

- **Chenchu Tribe of Andhra Pradesh:** They are involved in tiger conservation at Nagarjunasagar Srisailam Tiger Reserve (NSTR).
- **Maldhari Tribe in Junagadh(Gujarat):** The success of lion conservation in Gir forest area is due **to peaceful coexistence** of tribe with lions.
- **Bugun Tribe of Arunachal Pradesh:** They **protect the critically endangered bird Bugun Liocichla.** For its efforts Singchung Bugun Community Reserve won the India Biodiversity Award 2018.
- **Nyishi tribe of Arunachal Pradesh** in conserving hornbills in the **Pakke**/Pakhui Tiger Reserve. Recently, government of Arunachal Pradesh declared the Pakke Paga Hornbill Festival (PPHF)– the **state's only conservation festival,** as a '**state festival'.**

4.39. NATIONAL WATER INFORMATICS CENTRE

The government has set up **National Water Informatics Centre (NWIC)** to maintain a comprehensive water resources data.

About NWIC

- It would be a **repository of nation-wide water resources data** and would work as a Subordinate Office under the Ministry of Water Resources, River Development and Ganga Rejuvenation which is to be headed by a Joint Secretary level officer.
- It will provide latest and reliable water data (**other than classified data**) through web-based India Water Resources Information System (India-WRIS) on a **GIS platform** in Public Domain.
- It will also **collaborate with leading national and international research institutes** to provide technical support to central and state organisations dealing with water emergency response of hydrological extremes.
- It is a component of **National Hydrology Project** and also in consonance with the **National Water Mission** which has an objective of "conservation of water, minimizing wastage and ensuring its more equitable distribution through integrated water resources development and management".

National Hydrology Project

- It is a **central sector scheme**. Under this, the Hydrometeorological data will be stored and analyzed in real time basis and can be seamlessly accessed by any user at State, District and Village level.
- Its components include
  - In Situ Hydromet Monitoring System and Hydromet Data Acquisition System.

- o Setting up of National Water Informatics Centre (NWIC).
- o Water Resources Operation and Management System
- o Water Resources Institutions and Capacity Building

India-Water Resource Information System

- It is a joint venture of the **Central Water Commission (CWC)**, Ministry of Water Resources and Indian Space Research Organization (**ISRO**), Department of Space.
- India-WRIS provides **'Single Window solution'** for all water resources data & information in a national GIS framework.

4.40. NATIONAL DISASTER RISK INDEX

The Union ministry of home affairs with the support of United Nations Development Programme (UNDP) have prepared for the first time a **national disaster risk index** for India.

More about the Index

- It mapped hazards and vulnerabilities including economic vulnerabilities across 640 districts and all states including UTs.
- The index factors in exposure of population, agriculture and livestock and environmental risk.
- It will be used to prepare **a composite disaster scorecard (DSC)**.
- The index is in line with India's commitment to the **Sendai Framework**.

4.41. INDIA'S 1ST SOIL MOISTURE MAP

India Meteorological Department (IMD), for the first time, has provided a country-wide soil moisture forecast termed **'Experimental Forecasts Land Surface Products'**. It has been developed using the **'Variable Infiltration Capacity' model** that takes into **consideration soil, vegetation, land use and land cover among other parameters**.

Importance of Soil moisture

- It acts as a nutrient itself and regulates soil temperature.
- It serves as a solvent and carrier of food nutrients for plant growth.
- Yield of crop is more often determined by the amount of water available rather than the deficiency of other food nutrients.
- Soil forming processes and weathering depend on water.
- Microorganisms require water for their metabolic activities.

4.42. MEGHALAYAN AGE

Scientists have identified a new phase in Earth's geological history called the Meghalayan age.

Geological Time Scale

The geological time scale is the "calendar" for events in Earth history. It subdivides all time into named units of abstract time called—in descending order of duration—**eons, eras, periods, epochs, and ages.**

Meghalayan Age

- The Meghalayan Age, which is the subdivision of the Holocene Epoch, began about 4,200 years ago.
- It has been officially ratified as the most recent unit of the Geologic Time Scale by the **International Union of Geological Sciences,** an international NGO.
- **The International Commission on Stratigraphy,** which is responsible for standardising the Geologic Time Scale, approved the definition of the beginning of the youngest unit of the Geologic Time Scale based on the timing of this event and forwarded its proposal to IUGS.
- The **other two subdivisions of the Holocene Epoch** — the Early Holocene Greenlandian (11,700 years ago), Middle Holocene Northgrippian (8300 years ago) were also approved.
- The Meghalayan Stage has been defined at a specific level in a stalagmite in the **Mawmluh caves —** one of the India's longest and deepest — in Cherrapunji, Meghalaya.
  - o The onset of the age was marked by a severe 200-year long drought that resulted in the collapse of civilisations and human migrations in Egypt, Greece, Syria, Palestine, Mesopotamia, the Indus Valley, and the Yangtze River Valley.
- The International **Chronostratigraphic Chart,** the famous diagram depicting the timeline for Earth's history will be updated.

4.43. KREM PURI CAVES

The length of Krem Puri caves has been measured to be 24,583 metres making it the **world's longest sandstone cave.**

About Krem Puri Caves

- Krem Puri caves, discovered in 2016, are situated near the village of Laitsohum in the **Mawsynram** area of **East Khasi Hills** district of **Meghalaya**.

- The cave system has **fossils of dinosaurs**, especially **Mosasaurus**, a giant reptile that lived 66-76 million years ago.
- This cave is more than 6,000 metres longer than the world's previous record holder- the **Cueva Del Saman in Edo Zulia, Venezuela** — a **quartzite sandstone** cave measuring 18,200 metres.
- This cave has also become **India's second longest cave in the general category** after the **limestone Krem Liat Prah-Umim-Labit** system measuring a little over 31km in **Jaintia Hills in Meghalaya**.

4.44. ISRAEL UNVEILS WORLD'S LONGEST SALT CAVES

- Cave explorers have discovered the world's longest salt cave (around 10 km) named Malham in the Mount Sodom, Israel.
- Earlier **3 N cave** in southern Iran's **Qeshm island** was the longest salt cave in the world with length of 6 km.

Related information
- The Mammoth Cave system in Kentucky, US, is the longest in the world stretching for about 651.8 kilometers.
- The longest natural cave in India is **Krem Liat Prah** in the Jaintia Hills, which is 30.9 km.

Supplementary Current Affairs for Prelims 2020

5. SCIENCE AND TECHNOLOGY

5.1. HYSIS

PSLV C43 has launched **India's first Hyperspectral Imaging Satellite (HysIS)** from Satish Dhawan Space Centre, Sriharikota.

Details

- HysIS is an **earth observation satellite** built around **ISRO's Mini Satellite-2 (IMS-2) bus**.
  - It was placed into **polar sun synchronous orbit** and has mission lifespan of 5 years.
- **Hyperspectral Imaging Technology** combines the power of **digital imaging and spectroscopy** to attain both spatial and spectral information from an object.
- This result can be then used to identify, measure and **locate different materials and their chemical and physical properties.**
- It was first tried by ISRO in an experimental satellite in May 2008 and later on Chandrayaan-1 mission for mapping lunar mineral resources.
- **Application:** Hyperspectral remote sensing is used for a range of applications like agriculture, forestry, soil survey, geology, coastal zones, inland water studies, environmental studies, detection of pollution from industries and the military for surveillance or anti-terror operations.

> **Related Information**
> **Spectral Imaging**
> - It is imaging that uses multiple bands across the electromagnetic spectrum like using infrared, the visible spectrum, the ultraviolet, x-rays, or some combination of the above.
> **Hyperspectal imaging vs multi spectral imaging**
> - The main difference between multispectral and hyperspectral is **the number of bands and how narrow the bands are**.
> - Hyperspectral imaging (HSI) uses **continuous and contiguous ranges of wavelengths** (e.g. 400 - 1100 nm in steps of 0.1 nm) whilst multispectral imaging (MSI) uses a **subset of targeted wavelengths at chosen locations** (e.g. 400 - 1100 nm in steps of 20 nm).
> - Hyperspectral imagery consists of much **narrower bands (10-20 nm)**. A hyperspectral image could have hundreds or thousands of bands. In general, it comes from an imaging spectrometer.

5.2. INDIA- BASED NEUTRINO OBSERVATORY (INO)

India- based Neutrino Observatory (INO) is under construction in Tamil Nadu.

What is INO?

- The project includes:
  - Construction of an **underground laboratory** at Pottipuram **in Bodi West hills** of Theni District of Tamil Nadu.
  - Construction of an **Iron Calorimeter (ICAL) detector** for studying neutrinos, which will include the world's largest magnet.
  - Setting up of **National Centre for High Energy Physics at Madurai**, for the operation and maintenance of the underground laboratory, human resource development and detector R&D along with its applications.
- It is located within 5 km of **Madhikettan Shola National Park in Idukki district of Kerala** and hence also requires **specific approval by the National Board for Wildlife.**

> **What are Neutrinos?**
> - The neutrinos are **second most abound particles in the universe**.
> - They interact very little with anything and pass through everything that's why it's **hard to detect** them.
> - They carry **no electrical charge and are nearly massless.**
> - They occur in **3 different types**, separated based on mass (electron-neutrino, muon-neutrino, tau-neutrino).
> - They are **produced in the core of the sun** & millions of them roam around in the solar system.
> - Neutrinos **can also be made artificially**. They are produced in radioactive decays and in nuclear reactors.
> - **Benefits:** understanding the particle, understanding the evolution of the universe, understanding of dark matter (as they interact with it), role in nuclear non-proliferation through remote monitoring, study of Geoneutrinos might help creating an earthquake warning system, **map natural resources inside the earth.**
> - They are least harmful of elementary particles, as they hardly interact with matter. In fact, trillions of solar neutrinos pass through our body every second without doing any harm to us.
> **About Anti-neutrinos**
> - They are antiparticles of neutrinos and are produced in the negative beta decay.
> - Antineutrinos (as neutrinos) are very penetrating subatomic particles, capable of passing through Earth without any interaction.
> - Neutrinos and antineutrinos belong to the family of leptons, which means they do not interact via strong nuclear force.

5.3. LIGO-INDIA (INDIGO)

LIGO-India (INDIGO) Observatory is scheduled to be **operational in 2024.**

Details

- It is a planned advanced gravitational-wave observatory to be located in India as part of the worldwide network.
- It is planned as **a collaborative project** between a **consortium of Indian research institutions and the LIGO Laboratory in the USA,** along with its international partners Australia, Germany and the UK.
- The LIGO project operates three gravitational-wave (GW) detectors. Two are at Hanford and Livingston in USA.
- The proposed LIGO-India project aims to move one Advanced LIGO detector from Hanford to India. It would be stationed at a perpendicular direction to the detectors in USA.
- LIGO-India is funded by the **Department of Atomic Energy (DAE) & Department of Science and Technology (DST).**
- It is proposed to be built in **Maharashtra's Hingoli District.**

What are Gravitational Waves?
- Gravitational waves are **distortions or 'ripples' in the fabric of spacetime** caused by some of the most violent and energetic processes in the Universe such as such as the explosion of giant stars, the collision of neutron stars, and the coming together of black holes.
- **Albert Einstein predicted the existence of gravitational waves** in 1916 in his general theory of relativity.
- The effect is very weak, however, and only the biggest masses, moving under the greatest accelerations, are expected to warp their surroundings to any appreciable degree.
- The **LIGO detectors discovered the first gravitational waves** produced by two giant merging blackholes in 2017.
- **Nobel Prize for Physics, 2017** was awarded to Scientists Rainer Weiss, Barry Barish and Kip Thorne for contributions to the LIGO detector and the observation of gravitational waves.

5.4. COSMIC MICROWAVE BACKGROUND RADIATION (CMBR)

Scientists from the Raman Research Institute in Bengaluru have conducted an experiment for detection of Cosmic Microwave background radiation in **Timbaktu in Andhra Pradesh.**

Cosmic Microwave Background Radiation (CMBR)

- It is **an all-pervasive, but weak, electromagnetic radiation** from the early universe**, about 3,80,000 years after the Big Bang when matter was still to be formed.** Most cosmologists consider this radiation to be **the best evidence for the hot big bang model of the universe.**
- This radiation **does not come from any of the objects that we see in the universe, like stars or galaxies** but from a time **when matter and radiation were in thermodynamic equilibrium**.
- The spectrum produced by **CMBR is very smooth**. It does, however, contain **small wiggles, or deformities**, in its shape.
- **Each of these wiggles has valuable encoded information** about specific events that took place as the first stars were born.

5.5. GLOBAL RELAY OF OBSERVATORIES WATCHING TRANSIENTS HAPPEN (GROWTH)-INDIA

India's first robotic telescope – **Global Relay of Observatories Watching Transients Happen (GROWTH)-India,** began its operation at the Indian Astronomical Observatory (IAO) in Hanle in Ladakh.

Details

- **GROWTH-India** is a joint project of Indian Institute of Astrophysics, Bangalore and the Indian Institute of Technology Bombay (**IITB).**
  - It is fully funded by the Science and Engineering Board (**SERB**) of the **Department of Science and Technology**, under the Partnerships for International Research and Education (**PIRE) project**, administered by the Indo-US Science and Technology Forum.
  - It is a 70cm imaging telescope and the primary objective of the project is the **time domain astronomy**.
  - The first targets for the telescope were chosen from the **Messier catalogue** (a catalogue of nearby, bright astronomical sources accessible from the northern hemisphere).
- **GROWTH Initiative** is a part of **multi-country collaborative** initiative to **observe transient events in the universe**.
  - The initiative focusses on **three scientific themes** in the field of time-domain astronomy – cosmic explosions

(supernova), small near-earth asteroids and the electromagnetic identification of gravitational wave sources.

- o It is a **fully robotic optical research telescope** which has been designed to capture cosmic events occurring in timescales much shorter than light years like years, days and even hours.
- o **Partners:** Universities and research institutes from the US, the UK, Japan, India, Germany, Taiwan and Israel are part of the initiative.

What are transient events?
- These are **short lived burst of energy** in a system caused by a sudden change of state.
- The events are caused due to several factors such as relatively benign flares of stars, accretion of matter on compact objects, stellar merger and explosions.
- All these result in a flash in the sky for a period and then slowly fade away.
- Through these electromagnetic signatures, astronomers try to gain an insight into the cosmic objects as well as physical processes that govern their evolution.

What is Time Domain Astronomy?
It is the study of how astronomical objects change with time. Changes may be due to movement or physical changes in the object itself. Examples include pulsar variability, and the variability of accreting black holes, variable stars, and the Sun.

5.6. FORWARD SEARCH EXPERIMENT (FASER)

CERN have approved a new experiment named FASER designed to identify light and weakly interacting particles.

Forward Search Experiment (FASER)

- FASER is a proposed experiment dedicated to searching for **light, extremely weakly-interacting particles** at the **Large Hadron Collider (LHC).**
- Such particles may be **produced in the LHC's high-energy collisions** in large numbers in the far-forward region and then travel long distances through concrete and rock without interacting.
- A small and inexpensive detector placed in the far-forward region may therefore be capable of extremely sensitive searches. The **FASER program is specifically designed to take advantage of this opportunity**.
- These particles may decay to visible particles in FASER, which is placed 480 m downstream of the **ATLAS interaction point.**

5.7. EINSTEIN RING

Recently, the Hubble Telescope discovered a light bending Einstein Ring in space.

What is an Einstein Ring?

- According to the **General Relativity theory** of Albert Einstein, light can get deflected when passing through gravitational field of a massive body. Therefore, a massive object would warp space and time.
- Einstein Ring is a kind of gravitational lens which is formed **when the galaxy cluster is so closely aligned that the otherwise divergent light is focussed as a visible ring by them**.
- The rings and lenses **magnify objects** that otherwise would be too distant and dim to see in today's telescopes.
- When the amount of bending of light is analyzed and the required bending mass is greater than the visible mass of the cluster, it shows the presence of Dark matter.

5.8. COPERNICUS PROGRAMME

India and the European Union recently signed an agreement that will enable them to share earth observation data from each other's satellite.

About the Arrangement

- **Copernicus Programme** is Earth observation programme headed by the European Commission (EC) in partnership with the European Space Agency (ESA).
- India will get **free, full and open access to the data from the Copernicus Sentinel family of six satellites.**
- **Reciprocally,** India will provide free, full and open access to the **data from ISRO's land, ocean and atmospheric series** of civilian satellites (Oceansat-2, Megha-Tropiques, Scatsat-1, SARAL, INSAT-3D, INSAT-3DR) with the **exception of commercial high-resolution satellites data.**
- The services address **six thematic areas**: land, marine, atmosphere, climate change, emergency management, and security.

5.9. NUCLEAR TRIAD

India has completed Nuclear Triad.

Details

- The **indigenous INS Arihant**, India's first nuclear-powered submarine successfully completed its **first deterrence patrol.** With the

completion of the patrol, **India have finally achieved the longstanding ambition to have a nuclear triad.**

- A nuclear triad refers to the **three components of atomic weapons delivery:** strategic bombers, intercontinental ballistic missiles (ICBMs) and submarine launched ballistic missiles (SLBMs).
- A nuclear triad gives a country the ability to launch nukes from land, air and sea. India's nuclear triad consists of multiple deterrants such as Agni and Prithivi missiles for Army, Sukhoi-30MKI and Mirage-2000 for Airforce, INS Arighat for Navy.

Related information
Project 75(I)

- Defence Acquisition Council approved indigenous construction of **Six Project 75(I) submarines** under strategic partnership model.
    - o Project 75 India (P-75I) is follow-on of the Project 75 Kalvari-class submarines for the Indian Navy.
    - o Under this project, the Indian Navy intends to acquire six **diesel-electric submarines**, which will also feature advanced Air-independent propulsion (AIP) systems to enable them to stay submerged for longer duration and substantially increase their operational range.
- **Under Strategic Partnership (SP) Model**, an Indian private company would be selected in each segment which would tie up with shortlisted global Original Equipment Manufacturer (OEM) to manufacture the platforms in India under technology transfer.
    - o The SP model has **four segments** — submarines, single engine fighter aircraft, helicopters and armoured carriers/main battle tanks — which would be specifically opened up for the private sector.
    - o It was first suggested in 2015 by **Dhirendra Singh Committee** and was introduced by Defence Procurement Procedure 2016.

5.10. CYBER- PHYSICAL SYSTEMS

Cabinet has launched **National Mission on Interdisciplinary Cyber- Physical Systems (NM-ICPS)** which is to be implemented by **Department of Science &Technology**.

Details

- **National Mission on Interdisciplinary Cyber-Physical Systems** is a comprehensive mission which would address technology development, application development, human resource development, skill enhancement, entrepreneurship and start-up development in CPS and associated technologies.
    - o It aims at establishment of **Technology Innovation Hubs**, Application Innovation Hubs and **Technology Translation Research Parks (TTRP).**
- CPS is an **interdisciplinary field** that deals with the deployment of computer-based systems that do things in the physical world. It integrates sensing, computation, control and networking into physical objects and infrastructure, connecting them to the Internet and to each other.
    - o **Examples of cyber physical systems** are Smart Grid Networks, Smart Transportation System, Enterprise Cloud Infrastructure, Utility Service Infrastructure for Smart Cities, etc.
    - o **CPS and its associated technologies**, like Artificial Intelligence (AI), Internet of Things (IoT), Machine Learning (ML), Deep Learning (DP), Big Data Analytics, Robotics, Quantum Computing, Quantum Communication, Quantum encryption (Quantum Key Distribution), Data Science & Predictive analytics, Cyber Security for physical infrastructure and other infrastructure plays a transformative role in almost every field of human endeavor in all sectors.

5.11. FREE SPACE OPTICAL COMMUNICATION

X Development LLC, a subsidiary of Google's parent company Alphabet will supply and deploy two thousand cutting-edge **Free Space Optical Communication (FSOC) links** for Andhra Pradesh (AP) fiber-grid.

What is Free Space Optical Communication?

- It is an optical communication technology in which data is transmitted by propagation of light in free space allowing optical connectivity.
- Working of FSO is similar to OFC (optical fiber cable) networks but the only difference is that the optical beams are sent through free air or vaccum instead of glass fiber.
- It is a **Line of Sight (LOS) technology**. It consists of an optical transceiver at both ends to provide full duplex (bidirectional) capability.
- It is capable of sending up to 1.25 Gbps of data, voice, and video communications simultaneously through the air.

- **Advantages: low initial investment,** flexible network that delivers **better speed** than broadband, security due to line of sight operation etc.
- **Challenges:** misalignment errors, geometric losses, background noise, weather attenuation losses and atmospheric turbulence.

5.12. PARIS CALL

At UNESCO Internet Governance Forum (IGF) meeting convened in Paris, "**The Paris Call for Trust and Security in Cyberspace**" was commenced, aimed at developing common principles for securing cyberspace.

Details

- **Participants:** More than 190 signatures were obtained on the Paris Call, including 130 from private sector and more than 50 member nations. Prominent countries like India, US, China, Russia did not sign the agreement.
- **Prominent Models of Internet Governance**
  - **Multi-stakeholder Model (supported by western nations like US)**
    - ✓ Decentralized governance institutions where non-state actors like corporates, NGOs & civil society have a say in making globally acceptable norms regulating cyberspace.
    - ✓ Gives recognition to technical expertise of corporates.
  - **Multilateral Model (supported by Russia and China)**
    - ✓ Governance model based on agreements between multiple governments with limited involvement of non-state actors.
    - ✓ Holds sovereignty of nation state in managing cyberspace and provides the scope for the exercise of inherent right of self-defense and the law of state responsibility, including countermeasures in the cyberspace.

5.13. NTRO UNDER INTELLIGENCE ACT

Home Ministry has issued a notification **listing National Technical Research Organization (NTRO) under the Intelligence Organizations (Restriction of Rights) Act, 1985**.

About NTRO

- The NTRO was created after the 1999 Kargil conflict as a dedicated **technical intelligence**

agency. It was finally constituted in 2004.
- NTRO reports to the Prime Minister's Office (PMO) and the National Security Advisor (NSA).
- It functions under the National Security Adviser.
- It also includes National Institute of Cryptology Research and Development.
- **Intelligence Organizations (Restriction of Rights) Act 1985**
  - The aim of this act is to prevent leakage of information by intelligence agencies.
  - It prevents employees of a notified agency -From forming unions/associations; Puts restrictions on the employee's freedom of speech and Bars any communication with the press or publishing a book or other document without the permission of the head of the intelligence organization.

5.14. HUMAN MICROBIOME

Indian Human Microbiome Initiative, led by The National Centre for Microbial Resource (NCMR) - National Centre for Cell Science (NCCS) has been put up for approval.

Details

- **Indian Human Microbiome Initiative** will include **collection of saliva, stool and skin swabs of 20,000 Indians** across various ethnic groups from different geographical regions.
  - Scientists have found that **Indian population, particularly tribals, have distinct gut microbiota**. Such tribal populations are **largely unaffected by "modern" diet** and **have lower prevalence of lifestyle diseases**.
- **About Human Microbiome**
  - The **collective genome of all micro-organisms** contained within the human body, residing inside tissues & bio-fluids is called **Human Microbiome**.
  - It includes bacteria, archaea, fungi, protists and viruses.
  - Most of them have either **commensal** (co-exist without harming humans) or **mutualistic** (each benefit from the other) relation.
  - The composition of microbiome is shaped by factors such as genetics, dietary habits, age, geographic location and ethnicity.
  - Human microbiome **makes up around 2% of the body mass of the adult.** There are 10 times as many outside organisms as there are human cells in human body.
  - Microbial communities play a key role in

many aspects of host physiology like Metabolism of otherwise complex indigestible carbohydrates and fats; Production of essential vitamins; Maintaining immune system; Acting as a first line of defense against pathogens etc.

- Earlier in 2007, **Human Microbiome Project (HMP) was launched.**
  - o HMP is a research initiative of **US's National Institute of Health** with the mission to generate the resources and expertise needed to characterize the human microbiome and analyze its role in health and disease.
  - o A second phase of the Human Microbiome Project—called the **Integrative Human Microbiome Project (or iHMP)**—was initiated to determine how the microbial makeup of subjects influenced specific health conditions and disease states.
  - o Some methodologies used in HMP are:
    - ✓ **Metagenomics,** a sequence-based approach that allows the genetic material from the complete collection of microbes to be analyzed in their natural environment without needing to cultivate the microorganisms.
    - ✓ **Whole Genome Sequencing**

5.15. MALARIA VACCINE

Government of Malawi launched the world's first malaria vaccine- **RTS,S** in a landmark pilot programme.

RTS,S

- RTS,S/AS01 (RTS,S) (Trade name: **Mosquirix**) is the **world's first malaria vaccine** shown to provide partial protection against malaria in young children.
- RTS,S aims to trigger the immune system to **defend against the first stages of malaria when the Plasmodium falciparum parasite enters the human host'**s bloodstream through a mosquito bite and infects liver cells.
- The vaccine is designed to **prevent the parasite from infecting the liver**, where it can mature, multiply, reenter the bloodstream, and infect red blood cells, which can lead to disease symptoms.
- It has been developed by British pharmaceutical company **GlaxoSmithKline** in **partnership with the PATH Malaria Vaccine Initiative (a non profit organisation).**
- Malaria is a communicable disease caused by *Plasmodium* **parasites** that are transmitted to

people through the bites of infected **female Anopheles mosquitoes.**

5.16. YESCARTA THERAPY

Recently, U.S Food and Drug Administration (USFDA) approved a **Yescarta (axicabtagene ciloleucel) therapy** to treat adults with certain types of large B-Cell lymphoma (blood cancer).

About Yescarta therapy

- It is a type of gene therapy that turns cells in the patient's body into a "living drug" that targets and kills cancer cells.
- It has been given **Orphan Drug Designation,** under which it will be provided with financial incentives to encourage the development of drugs.
- **Yescarta** uses **CAR (chimeric antigen receptor) T- cell therapy** for treatment.

5.17. THREE PARENTS BABY

UK became the first country to have officially approved procedures to create "three-parent" babies.

About "three-parent" babies

- **Mitochondrial Replacement therapy (MRT)** is used to **replace mother's faulty Mitochondrial DNA with healthy Mitochondria from a donor woman** during IVF process, thus the name- "three-parent" baby
- The donor's mitochondria contribute **just 37 genes to the child,** compared with more than 20,000 from the parents. That is a **negligible amount** and far less than one would gain from a blood transfusion or organ transplant.
- **No other characteristics** in terms of intelligence, eye colour, hair colour, height etc. are changed.
- **Mitochondrial Disease**
  - o The mitochondria are organelles inside cells that are involved in releasing energy by **producing adenosine triphosphate**

(ATP), the key energy currency that drives metabolism.

- o Mitochondria are **inherited solely from the mother** and this results into cases of babies been born with **rare mitochondrial diseases** if mother has the faulty mitochondrial DNA.
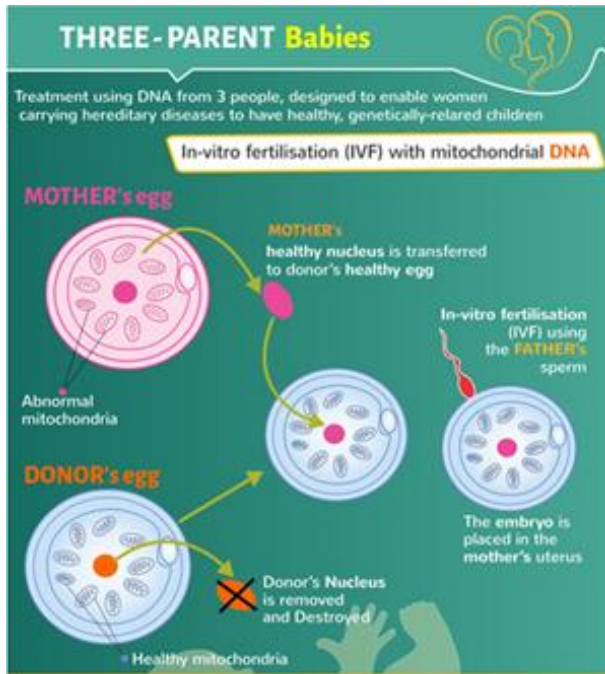
5.18. BIOSIMILAR FOR CANCER

Biocon became the first Indian company to get a US Food and Drug Administration (USFDA) nod for a biosimilar drug Ogivri.

What are biosimilars?

- A biosimilar medicine is a biological medicine that is developed to be **highly similar and clinically equivalent** to an existing biological medicine.
- A biosimilar contains **a version of an active substance of an already approved biological medicine**, which is referred to as the 'reference medicine' or 'originator medicine'.
- They are different from generic medicines, because they contain simpler chemical structures and are identical, in terms of molecular structure, to their reference drugs.

5.19. CRYO-ELECTRON MICROSCOPY

Nobel Prize for Chemistry 2017 has been awarded to Jacques Dubochet, Joachim Frank and Richard Henderson for the **development of high-resolution cryo-electron microscopy.**

Details

- Cryo-electron microscopy is a method for imaging frozen-hydrated specimens at cryogenic temperatures by electron microscopy.
- Specimens that are to be analysed would remain in their native state without the need for dyes or fixatives, which would allow the study of fine cellular structures, viruses and protein complexes at molecular resolution.
- Contrary to earlier electron micro-scoping, cryo-electron miscroscopy can view solutions (as water would not evaporate under microscope's vacuum).
- It helps researchers to freeze biomolecules mid-movement and visualise the processes they have never previously seen.
- It has been used to image the elusive Zika virus and its medicine associated research.

5.20. CIRCADIAN RHYTHM

Nobel Prize in Physiology or Medicine 2017 was awarded to Jeffrey C. Hall, Michael Rosbash and Michael W. Young for their discoveries of molecular mechanisms controlling the **circadian rhythm**.

Details

- The discoveries explain how plants, animals and humans adapt their biological rhythm so that it is synchronised with the Earth's revolutions.
- The scientist used fruit flies to isolate a gene that controls the normal daily biological rhythm and showed how this gene encoded a protein that accumulates in the cell during the night and degrades during the day.
- **Circadian rhythm** is a pattern that guides our bodies when to sleep, rise, eat and regulating many physiological processes.
  - o Biological clocks produce circadian rhythms and regulate their timing.
  - o It is affected by environmental cues, like sunlight and temperature.

5.21. INTERSTITIUM

A new human organ called Interstitium has been identified by the scientists. Excluding Interstitium, **79 organs** have been identified within human body by now.

Details about Interstitium

- They are **fluid filled compartments** found beneath the skin, as well as lining the gut,

lungs, blood vessels and muscles, and join together to form a network supported by a mesh of strong, flexible proteins.
- They were earlier considered as dense connective tissue.
- They may act as "shock absorbers" that protect body tissues from damage.
- This newly discovered organ may help in understanding of the spread of cancer in human body.
- Interstitium is among one of the largest organs of human body.

5.22. BAN ON OXYTOCIN

The Union government **restricted the manufacture** of Oxytocin formulations for domestic use to public sector only. The government has also **banned imports** of the oxytocin.

About Oxytocin

- Oxytocin is a hormone produced in humans by the hypothalamus (a part of brain) and secreted by the pituitary gland. It is also produced in animals naturally.
- **Usage of Oxytocin-**
  o **During Childbirth**- The hormone stimulates the uterine muscles to contract, so labor begins. It is also used to control post-delivery bleeding
  o **Breastfeeding**- It promotes lactation by moving the milk into the breast during feeding.
  o **Human bonding activities**- released naturally during sex, it is also known as 'love hormone'.
- It has been misused for increasing milk production in animals, increasing size of vegetables, accelerate puberty among trafficked girls etc.

5.23. PROJECT DHOOP

Recently the Project Dhoop has been launched by Food Safety and Standards Authority (FSSAI).

About the Project Dhoop

- It is a **nationwide campaign** launched by FSSAI along with NCERT, New Delhi Municipal Council and North MCD Schools to spread awareness about consumption of Vitamin D through natural sun light and consuming fortified food among school going children.
- The project urges the schools to shift their morning assembly timing to noon time so that children are able to absorb **optimum levels of Vitamin D** through natural sunlight.

- It will ensure that the children are exposed to sun light that will give them the required 90% of Vitamin through sun light.
- The sunshine from 11AM to 1PM is most beneficial for bones of human body because during that time the best UVB radiation is received. Thus the innovative Noon Assembly is very beneficial for the children.

5.24. HYDROGEN-CNG

Delhi will soon start trial of hydrogen-run CNG buses.

What is HCNG?

- HCNG is a vehicle fuel which is a **blend of compressed natural gas and hydrogen**, typically 8-50% hydrogen by volume.
- **Advantages of HCNG**
  o **No retrofitment required**- It does not need any modification of the engine or retrofitment.
  o **Lower pollutant emissions**- It has potential to reduce nitrous oxide (NOx), carbon dioxide (CO_2), carbon monoxide (appx 70%) and hydrocarbon emissions (appx 15%) vehicle emissions compared to traditional CNG.
    ✓ Hydrogen addition to natural gas can **decrease engine's unburned hydrocarbons** and speed up the combustion process.
  o **Improves fuel economy**- It improves the engine efficiency, lowers fuel consumption upto 5 per cent as compared to a CNG bus.
  o The **thermal efficiency of both Natural gas and HCNG increases** with increase in load which makes it an ideal fuel for high load applications and heavy-duty vehicles.

5.25. APSARA-U

A research reactor "**Apsara-upgraded**" has become operational at Bhabha Atomic Research Centre (BARC), Trombay.

Research reactors

- Research reactors are simpler nuclear reactors used **for research, radioisotope production, education, training etc**, operating at low temperature.
- **Like power reactors, the core needs cooling** and usually a moderator is used to slow down the neutrons.
- They produce neutrons for use in industry, medicine, agriculture, forensics, etc which is

their main function. Hence most research reactors also need a **reflector to reduce neutron loss from the core**.

About Apsara-U

- It has been made indigenously.
- It is the **upgraded version of "Apsara",** the **first research reactor in Asia** which had became operational in 1956 and was shut down in 2009.
- It uses plate type dispersion fuel elements made of **Low Enriched Uranium (LEU).**
- Owing to higher neutron flux, this reactor will **increase indigenous production of radio-isotopes** for medical application by about 50%.

Other Research reactors
- **Kamini (**Kalpakkam Mini**)**
  - KAMINI is the only reactor in the world operating with 233U fuel which is produced by the thorium fuel cycle harnessed by the neighboring Fast Breeder Test Reactor.
- **Dhruva** (at BARC in Trombay)
  - It is India's largest research reactor.

India's three-stage Nuclear Power Programme
- **Stage 1: Pressurised Heavy Water Reactor**
  - In this natural uranium (0.7 % fissile U-235 and the rest is U-238) fuelled pressurised heavy water reactors (PHWR) which produce electricity while generating plutonium-239 as by-product.
- **Stage 2 – Fast Breeder Reactor**
  - In the second stage, fast breeder reactors (FBRs) would use a mixed oxide (MOX) fuel made from **plutonium-239**, recovered by reprocessing spent fuel from the first stage, and **natural uranium**.
  - In FBRs, plutonium-239 undergoes fission to produce energy, while the uranium-238 present in the mixed oxide fuel transmutes to additional plutonium-239.
  - Thus, the Stage II FBRs are designed to **"breed" more fuel than they consume**.
  - Recently, India's first indigenously developed prototype FBR at Kalpakkam achieved **criticality**, which means reactor is fully operational and safe.
- **Stage 3 – Thorium Based Reactors**
  - A Stage III reactor or an advanced nuclear power system involves a self-**sustaining series of thorium-232- uranium-233 fuelled reactors**.
  - This would be a thermal breeder reactor, which in principle can be refueled after its initial fuel charge using only naturally occurring thorium.

	PHWR	FBR
Purpose	Electricity, plutonium production	Electricity, plutonium production

Coolant	Heavy water (D$_2$O)		Molten, liquid sodium
Moderator	Heavy water (D$_2$O)		Not required
Fuel	UO2 or metal		Plutonium dioxide and UO2 in different combinations
Enrichment level	Not-enriched		Various mixtures of P-239 and U-235

5.26. SUPERCRITICAL CO2-BRAYTON CYCLE

Indian scientists have developed a **super critical carbon dioxide** Brayton test loop facility that would help generate clean energy from future power plants.

Key facts

- This is India's first test-bed for next generation, efficient, compact, waterless super critical carbon dioxide **Brayton cycle** test loop for power generation.
  - Brayton cycle is a thermodynamic cycle using constant pressure, heat addition and rejection to spin the blades of a turbine, which can be used to generate electricity.
- The term **"supercritical"** describes the state of carbon dioxide above its critical temperature of 31°C and critical pressure of 73 atmospheres making it twice as dense as steam.
- Today's thermal power plants use steam to carry heat away from the source and turn a turbine to generate power. However, it could generate more power if, instead of steam, **supercritical CO2 (SCO2)** is used.

5.27. GRAPHENE BASED BATTERY

Scientists have developed a new graphene-based battery material with charging speed five times faster than lithium-ion batteries.

About Graphene

- Graphene form of carbon consists of **planar sheets (2D structure)** which are one atom thick, with the atoms arranged in a **hexagonal lattice** (honeycomb-shaped lattice).
- Very good conductor of electricity and heat
- About 200 times stronger than steel and nearly transparent.
- Impermeable to gases
- **Applications**: It can be used as/in Paints and coatings, lubricants, oils and functional fluids,

capacitors and batteries, thermal management applications, display materials and packaging, solar cells, inks and 3D-printers' materials and films etc.

5.28. NICE, VIENNA AND LOCARNO AGREEMENTS

India has joined the **Nice, Vienna and Locarno Agreements**, related to the **World Intellectual Property Organization's (WIPO) international classification systems**.

WIPO-Administered Treaties for Classifications:

- **The Nice Agreement (1957)** establishes a classification of goods and services for the purposes of **registering trademarks and service marks** (the Nice Classification).
- **The Locarno Agreement** (1968) establishes a classification for **industrial designs** (the Locarno Classification).
- **The Vienna Agreement (1973)** establishes a classification (the Vienna Classification) for marks that consist of, or contain, **figurative elements**.
- **The International Patent Classification (1971)** is used to classify **patents and utility models** according to the different areas of technology to which they pertain. It was established by the **Strasbourg Agreement.**
- The treaties entered into force for India on September 7, 2019.

6. SOCIAL ISSUES

6.1. CHILD LABOUR

- According to International Labour Organisation**, "child labour"** is often defined as **work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development**. It refers to work that:
    - **is mentally, physically, socially or morally dangerous and harmful** to children; and/or
    - **interferes with their schooling by**: depriving them of the opportunity to attend school; obliging them to leave school prematurely; or requiring them to attempt to combine school attendance with excessively long and heavy work.
- **India has ratified two key ILO conventions on child labour:** The Minimum Age Convention (No 138) and the Worst Forms of Child Labour Convention (No 182).

The Minimum Age Convention (No 138)	The Worst Forms of Child Labour Convention (No 182)
It requires ratifying states to pursue a **national policy for effective abolition of child labour** and **to raise progressively the minimum age for admission to employment or work.**	By ratifying this Convention, a country commits itself to **taking immediate action to prohibit and eliminate the worst forms of child labour.** The worst forms of child labour prohibited under this are **all forms of slavery or practices similar to slavery**, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict.

Child Labour (Prohibition & Regulation) Amendment Act, 2016

- It seeks to **amend the Child Labour (Prohibition and Regulation) Act, 1986**.

- In light of the **Right of Children to Free and Compulsory Education Act, 2009, the Act seeks to prohibit employment of children below 14 years in all occupations** except where the child helps his family after school hours.
- It adds a **new category of persons called "adolescent"**. An adolescent means a person between 14 and 18 years of age. It **prohibits employment of adolescents in hazardous occupations as specified** (mines, inflammable substance and hazardous processes).
    - The **central government may add or omit any hazardous** occupation from the list included in the Act.
- It **enhances the punishment for employing any child in an occupation**. It also includes penalty for employing an adolescent in a hazardous occupation.
- It **empowers the government to make periodic inspection of places** at which employment of children and adolescents are prohibited.

6.2. NATIONAL DATABASE ON SEXUAL OFFENDERS

- National Database on Sexual Offenders (NDSO) was rolled out by the Ministry of Home Affairs (MHA) along with Ministry of Women and Child Development.

Features of NDSO

- **Contains details of around 4.5 lakh people convicted of various sexual offences:** from 2005 onwards.
- **Maintained by National Crime Records Bureau (under Ministry of Home Affairs):** It will also track regular updation of records by the State Police.
- **Accessible only to Law Enforcement Agencies:** for the purpose of investigation and monitoring cases of sexual offences and employee verification.
- **Would not compromise any individual's privacy:** will have details of persons above 18 years of age and appeals against a conviction will have to be updated by state prisons. An accused can be tracked until an acquittal on appeal.
- Help keep track of released convicts who have moved from one place to another.

Related Information

Online portal–cybercrime.gov.in

- Portal – cybercrime.gov.in was launched by the government to receive complaints from citizens on objectionable online content related to child pornography, child sexual abuse material, and sexually explicit material such as rape and gang rape.

6.3. SOCIO-ECONOMIC CASTE CENSUS

- SECC was conducted both in urban and rural areas in the country, to collect socio-economic and caste data of households.
- It was conducted through a comprehensive programme involving the Ministry of Rural Development, Ministry of Housing and Urban Poverty Alleviation, The Office of the Registrar General and Census Commissioner, India and the State Governments.
- The **SECC, 2011 has the following three objectives**:
  o To **enable households to be ranked based on their Socio- Economic status**. State Governments can then prepare a list of families living below the poverty line
  o To make available authentic information that will enable **caste-wise population enumeration** of the country
  o To make available authentic information regarding the **socio-economic condition, and education status of various castes and sections of the population**
- SECC provided for **automatic exclusion, automatic inclusion and grading of deprivation.**
  o **Automatically included:** households without shelter, destitute living on alms, manual scavengers, primitive tribal groups and legally released bonded labourers.
  o **The automatically excluded category:** motorised vehicles, mechanised agricultural equipment, Kisan credit card with credit limit of Rs 50,000 and above. They also included households with any member as a government employee, with nonagricultural enterprises registered with the government, any family member earning more than Rs 10,000 a month, those paying income/professional tax,

living in houses with three or more rooms with all having pucca walls and roof, owning a refrigerator, landline phone, possessing irrigated land, etc.

- o **7 deprivation indicators**
  ✓ Households with only one room, kucha walls and kucha roof
  ✓ No adult member between the ages of 16 and 59
  ✓ Female headed households with no adult male member between 16 and 59
  ✓ Households with disabled member and no able-bodied adult member
  ✓ SC/ST household
  ✓ Households with no literate adult above 25 years
  ✓ Landless households deriving a major part of their income from manual casual labour
- SECC is now being used in schemes like **MGNREGA, Pradhan Mantri Awaas Yojana-Gramin, Ayushman Bharat, National Rural Livelihood Mission**, etc. to identify beneficiaries and expand the direct benefit scheme.

6.4. NATIONAL TESTING AGENCY (NTA)

- It has **been established as a premier, specialist, autonomous and self-sustained testing organization** to conduct entrance examinations for admission/ fellowship in higher educational institutions.
- It is a registered society under the Societies Registration Act, 1860.
- The major examinations to be conducted by NTA include University Grant Commission-NET Eligibility (UGC-NET), JEE (Main), CMAT, GPAT and NEET.
- It will be **chaired by an eminent educationist appointed by MHRD**.
- The objectives of the NTA, inter-alia, are **conducting efficient, transparent tests designed in a scientific manner for assessing competence of students.** It will train subject matter experts and prepare test items in collaboration with psychometricians to ensure that the tests are well balanced.

7. CULTURE

7.1. TRIBAL FREEDOM FIGHTERS

The Centre will set up museums dedicated to tribal freedom fighters in Gujarat, Jharkhand, Chhattisgarh, Andhra Pradesh, Madhya Pradesh, Kerala, Manipur and Telangana.

Details on Tribal Freedom Fighters

- **Birsa Munda (Jharkhand)**
  o **He** led the **"Ulgulan" (revolt)** or the Munda rebellion against the British in Chota Nagpur area.
  o In 1894 Birsa declared himself a god, and began to awaken the masses and arouse them against the landlord-British combine.
    ✓ Munda tribals practiced **Khuntkatti system** (joint holding by tribal lineages).
    ✓ But rich farmers, merchants, moneylenders, **dikus** (outsiders who made the tribal people dependent upon them), thekedars from Northern India came and tried to replace it with typical Zamindari-tenancy system.
    ✓ These new landlords caused indebtedness and **beth-begari (forced labour)** among the tribal.
  o He declared an end to Victorian rule and the **establishment of Munda Rule**.
  o He organised the people to **stop paying debts/interest to moneylenders and taxes to the British**.
  o He formed **two military units** - one for military training and armed struggle, the other for propaganda. He declared December 24, 1899, as the day for the launching of the armed struggle.
  o Finally, on February 3, 1900 Birsa was caught.
  o As a result of Munda Ulgulan the government enacted Chotanagpur Tenancy Act 1908, recognized Khuntkatti rights and banned Beth Begari (forced labour)
- **Veer Narayan Singh (Chattisgarh)**
  o The **Revolt 1857** was spearheaded in **Chhattisgarh** by Veer Narayan Singh who was a benevolent jamindar of Sonakhan.
- **Alluri Sita Rama Raju (Andhra Pradesh)**
  o He led **The Rampa Rebellion of 1922**, a tribal uprising in **Godavari Agency of Madras Presidency, British India** during which a band of tribal leaders and other sympathisers fought against the British

Raj, which had passed the 1882 Madras Forest Act.
    ✓ The act put restrictions on the free movement of tribal peoples in the forest and prevented them from engaging in their traditional podu agricultural system, which involved shifting cultivation.
- **Thalakkal Chandu (Kerela)**
  o He was an archer and commander-in-chief of the Kurichya soldiers of the Pazhassi Raja who fought British forces in the **Wayanad jungles, Kerala** during first decade of the 19th century.

7.2. SAINT KABIR

Recently PM offered tributes at Sant Kabir Samadhi, on the 500th death anniversary of Saint Kabir.

About Saint Kabir

- He was born in the year 1440 and died in the year 1518.
- Kabir's teachings were based on a complete, indeed vehement, rejection of the major religious traditions and he vouched for **Nirguna form of Bhakti**.
- His teachings openly ridiculed all forms of external worship of both Brahmanical, Hinduism and Islam, the pre-eminence of the priestly classes and the caste system.
- It is considered that he got all his spiritual training from his Guru named, Ramananda, in his early childhood.
- **Kabir Panth** is the huge religious community which identifies the Kabir as the originator of the Sant Mat sects.
- Kabir Das is the first Indian saint who has coordinated the Hinduism and Islam by giving a universal path which could be followed by both Hindus and Muslims.
- According to him every life has relationship with two spiritual principles, Jivatma and Paramatma. His view about the moksha that, it is the process of uniting these two divine principles.
- Some of the great writings of the Kabir Das are **Bijak, Kabir Granthawali, Anurag Sagar, Sakhi Granth** etc.

Nirguna bhakti and Saguna bhakti
- The nirguna bhaktas were devotees of a formless God even while calling him variously as Rama, Govinda, Hari or Raghunatha. The most

conspicuous among them were Kabir and Nanak.

- The saguna bhaktas were devotees of god with attributes or in human form. Vishnu in its incarnations as Rama, or Krishna, are most popular deities that were worshipped by Saguna Bhakti saints.
- Thus, Saguna bhakti movement of North India was essentially vaishnavite in character as compared to Southern Bhakti movement which had both Vashnav as well as Shaiv streams.

7.3. SRI SATGURU RAM SINGHJI

Recently Ministry of Culture inaugurated an International Seminar to commemorate the 200th Birth Anniversary of **Sikh philosopher, Sri Satguru Ram Singhji,** also known as Ram Singh Kuka.

About Sri Satguru Ram Singhji

- He was born in 1816 in Ludhiana and was a social reformer, and a freedom fighter.
- He fought against the caste system among Sikhs and encouraged inter-caste marriages.
- He preached against killing the girl child in infancy, stood firmly against the Sati Pratha and advocated widow remarriage.

Namdhari/ Kuka Movement

- The movement was **founded in 1840 by Bhagat Jawaharmal** in Western Punjab.
- Its basic tenets were abolition of caste and similar discriminations among Sikhs, discouraging the eating of meat and taking of alcohol and drugs, and encouraging women to step out of seclusion.
- After the British took the Punjab, the movement transformed from a religious purification campaign to a political one.
- During the Mutiny of 1857, Satguru Ram Singhji formally inaugurated the Namdhari movement, with a set of rituals modelled after Guru Gobind Singh's founding of the Khalsa.
- He **strongly opposed to the British rule** and started an intense non-cooperation movement against them. Led by him, the people boycotted English education, mill made cloths and other imported goods. The Kuka followers actively propagated the civil disobedience.
- All followers of satguru are distinguished by the white dress, straight and pressed turban and a woolen rosary.
- They were required to wear the five symbols of Sikhism, with only exception of the Kirpan (sword). However, they were required to keep a Lathi (a bamboo stave) with them.

7.4. INDIA'S FIRST MUSIC MUSEUM

India's first music museum is being set up in **Thiruvaiyaru**, **Tamil Nadu**, which is the birth place of **Saint Tyagaraja.**

Saint Tyagaraja

- Saint Tyagaraja is **one of the Trinity of Carnatic music** (other two are Muthuswami Dikshitar and Syama Sastri) and his compositions are outpourings of love, prayer and appeal.
- He was the most illustrious composer among the trinity and **bhakti was the keynote of his compositions**.
- He firmly believed that **nadopasana** (the practice of music as an aid to cultivate devotion and contemplation) **can lead one to salvation only if it was combined with bhakti**.
- He mastered selfless devotion without any desire and it was **Nishkama Bhakthi.** He was an **ardent devotee of Lord Rama** and majority of his kritis are in praise of Rama.
- He mainly composed in **Telugu**.
- He set his face against **'narastuti', praise of men for profit or benefit** - a philosophy and principle underlying Hindu thought not to debase learning and knowledge.
- In fact, this principle was responsible for the old system of **'gurukulavasa'** - of disciples learning at the feet of the master and the master imparting knowledge but not for money.
- **Tyagaraja Aaradhana Festival** is celebrated every year at Thiruvayur as a **tribute to the musical Saint Tyagaraja**.
  o Here hundreds of musicians come together and perform **Tyagaraja's Pancharatna Kritis** in unison.

7.5. DAKSHINA BHARAT HINDI PRACHAR SABHA

The President of India inaugurated the centenary celebrations of the **Dakshina Bharat Hindi Prachar Sabha**.

About Dakshina Bharat Hindi Prachar Sabha

- It was established in the year 1918 by **Mahatma Gandhi with the sole aim of propagating Hindi in southern states.**
- **Hindi Prachar** was a movement that emerged as part of Freedom Movement and the leaders who led the nation to "FREE INDIA" felt the necessity of making a single Indian Language

the National Language, and through that language unify the people and thereby intensify National Integration.

- In 1964, the institution was recognised by the Indian Government as one of the **Institutes of National Importance.**

> **Related news**
> - Abu Dhabi has recently included Hindi as the third official language used in courts alongside Arabic and English. Other than UAE, Fiji also has Hindi as official language.

7.6. PIETERMARITZBURG STATION INCIDENT

India and South Africa jointly issued Postage Stamps on the theme "125th Year of Mahatma Gandhi's **Pietermaritzburg Station Incident**".

The Pietermaritzburg Station Incident

- In May 1893 Mahatma Gandhi was thrown off the train at Pietermaritzburg after he had refused to leave first-class carriage of the train.
- Gandhi made the momentous decision to stay on in South Africa and **fight the racial discrimination against Indians** there. Out of that struggle emerged his unique version of nonviolent resistance, **Satyagraha**.

Mahatma Gandhi's experiments in South Africa

- **Indian immigration issue**: When Mahatma Gandhi arrived in 1893, the issue was rampant. Indians, who had initially arrived in the Natal region as indentured labour stayed back for economic reasons. But, their increased population was resented by the white colonists.
  - Mahatma Gandhi setup the **Natal Indian Congress**, which became a driving force behind the **satyagraha** campaigns between 1906 and 1913. Despite the efforts, a law was passed in 1896 disqualifying voters who were not of European origin.
- **Second Anglo-Boer (South African War), 1899**: He advised the Indian community to support the British cause, on the ground that since they claimed their rights as British subjects, it was their duty to defend the Empire when it was threatened.
- **Transvaal British Indian Association (BIA), 1903**: The organization formed by Mahatma Gandhi aimed to prevent proposed evictions of Indians in the Transvaal under British leadership.

- **Asiatic Registration Law (the Black Act):** It required all Indians - young and old, men and women - to get fingerprinted and to keep registration documents on them at all times. Gandhiji officially used **Satyagraha** for the **first time** in 1907 when he organised opposition to the act.

7.7. MONUMENTS OF NATIONAL IMPORTANCE

ASI has declared 6 monuments as monuments of national importance in 2018.

More on news

- Under Section 4 of the Ancient Monuments and Archaeological Sites and Remains Act, 1958, ancient monuments or archaeological sites which are of historical, archaeological or artistic interest and which have been in existence for not less than 100 years may be declared as of national importance.
- The protection and maintenance of monuments, declared as of national importance is taken up by ASI by way of structural repairs, chemical preservation and environmental development around the monument which is a regular and on-going process.
- **The 6 monuments are as follows:**
  - The 125-year-old Old High Court Building in Nagpur, Maharashtra,
  - Two Mughal-era monuments in Agra (U.P.):
    - ✓ Haveli of Agha Khan
    - ✓ Hathi Khana
  - The ancient Neemrana Baori in Alwar, Rajasthan
  - The Group of Temples at Bolangir, Odisha
  - The Vishnu Temple, Pithoragarh, Uttarkhand.

7.8. UNESCO GLOBAL GEOPARK NETWORK STATUS

Recently Geological Survey of India (GSI) chose heritage locations in **Maharashtra and Karnataka** for UNESCO Global Geopark Network site status.

What is UNESCO Global Geopark Network Status?

- **UNESCO Global Geoparks** are single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development**.**

- It aims to enhance awareness and understanding of key issues facing society, such as using our earth's resources sustainably, mitigating the effects of climate change and reducing natural disasters-related risks.
- **The Global Geoparks Network (GGN),** is a legally constituted not-for-profit organisation. Its membership is obligatory for UNESCO Global Geoparks.
- As of April, 2019, there are **147 UNESCO Global Geoparks in 41 countries.**
- An aspiring Global Geopark must have a dedicated website, a corporate identity, comprehensive management plan, protection plans, finance, and partnerships for it to be accepted.
- As of now there is **no geo-heritage site from India is included under UNESCO Geo park Network**.

About the sites chosen:

- **Lonar Lake, Maharashtra:**
  o It is the **world's oldest meteoric crater** formed around 50,000 years ago and the **only one formed in basalt rock**.
  o It is a salt water lake.
  o It became **a national geo-heritage site in 1979**.
- **St. Mary's Island and Malpe Beach, Karnataka:**
  o It is a **hexagonal mosaic of basaltic rocks** in an island off Udupi.
  o It is estimated to be **an 88-million-year-old formation** that goes back to a time when Greater India broke away from Madagascar.

7.9. WORLD CAPITAL OF ARCHITECTURE

The UN Educational, Scientific, and Cultural Organization (UNESCO) has named the Brazilian city of **Rio de Janeiro** as the World Capital of Architecture for 2020.

Details

- As the **first World Capital of Architecture, Rio de Janeiro** will hold a series of events under the theme "**All the worlds. Just one world**", and promote the internationally agreed **2030 Agenda for Sustainable Development's 11th Goal**: "Make cities and human settlements inclusive, safe, resilient and sustainable."
- Rio has a mix of modern and colonial architecture, with world-renowned sites like the **statue of Christ the Redeemer** and

contemporary constructions like the **Museum of Tomorrow.**
- **World Capital of Architecture initiative**
  o It is a joint initiative of UNESCO and the International Union of Architects (UIA) launched in 2018.
  o World Capital of Architecture is intended to become "an international forum for debates about pressing global challenges from the perspectives of culture, cultural heritage, urban planning and architecture".
  o **UNESCO** also **hosts the UIA's World Congress,** an event that takes place every three years.

7.10. BATTLE OF HAIFA

The Embassy of India held a ceremony in Haifa to mark the Centenary of the Battle of Haifa when on 23 Sep 1918, **Indian soldiers** from the **Jodhpur, Mysore and Hyderabad Lancers liberated the city of Haifa.**

Indian participation in World War I

- In World War I the Indian Army (alongside Britain) fought against the German Empire on the Western Front, in East Africa, Mesopotamia, Egypt and Gallipoli.
- The Indian Army was the **largest volunteer force in the world**
- The **nationalist response** to British participation in the War was three-fold –
  o **the Moderates** supported the empire in the War as a matter of duty;
  o **the extremists**, including Tilak supported the war efforts in the mistaken belief that Britain would repay India's loyalty with gratitude in the form of self-government. Both Mahatama Gandhi and Bal Gangadhar Tilak tried to raise money and men for the British through war tours.
  o **the revolutionaries** decided to utilize the opportunity to wage a war and liberate the country.
- However the expectation of nationalists leaders were dashed by the extension of Rowlatt act at the end of the conflict.
- Following this period, Mahatama Gandhi launched his first India-wide campaign of civil disobedience against British authority in February 1919.
- India's contribution to the British and resistance that followed became one of the reasons for passing the Montague-Chelmsford Reforms

- **India Gate in New Delhi** commemorates the 70,000 Indian soldiers who lost their lives fighting for the British Army during the World War I.

7.11. BATTLE OF KOHIMA

Recently **75th anniversary of the Battle of Kohima** was observed by the Nagaland government.

About Battle of Kohima

- **Context:**
  o **The British and Indian Fourteenth Army**, was building up logistical bases at **Dimapur and Imphal** for an eventual offensive into Burma in the course of Second World War.
  o In March 1944, the **Japanese 15th Army began** an advance against India's north-east frontier to forestall a planned British invasion of Burma.
  o The fighting in and around Kohima in the spring of 1944 was part of a larger Japanese offensive, known as **"Operation U-Go".**
- **Strategic location of Kohima** - This was the **route the Japanese intended to take to invade India from Burma, by capturing the British**

supply bases on the Imphal Plain and cut the road linking Dimapur and Imphal at Kohima. With Imphal in their hands, the Japanese would be able to **interrupt air supplies to China and to conduct air attacks against India.**

- **Battle of Kohima:**
  o It was fought between the **Allied Forces** and the **Japanese Army** on the **Naga Hills** in three stages from April to June 1944.
  o The **Nagas** were drawn into it **on both sides** some with the British and some with the Japanese**.**
- **Consequences of the Battle:**
  o The defeat sealed the fate of **Tokyo's imperial ambitions** in South Asia.
  o The huge losses the Japanese suffered in the Battle of Kohima weighed heavily on them during the next phase of the war, allowing the Allied to take control of Burma in 1945.
  o In 2013, the National Army Museum of London, **voted the Battle of Kohima and Imphal as "Britain's Greatest Battle"** beating out Battle of D-Day and Battle of Waterloo.
  o The Battle is often referred to as the **"Stalingrad of the East".**