UPWARD LIGHTNING

Brazilian researchers recently succeeded in taking pictures of positive upward discharges of electricity from lightning conductor rods, travelling to connect with the negative discharge from lightning in the clouds.

+ *50 Years of kesavananda bharati judgement*

+ *Nasa-isro sar mission (nisar)*

+ *Basohli painting*

CURRENT AFFAIRS & PRACTICE QUESTIONS

ADMISSIONS OPEN

NEW BATCH STARTS JULY'2023

COURSE HIGHLIGHTS

- BASIC NCERT FOUNDATION
- PRELIMS CLASSES
- WEEKLY CURRENT AFFAIRS
- MAINS UPGRADATION
- ANSWER WRITING PRACTICE
- PERSONALISED MENTORING
- STUDY MATERIALS

RV TRAINING ACADEMY

Important historical event
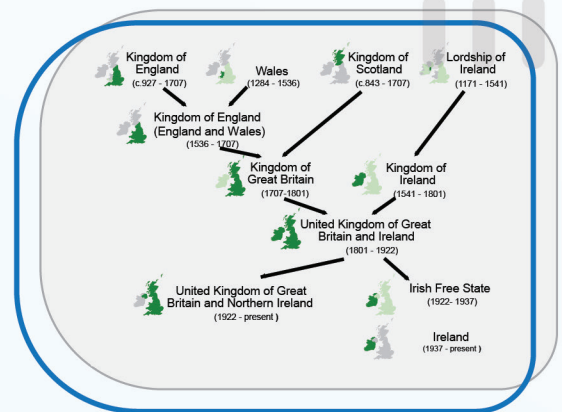
Fall of Constantinople   May 29, 1453

The dwindling Byzantine Empire came to an end when the Ottomans breached Constantinople's ancient land wall after besieging the city for 55 days. Sultan Mehmed II of the Ottoman Empire surrounded Constantinople from land and sea while employing cannon to maintain a constant barrage of the city's formidable walls. The fall of the city removed what was once a powerful defense for Christian Europe against Muslim invasion, allowing for uninterrupted Ottoman expansion into eastern Europe.

Formation of Great Britain   May 1, 1707

Great Britain was formed from a union between England and Scotland. The union included Wales which had already been part of England since the 1500's. The United Kingdom today consists of Great Britain and Northern Ireland.

Kingdom of England (c.927 - 1707)
Wales (1284 - 1536)
Kingdom of Scotland (c.843 - 1707)
Lordship of Ireland (1171 - 1541)
Kingdom of England (England and Wales) (1536 - 1707)
Kingdom of Great Britain (1707-1801)
Kingdom of Ireland (1541 - 1801)
United Kingdom of Great Britain and Ireland (1801 - 1922)
United Kingdom of Great Britain and Northern Ireland (1922 - present)
Irish Free State (1922- 1937)
Ireland (1937 - present)

Smallpox Vaccination   May 14, 1796

Smallpox vaccine was developed by Dr. Edward Jenner, a physician in rural England. He coined the term vaccination for the new procedure of injecting a milder form of the disease into healthy persons resulting in immunity. Within 18 months, 12,000 persons in England had been vaccinated and the number of smallpox deaths dropped by two-thirds.

The first woman to fly solo across the Atlantic   May 20, 1932

Amelia Earhart was an American aviator who set many flying records and championed the advancement of women in aviation. She became the first woman to fly solo across the Atlantic Ocean, and the first person ever to fly solo from Hawaii to the U.S. mainland.

Purpose of the magazine

The purpose of **Varthaman** is to focus solely on issues which are relevant to the actual as well as applied aspects of the General Studies syllabus. The unique way the **"Varthaman"** team puts forward the facts and analysis would help you understand, retain and reproduce the information during the journey towards toppers' list.

The sources relied for selection and application of issues

The Hindu
The Indian Express
Times of India
PIB
Live Mint
Hindustan Times
News on Air
Prasar Bharati website
IDSA Website
NASA website
PRS India Website
Down to Earth
Rajya Sabha TV website
Lok Sabha TV website
Economic and Political Weekly
Yojana
Kurukshetra
NITI Aayog reports
BBC

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Features of the magazine

Current Affairs Analysis

- This month's edition covers the analysis of news from the immediately preceding month.
- The news are categorized subject wise viz. Polity, Economics, Environment and Ecology, Science and Technology, International Relations, etc. for easy and efficient study.
- Lead articles on burning issues are included.

Practice Questions

- Prelims Practice Questions
- Mains Practice Questions

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POLITY AND GOVERNANCE

50 YEARS OF KESAVANANDA BHARATI JUDGEMENT

In News: India has begun celebrating the golden jubilee of Kesavananda Bharati (KB) prescribing the doctrine of basic structure (BS).

More on the Topic:

Background:

- The case was filed by Kesavananda Bharati, a seer of a religious mutt in Kerala, who challenged the constitutionality of some land reform laws enacted by the state government.

- He argued that these laws violated his fundamental right to property and to manage his religious affairs.

- The case was heard by a **13-judge bench, the largest ever in the history of the Supreme Court.** The main issue before the court was whether Parliament had unlimited power to amend any part of the Constitution, including the fundamental rights.

- Kesavananda Bharati case in which a 13-judge Bench, the largest constituted in the court's history, through a majority of 7:6, held that the Parliament cannot amend the 'Basic Structure' of Constitution.

- The Kesavananda Bharati judgment held **that Parliament cannot use its constituent power to alter the essential features of the Constitution.**

- The basic structure or framework of the Constitution was its living spirit, holding up the body of its text. Its existence cannot be pin-pointed to any particular provision of the text. It was the "soul" of the Constitution.

Significance of the Judgement:

- It established the limits of parliamentary sovereignty and preserved the core values of the Constitution.

- It also paved the way for subsequent judgements that upheld and expanded the doctrine of basic structure, such as;

- **Minerva Mills case (1980), struck down a constitutional amendment that gave primacy to the Directive Principles of State Policy over Fundamental Rights.**

- **Indira Gandhi vs Raj Narain case (1975),** invalidated an amendment that sought to immunise the election of the Prime Minister from judicial scrutiny.

- A check on the authoritarian tendencies of the government and a safeguard for democracy and civil liberties.

- It reflects the dynamic and evolving nature of constitutional interpretation and adjudication in India, as well as the complex interplay between law, politics and society.

- SC has tested constitutional amendments against doctrine of basic structure in several cases including,

- Quota for OBC and Economically Weaker Section (EWS), reservations in promotions, where SC upheld constitutional amendments challenged on grounds of violation of basic structure doctrine.

- SC struck down the Constitution (Ninety-ninth Amendment) Act, 2014, which established National Judicial Appointments Commission (NJAC).

SUPREME COURT REMINDS GOVERNORS NOT TO DELAY ASSENT TO BILLS

In News: The Supreme Court of India has said that State governors must keep in mind the expression "as soon as possible" in Article 200 of the Constitution while giving their assent to bills passed by the state legislature.

More on the Topic:

- The bench was dealing with a petition filed by the Telangana government which had complained about governor Tamilisai Soundararajan not clearing 10 bills passed by the assembly.

- The bench referred to the first provision of **Article 200,** which states "provided that the governor may, as soon as possible after the presentation to him of the bill for assent, return the bill if it is not a money bill together with a message requesting that the House or Houses will reconsider the bill or any specified

provisions thereof as soon as possible.

Governor's Power with respect to Giving Assent to Bills:

Veto Power with regard to Ordinary Bill:

- Every ordinary bill, after it is passed by the legislative assembly in case of a unicameral legislature or by both the Legislative Assembly and Legislative Council in case of a bicameral legislature, is presented to the governor for his assent. In this case Governor has four alternatives -
- He may give his assent to the bill, the bill then becomes an act.
- He may withhold his assent to the bill, the bill then ends and does not become an act(Absolute Veto).
- He may return the bill for reconsideration of the House or Houses. If the bill is passed by the House or Houses again with or without amendments and presented to the governor for his assent, the governor must give his assent to the bill. Thus, the governor enjoys only a 'suspensive veto'.
- He may reserve the bill for the consideration of the President.
- When the governor reserves a bill for the consideration of the President, he will not have any further role in the enactment of the bill and now the power of consideration of the Bill rests solely with the President and Governor has nothing to do with it.

Veto Power with regard to Money Bill:

- Every money bill, after it is passed by the state legislature (SLA or SLA&SLC), is presented to the governor for his assent.
- In this case Governor has three options -
- He may give his assent to the bill, the bill then becomes an act.
- He may withhold his assent to the bill, the bill then ends and does not become an act.
- He may reserve the bill for the consideration of the president.
- He cannot send the bill back to the SLA for reconsideration and he normally accords his assent to the Money Bill as it is introduced with his prior consent.
- If the Governor reserves the Money Bill for the consideration of the President his role ends.

THREE DECADES OF INDIA'S DECENTRALI-SATION VENTURE

In News: The 73rd constitutional amendment, which came into effect on April 24, 1993, accorded panchayats a constitutional status as the third tier of local self-governance in India.

More on the Topic:

- **Achievements of Panchayati raj Institutions:**
- The 73rd and 74th Amendments required that no less than one-third of the total seats in local bodies should be reserved for women.
- At 1.4 million, **India has the most women in elected positions.**
- Seats and sarpanch/pradhan positions were also reserved for SC/ST candidates.
- This is the only level of government, **where SC/ST candidates have a genuine voice in governance** (unlike the candidates from reserved constituencies at the parliamentary level).
- **PRIs have created healthy competition among various states** regarding devolution (3Fs: funds, functions, and functionaries).

Challenges:

- The first failure of the 73rd Amendment was that **the transfer of various governance functions—like the provision of education, health, sanitation, and water was not mandated.**

- Instead the amendment listed the functions that could be transferred, and left it to the state legislature to actually devolve functions.

- There has been **very little devolution of authority and functions in the last 25 years.**

- The second failure of the 73rd Amendment is the **lack of finances for PRIs.**

- Local governments can either raise their own revenue through local taxes or receive intergovernmental transfers. The 73th Amendment recognized both forms of public finance, but did not mandate either.

- The 73rd Amendment let this be a choice open to the state legislatures—a choice that most states have not exercised.

- **Low level of awareness, prevalence of caste, class and gender hierarchies** is another problem PRIs are facing.

Way Ahead:

- The challenges needed to be resolve by taking innovative solutions by the government so that impact of decentralised governance reach the masses at grassroots level.

- The institutional framework for local governance in India needs to be strengthened by providing them with more **autonomy, resources and powers.**

- Local government officials and elected representatives need to be trained and equipped with the necessary skills and knowledge to effectively carry out their roles and responsibilities.

- Community participation in PRIs should be be enhanced through awareness campaigns, public meetings and consultations.

NINTH SCHEDULE OF THE INDIAN CONSTITUTION

In News: Jharkhand government has urged the Prime Minister to enlist the amended reservation provisions of the state, which provides for 76% reservation in ninth schedule.

Schedules	Subject
First Schedule	List of States & Union Territories
Second Schedule	Salary of President, Governors, Chief Judges, Judges of High Court and Supreme court, Comptroller and Auditor General
Third Schedule	Forms of Oaths and affirmations
Fourth Schedule	Allocation of seats in the Council of States.
Fifth Schedule	Provisions as to the Administration and Control of Scheduled Areas and Scheduled Tribes
Sixth Schedule	Provisions as to the Administration of Tribal Areas in the States of Assam, Meghalaya, Tripura and Mizoram.
Seventh Schedule	Gives allocation of powers and functions between Union & States. It contains 3 lists
	1. Union List (For central Govt) 97 Subjects.
	2. States List (Powers of State Govt) 66 subjects
	3. Concurrent List (Both Union & States) 47 subjects.
Eighth Schedule	List of 22 languages of India recognized by Constitution (Assamese , Bengali, Gujarati, Hindi, Kannada, Kashmiri, Manipuri, Malayalam, Konkani, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Santhali, Bodo, Maithili, Dogri)
Ninth Schedule	Added by 1st amendment in 1951, contains acts & orders related to land tenure, land tax, railways, industries.
Tenth Schedule	Added by 52nd amendment in 1985, Provisions as to disqualification on ground of defection.
Eleventh Schedule	By 73rd amendment in 1992, contains Powers, authority and responsibilities of Panchayats.
Twelfth Schedule	By 74thamendment in 1992, contains Powers, authority and responsibilities of Municipalities, etc.

More on the Topic:

- The 76% reservation breaches the 50% ceiling set by the Supreme Court in the landmark 1992 Indra Sawhney v Union of India verdict.

- However, placing a legislation in the Ninth Schedule shields it from judicial scrutiny.

About Ninth Schedule of the Indian Constitution:

- The Ninth Schedule contains **a list of central and state laws which cannot be challenged in courts.**

- Currently, 284 such laws are shielded from judicial review. Most of the laws protected under the Schedule concern agriculture/land issues.

- The Schedule **became a part of the Constitution in 1951,** when the document was amended for the first time.

- It was created by the new Article 31B, which along with 31A was brought in by the government to protect laws related to agrarian reform and for abolishing the Zamindari system.

- While A. 31A extends protection to 'classes' of laws, A. 31B shields specific laws or enactments.

Are laws in the Ninth Schedule completely exempt from judicial scrutiny?

- While the Ninth Schedule provides the law with a "safe harbour" from judicial review, the protection is not blanket.

- When the Tamil Nadu law was challenged in 2007 (**I R Coelho v State of Tamil Nadu),** the Supreme Court ruled that while laws placed under Ninth Schedule **cannot be challenged on the grounds of violation of fundamental rights,** they can be challenged on the ground of **violating the basic structure of the Constitution.**

- The court clarified that **the laws cannot escape the "basic structure" test if inserted into the Ninth Schedule after 1973,** as it was in 1973 that the basic structure test was evolved in the **Kesavananda Bharati case** as the ultimate test to examine the constitutional validity of laws.

THE ROLE OF PARLIAMENTARY COMMITTEES

In News: The Rajasthan Assembly has passed the Right to Health (RTH) bill.

Types of Parliamentary Committees — Source: Lok Sabha website
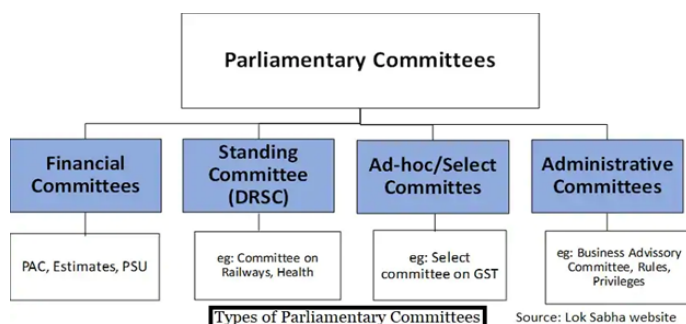
More on the Topic:

- Due to the sheer volume of information and scale of operations that the Indian Parliament is required to undertake, it is not feasible to take up all issues on the floor of the House.
- Thus, Parliamentary committees — panels made up of MPs — are constituted to deal with such situations and take up sector-specific concerns.
- Contrary to popular perception, looking into Bills is not the only purpose that committees serve.

The evolution of committees.

- Even though a structured committee system was only established in 1993, individual committees were being formed for various reasons as far back as independence. For instance, there were many crucial committees in the Constituent Assembly.
- The Ad Hoc Committee on the Citizenship Clause, as the name suggests, was formed to discuss the nature and scope of Indian citizenship is an example.
- Today, both the Lok Sabha and the Rajya Sabha have their own Standing (permanent) Committees and Ad Hoc (need-based) Committees. There are also Joint Committees with representation from both Houses.

The role of committees:

- Committees go into the details of a **specific piece of legislation, analyse the impact it may have on governance indicators, and then make their recommendations.**
- Even though committee reports aren't binding on the government, it helps the legislature ensure an **oversight on the executive.**
- For instance, during the recently concluded Budget Session, reports tabled on the Demand for Grants highlighted certain inconsistencies on the part of the government.
- Objective assessments are possible in the confines of a committee room, where partisan divides dissolve to make way for consensus.
- This is different from the discussion on the floor of the House which involves glaring cameras that nudge parliamentarians to perform as per their respective party-lines and voter-base.
- **Committees also enable day-to-day functioning of Parliament in session.** For example, the Business Advisory Committee prepares the entire schedule of both Houses when Parliament is in session.
- Committees also enable **efficient functioning of MPs.** For instance, the Committee on papers laid on the table of the House prepares each individual paper after careful deliberation, writing and screening.

Legal/ constitutional backing of the Parliamentary Committees:

- The committees has been mentioned in the Constitution of India without providing specific provisions (regarding their composition, tenure, functions, etc).
- These matters are dealt with by the rules of two Houses.

Challenges:

- During the course of the 17th LS, only 14 Bills have been referred for the further examination so far.
- 25% of the Bills introduced were referred to committees in the 16th LS, as compared to 71% and 60% in the 15th and 14th LS respectively.
- There is a declining trend of national legislation being subjected to expert scrutiny. This reduces the quality of legislations.

Way Ahead:

- Giving more powers to ensure accountability from the legislators and the executives.

- Institutionalise procedures for mandatory consultation with parliamentary committees in law making and not allow political considerations to hasten law-making.

LOKPAL

In News: Around 68% corruption complaints against public functionaries that landed with the Lokpal of India were "disposed off" without any action in the past four years.

More on the Topic:

- The Lokpal is the first institution of its kind in independent India, established under the Lokpal and Lokayuktas Act 2013 to inquire and investigate into allegations of corruption against public functionaries who fall within the scope and ambit of the above Act.

- **Jurisdiction:** The Lokpal has jurisdiction to inquire into allegations of corruption against anyone who is or has been Prime Minister, or a Minister in the Union government, or a Member of Parliament, as well as officials of the Union Government under Groups A, B, C and D. Also covered are chairpersons, members, officers and directors of any board, corporation, society, trust or autonomous body either established by an Act of Parliament or wholly or partly funded by the Union or State government. It also covers any society or trust or body that receives foreign contribution above Rs 10 lakh.

Organisational structure:

- The Lokpal consists of a **Chairperson and eight Members out of whom 50% are Judicial Members.**

- The Chairperson and the Members are appointed by the President of India by warrant under his hand and seal and hold office for a term of five years from the date on which they enter upon the office or until they attain the age of 70 years, whichever is earlier.

- The salary, allowances and other conditions of services of the Chairperson are **the same as that of Chief Justice of India.**

- The salary, allowances and other conditions of services of the Members are the same as that of a Judge of the Supreme Court.

NATIONAL PARTY STATUS

In News: The Election Commission of India has granted National Party Status to Aam Aadmi Party.

More on the Topic:

- To be recognised as 'national' -
- The particular party should **hold the 'regional party' status, in at least four states**
- It should have won **at least 3% of seats in the Lok Sabha from the four states**
- It should have **secured at least 6% of votes in the Lok Sabha or the Vidhan Sabha elections**

Benefits of Being Recognised as National Party:

- Once a political party is recognised as a national party -
- It can contest elections anywhere in the country
- The party can field candidates in any state
- The party is allotted one election symbol valid across the entire country, no other party can use it
- A proposer can remain present with the candidate at the time of filing of nomination
- The party will get two sets of voter list

- revisions by the Election Commission
- Party candidates also gain access to the voter list
- The party could open a central office in Delhi, on land provided by the government
- The party can field 40 star campaigners
- Expenditure on the star campaigners will not be included in the election expenditure of the party candidate
- The party gets time to convey its message to the masses through All India Radio and Doordarshan
- The number of star campaigners will be reduced from 40 to 20 during elections
- The party will have to use a separate symbol to contest elections in states

What a National Party Loses after loosing National Party Status:

- The Election Commission holds the authority to strip national parties of the coveted status. Once this is done -
- **The party symbol will not be visible** at the beginning of the EVM or ballot paper
- The particular party **may or may not be invited to attend Election Commission meetings**
- The political **funding of the party may be affected**
- The party may not be **allowed to connect to the masses through Doordarshan and All India Radio**
- **The number of star campaigners will be reduced from 40 to 20 during elections**
- The party will have to **use a separate symbol to contest elections in states**

INDIA'S PREVENTIVE DETENTION LAWS

In News: The Supreme Court has observed that preventive detention laws are a colonial legacy and confer arbitrary powers on the state.

More on the Topic:

- Courts must analyse cases arising from such laws with extreme caution to ensure there are checks and balances on exercise of power of the government.
- Every procedural rigidity must be followed in entirety by the government in cases of preventive detention.

- In rare instances, **courts have been horrified by the invocation of prevention detention laws for trivial reasons,** one of the strangest being a man who sold substandard chilli seeds being detained as a 'goonda'.

> **Preventive detention must fall within the four corners of Article 21 (protection of life and liberty) read with Article 22 and the statute in question... ...for 'public order' to be disturbed, there must in turn be public disorder. Mere contravention of law... before it can be said to affect 'public order', must affect the community or the public at large** —SC

About Preventive Detention Law:

- Preventive detention means to detain a person so that to prevent that person from commenting on any possible crime or in other words preventive detention is an action taken by the administration on the grounds of the suspicion that some wrong actions may be done by the person concerned which will be prejudicial to the state.
- Preventive Detention is the most contentious part of the scheme fundamental rights in the Indian constitutions **Article 22(3) provides that if the person who has been arrested or detained under preventive detention laws then the protection against arrest and detention provided under article22 (1) and22 (2) shall not be** available to that person.
- Detention of a person cannot exceed three months unless an advisory board reports sufficient cause for extended detention.

Legislative Power Regarding Preventive Detention Law:

- **Parliament has exclusive authority to make a law of preventive detention** for reasons connected with defence, foreign affairs and security of India.
- Both Parliament as well as state legislatures can concurrently make a law for reasons connected with Security of a state, Maintenance of public order and Maintenance of supplies and services.

DEFAMATION LAW

In News: The defamation law in India has come under scrutiny once again following the conviction of a Congress leader (Rahul Gandhi) in a 2019 defamation case.

More on the Topic:

- Defamation is **the act of communicating false statements about a person that injure the reputation** of that person when observed through the eyes of ordinary man.

- Any false and unprivileged statement published or spoken deliberately, intentionally, knowingly with the intention to damage someone's reputation is defamation.

- A man's reputation is treated as his property and such damage are punishable by law.

- **It could be written or verbal.** Written defamation, printed or typed material or images is called as libel and spoken defamation is called slander.

Defamation Law in India:

- **Article 19 of the Constitution** grants various freedoms to its citizens.

- However, **Article 19(2) has imposed reasonable exemption to freedom of speech and expression** granted under Article 19(1) (a). Contempt of court, defamation and incitement to an offence are some exceptions.

- Defamation is an offence under both the civil and criminal law.

- In civil law, defamation is punishable under the Law of Torts by imposing punishment in the form of damages to be awarded to the claimant.

- In 1860, the British imported their idea of criminal defamation into the newly-minted Section 499 of the Indian Penal Code (IPC).

- Under the Criminal law, Defamation is a bailable, non-cognizable offence and compoundable offence.

- Hence a policeman may arrest only with an arrest warrant issued by a magistrate. The Indian Penal Code punishes the offence with a simple imprisonment up to two years, or with fine, or both.

Supreme Court's directives on Defamation Law:

- Defamation is one of the recognised exceptions to the fundamental right to free speech and expression under Article 19(1)(a) of the Constitution.

- **In Subramanian Swamy vs Union of India case,** a bench of Justices Dipak Misra and P C Pant approved the Constitutional validity of sections 499 and 500 (criminal defamation) in the Indian Penal Code, underlining that an individual's fundamental right to live with dignity and reputation "cannot be ruined solely because another individual can have his freedom".

- The ruling noted that "the right to freedom of speech and expression is not an absolute right" and has to be "balanced with the right to reputation" which is protected under Article 21 of the Constitution".

- The court held that criminalisation of defamation to protect individual dignity of life and reputation is a **"reasonable restriction" on the fundamental right of free speech and expression.**

NATIONAL CREDIT FRAMEWORK

In News: The University Grants Commission (UGC) on Monday released the final draft of the National Credit Framework (NCrF) for school education and higher education.

More on the Topic:

- The NCrF is **a broad enabling framework for all regulatory organizations** and all universities, including institutions of national importance.

- It is drafted **in line with the National Education Policy (NEP 2020).**

- The framework will "**seamlessly integrate the credits earned through school education, higher education, and vocational and skill education.**"
- "The NEP 2020 emphasizes **the integration of general academic education and vocational and skill education,** providing seamless horizontal and vertical mobility between the two streams for lifelong learning.
- NCrF provides this mechanism while ensuring equivalence within and between these two education streams.

Important Features of NCrF:

- It provides for Assignment, Accumulation, Storage, Transfer and Redemption of Credits through Academic Bank of Credit (ABC).
- NCrF has divided the learning ecosystem into eight levels, assigning credits based on learning hours from Class 5 to PhD level.
- Knowledge in 18 Vidyas, including four Vedas, four subsidiary Vedas (Ayurveda–medicine, Dhanurveda–weaponry, Gandharvaveda-music and Silpa – architecture), Purana, Nyaya, etc. can be considered for creditization.

Significance of NCrF:

- National Credit Framework (NCrF) **will establish multidisciplinary and holistic education with flexible curricula.**
- It will open **numerous options for students by integrating school and higher education with vocational education and experiential learning** to promote skilling and vocational education.
- It will **remove the hard distinction between the education streams** and allow for more than one award in the same period by **removing the distinction between arts, science, social sciences, commerce, etc.**
- It will **Increase focus on research and innovation, and Promote digital learning, and open distance learning.**

FOREST RIGHTS ACT

In News: Even after 16 years, implementation provisions under the Forest Rights Act, 2006, have been far from satisfactory.

More on the Topic:

- One of the many reasons for non-implementation is **a lack of clarity about where and how much forest land might be eligible for** Community Forest Resource Rights (CFRR) claims.
- Consequently, there is **no "target" that state governments** must reach and against which their performance can be measured in terms of recognising CFRR.
- This Gaps are mainly existing due to the following reasons,
- **The complexity of land and forest settlement in India and**
- **The poor quality of land records and maps available**
- This makes generating an estimate of how much land could come under CFRR and where is a difficult task.

About Forest Rights Act:

- In the colonial era, **the British diverted abundant forest wealth of the nation to meet their economic needs.**
- While procedure for settlement of rights was provided under statutes such as the Indian Forest Act, 1927, these were hardly followed.
- As a result, tribal and forest-dwelling communities, who had been living within the forests in harmony with the environment and the ecosystem, continued to live inside the forests in tenurial insecurity, a situation which continued even after independence as they were marginalised.
- **The symbiotic relationship between forests and forest-dwelling communities found recognition in the National Forest Policy, 1988.**
- The policy called for the need to associate tribal people in the protection, regeneration and development of forests.
- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, was enacted to protect the marginalised socio-economic class of citizens and balance the right to environment with their right to life and livelihood.

Important Provisions of Forest Rights Act:

- The Act seeks to **recognize and vest forest rights in Forest Dwelling Scheduled Tribes (FDSTs) and Other Traditional Forest Dwellers (OTFD)** with respect to forest land and their habitat.

- The rights can be **inherited but they are not transferable.**

- The Act vests two broad types of rights to forestland with forest-dwelling communities -**individual forest rights (IFR) and community forest rights (CFR).**

- **Individual Forest Rights (IFR):** It aims to secure an individual the right to hold, self-cultivate, and live in forestland under individual or common occupation

- **Community Forest Rights (CFR):** Aims to bring about radical changes in forest governance by, inter alia, conferring community forest resource rights and management authority on forest-dwelling communities.

Authorities for vesting forest rights:

- The Gram Sabha shall have the authority to initiate the process of determining the nature and extent of individual or community forest rights that may be given to FDSTs within the local limits of its jurisdiction under this Act.

- The Gram Sabha is empowered to receive claims, consolidate and verify them, and prepare a map delineating the area of each recommended claim

- Gram Sabha would then pass a resolution to that effect and forward a copy to the Sub-Divisional Level Committee (SDLC)

- The SDLC, which shall be constituted by the State Government, would examine the resolution passed by the Gram Sabha and prepare the record of forest rights. It would then be forwarded to the District Level Committee (DLC)

- **The DLC would be the final authority to approve the record of forest rights.**

- **A State Level Monitoring Committee** would be formed to monitor the process of recognition and vesting of forest rights.

- If a person is not satisfied by the ruling of the Gram Sabha, he can file a petition to the SDLC and if not satisfied with the ruling of SDLC, he can petition to the DLC within 60 days of date of decision of the SDLC.

- **The DLC's decision would be final and binding.**

- **Penalties for Offences:** The Act provides punishment for persons found guilty of contravening the provisions of the Act, engaging in unsustainable use of forest or forest produce, killing any wild animal etc.

RULE OF LAW

In News: Rule of Law is in discussion following the recent killings of criminals by the Police.

THE RULE OF LAW

All people should be ruled by just laws subject to the following principles:

The law is applied equally and fairly

No one is above the law

- Presumption of innocence
- Open, independent and impartial judiciary
- No retrospective laws should be made
- Laws are made in an open and transparent way by the people
- Government agencies to behave as model litigants
- Fair and prompt trials
- Separation of powers between Legislature Executive Judiciary
- People can only be punished in accordance with the law
- The law and its administration is subject to open and free criticism
- The law is known and accessible

The rule of law must be supported by informed and active citizens

RULE OF LAW
EDUCATION CENTRE

More on the Topic:

- For the United Nations (UN), the rule of law "is a principle of governance in which all persons, institutions and entities, public and private, including the State itself, are accountable to laws that are publicly promulgated, equally enforced and independently adjudicated, and which are consistent with international human rights norms and standards".

- The World Justice Project (WJP), which is an independent, multidisciplinary organisation working to advance the rule of law worldwide, lays out four broad outcomes, as it were, if the rule of law prevails in a country.

These are:

- **Accountability:** Implying that the government as well as private actors are accountable under the law.

- **Just Law**: Implying that the law is clear, publicised, and stable and is applied evenly. It ensures human rights as well as property, contract, and procedural rights.
- **Open Government**: Implying that the processes by which the law is adopted, administered, adjudicated, and enforced are accessible, fair, and efficient.
- **Accessible and Impartial Justice**: Implying that justice is delivered timely by competent, ethical, and independent representatives and neutrals who are accessible, have adequate resources, and reflect the makeup of the communities they serve.

About rule of law index:

- The index measures people's perceptions and experiences of the rule of law in 140 countries and jurisdictions.
- To build this index, the World Justice Project looks at eight factors, which are further sub-divided into 44 sub-factors.

The eight main factors are as follows:

- **Constraints on government powers**: This includes things like how effectively does the legislature or the judiciary deal with the government.
- **Absence of corruption**: This essentially ascertains if public offices are being used for private gains.
- **Open Government**: This includes things such as the right to information and laws and government data are well publicised.
- **Fundamental rights** : This also includes whether the due process was followed.
- **Order and security** : Whether crime is effectively controlled and civil conflict limited etc.
- **Regulatory enforcement** : Things like whether regulations are effectively enforced etc.
- **Civil justice**: Includes factors such as whether people can afford and access civil justice,
- **Criminal justice**: Includes factors such as whether due procedures are followed etc.
- The index values range between 0 and 1 with 1 being the score for complete adherence to the rule of law.

Why does the rule of law matter?

- Research shows that a stricter adherence to the rule of law is positively correlated to higher economic growth, better educational attainment, improved health outcomes, and greater peace among other benefits.

INDIA'S CLINICAL TRIALS REGISTRY

In News: The haste with which some Covid-19 vaccine-related phases were cleared in India raised several questions regarding the transparency of the clinical trials and the safety and efficacy of the vaccines themselves.

CLINICAL TRIALS IN INDIA

1. All clinical trials must publicly documented in the Clinical Trials Registry - India.
2. Various government agencies & laws regulate clinical trials.
3. The Drugs Controller grants approval for clinical trials.
4. These organizations are answerable to the Ministry of Health and Family Welfare.

More on the Topic:

- One way to ensure a clinical trial is transparent is to make sure all information about it is freely accessible in the public domain.
- Clinical Trials Registry-India (CTRI) is required to register each trial before commencing.

About Clinical Trial Registry of India (CTRI):

- Hosted with the Indian Council of Medical Research's National Institute of Medical Statistics, the CTRI is **a free, online public-record system to register clinical trials being conducted in India.**
- It was **launched in July 2007 for use on a voluntary basis**. In June 2009, the Drug Controller General of India (DCGI) **mandated all trials to be registered there.**
- Any trial that uses human participants and is testing drugs, surgical procedures, preventive measures, lifestyle modifications to devices, educational and behavioural treatment, and rehabilitation strategies must be enrolled in the registry.
- The CTRI is one of 17 public trial registries under the International Clinical Trials Registry Portal.

What are the problems with CTRI?

- **Missing data:** A review of available data a few years ago showed that CTRI records of enrollment are inconsistent, with only 281 of 606 (46%) trials being updated after final enrollment.

- **Classification of type of study** – For certain trials, it is important to know the nature of the intervention. Though this is an important field, the CTRI also marks it as 'optional', leading to a great number of trials not providing this information.

- **Internal consistencies** – Trials have also been known to have internal inconsistencies, such as filling the wrong type of trial.

- **Confusion over definitions** – There are number of entries that are inaccurate due to confusion over definitions. For example, some 'interventional trials' have been listed as 'observational trials' due to a "lack of under-standing of the terms".

- **Incomplete / non-standard information** - Non-standardised information about cities may also cause confusion and repetition in the registry.

- **Messy data** – Unclear data, such as the same acronym being used for two organisations.

- **Misleading information** – Wrong data about whether a trial is registered prospectively or retrospectively can be classified as misleading information. CTRI's faulty search function has previously yielded incorrect results leading to misleading information.

About the solutions Available:

- Comply with WHO regulations for primary registration.

- Improving the functions of CTRI.

- Ensure compliance with regulations: The CTRI should ensure registration of all clinical trials in India

- Make CTRI a permanent activity: The CTRI could be made a permanent activity with staff on a five-year contract, instead of relying on temporary staff for 15 years.

CIVIL SERVICES DAY

In News: The Vice President of India inaugurated the 16th Civil Services Day celebrations.
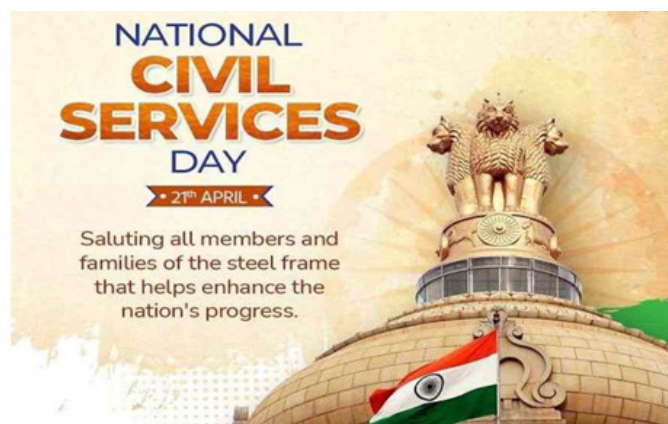
More on the Topic:

- The first National Civil Services Day was celebrated at a function held in Vigyan Bhawan, New Delhi, on April 21, 2006.

- The date, April 21, chosen for the celebration of National Civil Service Day, commemorates **the day when Sardar Vallabhbhai Patel, Independent India's first home minister, addressed the probationers of the Administrative Services Officers in 1947.**

THE NATIONAL COMPANY LAW APPELLATE TRIBUNAL (NCLAT)

In News: The National Company Law Appellate Tribunal (NCLAT) has upheld a $162 million fine imposed on Google by Competition Commission of India for abusing its Android dominance to promote its payment service.

More on the Topic:

- The penalty was a result of a **long-drawn investigation by CCI.** The probe concluded that Indian Android developers find it difficult to place their apps on smartphones.

- Google licenses its **Android operating system to smartphone producers at a relatively low cost.**

- In India, all major smartphone companies, including Samsung or Xiaomi, use Android. Around 95% of the 750 million smartphones used in the country are based on this operating system.

- Prominent apps, therefore, come pre-installed with Android devices and these can't be uninstalled. Some app developers claimed that Google's policies had driven them out of business.

- Mandating pre-installation of its entire Google Mobile Suite (GMS) – a family of key Google apps and services such as **Google search, Chrome browser, YouTube, Google Maps, and Gmail** –

amounted to an **abuse of dominant position"** by the company.

- CCI found, therefore, that the US giant's practice undermines fair competition and stifles innovation.

About NCLAT:

- It was constituted under Section **410 of the Companies Act, 2013 for hearing appeals against the orders of National Company Law Tribunal.**

- NCLAT is also the Appellate Tribunal for hearing appeals against the orders passed by NCLT(s) under Section 61 of the **Insolvency and Bankruptcy Code, 2016 (IBC).**

- NCLAT is also **the Appellate Tribunal for hearing appeals against the orders passed by Insolvency and Bankruptcy Board of India** under Section 202 and Section 211 of IBC.

- NCLAT is also the Appellate Tribunal to **hear and dispose of appeals against any direction issued or decision made or order passed by the Competition Commission of India (CCI).**

COOL ROOF POLICY

In News: Telangana has introduced 'cool roof policy' for all types of buildings.

More on the Topic:

- A cool roof, which uses special paints or tile cover, is designed to reflect more sunlight than a conventional roof and cool indoor spaces.

- Cool roofs are **now mandatory for all government as well as commercial buildings** irrespective of their site area or built-up area.

- Compliance with the policy is mandatory for the issuance of occupancy certificates.

- A cool roof is mandatory for residential buildings that have a plot area of 600 sq yards or more. For those with a plot area of 600 sq yards or less, it is optional.

- Occupancy certificate would only be given after compliance.

- **It enumerates three different materials to insulate the roof**

- Paints or liquids with high reflectivity,

- Prefabricated material like poly-vinyl chloride (PVC) membranes or bitumen-based sheeting,

- High albedo, ceramic mosaic tiles or shingles.

GOVERNMENT SCHEMES

TELE MENTAL HEALTH ASSISTANCE AND NETWORKING ACROSS STATE (MANAS)

In News: Tele Mental Health Assistance and Networking Across States (Tele-MANAS) helpline of the Union Ministry of Health & Family Welfare has reached a milestone by receiving over 100,000 calls since its launch in October 2022.

More on the Topic:

- The National Tele Mental Health Programme of India was inaugurated on the occasion of the World Mental Health Day on 10th October 2022.

- Since its inception, the service has aimed to create a **digital mental health ecosystem that has provided a boost to the existing mental healthcare services.**

- An urgent need was felt for a digital mental health network in the wake of COVID and Tele-MANAS aimed to provide the same by giving access to the mental healthcare services 24X7 to even in the remotest part of the country.

- These services are available for all individuals free-of-cost through a toll-free number 14416 / 1800-89-14416.

- The National Tele Mental Health Programme of India focusses on building the mental health workforce of the nation through capacity building initiatives whilst simulta-neously ensuring that mental health services can reach free of cost to every household and every individual, targeting the most

vulnerable and unreached sections of society that may otherwise have gone unnoticed.

100 FOOD STREETS IN 100 DISTRICTS

In News: Union Health Ministry in collaboration with Ministry of Housing & Urban Affairs has requested states/UTs to develop 100 food streets in 100 districts across the country.

More on the Topic:

- This initiative is being taken up **as a pilot project to create an example for other such streets to come up across the country for ensuring hygienic and safe food practices.**

- The aim of this project is **to encourage safe and healthy food practices** among food businesses and community members, thus, reducing food-borne illnesses and improving the overall health outcomes.

- This unique initiative will be **implemented through National Health Mission (NHM)** in convergence with Ministry of Housing and Urban Affairs, with technical support from FSSAI.

- The financial assistance for the initiative to States/UTs in the form of Rs.1 crore per food street/districts will be given to fill up critical gaps, said the press release.

- 100 such food streets will be opened up in 100 districts across the country.

- This assistance will be provided under National Health Mission (NHM) in the ratio of 60:40 or 90: 10 with the condition that standard branding of these food streets will be done as per FSSAI guidelines.

PRAYAG

In News: The union Ministry for Jal Shakti has launched, Monitoring Centre – PRAYAG – which stands for Platform for Real-time Analysis of Yamuna, Ganga and their Tributaries at National Mission for Clean Ganga (NMCG).

More on the Topic:

- Prayag is a **Real Time Monitoring Centre for planning and monitoring of projects,** river water quality, etc. through various online dashboards such as Ganga Tarang Portal, Jajmau Plant through Online Drone Data, PMT Tool Dashboard, Ganga Districts Performance Monitoring System, etc.

- National Mission for Clean Ganga (NMCG) aims to rehabilitate and boost existing sewage treatment plants; curb pollution at exit points; maintain water flow without changing natural variations; restore surface and groundwater, etc. in Ganga and its tributary basins.

- It is being implemented by the National Ganga Council.

UDE DESH KA AAM NAGRIK - UDAN 5.0

In News: The civil aviation ministry has invited bids for the fifth phase of the regional connectivity scheme, Udan or Ude Desh Ka Aam Naagrik, to improve connectivity to the country's regional territories.

More on the Topic:

- This round of UDAN focuses on **Category-2 (20-80 seats) and Category-3 (>80 seats).**

- **The earlier stage length cap of 600 km is waived off** and there is no restriction on the distance between the origin and destination of the flight.

- **Viability gap funding (VGF) to be provided will be capped at 600 km** stage length for both Priority and Non-Priority areas which was earlier capped at 500 km.

Progress of Udan Scheme:

- The last round (Udan 4.0) of the regional connectivity scheme was held in August 2020 when 78 routes were awarded, about 40 from the North-East region.
- Under UDAN 3, seaplanes operations and concept of tourism routes were introduced.
- Under UDAN 2.0 In 2018, the Ministry of Civil Aviation announced 73 underserved and unserved airports. For the first time, helipads were also connected under phase 2 of UDAN scheme.
- UDAN 1.0phase, 5 airlines companies were awarded 128 flight routes to 70 airports (including 36 newly made operational airports)

About UDAN Scheme:

- UDAN is a regional connectivity scheme. It aims to develop smaller regional airports to allow common citizens easier access to aviation services.
- UDAN has a unique market-based model to develop regional connectivity.
- Interested airline and helicopter operators can start operations on hitherto un-connected routes by submitting proposals to the Implementing Agency.

UNIQUE LAND PARCEL IDENTIFICATION NUMBER (ULPIN)

In News: A national conference on Bhu-Aadhaar or Unique Land Parcel Identification Number has been conducted recently.

More on the Topic:

- It is a 14-digit identification number for every surveyed parcel of land in India, launched in 2021.
- It is Based on the longitude and latitude coordinates of the land parcel. It will be based on detailed surveys and geo-referenced cadastral maps.
- ULPIN Will help mitigate the huge pendency of court cases (66% of all civil suits in India are related to land or property disputes);
- Reduce the GDP loss (about 1.3% of GDP) due to projects being stalled over litigation involving land disputes;
- Sharing of land records data across departments, financial institutions, and stakeholders; help develop land banks; and

lead towards Integrated Land Information Management System (ILIMS).

- **Cadastral map:** A cadastral map is a detailed and accurate map that shows the boundaries and ownership of land parcels within a specific area.

- It is used by governments to maintain land records and for land administration purposes, such as property tax assessment, land-use planning, and resolving land disputes.

ANIMAL PANDEMIC PREPAREDNESS INITIATIVE (APPI) AND ANIMAL HEALTH SYSTEM SUPPORT FOR ONE HEALTH (AHSSOH)

In News: Union Ministry for Fisheries , Animal Husbandry and Dairying has launched the Animal Pandemic Preparedness Initiative and World Bank-funded Animal Health System Support for One Health to enhance India's preparedness and response to potential animal pandemics, in line with the One Health approach.

The One Health Triad

More on the Topic:

- This initiative aims to enhance **India's preparedness and response to animal pandemics, with a focus on zoonotic diseases** that pose a threat to both animal and human health.

- This initiative will help **to improve veterinary services and infrastructure, disease surveillance capabilities, early detection and response, build the capacity** of animal health professionals, and awareness among farmers through community outreach.

- AHSSOH (Animal Husbandry Infrastructure Development Fund) is a central sector scheme.

SATHI PORTAL AND MOBILE APP

In News: The Union ministry of agriculture and farmers welfare has launched the Sathi (Seed Traceability, Authentication and Holistic Inventory) portal and mobile app.

More on the Topic:

- It is a centralized online system designed to **address seed production challenges, seed quality identification, and certification.**

- Developed by the **NIC in collaboration with the Union Ministry of Agriculture and Farmers Welfare,** the portal aims to curb the sale of spurious seeds and ensure quality seeds reach farmers.

- The portal, consisting of **integrated seed chain verticals, will offer quality assurance, seed source identification, and direct subsidies to registered farmers' bank accounts.**

About Seed Certification:

- Seed certification is **a process designed to maintain and make available to the general public continuous supply of high quality seeds.**

- Seeds with valid certification **can only be sold by valid licensed dealers to centrally registered farmers** who will receive subsidy through DBT directly into their pre-validated bank accounts.

- In India, legal status to seed certification was given by Enactment of Seeds Act, 1966. Seed certification is voluntary but labelling is compulsory in India.

- India established Protection of Plant Varieties and Farmers Rights (PPV&FR) Authority, under PPV&FR Act, 2001 to ensure availability of quality seeds and planting materials to farmers.

NATIONAL MISSION IN INTERDISCIPLINARY CYBER PHYSICAL SYSTEMS

In News: Experts deliberated on ways to strengthen the National Mission in Interdisciplinary Cyber Physical Systems (NM-ICPS).

More on the Topic:

- The Union Cabinet approved the National Mission on Interdisciplinary Cyber Physical System (NM-ICPS) in December, 2018 for a period of five years to be implemented by the Department of Science and Technology (DST).

- As part of the Mission implementation, **25 Technology Innovation Hubs (TIHs)** have been established in advanced technologies in reputed institutes across the country.

- These TIHs focus on technology development and translation, human resource and skill development, entrepreneurship and start-ups development, and international collaborative research.

- NM-ICPS is **a comprehensive Mission that brings together academia, industry, government and international organizations** and has created an ecosystem that fosters entrepreneurship, develops next-generation skilled manpower, catalyses translational research, and promotes the commercialisation of CPS technologies.

PRADHAN MANTRI MUDRA YOJANA

In News: PM MUDRA Yojana has completed 8 years and Rs 23.2 lakh crore has been sanctioned till now.

More on the Topic:

- The Pradhan Mantri MUDRA Yojana (PMMY)

was launched on April 8, 2015, by Prime Minister Narendra Modi.

- It aims to facilitate **easy collateral-free micro-credit of up to Rs 10 lakh to non-corporate, non-farm small and micro-entrepreneurs.**

Achievements under PMMY (as of March, 2023):

- **About 68% of accounts under the scheme belong to women entrepreneurs and 51% of accounts belong to entrepreneurs of SC/ST and OBC categories.**

- This demonstrates that easy availability of credit to the budding entrepreneurs of the country has led to innovation and sustained increase in per capita income.

Eligibility:

- Any Indian Citizen who has a business plan for a non-farm sector income generating activity such as manufacturing, processing, trading or service sector and whose credit need is less than Rs 10 lakh can approach either a Bank, MFI, or NBFC for availing of Micro Units Development & Refinance Agency Ltd. (MUDRA) loans under Pradhan Mantri Mudra Yojana (PMMY).

Types of loans provided:

- Shishu : covering loans upto 50,000/-

- Kishor : covering loans above 50,000/- and upto 5 lakh

- Tarun : covering loans above 5 lakh and upto 10 lakh

- The interventions have been named **'Shishu', 'Kishor' and 'Tarun' to signify the stage of growth / development and funding needs of the beneficiary micro unit / entrepreneur and also provide a reference point for the next phase of graduation / growth to look forward to.**

- It would be ensured that **at least 60% of the credit flows to Shishu Category Units and the balance to Kishor and Tarun Categories.**

- There is no subsidy for the loan given under PMMY.

- However, if the loan proposal is linked some Government scheme, wherein the Government is providing capital subsidy, it will be eligible under PMMY also.

PM SVANIDHI SCHEME

In News: Only 9.3% of the allocated funds were offered to Street vendors from the minority communities.

PM SVANidhi Scheme

SVANidhi provides affordable working capital loans to street vendors to resume their livelihoods

Over 20.50 lakh loan applications received; over 7.85 lakh loans sanctioned; over 2.40 lakh loans disbursed*

Timely/early repayment of loan incentivized with interest subsidy @ 7% per annum

Application Programming Interface integration between PM SVANidhi and State Bank of India's eMudra portals to ensure seamless data flow

More on the Topic:

- The PM SVANidhi is a micro-credit scheme which was launched by the government in 2020 to provide handholding support to street vendors to tide over pandemic-induced economic stress.

- It facilitates collateral-free loans of 10,000, with subsequent loans of 20,000 and 50,000 with 7% interest subsidy.

- It is a Central Sector Scheme i.e., fully funded by Ministry of Housing and Urban Affairs with the following objectives:

- To facilitate working capital loan;

- To incentivize regular repayment; and

- To reward digital transactions

MAHILA SAMMAN SAVINGS CERTIFICATE

In News: Ministry of Finance has released an official notification for MSSC, 2023 and it has been made available in 1.59 lakh post offices with immediate effect.

More on the Topic:

- This is a one-time, short-term savings plan that will be available for two years. The scheme has been specially designed to encourage investments from women.

- The minimum amount that needs to be invested in Mahila Samman Savings Cerificate is Rs 1000. The maximum investment limit allowed in Rs 2 lakh.

- The deposits made under Mahila Samman Savings Certificate will receive an interest rate of 7.50% annually. The interest will be compounded quarterly and credited to the account.

- MSSC accountholder can withdraw a maximum up to 40% of eligible balance once after expiry of one year from date of opening of account but before maturity of account.

About Small Savings Fund:

- They are **the major source of household savings in India and comprise 12 instruments.**

- **SSS includes Post Office Savings Account, Kisan Vikas Patra, Public Provident Fund, Sukanya Samriddhi Account etc.**

- The depositors **get an assured interest on their money.**

- Collections from all small savings instruments are **credited to the National Small Savings Fund (NSSF).**

- Small savings have emerged as a key source of financing the government deficit, especially after the Covid-19 pandemic led to a ballooning of the government deficit, necessitating higher need for borrowings.

- Formula to arrive at interest rates for a SSS was given by **Shyamala Gopinath Committee.**

- Benefits of SSS include, Provide financial security to individuals and families, promotes national savings, guaranteed returns and low risk instruments.

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)

In News: PM has expressed happiness on Pradhan Mantri Gram Sadak Yojana.

More on the Topic:

- PMGSY - Phase I was launched in 2000 as **a 100% centrally sponsored scheme** with an objective to provide single all-weather road connectivity to eligible unconnected habitation of designated population size (500+ in plain areas and 250+ in North-East, hill, tribal and desert areas, 00 - 249 population in LWE districts as per Census, 2001) for overall socio-economic development of the areas.

- Also, upgradation (to prescribed standards) of the existing roads in those Districts where all the eligible Habitations of the designated population size have been provided

all-weather road connectivity was to be taken up.

- However, Upgradation is not central to the Programme. In Upgradation works, priority was to be given to Through Routes of the Rural Core Network, which carry more traffic.

SMILE AND SHRESHTA SCHEME

In News: The implementation of the Scheme for Residential Education for Students in High Schools in Targeted Areas (SHRESHTA) and Support for Marginalised Individuals for Livelihood and Enterprise (SMILE)was reviewed recently.

More on the Topic:

Under the Scheme for Residential Education for Students in High Schools in Targeted Areas (SHRESHTA):

- Earlier known as Grant-in-Aid to Voluntary and other Organizations working for Scheduled Castes), financial assistance is provided to NGOs for running projects related to education of students belonging to Scheduled Castes.
- The Scheme broadly covers 3 types of projects namely (i) Residential Schools (ii) Non Residential Schools and (iii) Hostels, both for Primary and Secondary Students.

Support for Marginalised Individual for Livelihood and Enterprise (SMILE):

- The Support for Marginalised Individual for Livelihood and Enterprise (SMILE) does not specifically cover persons belonging to Scheduled Castes.
- It is under the Ministry of Social Justice and Empowerment.
- It is a Central Sector scheme.

NEW INDIA LITERACY PROGRAM

In News: Ministry of Education has launched New India Literacy Program.

More on the Topic:

- The scheme aims to cover **a target of five crore non-literates in the age group of 15 years and above.**
- **It is centrally sponsored scheme.**
- The beneficiaries under the scheme are identified through door to door survey on Mobile App by the surveyors in the States and union Territories.

- The non-literate can also avail the benefit of the scheme through direct registration from any place through mobile app.
- **The scheme is based on technology and implemented predominantly through online mode.**
- The Scheme has 5 components:
- Foundational Literacy and Numeracy
- Critical Life Skills
- Vocational Skills Development
- Basic Education
- Continuing Education

DEEN DAYAL UPADHYAYA GRAMEEN KAUSHALYA YOJANA (DDU-GKY)

In News: The Ministry of Rural Development (MoRD) will sign a Memorandum of Understanding (MoU) with 19 captive employers to aide employment of beneficiaries under the scheme.

More on the Topic:

- The MoRD launched the Captive Employment Guidelines under DDUGKY to ensure that the candidates are **trained as per the industry requirement and employed**.
- The captive employment model allows the employer to select the rural youths, skill & deploy them in one of its own establishment/ sister-concern/subsidiaries.

About Deen Dayal Upadhyaya Grameen Kaushalya Yojana:

- It is a part of the **National Rural Livelihood Mission (NRLM).**
- The scheme is under the Ministry of Rural Development, GOI.
- Its two major objectives are:
- Incorporating diversity to the incomes of rural poor families
- Catering to the career aspirations of rural youth
- The focus of the scheme is on rural poor youth between the ages of 15 and 35.
- It is a demand-driven skills training program that is placement-linked.

SAGAR-SETU APP

In News: Union Ministry for Ports, Shipping and Waterways has launched the App Version of National Logistics Portal (Marine) 'Sagar-Setu'.

More on the Topic:

- It will provide real-time information of activities that are generally not in reach of the importer, exporter, and customs broker including **vessel-related information, gate, container freight stations and transactions on fingertips. '**
- The app is designed to include features such as a login module, a service catalogue, a common application format, a letter of credit, a bank guarantee, certification, and track and trace, among other things.
- It also enables **digital transactions for payments** required for the clearance process of import and export like container freight station charges, shipping line charges, transportation charges, etc.

Benefits for Traders:

- Improve convenience with reduced turnaround time for approval and compliances.
- Increase visibility of operations and tracking.

Benefits for Service Providers:

- Help in tracking of records and transactions offered
- Receive notification of service requests.

INDIAN ECONOMY

COST INFLATION INDEX (CII)

In News: Income Tax Department has notified CII for current fiscal beginning April 2023.

$$\text{Indexation} = \frac{\text{Value of Good in Given Year}}{\text{Value of Good in the Base Year}} \times 100$$

More on the Topic:

- The CII is **an index that is used to calculate the inflation-adjusted rise in the value of an asset** including land, buildings, houses, gold jewellery, debt mutual funds, and so on.
- This CII number will **assist you determine the long-term capital gains on which you are required to pay taxes when you file your income tax returns (ITR) next year.**
- This number will be used to calculate inflation-adjusted cost for only those assets that allow for inflation-adjusted (indexation benefit).
- It is popularly used to **calculate "indexed cost of acquisition"** while calculating capital gains at time of sale of any capital asset.
- Normally, an asset is required to be retained for more than 36 months (24 months for immovable property and unlisted shares) to qualify as Long-Term Capital Gains (LTCG).
- CII is **used to arrive at inflation adjusted purchasing price** of assets so as to compute taxable LTCG.

INDIA ARGUES AT WTO IN FAVOUR OF ITS MSP SCHEME FOR FOODGRAIN

In News: India has stoutly defended its minimum support price (MSP) scheme for foodgrain at the World Trade Organization.

More on the Topic:

- Large foodgrain exporters including the US and Canada last month challenged India's public stockholding (PSH) programme on the grounds that it is highly subsidized, especially for rice.
- They argued that **this is affecting food security of other countries.**

- India has invoked the 'peace clause' several times at the WTO for breaching the prescribed 10% subsidy ceiling on rice procurement.
- Indian rice prevented traditional exporters from increasing their prices during the food crisis and that is the reason large exporters such as Australia, US, Canada and Japan are unhappy with India's presence in the international market.

India's Arguments:

- India has argued that its public stock holding programme (PSH) **not only supported small and marginal farmers and fed the poor but also kept global prices in check ensuring food security for LDCs and vulnerable countries.**
- India defended saying MSP based PSH has **not only ensured food security but also kept global food prices from surging in the backdrop of the Ukraine war.**
- India argued at the WTO's Committee on Agriculture that it does not export common paddy which it procures under the MSP programme.
- It mainly exports premium quality rice that is in demand the world over.

Agreement on Agriculture and Peace Clause:

- The Agreement on Agriculture (AoA) is a World Trade Organisation treaty that focuses on **reducing the agricultural support and subsidies given to domestic producers by countries.**
- It is one of the most contentious agreements within the WTO.
- The Agreement on Agriculture (AoA) is a WTO treaty that was negotiated during the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) and formally ratified in 1994 at Marrakesh, Morocco. The AoA came into effect in 1995.
- According to its provisions, developing countries were to complete their reduction commitments by 2000 and developing countries by 2004.
- **The Least Developed Countries were not required to make any reductions.**
- The Agreement covers products that are normally considered part of agriculture but excludes forestry and fishery products and also rubber, sisal, jute, coir and abaca.
- The focus of the AoA is **the elimination of what are called "trade distorting" agricultural subsidies.**
- According to the WTO, the overall aim of the Agreement is "to establish a fairer trading system that will increase market access and improve the livelihoods of farmers around the world."

The Peace Clause:

- High subsidies are seen to be distorting global trade.
- The peace clause protects a developing country's food procurement programmes against action from WTO members in case subsidy ceilings are breached.
- **The peace clause protects India's food procurement programmes against action from WTO members in case the subsidy ceilings 10% of the value of food production in the case of India and other developing countries are breached.**
- India informed the WTO that the value of its rice production in 2019-20 was $46.07 billion while it gave subsidies worth $6.31 billion, or 13.7% as against the permitted 10%.

NATIONAL ADVANCED PRICING AGREEMENT

In News: This Financial Year, the Central Board of Direct Taxes (CBDT) has signed the most Advance Pricing Agreements (APAs) .

More on the Topic:

- The Advance Pricing Agreement was introduced in 2012 by the Central Board of Direct Taxes to minimize any confusion regarding the pricing of international transactions through a mutual agreement between the taxpayer and tax authority.

- APA is an agreement between a tax payer and tax authority determining the transfer pricing methodology for pricing the tax payer's international transactions for future years.
- It can be Unilateral, Bilateral APA (BAPA), or Multilateral APA (MAPA). Income-tax Act, 1961 provides for APA.
- Benefits include Avoiding double taxation, certainty for complex and high risk transactions, reduces compliance costs, promotes ease of doing business

FOREIGN TRADE POLICY 2023

In News: Foreign Trade Policy 2023 was announced recently.

More on the Topic:

- The Key Approach to the policy is based on these 4 pillars:
- (i) Incentive to Remission,
- (ii) Export promotion through collaboration - Exporters, States, Districts, Indian Missions,
- (iii) Ease of doing business, reduction in transaction cost and e-initiatives and
- (iv) Emerging Areas—E-Commerce Developing Districts as Export Hubs and streamlining SCOMET policy.

Highlights of the Policy:

- **Aim:** The FTP 2023 aims at process re-engineering and automation to facilitate ease of doing business for exporters.
- It also focuses on emerging areas like dual use high end technology items under SCOMET, facilitating e-commerce export, collaborating with States and Districts for export promotion.
- **SCOMET:** "Special Chemicals, Organism, Materials, Equipment and Technologies"

items are dual-use items having the potential for both civilian applications as well as weapons of mass destruction.

- **New amnesty Scheme:** The new FTP is introducing a one-time Amnesty Scheme for exporters to close the old pending authorizations and start afresh.
- **"Towns of Export Excellence Scheme":** The FTP 2023 encourages recognition of new towns through "Towns of Export Excellence Scheme" and exporters through "Status Holder Scheme".
- **Export Promotion of Capital Goods (EPCG) Scheme:** The FTP 2023 is facilitating exports by streamlining the popular Advance Authorisation and EPCG schemes, and enabling merchanting trade from India.
- EPCG Scheme allows the import of capital goods at zero Customs duty for export production.
- **Facilitation under the Advance authorization Scheme (AAS):** AAS provides duty-free import of raw materials for manufacturing export items. It has been now extended to the export of the Apparel and Clothing sector.
- **Promoting export from the districts:** The FTP aims at building partnerships with State governments and taking forward the Districts as Export Hubs (DEH) initiative to promote exports at the district level and accelerate the development of the grassroots trade ecosystem.

ANTI-DUMPING PROBE INTO IMPORT OF SODIUM CYANIDE

In News: India has initiated an anti-dumping probe into imports of poisonous chemical sodium cyanide from China, the European Union, Japan and Korea following a complaint by domestic players.

More on the Topic:

- Sodium cyanide is used for extraction of gold and silver from their respective ores, manufacturing insecticides, dyes, pigments, and bulk drugs.

- It releases hydrogen cyanide gas, a highly toxic chemical asphyxiant that interferes with the body's ability to use oxygen. It is odorless when dry.
- It is used for extraction of gold and silver from their respective ores, manufacturing insecticides, dyes, pigments, and bulk drugs.

About Anti Dumping Policy:

- An anti-dumping duty is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.
- Dumping is a process wherein a company exports a product at a price that is significantly lower than the price it normally charges in its home (or its domestic) market.

MONETARY POLICY'S IMPACT ON INEQUALITY

In News: RBI will be deciding whether to increase the interest rate any further.
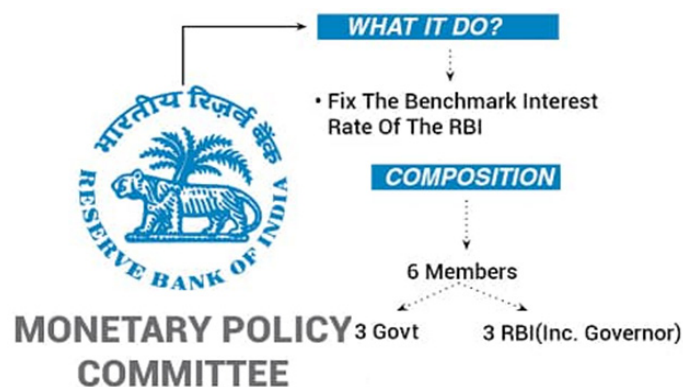
More on the Topic:

What are the pros and cons of raising interest rates?

- The main problem with hiking interest rates to contain inflation that may be getting caused by costlier crude oil (due to a war or some geopolitical tension) or costlier vegetables (due to some unseasonal rains) is that the hike per se cannot improve the supply of those goods and services.
- Raising rates is, in no uncertain terms, a blunt instrument. **It achieves the goal of containing prices by killing growth and employment.** Many have questioned this approach in the past.
- The answer to this criticism will be that a central bank does this to prevent the so-called **"second-order effects"** of high inflation.
- The second-order effects refer to **a spike in**

people's expectation of future inflation.

- This willl lead to people demanding more inflation adjusted wages, leading to more costlier products adjusted to increased wage, leading to. Higher cycle of inflation.
- Thus A contractionary/tighter monetary policy (higher interest rates) increases inequality in an economy

The Cons of Less interest or loose monetary Policy:

- When interest rates are low, savers barely get any rewards even as cheap credit fuelled spending, profiting the companies of different kinds. Under the circumstances, most of the capital appreciation (read wealth creation) happens in the stock markets.
- Most of the stocks in economy is held by the rich.
- This leads to widening inequality.

What should a central bank do?

- Widening inequalities is a very long-term trend, which depends on deep structural changes in any economy such as globalisation, technological progress, demographic trends etc.
- A properly managed monetary policy promotes greater economic stability and prosperity for the economy as a whole, by
- Mitigating the effects of recessions on the labour market and Keeping inflation low and stable.
- There is the need to rely on fiscal policy (taxes and government spending programs) and policies aimed at improving workers' skills to address distributional concerns.

PURCHASING MANAGERS INDEX

In News: As per S&P Global Market, India's PMI for manufacturing in March 2023 increased to a three month high.

More on the Topic:

- The Purchasing Managers' Index (PMI) is an index of **the prevailing direction of economic trends in the manufacturing and service sectors.**

- It consists of a diffusion index that summarizes whether market conditions, as viewed by purchasing managers, are expanding, staying the same, or contracting.

- The purpose of the PMI is to provide information about current and future business conditions to company decision makers, analysts, and investors.

- The PMI is based on a monthly survey of supply chain managers across 19 industries, covering both upstream and downstream activity.

- PMI is a number from **0 to 100. PMI above 50 represents an expansion, under 50 represents a contraction, and reading at 50 indicates no change.**

- PMI Data is published by Japanese firm Nikkei but compiled and constructed by Markit Economics.

NPCI'S INTERCHANGE FEE FOR PPI-BASED UPI TRANSACTIONS

In News: The National Payments Corporation of India (NCPI) issued a circular saying that Unified Payments Interface (UPI) transactions of above INR 2,000 made through prepaid payment instruments (PPI) to merchants will attract an interchange fee of 1.1%.

More on the Topic:

- Peer-to-peer (P2P) and peer-to-peer-merchants (P2PM) transactions will not be covered under the ambit of the new charges.

- As per the NPCI, **P2PM transactions are classified as transactions with small merchants who have projected monthly inward UPI transactions of less than or equal to INR 50,000.**

- The interchange fee will only apply on **payments made to online merchants, large merchants and small offline merchants.**

- In the card payment industry, **interchange fee is the charge that merchants pay to issuer banks for every credit and debit card transaction.**

- The fee covers costs related to authentication, verification and processing systems at different levels of debit and credit cards transactions.

- Meanwhile, **PPIs are instruments that facilitate purchase of goods and services,** conduct of financial services, enable remittance facilities, among others, against the value stored therein. Simply put, mobile wallets, gift cards, prepaid cards, among others, are PPIs.

What are Prepaid Payment Instruments?

- The RBI defines **PPIs as payment instruments that facilitate the buying of goods and services,** including the transfer of funds, financial services, and remittances, against the value stored within or on the instrument.

- PPIs are in the form of payment wallets (like Paytm Wallet, Amazon Pay Wallet, PhonePe Wallet, etc.), smart cards, mobile wallets, magnetic chips, vouchers, etc. As per the regulations, banks and NBFCs can issue PPIs.

The National Payments Corporation of India (NPCI):

- The National Payments Corporation of India (NPCI) is an initiative taken by the Reserve Bank of India (RBI) and Indian Bank's Association (IBA) to operate the retail payments and settlement systems in India.

- This organisation was founded in the year 2008 **under the Payment and Settlement Systems Act, 2007.**

- NPCI has been incorporated as a **'not for profit' company under section 8 of Companies Act 2013.**

- NPCI offers a range of products and services, including **Unified Payments Interface (UPI), National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS), Bharat Bill Payment System (BBPS), RuPay card, and others.**

CORPORATE DEBT MARKET DEVELOPMENT FUND

In News: SEBI has decided to set up a corporate debt market development fund in the form of an AIF.

More on the Topic:

- The move is aimed at instilling confidence amongst the participants in the corporate bond market and to generally enhance secondary market liquidity.
- The proposed CDMDF will have **an initial corpus of Rs 3,000 crore contributed by mutual funds.**
- CDMDF, based on a guarantee to be provided by **National Credit Guarantee Trust Company (NCGTC) may raise funds, for purchase of corporate debt securities during market dislocation.**
- The backstop facility will be managed by SBI Mutual Fund.
- Specified mutual fund schemes will have access to the fund for selling securities during market dislocation.
- This access is proportional to the contribution made to the fund at a mutual fund level.

GIG WORKERS

In News: Delivery partners at Zomato-owned quick commerce firm Blinkit are in a strike to protest against their new policy which reduces their daily income by 40-50%.

More on the Topic:

- According to Code on Social Security, Gig worker is 'a person who performs work or participates in a work arrangement and earns from such activities outside of traditional employer-employee relationship'.
- Gig workers can be broadly classified into **platform and non-platform workers.**
- Platform workers are those **whose work is based on online software apps or digital platforms, while non-platform gig workers are generally casual wage workers,** working part-time or full- time.

How big is the workforce engaged in the gig economy?

- Niti Aayog estimates that more than 7.5 million workers were engaged in the gig economy in 2020-21.

- This could grow to 23.5 million workers in the next eight years, making up for 4.1% of total livelihood in India.
- According to the report, at present, about 47% of the gig work is in medium skilled jobs, about 22% in high skilled, and about 31% in low skilled jobs.

What are the Problems Faced by Gig Workers:

- Gig workers are typically hired by companies on **a contractual basis** and are not considered their employees.
- As a result, **they do not receive some of the benefits that an on-roll employee of the company may have** — this means they often do not receive benefits like paid sick and casual leaves, travel and housing allowances, and provident fund savings, among other things.
- While platform companies have created avenues of employment, it has often been marred by **low wages, unequal gender participation, and a lack of possibility for upward mobility** within an organisation.

What are the NITI Ayog Recommendations?

- Firms should adopt policies that offer **old age or retirement plans and benefits, and other insurance** cover for contingencies such as injury arising from work that may lead to loss of employment and income.
- **Social security benefits** be extended to workers in a partnership mode, as envisaged in the Code on Social Security, 2020.
- **Fiscal incentives such as tax-breaks or start-up grants** may be provided for businesses that provide livelihood opportunities where women constitute a substantial portion (say, 30%) of their workers.
- **Accelerate access to finance** through products specifically designed for platform workers.

ENVIRONMENT AND ECOLOGY

THE GREAT PACIFIC GARBAGE PATCH

In News: Scientists have found thriving communities of coastal creatures, including tiny crabs and anemones, living thousands of miles from their original home on plastic debris in the Great Pacific Garbage Patch.
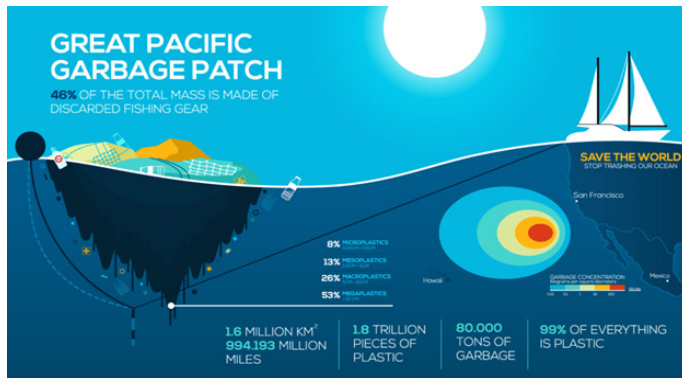
More on the Topic:

- The findings suggest **plastic pollution in the ocean might be enabling the creation of new floating ecosystems of species** that are not normally able to survive in the open ocean.

- Unlike organic material that decomposes and sinks within months or, at most, a few years, plastic debris can float in the oceans for a much longer time, giving creatures the opportunity to survive and reproduce in the open ocean for years.

- The Great Pacific Garbage Patch, which is twice the size of Texas, is **the largest accumulation of ocean plastic in the world.**

- The patch is bounded by **an enormous gyre -- the biggest of five huge, spinning circular currents in the world's oceans** that pull trash towards the center and trap it there, creating a garbage vortex.

SUPERCRITICAL CARBON DIOXIDE

In News: Researchers have found that super-critical carbon dioxide can be a good agent for simultaneous carbon dioxide sequestration and enhanced oil recovery (EOR) from depleted reservoirs.

More on the Topic:

- This is possible when the gas is used along with surfactants in a **'surfactant-alternating gas (SAG) injection' approach.**

- (Above a certain temperature and pressure, carbon dioxide acquires properties that are midway between gas and liquid − denser and easy to pump − known as supercritical state.)

- In this process, carbon dioxide gas is injected in the reservoir, where it becomes supercritical, followed by injection of water or surfactant solution.

- The use of supercritical carbon dioxide for EOR resulted in greater storage of carbon dioxide for both water-alternating gas (WAG) and SAG approaches.

- However, SAG performed better at all pressures and temperatures as surfactant solution alters the interfacial tension between the oil and water phases, leading to a higher oil recovery percentage and more effective storage of carbon dioxide.
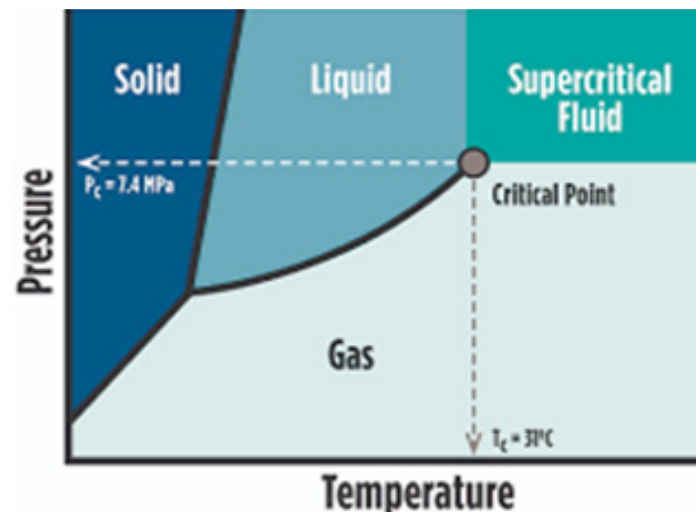
Significance:

- This method not only **promises improved recovery of oil but also safe, enhanced, and permanent storage of carbon dioxide gas emitted from human and other anthropo-logical activities,** for both WAG and SAG approaches.

- The use of supercritical carbon dioxide reduces oil viscosity, induces in situ swelling of the oil, and reduces the interfacial tension of the in-situ fluid system.

ZERO BUDGET NATURAL FARMING (ZBNF)

In News: Zero Budget Natural Farming (ZBNF) in Andhra Pradesh has led to significantly higher crop yield compared to organic or conventional (synthetic fertilisers and pesticides) farming. This was revealed by a recent study by researchers.

Components of ZBNF: Bijamitra (Seed treatment), Jiwamitra (No fertilizers, No pesticides), Mulching (Soil, straw), Waaphasa (Soil moisture).
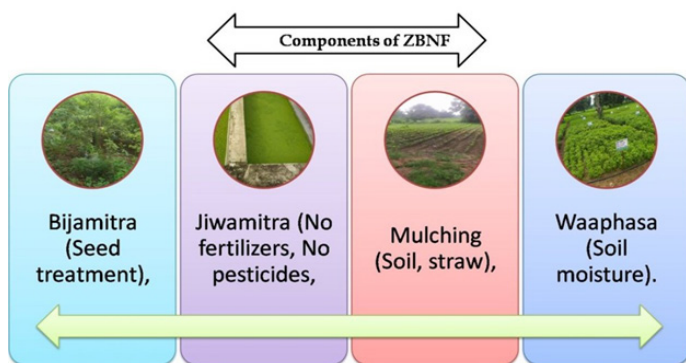
More on the Topic:

- The researchers did comparisons in terms of yield, soil pH, temperature, moisture content, nutrient content and earthworm abundance.

- The results revealed that ZBNF **yield was significantly higher than both conventional and organic treatments.**

- It was observed that the yield for the conventional treatment reduced from the first to the third season (1>2>3), whereas the organic and ZBNF mean yield increased slightly through the three seasons.

About Zero Budget Natural Farming:

- Zero Budget Natural Farming (ZNBF) means **raising crops without using any fertilizers and pesticides or any other external materials.**

- The word Zero Budget refers to **the zero cost of production of all crops.**

- ZBNF guides the farmers **towards sustainable farming practices** thus helps in retaining soil fertility, to ensure a chemical free agriculture and ensure low cost of production (zero cost) and thereby enhancing the farmers income.

- In short, ZBNF, is a farming method that believes in growing crops in tune with nature.

Four main elements and models of ZNBF:

- Carbon border taxes could result in **market distortion.**

- **Bijamrita**: The seeds are treated with formulations prepared using cow dung and cow urine from native cow species.

- **Benefits**: The seeds sown in the field may be affected by fungus and other seed born/soil borne diseases. The seed treatment using "Bijamrita" protects the seeds from diseases.

- **Jiwamrita/Jeevamrutha**: Jiwamrita is prepared using cow dung and cow urine. It is used as an input for the plants. It is a fermented microbial culture obtained from cow dung, urine, jaggery, pulse flour and uncontaminated soil. This fermented microbial culture when applied to soil, adds nutrients to the soil besides acting as a catalytic agent to promote the activity of microorganisms and earthworms in the soil.

- **Benefits:** This culture stimulates microbial activity in the soil and enhances nutrient availability for the plants, protects the crops against soil pathogens and increases carbon content of the soil.

- **Acchadana/Mulching:** Mulching is the process of covering the top soil with crop wastes/organic waste or with cover crops.

- **Benefits:** Mulching materials decomposes and produces humus which conserves top soil, increases water retention capacity of the soil, decreases evaporation loss, encourages soil fauna besides enriching soil nutrient status and controlling weed growth.

- **Waaphasa/Moisture (Soil Aeration):** Good aeration is required in the soil for plant growth and development.

- **Benefits:** Due to the application of Jiwamrita and mulching, the aeration of the soil increases, thus improves humus content, water availability, water holding capacity and soil structure which is most suitable for crop growth especially during drought periods.

BIOMASS PELLETS

In News: The Central Pollution Control Board (CPCB) revised the financial grants for biomass pellet manufacturing units.

More on the Topic:

- It has earmarked a maximum allocation of Rs 28 lakhs per tonne per hour (TPH) of production capacity for manufacturing biomass pellets or 40% of the capital cost of the plant and machinery — whichever is lower.

- These allocations, however, are grossly

insufficient to meet the current requirements of the pellet manufacturing industry.

- **It is mandatory to use biomass or agricultural residue as combustion fuel along with coal in coal-fired thermal power plants.**

- The biomass used for co-combustion in the power plants is processed and refined into pellets with a calorific value comparable to coal.

About Biomass Pellets:

- These are **a type of solid fuel made from compressed organic material (biomass)** such as industrial waste and co-products, food waste, agricultural residues, energy crops, and untreated lumber.

- Biomass pellets are of two kinds; **torrefied and non-torrefied. Biomass,** if processed at 250-350°C in the absence of oxygen, leads to the formation of torrefied biomass.

- Whereas, in the case of non-torrefied pellets, biomass is shredded, grinded and sent to a pellet reactor, where it is compressed into pellet form with the help of binders such as sawdust, bagasse, molasses, starch and others.

- Pellets are **extremely dense and can be produced with a low moisture content (below 10%) which allows them to be burned with a very high combustion efficiency.**

- Emissions such as **NOx, SOx and volatile organic compounds from pellet burning equipment are in general very low.**

- Pelletised biomass can potentially produce 6% of India's total electricity in 2030/31, in addition to direct biomass co-firing for electricity production.

HEAT INDEX

In News: India Meteorological Department (IMD) is planning to issue a heat hazard analysis in the form of Heat Index for the country.

More on the Topic:

- The heat hazard analysis will be calculated considering five meteorological factors — **relative humidity, minimum and maximum temperatures, wind speed and duration of heatwave spell.**

- A daily bulletin in summer season giving heat hazard analysis will be provided.

- It is colour-coded forecast and impact-based heatwave warning so that precautionary measures can be taken.

Significant elf Heat Index:

- It will not only warn against Heat waves hazard but also list precautions people can take.

- Calculation of HI will help states in formulating better Heat Action Plans (HAPs) for heatwave assessment, forecast, preparedness and mitigation.
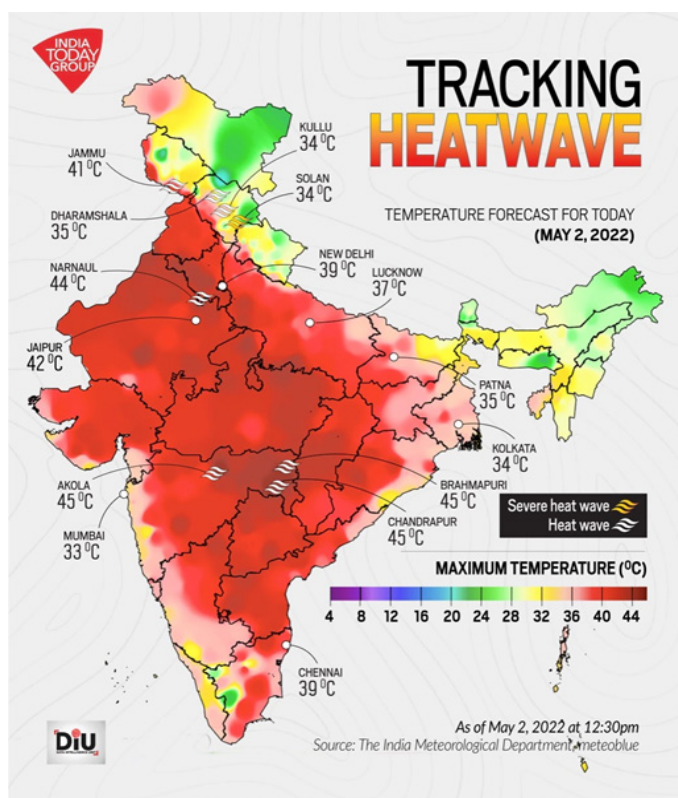
About Heat Waves:

- In India Heat waves typically occur from March to June, and in some rare cases, even extend till July.

- On an average, five-six heat wave events occur every year over the northern parts of the country.

- Single events can last weeks, occur consecutively, and can impact large population.

- In 2016, severe heat wave conditions affected Bihar, Jharkhand, Gangetic West Bengal, Odisha, Punjab, Haryana, Chandigarh & Delhi, Rajasthan, Maharashtra, West Madhya Pradesh and Gujarat.

What is criterion for declaring heat wave in India?

- Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions.

- **a) Based on Departure from Normal Heat Wave:** Departure from normal is 4.50°C to 6.40°C Severe Heat Wave: Departure from normal is >6.40degree C

- **b) Based on Actual Maximum Temperature Heat Wave:** When actual maximum temperature ≥ 450°C Severe Heat Wave: When actual maximum temperature ≥47

- **c) If above criteria met at least in 2 stations** in a Meteorological sub-division for at least two consecutive days and it declared on the second day.

What is a criterion for describing Heat Wave for coastal stations in India?

- When maximum temperature departure is 4.50°C or more from normal, Heat Wave may be described provided actual maximum temperature is 370°C or more. The peak month of the heat wave over India is May.

ARAVALLI GREEN WALL PROJECT

In News: The Haryana government has launched an extensive afforestation and plantation project called the "Green Wall" in 75 villages to revive the Aravallis.

Rough contours of proposed 1,400km 'green wall'

➤ Forest belt likely to run roughly **from Porbandar to Panipat,** covering entire Aravali range and beyond

➤ 'Green wall' will act as barrier for dust from west and check eastward march of Thar desert

➤ It will check desertification by **restoring degraded land through massive afforestation**

➤ Project yet to get formal nod, details to be worked out

More on the Topic:

- Aravallis are under threat from rampant mining, dumping of waste and encroachments.

- The project is conceptualised on the lines of the African Green Wall programme.

- The African Great Green Wall was an initiative launched in Sahel, the region bordering Africa's Sahara Desert, to increase the amount of arable land.

- The Aravalli Green Wall Project is **part of the Union Environment Ministry's vision to create green corridors across the country to combat land degradation and desertification.**

- The project covers states of **Haryana,** Rajasthan, Gujarat and Delhi - where the Aravalli hills landscape span over 6 million hectares of land.

- The project will involve planting native species of trees and shrubs on scrubland, wasteland and degraded forest land, along with rejuvenating and restoring surface water bodies such as ponds, lakes and streams.

- The project will also focus on agroforestry and pasture development to enhance the livelihoods of local communities.

Objectives of the Project:

- Improving the ecological health of the Aravalli range

- To **prevent eastward expansion of Thar Desert** and to reduce land degradation by creating green barriers that will prevent soil erosion, desertification and dust storms.

- This green wall will help in **carbon sequestration and mitigating climate change** to enhance the biodiversity and ecosystem services of the Aravalli range by planting native tree species in the Aravalli region, providing habitat for wildlife, improving water quality and quantity.

- **Promote sustainable development and livelihood opportunities** by involving local communities in afforestation, agro-forestry and water conservation activities that will generate income, employment, food security and social benefits.

- It will Contribute to **India's commitments under various international conventions such as UNCCD (United Nations Convention to Combat Desertification), CBD (Convention on Biological Diversity) and UNFCCC (United Nations Framework Convention on Climate Change).**

- Enhancing India's image as a global leader in environmental protection and green development.

About Aravalli Range:

- **The Aravalli Range** is a hill chain in northern India that runs 560 kilometres **northeast across Rajasthan state.**

- The system is split into two sections: **the larger Sambhar-Sirohi ranges,** which include Guru Peak on Mount Abu, the highest peak in the Aravalli Range, and the shorter Sambhar-Khetri ranges, which are made up of three discontinuous ridges.

- The Aravalli Range is abundant in natural resources (including minerals) and acts as

a barrier to the western desert's expansion.

- Several rivers flow from it, including the **Banas, Luni, Sakhi, and Sabarmati.**
- Though highly wooded in the south, it is mostly desolate and sparsely inhabited in the north, consisting mostly of **sand and stone and masses of rose-colored quartzite.**

EARTH HOUR

In News: Earth Hour was observed on 25th March.

More on the Topic:

- Earth Hour is **a worldwide movement organised by the World Wildlife Fund (WWF)** to encourage individuals, communities and businesses to turn off non-essential electric lights for one hour, from 8:30 pm to 9:30 pm on the last Saturday of March as a symbol of commitment to the planet.
- More than 100 countries across the world participated in Earth Hour.
- It was first started in Sydney, Australia in 2007 and has since gained popularity and momentum. Check out some of the most iconic photos of Earth Hour 2023.

ZERO WASTE DAY

In News: The United Nations General Assembly passed a resolution to proclaim March 30 as International Day of Zero Waste every year, and 105 countries have adopted it so far.

More on the Topic:

- During this time, UN member states, civil society, the private sector, academia, the youth and other stakeholders are invited to raise awareness of all available zero-waste and waste-management initiatives in the hope that we could come together to eliminate the problem entirely.
- The UN Environment Programme (UNEP) and the UN Human Settlements Programme (UN-Habitat) jointly facilitate the observance of International Day of Zero Waste.
- Zero Waste Day aims to promote sustainable consumption and production patterns and encourage the global community to shift towards circularity.
- 'Swachhotsav - 2023' was organised by Ministry of Housing and Urban Affairs is part of India's celebration of the International Day of Zero Waste 2023.

PROJECT TIGER

In News: India is celebrating golden jubilee of Project Tiger.

More on the Topic:

- Project Tiger is a tiger conservation programme launched in November 1973 by the Government of India.
- Project Tiger was launched in the backdrop of a declining population of tigers, which had fallen below 2000 in the 1970s.
- The project aims at **ensuring a viable population of the Bengal tiger in its natural habitats, protecting it from extinction, and preserving areas of biological importance** as a natural heritage that represent the diversity of ecosystems across the tiger's range in the country.

- The project's task force **visualised these tiger reserves as breeding nuclei,** from which surplus animals would migrate to adjacent forests.
- The Monitoring System for Tigers—Intensive Protection and Ecological Status, or **M-STrIPES** was launched in 2010 and is a software-based monitoring system for tigers.
- Information technology is used to keep a tab on the number of tigers. The e-Eye system was launched in 2016 at Corbett, which uses thermal cameras for enhanced surveillance.
- The project is working towards **eliminating all human activities from the core areas.** In the buffer areas, it is working towards minimising tiger-human conflicts.

About National Tiger Conservation Authority (NTCA):

- **National Tiger Conservation Authority (NTCA) is its implementing authority** established in 2005 under Wildlife (Protection) Act, 1972.
- It has overarching supervisory/coordination role and approves the Tiger Conservation Plan prepared by the State Governments.
- NTCA consists of the Minister in charge of the MoEFCC (as Chairperson), the Minister of State in the MoEFCC (as Vice-Chairperson), 3 MPs, Secretary, MoEFCC.

The significance of Project Tiger.

- With effective implementation of Project tiger, India is home to more than 70% of the global tiger population.
- Started with 9, now India has 53 reserves spanning approximately 2.4% of the country's geographical area.
- India has also achieved a doubling of tiger population in 2018, 4 years ahead of the targeted year 2022.

PROJECT ELEPHANT

In News: The Project Elephant has completed 30 years.

More on the Topic:

- Project Elephant (PE) was launched by the Government of India in the year 1991-92 as a Centrally Sponsored Scheme with the following objectives:
- To protect elephants, their habitat and corridors
- To address issues of man-elephant conflict

- Welfare of domesticated elephants
- MoEF&CC provides financial and technical support to major elephant range states in country through PE.
- Presently the Project is being implemented in 22 States/UTs, viz. Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Jharkhand, Karnataka, Kerala, Maharashtra, Meghalaya, Nagaland, Odisha, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal, Rajasthan, Andaman & Nicobar, Bihar, Punjab, Gujarat and Haryana (where an elephant rescue centre has been set up supported by Project Elephant).
- There are **29 notified and 1 proposed Elephant Reserve in the country** (Khasi Hills Elephant Reserve in Meghalaya).

Do you know?

Project Elephant (PE) is a scheme by MoEF&CC launched in 1991-92 with the aim to

Protect elephants, their habitat & corridors

Address issues of man-elephant conflict

Provide welfare of domesticated elephants

Conducts research, training and monitoring of elephant population

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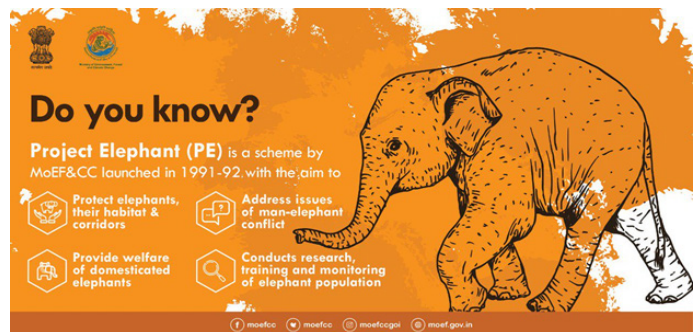
About Elephants:

- Elephants are the largest land mammals on earth and have distinctly massive bodies, large ears, and long trunks.
- **Led by a matriarch, elephants are organized into complex social structures** of females and calves, while male elephants tend to live in isolation or in small bachelor groups.
- A single calf is born to a female once every four to five years and after a gestation period of 22 months, the longest of any mammal.
- **Calves are cared for by the entire herd of related females.** Female calves may stay with their maternal herd for the rest of their lives, while males leave the herd as they reach puberty.
- Forest elephants' social groups differ slightly and may be comprised of only an adult female and her offspring.
- As per Elephant Census, 2017, Karnataka has highest number of elephants, followed by Assam and Kerala.

Conservation Status:

- Asian Elephant: Endangered (IUCN)

- Elephant's conservation measures in India Includes, **Monitoring Illegal Killing of Elephants (MIKE),** Development of Elephant Reserves (ER), recently Terai ER in Utter Pradesh became 33rd India's ER.

INTERNATIONAL BIG CATS ALLIANCE

In News: The Prime Minister has launched the International Big Cats Alliance (IBCA).

More on the Topic:

- In July 2019, the Prime Minister called for an Alliance of Global Leaders to obliterate demand and firmly curb poaching and illegal wildlife trade in Asia.

- Taking the message of the Prime Minister forward, the International Big Cats Alliance is being launched which will focus on the protection and conservation of **seven major big cats of the world, viz. Tiger, Lion, Leopard, Snow Leopard, Puma, Jaguar and Cheetah.**

- With IBCA, India plans **to collaborate with 97 range countries** covering the natural habitats of these seven big cats to strengthen global cooperation and efforts to protect these magnificent animals.

Significance of the Alliance:

- Protecting big cats and their habitats could **secure some of the most critical natural ecosystems on Earth.**

- This could **lead to natural climate change adaptation, water and food security for millions of people, and provide livelihoods and sustenance to forest communities.**

- The alliance will strengthen global efforts and partnerships on big cat conservation while creating **a platform for sharing knowledge and best practices.**

- The IBCA will **support existing species-specific inter-governmental platforms and provide direct support to recovery efforts** in potential range habitats.

- Big cats will now serve as mascots for sustainable development, leading to environmental resilience and climate change mitigation.

India and the Big Cats:

- India is the only country in world to have 5 big cats in wild (except pumas and jaguar).

- IUCN Status: Endangered (Royal Bengal Tiger, Asiatic Lions); Vulnerable (Snow Leopards, African Cheetahs); Least Concerned (Common Leopard).

DNA PROFILING OF ELEPHANTS

In News: The government plans to conduct DNA profiling of elephants as part of the elephant census 2022 after previous counts threw up possibly inaccurate numbers.

More on the Topic:

- The Ministry of Environment, Forest and Climate Change (MoEFCC), also for the first time, is converging elephant and tiger population estimation. The results for the census are expected to come in by July next year.

- **The DNA profiling of elephants will be done to develop a scientific method of population estimation. To ensure accuracy all DNA samples will be tested twice.**

- The census will be conducted in three phases.

- First, ground surveys will be conducted for indirect elephant signs including broken branches, footprints and dung.

- Results from camera traps and DNA analysis of dung samples will then be analysed.

- The numbers will finally be extrapolated to give a range for each region.

- Elephants will be identified for their herd, health

and nutrition level, and body characteristics such as ear and tusk size.

Project Elephant:

- The Government of India introduced Project Elephant in 1992 as a Centrally Sponsored Scheme with the following goals:
- To safeguard elephants, their habitat, and migration routes
- To address problems of animal-human conflict
- Elephant welfare in captivity

Conservation status of Asian Elephant:

- IUCN: Endangered
- Wildlife (Protection) Act, 1972: Schedule I.
- CITES: Appendix I

ERAVIKULAM NATIONAL PARK

In News: Eravikulam National Park in Munnar, Kerala, has opened a fernarium located within the park.

More on the Topic:

- Ferns are part of the **Epiphytic family.** They grow naturally in a soilless condition.
- The plants obtain water and nutrients through leaching from trees. A large number of ferns are on the trees inside the park.

About Eravikulam National Park:

- ENP was declared a Sanctuary in 1975 and later a National Park (1978) with the intention of protecting the indigenous population of **Nilgiri Tahr (highly endangered mountain goat).**
- "Neelakurinji", the flower that blooms once in twelve years grows here.
- Anamudi is located within the park is considered as the highest peak south of the Himalayas.

KAZIRANGA NATIONAL PARK

In News: In the first poaching incident at Kaziranga National Park this year, the carcass of a rhino was found in the western range of the park.

More on the Topic:

- It is a national park in the **Golaghat and Nagaon districts of Assam.**
- **Brahmaputra lies on North and Karbi Anglong hills on South of Kaziranga.**
- The sanctuary, which hosts **two-thirds of the world's great one-horned rhinoceroses, is a World Heritage Site.**
- Kaziranga is recognized as an Important Bird Area by **BirdLife International for conservation of avifaunal species.**
- Kaziranga has the largest population of the **Wild water buffalo** anywhere accounting for about 57% of the world population.

PROSOPIS CHILENSIS

In News: An alien invasive plant, Prosopis chilensis is threatening to pulverise native vegetation across 21 islands in the Gulf of Mannar Biosphere Reserve (GoMBR).

More on the Topic:

- Prosopis chilensis, a **drought-resistant plant native to the arid regions of four South**

American countries — Argentina, Bolivia, Chile, and Peru — is not the only trouble for these islands divided into the Tuticorin, Vembar, Kilakkarai, and Mandapam groups.

- Corals, seagrass, and mangroves are among the three unique ecosystems present on the islands.

- The GoMBR, **India's first marine biosphere reserve,** is one of the important habitats for coastal birds migrating as far as the Arctic Circle. The area is of particular significance as the 21 islands also serve as resting places for birds migrating to and from the nearby Sri Lankan islands.

- The highest number of water bird species, inclusive of waders, ducks, terns, gulls, egrets, and herons, was recorded on Manoli island of the Kilakkarai group. But 19 species of shorebirds were recorded compared to 26 listed in a 1990 study.

NAGRI DUBRAJ RICE

In News: Chhattisgarh's Nagri Dubraj rice variety has received geographical indication tag.

More on the Topic:

- The rice is of an indigenous variety and has small grains.

- The grain finds reference in Valmiki Ramayana.

- Paddy has a low height and maturity period of 140 days.

- It is known as the **Basmati of Chhattisgarh** because of its fragrance.

- Previously, **Jeeraphool rice** (also from Chhatisgarh) was granted a GI tag in 2019, Dubraj is the **second brand** to get the GI tag.

MIYAWAKI FOREST

In News: To tackle climate change and pollution, the government of Maharashtra has started creating a Miyawaki forest at Deonar village in Govandi.

More on the Topic:

- Named after Japanese botanist Akira Miyawaki, this involves planting two to four types of indigenous trees within every square metre.

- In this method, **the trees become self-sustainable and grow to their full length within three years.**

- It helps lower temperatures in concrete heat islands, reduce air and noise pollution, attract local birds and insects, and create carbon sinks.

GREAT SALT LAKE

In News: The Great Salt Lake is shrinking.

More on the Topic:

- Climate change has been making it increasingly difficult for the Great Salt Lake to fully bounce back.

- The impacts of the drying Great Salt Lake are already widespread. It threatens critical habitat for endangered species as well as the state's economy.

- The rapid drying of the lake bed also exposes toxic dust that threatens human health.

- The **Great Salt Lake is** the largest saltwater lake in the Western Hemisphere and the eighth-largest terminal lake in the world.
- It lies in the northern part of the US. state of Utah and has a substantial impact upon the local climate, particularly through lake-effect snow.

About Great Lakes:

- Great Lakes of North America are a series of interconnected freshwater lakes which connect to the Atlantic Ocean through the **Saint Lawrence Seaway.**
- Consisting of Lakes Superior, Michigan, Huron, Erie, and Ontario [in the order of west to east]. Superior, Huron, Michigan, Erie, and Ontario [In the order of largest to smallest].

GANDHISAGAR SANCTUARY

In News: Gandhisagar Sanctuary will be developed as a second home for cheetahs within six months to retain the tag of cheetah state.

More on the Topic:

- The move comes after experts suggested that Kuno National Park (KNP)does not have enough space for all cheetahs.
- After increasing the number of cheetahs in Kuno National Park in Sheopur, the area would not be sufficient for them, hence it is necessary to relocate a few.
- Gandhi Sagar Sanctuary is a wildlife sanctuary situated on the northern boundary of Mandsaur and Nimach districts in Madhya Pradesh, India.
- It is spread over area adjoining Rajasthan state in India.
- Gandhi Sagar Wildlife Sanctuary and the reservoir is also a designated Important Bird and Biodiversity Area (IBA) as it boasts a large bird diversity with healthy populations.
- **River Chambal** flows through the sanctuary.

SATKOSIA WILDLIFE SANCTUARY

In News: Breeding of Indian Skimmers has been recorded for the first time in Satkosia wildlife sanctuary.

More on the Topic:

- The Indian Skimmer is native to India, Bangladesh, Myanmar, Nepal, Pakistan and Vietnam.
- Indian Skimmer's IUCN status is Endangered.
- Satkosia Tiger Reserve, Bhubaneswar comprises two adjoining sanctuaries of central Odisha named as Satkosia Gorge Sanctuary and Baisipalli Sanctuary.
- Lying in a transitional zone extending between the Chhota Nagpur Plateau and the Deccan Plateau, the tiger reserve exhibits endemic life forms of both biotic provinces.
- In March 1974, the Forest Department of the Government of Orissa with technical support from the United Nations Development Programme (UNDP) and the Food and Agriculture Organization (FAO) started a breeding programme of crocodiles.
- In March 1975, the Gharial Research and Conservation Unit (GRACU) was started, which has done pioneering work in crocodile conservation in India.

MUDUMALAI TIGER RESERVE

In News: The Prime Minister, Shri Narendra Modi has visited the Bandipur and Mudumalai Tiger Reserves in Karnataka and Tamil Nadu.
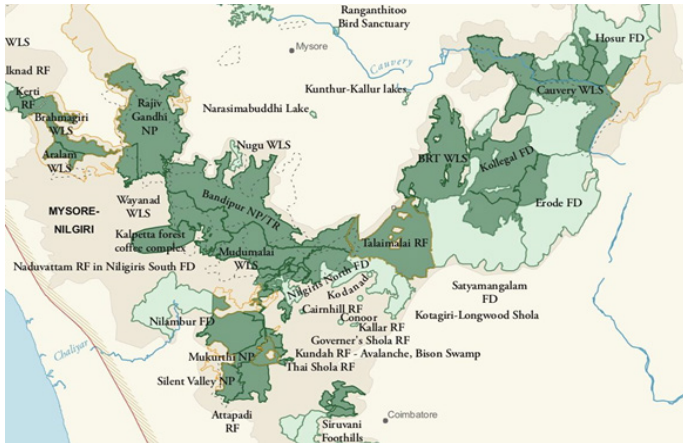
More on the Topic:

- Mudumalai Tiger Reserve is located in **the Nilgiris District of Tamil Nadu state at the tri-junction of three states, viz, Karnataka, Kerala and Tamil Nadu.**

- It is **a part of Nilgiri Biosphere Reserve** (1st Biosphere Reserve in India) along with Wayanad Wildlife Sanctuary (Kerala) in the West, Bandipur National Park (Karnataka) in the North, Mukurthi National Park and Silent Valley in the South.

- **Flagship Species**: Tiger and Asian Elephant.

- **Other species**: Indian Gaur, Spotted Deer, Common Langur, Malabar Giant Squirrel, Wild Dog, Jungle Cat among others.

- **Forest Type**: Tropical evergreen forest, moist deciduous forest, moist teak forest, dry teak forest etc

VEMBANAD AND ASHTAMUDI LAKES

In News: The National Green Tribunal (NGT) has imposed a penalty of Rs 10 crore on the Kerala government for failing to protect the Vembanad and Ashtamudi lakes, which are included in the Ramsar list of wetlands.

More on the Topic:

- The two wetlands have long been susceptible to massive encroachments, pollution and depletion of ecosystems.

- The condition of Vembanad lake deserves more attention. Water quality here is very low, with deficient levels of oxygen.

- **Vembanad Lake:** It is the longest lake in India and the largest lake in the state of Kerala. The lake is situated at sea level and is separated from the Laccadive Sea by a narrow barrier island.

- The lake is also known as Punnamada Lake (in Kuttanad) and Kochi Lake (in Kochi).

- In 2002, the lake was included in the list of **wetlands of international importance,** as defined by the Ramsar Convention. It is the second-largest Ramsar site in India, only after the Sunderbans in West Bengal.

- **Ashtamudi Lake:** Ashtamudi Lake, in the Kollam District of the Indian state of Kerala, is the most visited backwater and lake in the state.

- It has been recognized as a **Ramsar site,** a wetland site designated internationally important under the Ramsar Convention.

- **The Ramsar Convention:** is an international treaty for the conservation and sustainable use of wetlands, and India is a signatory to this treaty.

MALARIA

In News: With all focus on SARS-Cov-2, efforts to control malaria had taken a backseat amid the Covid-19 pandemic.

More on the Topic:

- While the Centre aims to make India malaria free by 2030, the Covid-19 pandemic had dealt a major blow to effective interventions. Malaria is all set to become a notifiable disease across India.

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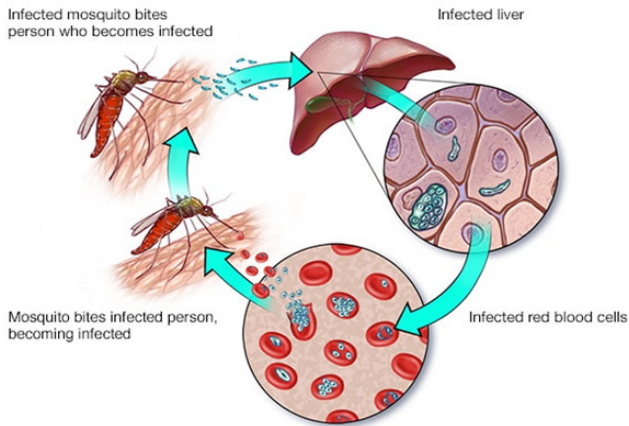
- A notifiable disease is any disease that is required by law to be reported to government authorities.
- It allows the authorities to monitor the disease, and provides early warning of possible outbreaks.
- Malaria is a disease caused by a plasmodium parasite, transmitted by the bite of infected mosquitoes.
- The severity of malaria varies based on the species of plasmodium.

H3N8 FLU VIRUS

In News: WHO recently announced about a human death due to the rare H3N8 bird flu virus, subtype of avian influenza.butterfly H3N8 bird flu.

More on the Topic:

- The reported Chinese woman's death is the first death due to bird flu strain that is rare in humans.
- Avian influenza—known informally as avian flu or bird flu—refers to "influenza caused by viruses adapted to birds".
- Most avian influenza viruses do not infect humans, however, some, such as A(H5N1) and A(H7N9), have caused serious infections in people.
- There is no evidence of easy human-to-human transmission of H3N8 bird flu.

BLASTOMYCOSIS

In News: At least one person died and around a 100 were confirmed or suspected to be infected by fungus from Blastomycosis genus.

More on the Topic:

- The fungus is found in the moist soil and decomposing wood and leaves in the midwestern, south-central and southeastern states of the US.
- If disturbed, microscopic spores from the fungus can get dispersed in air and travel freely. Human beings can contract blasto-mycosis by inhaling the spores.
- But most people who breathe in the spores don't actually get sick.
- The disease causes fever, cough, breathing difficulty and muscle aches.
- It is **usually diagnosed through tests done on blood and urine samples or imaging work of lungs.**
- Body fluid and tissue culture tests can also indicate the infection but the report may take up to a couple of weeks to be generated.
- There are antifungal medications that work on blastomyces but the course of the treatment is long – lasting between six months and a year.

BIOLUMINESCENCE

In News: The Bioluminescence was reported at Kerala Costs recently.

More on the Topic:

- Bioluminescence is light produced by a chemical reaction within a living organism.

- Bioluminescence is a type of chemiluminescence, which is simply the term for a chemical reaction where light is produced. (Bioluminescence is chemiluminescence that takes place inside a living organism.)

- **Most bioluminescent organisms are found in the ocean.**

- These bioluminescent marine species include fish, bacteria, and jellies. Some bioluminescent organisms, including fireflies and fungi, are found on land.

- There are almost no bioluminescent organisms native to freshwater habitats.

- The chemical reaction that results in bioluminescence requires two unique chemicals: luciferin and either luciferase or photoprotein.

- Luciferin is the compound that actually produces light. In a chemical reaction, luciferin is called the substrate.

- The bioluminescent color (yellow in fireflies, greenish in lanternfish) is a result of the arrangement of luciferin molecules.

KALA-AZAR INFECTION

In News: Experimental work undertaken in mice has shown a novel quinoline derivative to be effective in sharply reducing the load of Leishmania donovani in both the spleen and liver of lab-grown mice.

Symptoms of Visceral Leishmaniasis (kala azar)

- Enlargement of the spleen
- Enlargement of the liver
- Night sweats
- Severe temperature or irregular bouts of fever that can last for weeks
- Bleeding
- Blackening of the skin
- Scaly skin
- Dark and ashen skin
- Cough
- Weakness
- Substantial weight loss

More on the Topic:
- The quinoline derivative is **a potent inhibitor**

of an enzyme called topoisomerase 1 (Ld-Top1), which is essential for maintenance of DNA architecture in the parasites; this enzyme is distinct from the one found in humans.

- Kala-azar is **a vector borne (sandfly) neglected tropical disease** caused by the protozoan parasites of the genus leishmania that afflicts the world's poorest populations in over 90 countries throughout Asia, Africa, the Middle East, and Central and South America.

- Current annual estimates of kala-azar are about 1,00,000, with **more than 95% of cases reported to the World Health Organization (WHO) from India and other tropical countries,** most importantly co-infection with HIV, which leads to an immunocompromised state.

- The four States endemic for kala-azar in India are: Bihar, Jharkhand, West Bengal, and Uttar Pradesh

TYPE 1 DIABETES

In News: The National Commission for Protection of Child Rights(NCPCR) has written to States to introduce concessions for children with Type 1 diabetes in schools.

SIGNS AND SYMPTOMS OF **TYPE 1 DIABETES**

Symptoms
- Extreme Thirst
- Excessive Hunger
- Frequent urination
- Weight Loss
- Tiredness & fatigue
- Blurry Vision
- Delay in the healing of cuts & wounds
- The fruity odor from breath

PharmEasy

More on the Topic:
- T1D is diagnosed in childhood or adolescence as **a condition where the pancreas produces little or no insulin.**

- This requires the children to constantly monitor their sugar levels and diet, and regulate physical activity. Treatment involves taking multiple injections of insulin daily, lifelong.
- According to data from the International Diabetes Federation Atlas 2021, **India has the world's highest number of children and adolescents living with Type I Diabetes Mellitus** (TIDM), at over 2.4 lakh, in the south-east Asia region.
- It is an **autoimmune disorder,** which means that the body's immune system **mistakenly attacks and destroys the insulin-producing cells** in the pancreas. The exact cause of this condition is not known, but **genetic and environmental factors** are thought to play a role.

How is Type 1 Diabetes is treated?

- Anyone who has type 1 diabetes **needs insulin therapy throughout their life.**
- There are many types of insulin, including: Short-acting insulin. Sometimes called regular insulin, this type starts working around 30 minutes after injection.

Other types of Diabetes:

- Diabetes is a condition that happens when your blood sugar (glucose) is too high. It develops when your pancreas doesn't make enough insulin or any at all, or when your body isn't responding to the effects of insulin properly. Diabetes affects people of all ages.
- **Type 2 diabetes:** With this type, patients body doesn't make enough insulin and/or body's cells don't respond normally to the insulin (insulin resistance). This is the most common type of diabetes. It mainly affects adults, but children can have it as well.
- **Gestational diabetes:** This type develops in some people during pregnancy. Gestational diabetes usually goes away after pregnancy. However, if anyone have gestational diabetes, they are at a higher risk of developing Type 2 diabetes later in life.

GEOGRAPHY

HEAT WAVE IN INDIA

In News: The Indian Meteorological Department (IMD) has issued a heat wave alert for states in northern and eastern India amid rising temperatures.
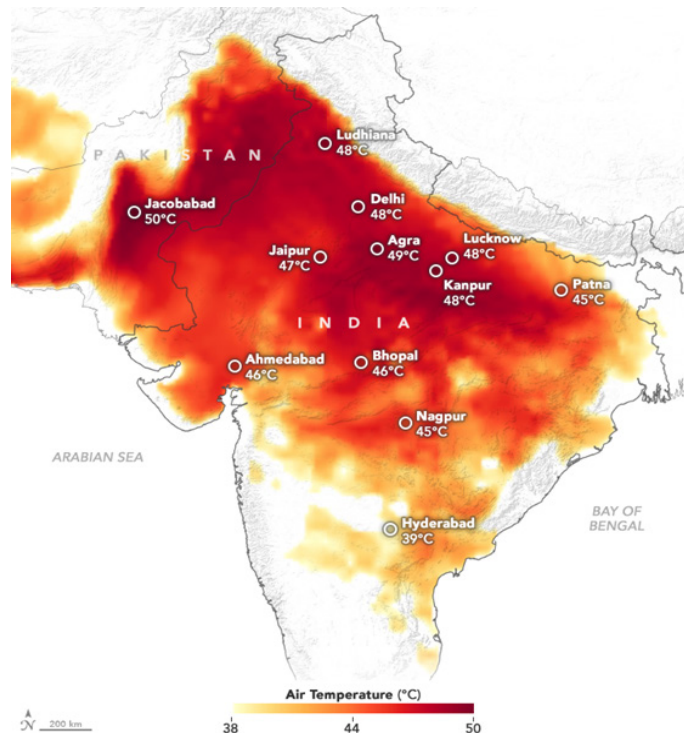
More on the Topic:

- Qualitatively, heat wave is a condition of air temperature which becomes fatal to human body when exposed.
- Quantitatively, it is defined based on t**he temperature thresholds over a region in terms of actual temperature or its departure from normal.**
- In certain countries it is defined in term of the heat index based on temperature and humidity or based on extreme percentile of the temperatures.
- Heat wave is considered if maximum temperature of a station reaches at least 40 degree Celsius or more for Plains and at least 30 degree Celsius or more for Hilly regions.
- **a) Based on Departure from Normal**
- Heat Wave: Departure from normal is 4.5 degree Celsius to 6.4 degree Celsius
- Severe Heat Wave: Departure from normal is >6.4 degree Celsius
- **b) Based on Actual Maximum Temperature**
- Heat Wave: When actual maximum temperature

≥ 45 degree Celsius

- **Severe Heat Wave:** When actual maximum temperature ≥47 degree Celsius

- If above criteria met at least in 2 stations in a Meteorological sub-division for at least two consecutive days and it declared on the second day.

Criterion for describing Heat Wave for coastal stations:

- When maximum temperature departure is 4.5 degree Celsius or more from normal, Heat Wave may be described provided actual maximum temperature is 37degree Celsius or more.

How India Meteorological Department (IMD) monitors the Heat wave?

- IMD has a big network of surface observatories covering entire country to measure various metrological parameters like **Temperature, Relative humidity, pressure, wind speed & direction etc.**

- Based on daily maximum temperature station data, climatology of maximum temperature is prepared for the period 1981-2010 to find out normal maximum temperature of the day for particular station.

- Thereafter, IMD declared heat wave over the region as per its definition.

What are favorable conditions for Heat wave?

- **a. Transportation / Prevalence of hot dry air over a region** (There should be a region of warm dry air and appropriate flow pattern for transporting hot air over the region).

- **b. Absence of moisture in the upper atmosphere** (As the presence of moisture restricts the temperature rise).

- **c. The sky should be practically cloudless** (To allow maximum insulation over the region).

- **d. Large amplitude anti-cyclonic flow over the area.**

LINK BETWEEN 'FLASH DROUGHTS' AND CLIMATE CHANGE

In News: Flash droughts, the kind that arrive quickly and can lay waste to crops in a matter of weeks, are becoming more common and faster to develop around the world, and according to a new study human-caused climate change is a major reason.

More on the Topic:

- In general, this kind of **rapid drying occurs when it is warm and rain would normally be falling but very little.**

- In such circumstances, the ground might already be wet from earlier rain or snow.

- So when the precipitation suddenly shuts off, hot, sunny and windy conditions can cause large amounts of water to evaporate quickly.

- This is why **the humid tropics tend to experience more flash droughts than slow ones.** The wet seasons there are usually rainy enough to keep land and vegetation damp.

- But when the rains fail unexpectedly, the equatorial heat can desiccate the ground to devastating effect.

About Flash Draughts:

- Flash droughts have been defined in two ways, either as a short-lived yet severe event where soil moisture completely depletes or a multi-week period of rapid intensification toward drought. It is sometimes also defined as a rapidly developing drought event.

- What makes flash drought unique from conventional drought development **is a lack of rainfall coupled with increased evapotranspiration.**

- Evapotranspiration is the combination of evaporation from the land surface and transpiration from vegetation.

- Both of these processes act to transfer water from the land surface to the atmosphere.

- **Enhanced evapotranspiration with a lack of rainfall can quickly deplete soil moisture** and lead to devastating impacts on agriculture and ecosystems.

- Flash drought can also be tied to rhythmic climatic patterns, such as El Nino (in Asia) and La Nina (eastern Pacific) events.

About Flash Draught Prediction:

- Changes in the rate of evapotranspiration and soil moisture have been identified as key early warning indicators.
- Vulnerability mapping will help policymakers, and farmers plan accordingly

ZOJILA TUNNEL

In News: India's Union road transport and highways minister, Nitin Gadkari, has reviewed the construction work of the strategic Zojila Tunnel.

ASIA'S LONGEST ROAD TUNNEL
14.2 KM ROAD TUNNEL

More on the Topic:

- The tunnel will provide all-weather connectivity between Jammu and Kashmir and Ladakh.
- It is a horseshoe-shaped single-tube, 2-lane tunnel.
- Tourism will increase once the tunnel is thrown open and will create job opportunities in J&K and Ladakh.

GALAPAGOS ISLANDS

In News: Scientists have newly discovered a deep-sea coral reef in previously unexplored waters off Ecuador's Galapagos islands.

More on the Topic:

- The Galápagos Islands is a volcanic archipelago in the Pacific Ocean. It's considered one of the world's foremost destinations for wildlife-viewing.
- A province of Ecuador, Its isolated terrain shelters a diversity of plant and animal species, many found nowhere else.
- Charles Darwin visited in 1835, and his observation of Galápagos' species later inspired his theory of evolution.

ANTARCTIC ICE MELTING AND OCEAN CURRENTS

In News: A new report published in the journal Nature, has found that rapidly melting Antarctic ice is causing a dramatic slowdown in deep ocean currents and could have a disastrous effect on the climate.
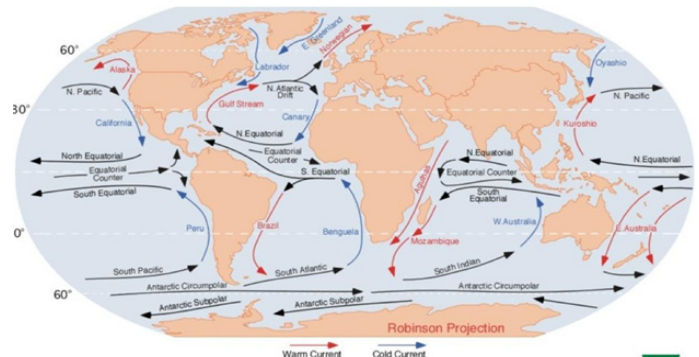
More on the Topic:

- The downwards movement of cold, dense saltwater towards the sea bed near Antarctica was **impacting ocean currents with fresh water from the ice cap melting.**
- **It results in sea water becoming less salty and dense,** thus slowing the downwards movement, causing impacting to deep ocean currents, or "overturning", in the northern and southern hemispheres that have been relatively stable for thousands of years.
- The deep-water flows which drive ocean currents **could decline by 40% by 2050.**

Impacts:

- A slowdown in the North Atlantic current could cause Europe to become colder.
- It will disrupts the base of the food chain as the Southern Ocean supports about three-quarters of global phytoplankton production thus in turn impacts the marine ecosystem.
- The slowdown of currents could reduce **the ocean's ability to absorb carbon dioxide from the atmosphere.**
- As ocean circulation slows down, **water on the surface quickly reaches its carbon-absorbing capacity** and is not then replaced by non carbon-saturated water from greater depths.

About Ocean Currents:

- Ocean currents **are the continuous, predictable, directional movement of seawater driven by gravity, wind (Coriolis Effect), and water density.**
- Ocean water moves in two directions: horizontally and vertically. Horizontal

movements are referred to as currents, while vertical changes are called upwellings or downwellings.

- These overturning circulation/currents, driven by the movement of denser water towards the sea floor, helps deliver heat, carbon, oxygen and vital nutrients (rise up from the bottom) around the globe.

GREAT NICOBAR ISLAND PROJECT

In News: The Ministry of Tribal Affairs told the Rajya Sabha that Displacement of tribespeople will not be allowed to make room for the Great Nicobar island project.

Map by T Ramachandran/Mongabay   Source: Modified Copernicus Sentinel data 2022; Pre-feasibility report for the holistic development of the island prepared for Niti Aayog; OpenStreetMap.

More on the Topic:

- The Tribal Affairs Ministry said that the utilisation of tribal reserve area will be subject to the interests of the local tribespeople living in the area, especially **the Shompen tribe, which is classified as a Particularly Vulnerable Tribal Group (PVTG).**

About Great Nicobar Island Project:

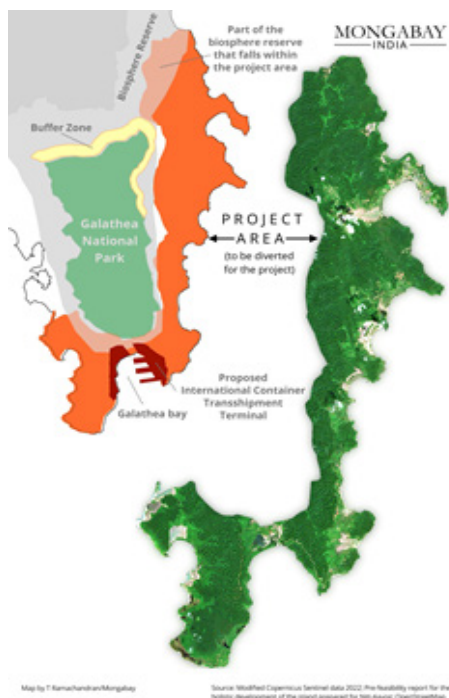- The project being implemented by the **Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO),** includes a transshipment port, an airport, a power plant, and a greenfield township.
- The port will be controlled by the Indian Navy, while the airport will have dual military -civilian functions and will cater to tourism as well.
- Roads, public transport, water supply and waste management facilities, and several hotels have been planned to cater to tourists.

Significance of the Project:

- **Economic Objectives:** The government's greater goal is to leverage the locational advantage of the island for economic and strategic reasons.
- Great Nicobar is equidistant from Colombo to the southwest and Port Klang and Singapore to the southeast, and positioned close to the East-West international shipping corridor, through which a very large part of the world's shipping trade passes. The proposed ICTT can potentially become a hub for cargo ships travelling on this route.
- **Security Objective:** its importance for national security and consolidation of the Indian Ocean Region. Increasing Chinese assertion in the Bay of Bengal and the Indo-Pacific has added great urgency to this imperative in recent years.

Concerns:

- The proposed massive infrastructure development in an **ecologically important and fragile region,** including the felling of almost a million trees is raising concerns.
- **The loss of tree cover** will not only affect the flora and fauna on the island, it will also lead to increased runoff and sediment deposits in the ocean, impacting the coral reefs in the area.
- **Coral reefs, already under threat from warming oceans,** are of enormous ecological importance.
- **The loss of mangroves** on the island as a result of the development project is also a concern.
- This project will increase the population to over 3.5 lakh (350,000), **which may cause a threat to the indigenous communities.**

Government Solutions:

- Government plans to **translocate the coral reefs.** India has successfully translocated a coral reef from the Gulf of Mannar to the Gulf of Kutch earlier.
- The government has said that a conservation plan for the leatherback turtle is also being put in place.
- According to the government, expediting the project is of paramount national security and strategic importance.
- The project site is outside the **eco-sensitive zones of Campbell Bay and Galathea National Park.**

- The Centre has said that the development area is only a small percentage of the area of the island and its forest cover, and that **15% of the development area itself will be green cover and open spaces.**

CHENAB BRIDGE

In News: Chenab Bridge – World's Highest Rail Bridge will be completed soon.

More on the Topic:

- The Chenab Bridge, an engineering marvel, is a part of **the strategically important Udhampur-Srinagar-Baramullah (USBRL) railway link** that will connect Jammu & Kashmir to the rest of India.

- The 111 km stretch of railway from **Katra to Banihal is essential,** and the 1.3 km long Chenab Bridge is a crucial part of this stretch. Once completed, the entire USBRL Railway project will provide all-weather connectivity and join Jammu and Kashmir to the rest of India.

- The bridge **designed to withstand high wind speed up to 266 Km/Hour, bear earthquake forces of highest intensity zone-V in India.**

NATHU LA PASS

In News: Seven tourists were killed and a dozen injured after an avalanche struck the Gangtok -Nathu La road in Sikkim recently.

More on the Topic:

- Nathu La is a mountain pass in the Dongkya Range of the Himalayas between China's Yadong County in Tibet, and the Indian states of Sikkim and West Bengal in Bengal, South Asia.

- It separates Sikkim and the Chumbi Valley.

- The pass is 52–54 kilometres east of Gangtok, the capital of Sikkim.

INTERNATIONAL RELATIONS

NORTH SEA SUMMIT

In News: Nine European countries has held North Sea Summit.

More on the Topic:

- 2 Non-EU countries Norway and United Kingdom participated in this second summit.

- 7 European Union (EU) countries participated were: **Belgium, Denmark, France, Germany, Ireland, Luxembourg, Netherlands.**

- North Sea Summit aims at making the North Sea the largest powerhouse of Europe by 2050 by taking its offshore wind capacity to 120 GW by 2030 and 300 GW by 2050.

- At the end of first summit in Denmark in 2022, Belgium, Denmark, Germany and Netherlands signed the **Esbjerg Declaration.**

- Esbjerg Declaration aimed at making the North Sea into the "Green Power Plant of Europe", an offshore renewable energy system.

- Declaration set the targets for offshore wind energy capacity of 150 GW by 2030 and 20 GW green hydrogen production capacity by 2030.

About North Sea:

- The North Sea lies between Great Britain, Denmark, Norway, Germany, the Netherlands, Belgium and France.

- An epeiric sea on the European continental shelf, it connects to the Atlantic Ocean through the English Channel in the south and the

Norwegian Sea in the north.

DAKAR DECLARATION

In News: 21 African countries has adopted The 'Dakar Declaration'.

More on the Topic:

- It has been adopted after the first African sub-regional conference on the implementing the Global Plan for Road Safety in Dakar, Senegal.
- It sets the ambitious target of **preventing at least 50% of road traffic deaths and injuries by 2030.**
- The declaration includes actions to enhance data capture, analysis, sharing and coordination to shape better road safety policies.
- The Dakar Declaration, currently being finalised, is in line with the work of the African Road Safety Observatory, which works to harmonise road safety related indicators across the continent.

REFORMING WORLD BANK

In News: While speaking at discussions around evolution of multilateral development banks (MDBs), Minister of Finance (FM) commented world is having the historic opportunity to reform work bank now.

More on the Topic:

Criticism Against World Bank:

- **Structural under-representation of the Global South:** Non-democratic governance structure dominated by industrialized countries, decisions made without consulting poor and developing countries.
- **Dominance of US and other members of G7 in voting and administration.**
- **Undermining democratic ownership:** undermine the sovereignty of borrower nations, limiting their ability to make policy decisions and eroding their ownership of national development strategies. Ex: enforced privatisation, government spending cuts, imposition of user fees.
- **Climate and development assistance:** Difficulty in finding the right balance between climate and development assistance, and climate emission and adaptation priorities.
- **Reports and Predictions:** There were concerns on the reliability of WB reports and predictions.
- **Redefine its purpose as a lending and developmental institution:** Has not been able to redefine its purpose as a lending and developmental institution in light of emergence of non-traditional lenders such as China.

Suggested Reforms:

- Consensus on global development challenges is important.
- More voting power to Developing Countries should be mandated.
- World Bank Group needs **enhanced financial and operational capacity.**
- Balance must be found between **climate and development assistance, prioritizing climate adaptation and emissions.**
- **Lending and investment policies of the Bank should prioritize climate-friendly projects.**
- World Bank decisions should be inclusive, consensus-based, and recognize the development perspectives and priorities of client countries.

INDIA-BRAZIL-SOUTH AFRICA FORUM

In News: The trilateral India-Brazil-South Africa forum is likely to receive increased diplomatic focus.

INDIA
BRAZIL
SOUTH AFRICA
FORUM

More on the Topic:

- The IBSA forum, which was established in the early 2000s as a means to strengthen cooperation among three key emerging economies, is seen to have become dormant in recent years.

- Between 2011 and 2022, the forum has held only four trilateral ministerial commission meetings.

- The IBSAMAR military exercise, which brings together the navies of the three countries, was held in October 2022 after a gap of over four years.

- A novel format, bringing together the national security advisers of the three countries, has only seen one meeting, in 2021.

About the IBSA forum:

- IBSA is a unique Forum which **brings together India, Brazil and South Africa,** three large democracies and major economies from three different continents, facing similar challenges.

- All three countries are developing, pluralistic, multi-cultural, multi-ethnic, multi-lingual and multi-religious nations.

US EMERGES AS INDIA'S LARGEST TRADING PARTNER

In News: According to Commerce ministry data, the U.S. has emerged as India's biggest trading partner in 2022-23.

More on the Topic:

- Bilateral trade between India and the U.S. **has increased by 7.65%.**

- Exports to the US rose by 2.81%.

- Imports grew by about 16%.

- Major export items from India to the U.S. include petroleum, polished diamonds, pharmaceutical products, jewellery, light oils and petroleum, frozen shrimp, made ups etc.

- Increasing exports of goods such pharmaceuticals, gems and jewellery were helping India to push its shipments to America.

- Major imports from the U.S. include petroleum, rough diamonds, liquified natural gas, gold, coal, waste and scrap, almonds etc.

- America is one of the few countries with which India has a trade surplus.

INDIA BHUTAN RELATIONS

In News: His Majesty Jigme Khesar Namgyel Wangchuck, the King of Bhutan called on the President of India, Smt Droupadi Murmu at Rashtrapati Bhavan recently.

More on the Topic:

- Diplomatic relations between India and Bhutan were established in 1968.

- The basic framework of India- Bhutan bilateral relations is the **Treaty of Friendship and Cooperation signed in 1949** between the two countries and revised in February 2007.

- Government of India has consistently supported the socio-economic development of Bhutan. Hydro-power cooperation between the two countries is an example of win-win cooperation.

- The **720 MW Mangdechhu, 1200 MW Punatsangchhu-I, 1020 MW Punatsangchhu-II** in Inter-Governmental mode are under various stages of implementation.

- India continues to be the principal development

partner of Bhutan. For the 12th Five Year Plan, India's contribution of Rs. 4500 cr. will constitute 73% of Bhutan's total external grant component.

- India is Bhutan's largest trading partner.
- In 2020, bilateral trade accounted for 82.6% of Bhutan's total trade.
- A 2,000 strong Indian Military Training Team (IMTRAT) is permanently based in western Bhutan to train the Royal Bhutan Army, while other units regularly cooperate with the Royal Bhutan Army.

Significance of India Bhutan Relations:

- Bhutan **shares** Assam, Arunachal Pradesh, West Bengal and Sikkim.
- Security of Bhutan's present borders especially its western border is very important for India.
- Bhutan serves as **a buffer between India and China.**
- Bhutan provides **a market for Indian commodities and is a destination for Indian investment.**
- Bhutan is a rich source of **hydropower.**

Challenges:

- China's continuous claims to important border areas such as **Chumbi valley and Doklam** and its continuous efforts for establishing strong diplomatic and economic relations with Bhutan have been continuous source of concern for India.
- At times India has been **accused of meddling in Bhutan's internal affairs.**
- A politically unstable and restive Bhutan can provide **a safe haven to anti-India activities and anti-India militant groups.**

MARKETS IN CRYPTO ACT

In News: The European Parliament has approved Markets in Crypto Act (MiCA).

More on the Topic:

- MiCA is the first, harmonised EU framework governing crypto-assets. As a regulation (and not a directive), MiCA will be directly applicable across Member States.
- The term "crypto-asset" under MiCA is broadly defined as any "digital representation of a value or a right which may be transferred and stored electronically, using distributed ledger technology or similar technology".
- **MiCA introduces 3 sub-categories of crypto-assets, namely:**
- asset-referenced tokens ("ARTs");
- e-money tokens ("EMTs"); and
- other crypto-assets (a catch-all category for tokens that are not ARTs or EMTs) such as utility tokens and other cryptocurrencies including Bitcoin or Ether.

Important Features of MiCA:

- MiCA Impose requirements on **crypto platforms, token issuers, and traders around transparency, disclosure, authorisation, and supervision of transactions.**
- Platforms **to inform consumers about risks associated with their operations,** while sales of new tokens will also come under regulation.
- Stable coins like Tether will be required to **maintain ample reserves to meet redemption requests in the event of mass withdrawals.**
- **European Securities and Markets Authority to step in** and ban or restrict crypto platforms if they do not protect investors properly.
- MiCA also **addresses environmental concerns** surrounding crypto, with firms forced to disclose their energy consumption as well as the impact of digital assets on the environment.
- Parliament also cleared **a separate law which aims to reduce the anonymity involved in transfers of cryptocurrencies** like bitcoin and stablecoins. It is addressed through Travel rules.
- Travel rule requires **financial companies to screen, record and communicate information on both sender and recipient, to help combat money laundering.**

GREEN STRATEGIC PARTNERSHIP

In News: India and Denmark has agreed to further strengthen the Green Strategic Partnership.

More on the Topic:

- The focus will be on green hydrogen, renewable energy and wastewater management.

- Main aim of of GSP is on an implementation of Paris Agreement and UN Sustainable Development Goals.

- GSP intends to advance political cooperation, expand economic relations and green growth, create jobs and strengthen cooperation on addressing global challenges and opportunities.

NORTH ATLANTIC TREATY ORGANISATION

In News: Finland has joined NATO recently, marking a definitive shift in Europe's post World War II alignment and isolating Russia further.

More on the Topic:

- To join the US-led North Atlantic Treaty Organisation (NATO), the small Nordic country, which shares a 1,340-km border with Russia, has ended more than 70 years of military non-alignment.

- In the Cold War years, a policy of neutrality between the Soviet Union and the West was known as 'Finlandisation', and Finlandisation had been one of the options discussed for Ukraine before Russia invaded it.

Why has Finland joined NATO?

- **Russia going to war against Ukraine has made its smaller neighbours crave the powerful military backing the NATO offers,** under whose charter, every member has to defend any one member being attacked.

- Finland and its neighbour Sweden applied for NATO membership soon after the Russian invasion of Ukraine.

- Any new applicant has to be approved by all existing members of the alliance, and while Finland is now the 31st NATO member, Sweden's bid is being held up by Turkey and Hungary.

Significance of Finland joining NATO:

- For Finland, while the country is in **a better position in terms of security,** it is losing out on the significant trade and tourist revenue it was making from Russia, and from its position as the West's gateway to the East.

- For NATO, **the addition of Finland brings in a military trained to repel an attack from Russia,** and, by doubling its border with the country, brings it in **a better position to station weapons, including missile launchpads, closer to Russia.**

- For Russia, Finland's move has brought **NATO closer to its doors,** the very thing it most strenuously opposes, and the prevention of which it had cited as one of the reasons to invade Ukraine.

About NATO:

- NATO was set up after World War II with the express purpose of containing the Soviet Union.

- The members of the alliance include: since 1949, the 12 founding countries of Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States; Greece and Türkiye joined in 1952; Germany in 1955; Spain in 1982; Czechia, Hungary and Poland in 1999; Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia and Slovenia joined in 2004; Albania and Croatia in 2009; Montenegro in 2017; North Macedonia in 2020; and finally, Finland.

INDUS WATER TREATY

In News: A meeting of the steering committee was held to take stock of the ongoing modification process of the Indus Waters Treaty (IWT).

More on the Topic:

- The Indus Waters Treaty is a Waters-sharing agreement signed between India and Pakistan in 1960, under the supervision of the World Bank.

- The **treaty aims to allocate the use of and resolve disputes over the Indus River and its tributaries,** which flow through China, India, and Pakistan.

- **The pact regulates the use and distribution of the Indus River system,** which consists of the main Indus River and its five tributaries - the Ravi, the Beas, the Sutlej, the Jhelum, and the Chenab.

What does the IWT lay out?

- The treaty has a preamble, 12 articles, and eight annexures that provide **India with absolute control over the waters of the eastern rivers - the Ravi, Sutlej, and Beas - while Pakistan receives unrestricted use of the western rivers - the Indus, Jhelum, and Chenab.**

- India can create storage (via hydro-plants) on the western rivers according to the treaty.

- The IWT also establishes a **Permanent Indus Commission (PIC)** consisting of two Commissioners, one from India and one from Pakistan.

- PIC intends to promote cooperation between the two nations and resolve any questions arising from the treaty's interpretation or implementation.

- Once a year, the PIC meets alternately in India and Pakistan and whenever either Commissioner asks to meet.

- As part of its work, PIC also inspects rivers and works to find out what's going on with various developments.

Why has India served a notice to Pakistan, seeking changes to IWT?

- India announced earlier this month, that it wants to modify the 62-year-old Indus Waters Treaty (IWT) with Pakistan, **citing Pakistan's non-cooperation in resolving disputes over the Kishenganga and Ratle hydroelectric power projects, both located in Jammu and Kashmir.**

- Pakistan first raised objections to India's construction of the **Kishenganga hydroelectric project on the Jhelum river back in 2006, and then objected to plans to construct the Ratle Hydroelectric Project on the Chenab river as well.**

- Both India and Pakistan do not agree on whether the technical details of the projects conformed with the treaty.

- While Pakistan is in its full right under the treaty to raise these objections, the problem is that **Pakistan betrayed the treaty protocol and instead went to an arbitration court at The Hague.**

- This directly goes against the treaty, which says that the World Bank will appoint a 'neutral expert' to inspect and resolve the argument.

INDIA CENTRAL ASIA RELATIONS

In News: Minister of Culture, Tourism and Development of North Eastern Region has hosted the first India-Central Asia Culture Ministers' Meeting through video conferencing.

More on the Topic:

- The Culture Ministers of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan participated in the meeting.

- The India-Central Asia Summit hosted by Prime Minister in January 2022 had laid emphasis on promoting cultural cooperation for better understanding of culture between

the Central Asian countries and strengthen our age-old cultural linkages which bind our people together.

India Central Asian Relations:

- **Historical Relations:** India has historical, cultural and religious links with Central Asia dating back to more than two millennia.
- **The spread of Buddhism from India, the Silk route linkages of Bukhara and Samarkand, the Kushana empire commonality,** spread of Sufism and Islam, arrival of Babur and many more such linkages are indicative of the deep-rooted relationship.
- **The ancient silk route** not only connected the region but also connected its people through trade, culture, religion and commerce.
- After the **breakup of the Soviet Union in 1991,** the countries of Central Asia emerged as independent nations.
- Central Asia as we know today comprises of five countries – **Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.**

'Extended Neighbourhood' foreign policy:

- The region was part of India's 'Extended Neighbourhood' foreign policy enunciated in 2001, along with South Asia and SE Asia. While our engagements with South and SE Asia showed a perceptible rise, our engagements with CAR remained hesitant.

This could be attributed to following reasons:-

- (a) Lack of **geographical land borders with Central Asia.**
- (b) **Inability to have a land route** either through Pakistan-Afghanistan or
- India-China borders.
- (c) **Instability in Afghanistan.**
- (d) **Lack of finances to invest** in infrastructure and development projects.

Importance of the Region to India:

- (a) As an alternate source of fuels for energy.
- (b) As a consumer market for its finished goods.
- (c) Counter the influence of China and Pakistan in the region.
- (d) Faster and cheaper connectivity to Europe and West Asia.
- (e) Prevent proliferation of terrorism and radical Islam.

- (f) Strengthen historical cultural and religious bonds.

Connectivity Initiatives:

- **International North-South Transport Corridor (INSTC):** The sea to Chabahar port in Iran and from there to Central Asia using the road/ rail link through either Iran or Afghanistan, skirting Pakistan. The prime mover of this strategy is the International North-South Transport Corridor (INSTC).
- **It is a 7,200 km long multi-modal network** of ship, rail and road based linkages for movement of freight and cargo between India, Iran, Afghanistan, Armenia, Azerbaijan, Russia, Central Asia and Europe.
- INSTC will not only help **cut down on costs and time taken for transfer of goods from India to Russia and Europe via Iran but also provide an alternative connectivity initiative** to countries in the Eurasian region.
- **Ashgabat agreement:** Ashgabat Agreement is a multimodal transport agreement among the governments of countries – Kazakhstan, Iran, Turkmenistan, Uzbekistan, Pakistan, Oman, Qatar, and India for establishing the **international transport and transit corridor.**
- **Turkmenistan-Afghanistan- Pakistan-India (TAPI) pipeline:** Another long-term strategy is the 1,800 km long Turkmenistan-Afghanistan- Pakistan-India (TAPI)pipeline which when commissioned will be a key milestone in connecting energy rich Central Asia with energy starved South Asia.

SHANGHAI COOPERATION ORGANISATION (SCO)

In News: Saudi Arabia has agreed to join the Shanghai Cooperation Organisation as a "dialogue partner".

More on the Topic:

- The Shanghai Cooperation Organisation (SCO) is an intergovernmental organisation

founded in Shanghai in 2001.

- **The SCO currently comprises eight members:** China, India, Kazakhstan, Kyrgyzstan, Russia, Pakistan, Tajikistan and Uzbekistan, four observer states interested in acceding to full membership: Afghanistan, Belarus, Iran, and Mongolia, and six "Dialogue Partners": Armenia, Azerbaijan, Cambodia, Nepal, Sri Lanka and Turkey.

- Since its inception in 2001, **the SCO has mainly focused on regional security issues, its fight against regional terrorism, ethnic separatism and religious extremism.**

- The SCO's priorities also include regional development.

INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD)

In News: The International Fund of Agricultural Development (IFAD) will set up a new framework to facilitate cooperation between small agricultural producers in developing nations and businesses in Japan and elsewhere.

More on the Topic:

- The International Fund for Agricultural Development is an international financial institution and a specialised agency of the United Nations that works to address poverty and hunger in rural areas of developing countries.

- Its projects and programmes are carried out in remote and environmentally fragile locations, including least developed countries and small island developing States.

- The IFAD assists vulnerable groups such as smallholder farmers, pastoralists, foresters, fishers and small-scale entrepreneurs in rural areas by providing, among others, access to weather information, disaster preparedness, social learning and technology transfer that enables farmers to feed growing populations and increase the climate resilience of rural farming systems.

ORGANISATION OF ISLAMIC COOPERATION (OIC)

In News: The Ministry of External Affairs has hit out at the Organisation of Islamic Cooperation (OIC), terming its comments on the recent violence during the Ram Navami processions in different parts of the country, as a reflection of its "communal mindset".

More on the Topic:

- The Organisation of Islamic Cooperation, formerly the Organisation of the Islamic Conference, is an intergovernmental organization founded in 1969, consisting of 57 member states, with 48 being Muslim-majority countries.

- Its official languages are Arabic, English and French.

- The membership spans roughly 1.81 million people.

- The organisation was set up to safeguard and protect the interests of the Muslims in the world and also to promote international peace and harmony among various people of the world.

PREPAREDNESS AND RESILIENCE FOR EMERGING THREATS INITIATIVE (PRET)

In News: To better prepare for the next pandemic, or even better, to prevent it, WHO is launching an initiative PRET to help countries ensure they have the systems and capacities in place to speed up every aspect of their management of emerging threats, from response and recovery.

More on the Topic:

- PRET operates under the aegis of the International Health Regulations (IHR), which is a critical international legal instrument for managing public health emergencies.

The Preparedness and Resilience to Emerging Threats (PRET) initiative
helps countries prepare for disease pandemics by being:

Innovative
Planning for groups of pathogens based on how they spread

Risk-based
Covers known pathogens with pandemic potential and unknown "Pathogen X"

Functional
Builds preparedness on the foundation of routine systems

Efficient
Same systems and capacities can be used

Collaborative
Brings partners from different sectors together

PRET
Preparedness and Resilience for Emerging Threats

World Health Organization

- The aim is to strengthen existing systems and capacities, and to fill gaps. This approach avoids siloes, promotes coherence and efficiency, and helps streamline actions at the time of a pandemic.
- PRET is launching first with a focus on respiratory pathogens.

CHABAHAR PORT

In News: First meeting of India-Central Asia Joint Working Group on Chabahar port took place in Mumbai.

More on the Topic:
- The port of Chabahar is located in **south-eastern Iran in the Gulf of Oman.**
- In 2016, India signed a tripartite agreement with Iran and Afghanistan to develop the Shahid Beheshti Terminal at Chabahar.
- The Chabahar port is considered a gateway to golden opportunities for trade by India, Iran and Afghanistan with central Asian countries.

- It will make way for India to **bypass Pakistan in transporting goods to Afghanistan using a sea-land route.**
- At present, Pakistan does not allow India to transport its territory to Afghanistan.
- It would give **momentum to the International North-South Transport Corridor** of which both are initial signatories along with Russia.
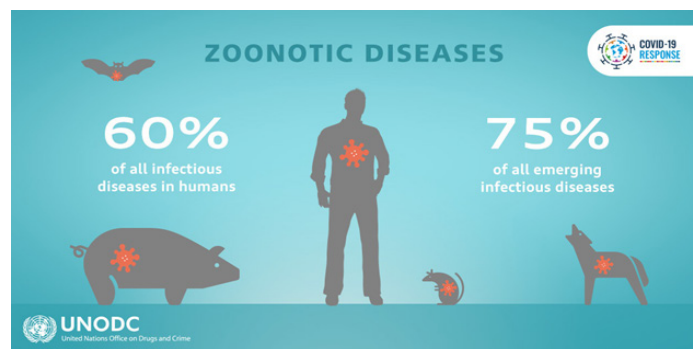- Iran is the key gateway to this project.
- It would counter the Chinese presence in the Arabian.

SAFETY ACROSS ASIA FOR THE GLOBAL ENVIRONMENT (SAFE)

In News: China has chosen not to participate in a United Nations project SAFE.

More on the Topic:
- The project is designed to survey **Asian wet markets and other similar facilities that pose a high risk of spreading infectious diseases from animals to humans.**
- It was launched in July 2021 and initially involved four countries, China, Laos, Thailand, and Vietnam.
- However, after China declined to join, the Malaysian state of Sabah on Borneo Island was selected to replace it.
- The project's scientific advisory committee selected the countries because they host multiple facilities that increase the risk of zoonotic disease transmission, especially in the wake of major wildlife trafficking cases.

MILLETS AND OTHER ANCIENT GRAINS INTERNATIONAL RESEARCH INITIATIVE (MAHARISHI)

In News: Indian has tabled MAHARISHI at the G20 Meeting of Agriculture Chief Scientists on "Sustainable Agriculture and Food System for Healthy People and Planet."

More on the Topic:

- MAHARISHI International Initiative will focus on Research and Awareness about agro-biodiversity, food security, and nutrition aligning with the International Year of Millets 2023.

- In these areas, options will be explored of G20 countries coming together to help sharing science-based technological and innovative solutions.

- Millets are known as **nutri-cereals or super-foods,** mainly grown on marginal land in dry areas of temperate, sub-tropical and tropical regions.

WORLD FOOD PROGRAMME (WFP)

In News: India has signed a memorandum of understanding (MoU) with the UN World Food Programme (WFP) for humanitarian food assistance of 10,000 tonnes of wheat for the people of Afghanistan.

More on the Topic:

- The World Food Programme (WFP) is an international organization within the United Nations that provides food assistance worldwide.

- It is the world's largest humanitarian organization.

- WFP works in over 120 countries and territories to enhance nutrition in women and children, support smallholder farmers, help prepare for climate-related shocks, and boost human capital.

- WFP's funding comes from governments, corporations, individuals etc.

INDIA, IRAN, ARMENIA FORM TRILATERAL GROUPING

In News: India, Iran, Armenia has formed trilateral grouping.

More on the Topic:

- During the meeting in Yerevan, the capital of Armenia, delegations from the three countries held discussions on economic issues, regional communication channels and the prospects of deepening cultural and people-to-people contacts.

- For India, Armenia has emerged as a key geopolitical partner in recent years. India has supplied arms to Armenia over the years and the latter has traditionally supported New Delhi on the Kashmir issue.

- **Nagorno-Karabakh, a disputed territory between Armenia and Azerbaijan, is also a key factor in these two different trilaterals.**

- While Turkey and Pakistan have traditionally supported Azerbaijan in the conflict, Iran and India have supported Armenia.

- India has entered into a number of weapon contracts with Armenia and the recent deal was signed in late 2022 to supply weapons worth approximately Rs 2,000 crore.

Significance of the Trilateral:

- Trilateral would boost **International North-South Transport Corridor (INSTC)** as well as another corridor that will connect Russia with Europe via Armenia.

- Earlier reports also suggested that Armenia has proposed the **Persian Gulf–Black Sea corridor via Iran parallel to INSTC** to connect Indian traders with Russia and Europe.

THE CARIBBEAN COMMUNITY AND COMMON MARKET (CARICOM)

In News: External Affairs Minister (EAM) has co-chaired the 4th India-CARICOM Ministerial Meeting with his Jamaican counterpart at the CARICOM Secretariat in Guyana.

CARICOM
CARIBBEAN COMMUNITY AND COMMON MARKET

More on the Topic:

- The Caribbean Community and Common Market (CARICOM) is a regional group of nations that encourage common policy and economic goals.
- CARICOM is a grouping of twenty countries: fifteen Member States and five Associate Members, most of which are Small Island Developing States.
- Member countries include Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Haiti, Jamaica etc.
- CARICOM came into being in 1973 with the signing of the **Treaty of Chaguaramas.**
- The single market and economy is known as the Caribbean Single Market and Economy (CSME), which is meant to integrate all of the member states of CARICOM. It is still in development.
- CARICOM is an official **United Nations Observer** beneficiary.

UNITED NATIONS ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC (ESCAP)

In News: A High-Level Conference on Accelerating Rail Digital Transformation in Asia and Pacific region was held recently in collaboration with United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and the Ministry of Railways.

More on the Topic:

- The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) is the **regional development arm of the United Nations for the Asia-Pacific region.**
- It has **53 Member States and 9 Associate Members** from Asia-Pacific Region including India.
- Established: **1947**
- Headquarters: **Bangkok,** Thailand
- **Objective:** To overcome some of the region's greatest challenges by providing results-oriented projects, technical assistance and capacity building to member States.

INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES (INCOIS)

In News: The Indian National Centre for Ocean Information Services (INCOIS) launched two fresh modern deep sea 'Slocum' gliders in the Bay of Bengal, to study the physical and biogeochemical parameters of the sea and get an insight into the climate change.

ESSO- Indian National Centre for Ocean Information Services

More on the Topic:

- The state of the art gliders are equipped with sensors to track temperature, salinity, chlorophyll, dissolved oxygen, PAR–photo-synthetic active radiation in the sea water among others.
- While the project comes under the 'Deep Ocean Mission' of the Ministry, it is not for

the first time that the institute has deployed gliders to scour around the sea.

Indian National Centre for Ocean Information Services (INCOIS):

- It was established as an autonomous body in 1999 under Ministry of Earth Sciences (MoES) and is a unit of the Earth System Science Organisation (ESSO).
- It is one of the five regional commissions of United Nations.
- Its objectives include,
- To provide ocean data, information and advisory services to society, industry, the government and the scientific community
- To establish an Early Warning System for Tsunami and Storm Surges.
- To promote research in field of ocean information and related services including satellite oceanography.

UN DEMOCRACY FUND

In News: India, a founding member of UNDEF, has informed no objections to the Fund giving grants to NGOs funded by George Soros, while he is put on the watchlist in India.

UNDEF
United Nations
Democracy Fund

More on the Topic:

- The United Nations Democracy Fund (UNDEF) was created by UN Secretary-General Kofi A. Annan in 2005 as a United Nations General Trust Fund to support democratisation efforts around the world.
- UNDEF supports projects that strengthen the voice of civil society, promote human rights, and encourage the participation of all groups in democratic processes.

- The large majority of UNDEF funds go to local civil society organizations—both in the transition and consolidation phases of democratization.
- In this way, UNDEF plays a novel and unique role in complementing the UN's other, more traditional work—the work with Governments—to strengthen democratic governance around the world.
- UNDEF subsists entirely on voluntary contributions from Governments;

ANTI SPYWARE DECLARATION

In News: The US and 10 other nations issued the first-ever significant anti-spyware declaration.

More on the Topic:

- It recognized **the threat posed by the misuse of commercial spyware.**
- It seeks to realize the importance of stringent domestic and international controls on the proliferation and use of this technology.
- **Spyware is a type of malicious software or malware that is installed on a computing device without the end user's knowledge.**
- Due to the fact that many countries' intelligence and law enforcement agencies require such tools to combat terrorism, organised crime, and drug lords, nations had been unwilling to take a firm stance against spyware up until now.
- Too often, such powerful and invasive tools have been used to target and intimidate perceived opponents and facilitate efforts to curb dissent; limit freedoms of expression, peaceful assembly, or association; enable human rights violations and abuses or suppression of civil liberties; or track or target individuals without proper legal authorisation, safeguards, or oversight.

SCIENCE AND TECHNOLOGY

CALCIUM CARBIDE

In News: The Food Safety and Standards Authority of India (FSSAI) urged food commissioners of all states and Union Territories (UT) to take action against the unauthorised use of artificial fruit ripening agents like Calcium Carbide.

More on the Topic:

- Calcium carbide, also known as 'masala', is commonly used in mining and metal industries as well as in the production of acetylene gas.

- It is a highly reactive compound and releases acetylene gas which is used to artificially ripen fruits.

- The use of calcium carbide, one of the harmful artificial fruit ripening agents, has been prohibited as per the provision in sub-regulation of Food Safety and Standards (Prohibition and Restriction on Sales) Regulation, 2011.

- The use of 'masala' in fruits is highly toxic and can cause health damage including respiratory problems and skin irritation, which may lead to cancer.

- FSSAI warned that the used of this chemical compound can lead to the formation of arsenic and phosphorus that are poisonous in nature.

SUPERBIT

In News: The Super Pressure Balloon Imaging Telescope (SuperBIT) that launched on a scientific super pressure balloon captured its first research images.

More on the Topic:

- The advantage of balloon-based versus space telescopes is the reduced cost of not having to launch a large telescope on a rocket.

- A super pressure balloon can circumnavigate the globe for up to 100 days to gather scientific data.

- The balloon also floats at an altitude above most of the Earth's atmosphere, making it suitable for many astronomical observations.

- The SuperBIT telescope captures images of galaxies in the visible-to-near ultraviolet light spectrum, which is within the Hubble Space Telescope's capabilities, but with a wider field of view.

- The goal of the mission is to map dark matter around galaxy clusters by measuring the way these massive objects warp the space around them, also called "weak gravitational lensing."

NATIONAL QUANTUM MISSION

In News: The Union Cabinet approved the National Quantum Mission (NQM) in a bid to aid scientific and industrial research and development in quantum technology.
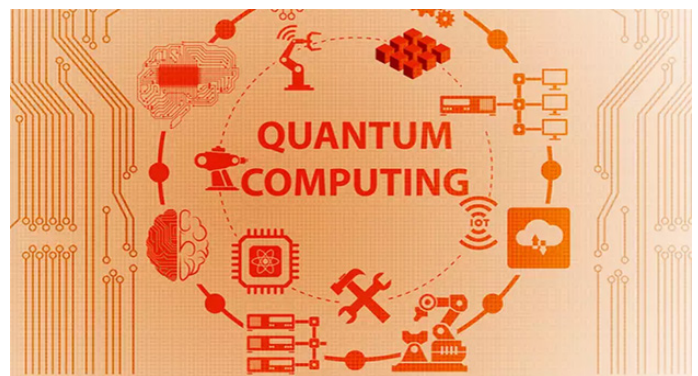
More on the Topic:

- The mission will be implemented from 2023-24 to 2030-31, and aims to put India among the top six leading nations involved

in the research and development in quantum technologies.

- NQM will mainly work towards strengthening India's research and development in the quantum arena alongside indigenously building quantum-based (physical qubit) computers which are far more powerful and are able to perform the most complex problems in a highly secure manner.

Objectives of the Mission:

- It will target developing intermediate scale quantum computers with 50-1000 physical qubits in eight years in various platforms like superconducting and photonic technology.

- Satellite based secure quantum communications between ground stations over a range of 2000 kilometres within India

- Long distance secure quantum communications with other countries

- Inter-city quantum key distribution over 2000 km

- Multi-node Quantum network with quantum memories

- Develop magnetometers with high sensitivity in atomic systems and Atomic Clocks for precision timing, communications and navigation.

- Support design and synthesis of quantum materials such as superconductors, novel semiconductor structures and topological materials for fabrication of quantum devices.

- Single photon sources/detectors, entangled photon sources will also be developed for quantum communications, sensing and metrological applications.

Implementation Plan:

- Four 'Thematic Hubs' (T-Hubs) will be set up in top academic and national R&D institutes in the domains of quantum computing, quantum communication, quantum sensing and metrology, and quantum materials and devices.

- The hubs will focus on generation of new knowledge through basic and applied research as well as promote R&D.

- DST will lead this national mission, supported by other departments. Presently, R&D works in quantum technologies are underway in the US, Canada, France, Finland, China and Austria.

About Quantum Technology:

- Quantum Technology (QT) is a field of physics that applies the principles of Quantum Mechanic.

- QM describes the behaviour of matter and energy at an atomic/subatomic scale, where classical laws of physics do not apply.

ELECTROMAGNETIC ION CYCLOTRON (EMIC) WAVES

In News: Scientists have identified Electromagnetic Ion Cyclotron (EMIC) waves, a form of plasma waves in the Indian Antarctic station, Maitri, and studied its characteristics.
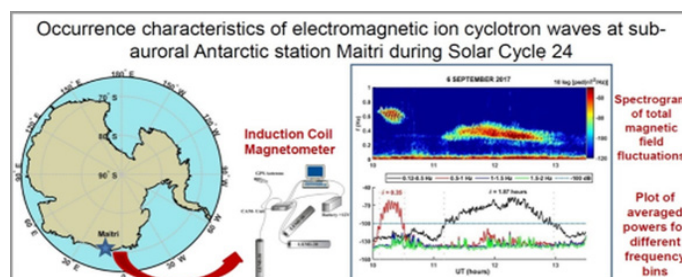
More on the Topic:

- These waves play an important role in precipitation of killer electrons (electrons having speed close to speed of light, which form the radiation belt of planet Earth), which are hazardous to our space-borne technology/instruments.

- Killer electrons are electrons having speed close to speed of light, which form the radiation belt of planet Earth.

- They are the discreet electromagnetic emissions (transverse plasma waves) observed in the Earth's inner magnetosphere.

- These waves are generated in the equatorial latitudes and propagate along magnetic field lines to its footprint in the high latitude ionosphere (atmosphere).

- They can be recorded in both space as well as ground based magnetometers.

### Significance of the Study:

- The study can help understand the impact of energetic particles in the radiation belts on the low orbiting satellites.

- More than 99% of the matter in the visible universe consists of plasma. Our Sun, solar wind, the interplanetary medium, near-Earth region, magnetosphere (the cavity in which the Earth lies and stays protected from

the wrath of the Sun), and upper part of our atmosphere all consist of plasma—the fourth state of matter.

- The study of plasma waves provides with **information on regions inaccessible to us,** transport mass and energy across different regions, how they interact with charged particles, and control the overall dynamics of the Earth's magnetosphere.

ETHYLENE OXIDE

In News: European Commission has brought ethylene oxide under pesticide residue classification.
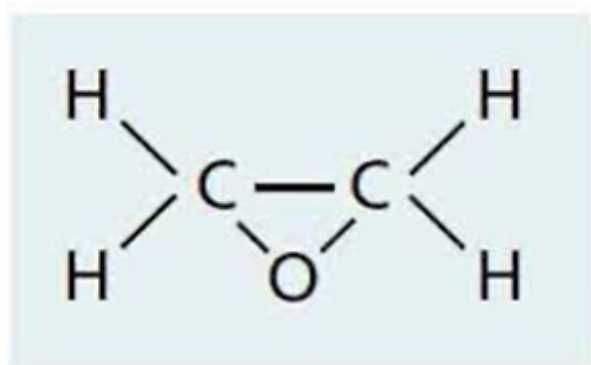

Ethylene oxide

More on the Topic:

- This means agricultural products being exported to European Union will now be mandatorily tested.
- Exposure to high levels of ethylene oxide can be harmful to human health, and it has been classified by the International Agency for Research on Cancer (IARC) as a human carcinogen.
- It is a flammable colorless gas with a sweet odour.
- It is used primarily **to produce other chemicals, including antifreeze.**
- In smaller amounts, **ethylene oxide is used as a pesticide and a sterilising agent.**

EUROPE'S JUICE MISSION

In News: Europe's Jupiter Icy Moons Explorer mission is set to launch for its 8-year cruise to the solar system's largest planet.
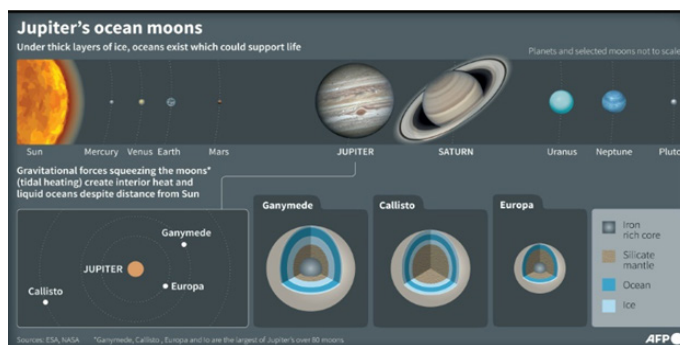
More on the Topic:

- The spacecraft, designed to explore three of Jupiter's four main moons.
- JUICE will arrive at Jupiter in July 2031 and spend the following three and a half years orbiting the planet while making close flybys of three of its four main moons: Europa, Ganymede and Callisto.
- Scientists are interested in Jupiter's moons because **they appear to harbor massive oceans of liquid water hidden by tens of miles thick shells of ice, and these oceans might possess favorable conditions for some form of life to exist.**
- Although JUICE is unlikely to find any evidence of life on Jupiter's moons, **the mission will help scientists better understand whether the right conditions for life exist on these moons or not.**
- Although Ganymede is much less likely to host life than the smaller Europa, scientists want to be able to compare conditions on these two ice-covered ocean worlds.

NASA-ISRO SAR MISSION (NISAR)

In News: A forthcoming satellite, NISAR, jointly developed by the Indian Space Research Organisation (ISRO) and the National Aeronautics and Space Administration (NASA) of the U.S. will map the most earthquake-prone regions in the Himalayas with unprecedented regularity.
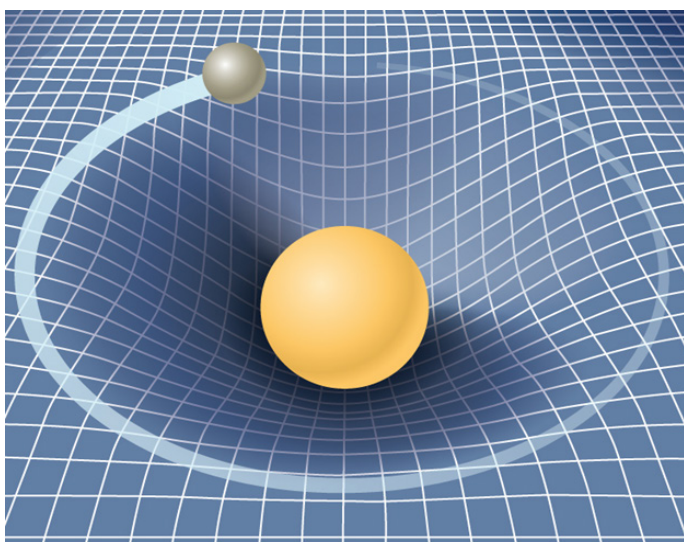
More on the Topic:

- The data this will generate can **potentially give advance warning of land subsidence,** as recently observed in Joshimath, Uttarakhand, as well point to places that are at greatest risk from earthquakes.

- The NISAR satellite, expected to cost approximately $900 million (with ISRO contributing about one-tenth) will use **two frequency bands: the L-band and S-band to image the seismically active Himalayan region** that will, every 12 days, create a "deformation map".

- The geoscience community will use this data to determine how strain is building up in various parts of the Himalayas.

About Strain:

- Strain refers to **the deformation that occurs in rocks when it is under pressure** from other rocks, usually due to movements of continental plates that are sliding, colliding, or sub ducting against each other.

- The Indian Plate, for instance, **collided into the Eurasian plate forming the Himalayas and continues to incrementally push it upwards.**

- Based on the intensity of past earthquakes, the knowledge of the speed at which plates move and the locations at which plates interact (called faults) can help geologists and seismologists map out regions that are most vulnerable to earthquakes and estimate how far the resultant tremors can spread.

EINSTEIN'S THEORY OF GRAVITY

In News: The map created by astronomers have confirmed Einstein's theory of gravity.

More on the Topic:

- Astronomers have made the most detailed map of dark matter showing that both the 'lumpiness' of universe and the rate at which it is growing are on expected lines as predicted using Einstein's theory of gravity.

- **Being invisible, researchers observe how dark matter interacts with the gravity of massive objects such as galaxy clusters and lumps of dark matter.**

- The gravitational field generated by these massive objects **bends and distorts light that passes through them.**

- It provides new insights into an ongoing debate called 'The Crisis in Cosmology,' suggesting that dark matter was not lumpy enough.

- Previous studies showed that these lumps are smaller than those predicted by the theory. These findings were based on the light emitted from stars in galaxies.

- **Crisis stems from measurements that use a different background light, one emitted from stars in galaxies rather than cosmic microwave background (CMB).**

- The new measurements show that both the 'lumpiness' of the universe and the rate at which it is growing after 14 billion years of evolution are on expected lines.

- New map uses **light from CMB- leftover radiation from Big Bang or the time when the universe began- and used gravitational lensing** to map the concentrations of dark matter.

About Gravitational Lensing:

- Gravitational lensing occurs when a massive celestial body — such as a galaxy cluster — **causes a sufficient curvature of spacetime for the path of light around it** to be visibly bent, as if by a lens.

- The body causing the light to curve is accordingly called a gravitational lens.

- In simpler terms Gravitational Lensing occurs when **massive objects distort and magnify light from objects behind them, acting as cosmic telescopes and making distant galaxies appear brighter.**

About Dark Matter:

- **Dark matter** is particles that do not have a charge which means they do not interact through electromagnetic interactions.

- **"dark"**: because they do not emit light.
- **"matter"**: because they possess mass like normal matter and hence interact through gravity.
- Unlike normal matter, dark matter does not interact with electromagnetic force. This means it does not absorb, reflect, or emit light, making it extremely hard to spot.
- Being invisible, researchers observe how dark matter interacts with gravity of massive objects such as galaxy clusters and lumps of dark matter.

INDIAN SPACE POLICY

In News: The new Indian Space Policy has been released by ISRO.
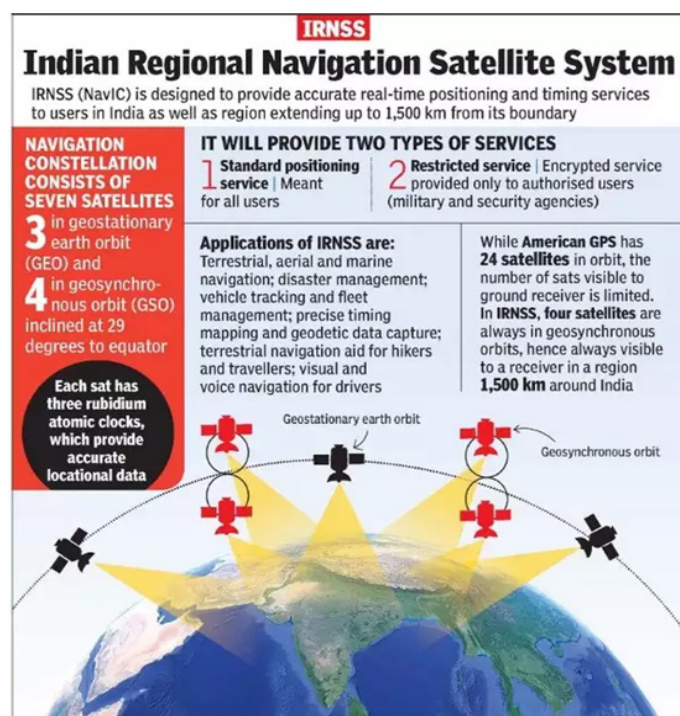

More on the Topic:

- **ISRO:** Indian Space Research Organisation shall transition out from manufacturing operational space systems and focus its energies on research and development in advanced technologies.
- **NGEs:** The policy permits **non-government entities (NGEs) to offer national and international space-based communication services,** through self-owned, procured or leased geostationary orbit (GSO) and non-geostationary satellite orbit (NGSO) satellite systems.
- NGSO is a reference to low earth orbit or medium earth orbits that are home to satellites providing broadband internet services from space.
- The policy also encourages **NGEs to establish and operate ground facilities for space objects operations,** such as telemetry, tracking and command (TT&C) Earth Stations and Satellite Control Centres (SCCs).
- It also allows NGEs to undertake **end-to-end activities in the space sector** through the establishment and operation of space objects,

ground-based assets and related services such as communication, remote sensing and navigation.

- It encouraged NGEs **to use Indian orbital resources and/or non-Indian orbital resources** to establish space objects for communication services over India and outside.
- The policy encouraged NGEs **to manufacture and operate space transportation systems,** including launch vehicles, shuttles, as well as design and develop reusable, recoverable and reconfigurable technologies and systems for space transportation.
- It also encouraged NGEs **to engage in the commercial recovery of an asteroid resource** or a space resource.
- **IN-SPACe:** IN-SPACe Shall function as an autonomous Government organization, mandated to promote, hand-hold, guide and authorize space activities.
- Promote industry clusters / zones/ manufacturing hubs/ incubation Centres/ accelerators / technical centres etc., for the space sector.
- Ensure a level playing field for the utilization of all facilities created using public expenditure.

NavIC

In News: A chip capable of powering accurate and high-precision navigation, positioning, and timing applications using NavIC, the indigenous satellite-based navigation system, was showcased at the Defence Space Symposium.

More on the Topic:

- To meet the positioning, navigation and timing requirements of the nation, ISRO has established a regional navigation satellite system called Navigation with Indian Constellation (NavIC).

- NavIC was erstwhile known as Indian Regional Navigation Satellite System (IRNSS).

- **NavIC is designed with a constellation of 7 satellites and a network of ground stations operating 24 x 7.**

- Three satellites of the constellation are placed in geostationary orbit and four satellites are placed in inclined geosynchronous orbit with equatorial crossing.

- **NavIC offers two services: Standard Position Service (SPS) for civilian users and Restricted Service (RS) for strategic users.**

- NavIC coverage area **includes India and a region up to 1500 km beyond Indian boundary.** NavIC signals are designed to provide user position accuracy better than 20m.

- NavIC SPS signals are **interoperable with the other global navigation satellite system (GNSS) signals namely GPS, Glonass, Galileo, and BeiDou.**

- A new civilian signal is being introduced in L1 band(1575.42 MHz).

- NavIC L1 signal is also **interoperable with the other GNSS signals.** All forthcoming (2022-23 onwards) NavIC satellites will broadcast SPS signals in L1, L5 and S bands.

MAGNETORESISTANCE

In News: Magneto resistance has been identified in graphene.

More on the Topic:

- The resistance of some of the metal and the semiconductor material varies in the presence of the magnetic field, this effect is called the magnetoresistance.

- The element which has these effects is known as the magnetoresistor. In other words, the magneto resistor **is a type of resistor whose resistance varies with the magnetic field.**

- The magnetoresistor is used for determining the presence of a magnetic field their strength and the direction of the force.

- It is made of the **indium antimonide or indium arsenide semiconductor material.**

URANIUM-241

In News: While studying the atoms of heavy elements, physicists in Japan discovered a previously unknown isotope of uranium.

Discovery of a new Uranium Isotope 'Uranium-241'

01 ▶ **Discovered by** A team of nuclear physicists of Japan.

Atomic Number and Mass Number of 'Uranium-241' 92 and 241. 02

03 ▶ **Half-Life** 40 minutes

Uranium (U) A naturally occurring radioactive element. 04

05 ▶ **Uranium consists of three isotopes in natural state** U-234, U-235 and U-238.

More on the Topic:

- The isotope has atomic number 92 and mass number 241, i.e. uranium-241.

- The physicists were in search of magic number.

- In nuclear physics, **"magic numbers" are specific numbers of protons or neutrons in atomic nuclei that correspond to Stable configurations.**

- The heaviest known 'magic' nucleus is lead (82 protons). After this nucleus becomes unstable.

About Isotopes:

- Isotopes are **atoms of the same element that have the same number of protons but differ in the number of neutrons in their nuclei.**

- Isotopes of an element have nearly identical chemical properties but may differ in their physical properties such as density and radioactivity.

CELLULAR AGRICULTURE

In News: Cellular Agriculture is getting prominence now.

Host organisms

Animals   Plants   Microbes

Food (in vitro meat)

Cosmetics (plant stem cells)

Materials (leather-like)

Cellular agriculture

Cellular products   Acellular products

Food (ovalbumin)

Chemicals (vanillin)

Pharmaceuticals (paclitaxel)

Materials (silk)

Current Opinion in Biotechnology
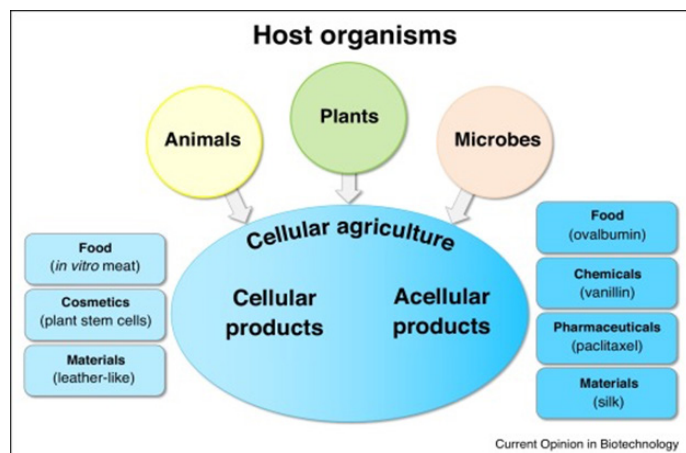
More on the Topic:

- 'Cellular agriculture' is emerging as one of the key technologies for decarbonising protein production systems by directly producing products from cells, as opposed to raising an animal for slaughter or growing crops.

- Cellular Agriculture is the production of **animal-based products from cell cultures rather than directly from animals.**

- It has two different approaches,

- Cell cultivation (cellular) in which meat is directly produced from cells (fed with nutrients in large cultivators).

- Precision fermentation (acellular) in which microorganisms are used rather than cell cultures to produce products such as milk and egg-white proteins.

OLKILUOTO 3 NUCLEAR REACTOR

In News: Finland's much-delayed and costly new nuclear reactor, Europe's most powerful by production capacity, has completed a test phase lasting over a year and started regular output.

More on the Topic:

- The Olkiluoto 3 reactor, which has 1,600-megawatt capacity.

- It will help Finland to achieve **its carbon neutrality targets and increase energy security** at a time when European countries have cut oil, gas and other power supplies from Russia, Finland's neighbour.

- Primarily due to **safety concerns, nuclear power remains a controversial issue in Europe.**

- The launch of the Finnish reactor coincides with Germany's move to shut down its last remaining three nuclear plants recently.

LASER INTERFEROMETER GRAVITATIONAL -WAVE OBSERVATORY, OR LIGO, PROJECT

In News: The government has given the final go-ahead to India's Laser Interferometer Gravitational-Wave Observatory, or LIGO, project.

More on the Topic:

- LIGO is **an international network of laboratories that detect the ripples in spacetime** produced by the movement of large celestial objects like stars and planets.

LIGO – A GIGANTIC INTERFEROMETER
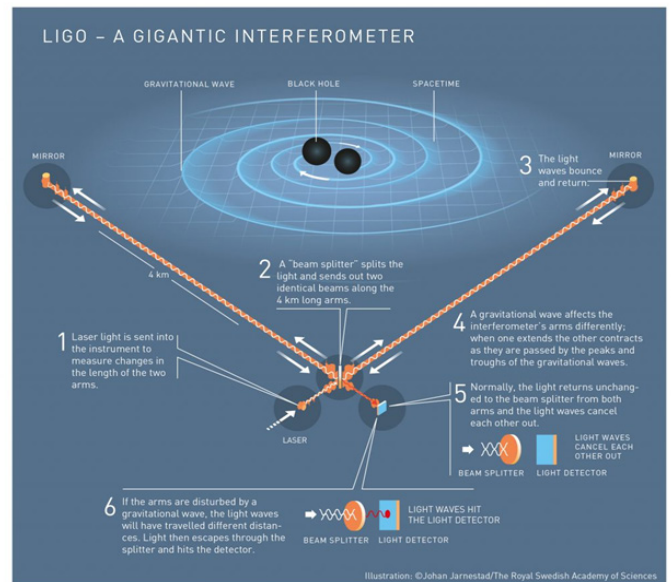
- These ripples were first postulated in **Albert Einstein's General Theory of Relativity** that encapsulates our current understanding of how gravitation works.

- LIGO-India will be **located in Hingoli district of Maharashtra,** about 450 km east of Mumbai, and is scheduled to begin scientific runs from 2030.

- LIGO is **crucial to demonstrating India's intent and capability to pull-off complex science projects on its own.**

- The new Ligo observatory, in combination with its partners, will let scientists probe deep questions about black holes and neutron stars.

- "The new detector will improve chances of doing science in India.

DRAGONFLY MISSION

In News: NASA's Dragonfly mission to explore Titan is scheduled for launch in 2027, and the spacecraft is expected to arrive at its destination in around 2034.
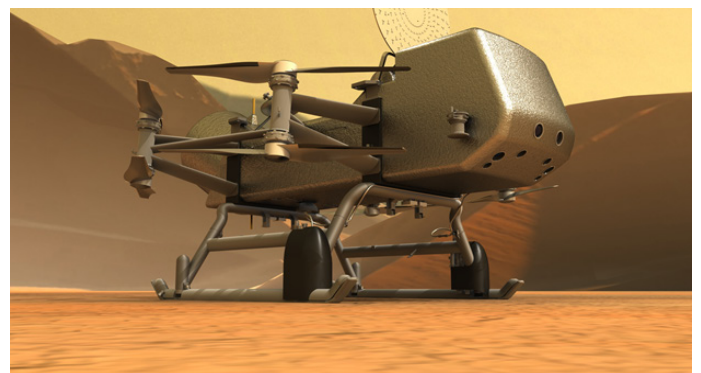
More on the Topic:

- Titan is the **second largest moon in our solar**

system (after Jupiter's Ganymede). It is larger than Mercury, and has lakes, rivers, clouds, and rain of methane on the surface.

- Titan is around 10-times farther than the earth from the sun, and as such, its surface temperature is around -179º C.

- Of all the moons in our solar system, **Titan is the only one with a thick atmosphere.** In fact, its atmosphere is four times denser than that of the earth.

- This, along with the moon's low gravity and freezing environs, will allow Dragonfly to stay aloft above the surface of the moon with less energy than it would need on other bodies.

Similarities With Earth:

- Titan's building blocks are **expected to be similar to those on the earth before life took root.** While both the earth's and Titan's atmospheres contain abundant nitrogen, Titan lacks oxygen.

- The presence of methane and nitrogen in Titan's atmosphere could allow their component atoms – carbon, hydrogen, and nitrogen – to potentially exist and recombine to form a rich variety of organic compounds.

New Horizon Mission:

- The Dragonfly mission is part of NASA's **'New Frontiers' programme,** which also includes the New Horizons mission to Pluto and the Kuiper Belt; Juno to Jupiter; and OSIRIS-REx to the asteroid Bennu.

- The 'New Frontiers' programme is designed to explore the solar system with medium -class spacecraft missions that conduct high-science-return investigations.

ISRO'S REUSABLE LAUNCH VEHICLE MISSION RLV LEX1

In News: The Indian Space Research Organisation and its partners successfully demonstrated a precise landing experiment for a Reusable Launch Vehicle at the Aeronautical Test Range (ATR).

More on the Topic:

- The Reusable Launch Vehicle Autonomous Landing Mission (RLV LEX) test was the second of five tests that are a part of ISRO's efforts to develop RLVs, or space planes/ shuttles, which can travel to low earth orbits to deliver payloads and return to earth for use again.

- The RLV-TD will be used to develop technologies like hypersonic flight (HEX), autonomous landing (LEX), return flight experiment (REX), powered cruise flight, and Scramjet Propulsion Experiment (SPEX).

- The 2016 experiment involved sending a winged spacecraft on a rocket powered by a conventional solid booster (HS9) engine used by ISRO into space.

- The spacecraft traveled at a speed of Mach 5 (five times the speed of sound) when re-entering the earth's orbit and traveled a distance of 450 km before splashdown in the Bay of Bengal.
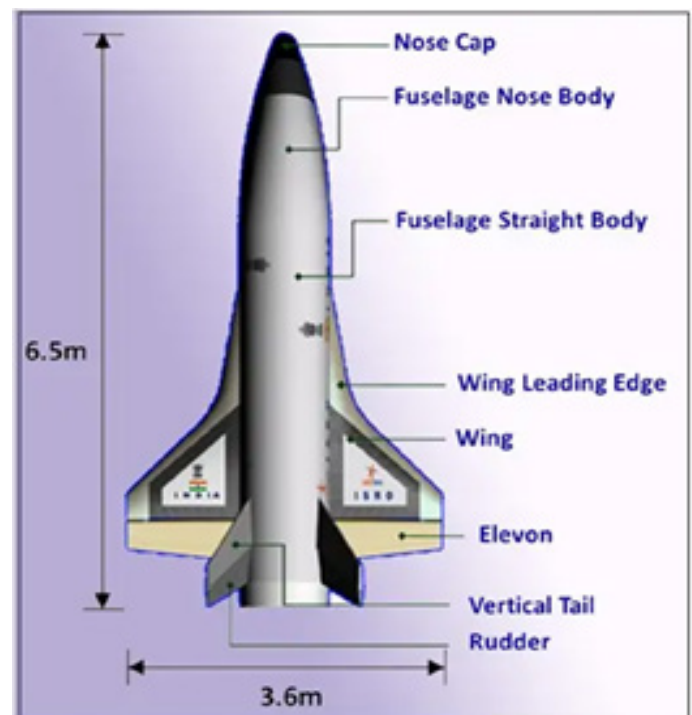
Significance of RLVs:

- With the costs acting as a major deterrent to space exploration, a reusable launch vehicle is considered **a low-cost, reliable, and on-demand mode of accessing space.**

- Reusable space vehicles have been in existence for a long time with NASA space shuttles carrying out dozens of human space flight missions.

- The use case for reusable space launch vehicles has revived with the private space launch services provider Space X demonstrating partially reusable launch systems with its Falcon 9 and Falcon Heavy rockets since 2017.

- SpaceX is also working on a fully reusable launch vehicle system called Starship.

AMOGHA-III

In News: Bharat Dynamics (BDL) has successfully conducted a field firing test of its latest 3rd generation man-portable Anti Tank Guided Missile (ATGM), Amogha-III.
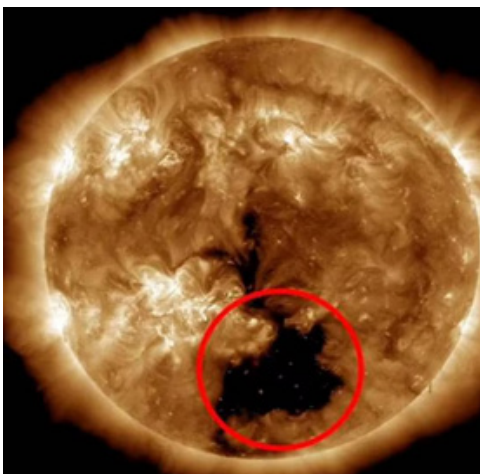

More on the Topic:

- Amogha-III ATGM boasts a fire-and-forget capability, requiring no external intervention following launch.

- The use of a tandem warhead significantly enhances the missile's ability to defeat heavily armoured targets. Moreover, the missile is capable of top and direct attack modes, adding to its versatile nature.

- The missile can be fired in lock-on-before launch (LOBL) mode and its anti-armour tandem warhead can penetrate in excess of 650 mm beyond Explosive Reactive Armour (ERA).

About Anti Tank Guided Missile:

- ATGMs are primarily designed to **hit and destroy heavily armored military vehicles**.

- The missiles can be transported by a **single soldier, to larger tripod-mounted weapons**, which require a squad or team to transport and fire, to vehicle and aircraft mounted missile systems.

CORONAL HOLE

In News: Massive 'Coronal Hole' has been Spotted on Sun's Surface.

More on the Topic:

- Coronal holes appear **as dark areas in the solar corona in extreme ultraviolet (EUV) and soft X-ray solar images.**

- They appear dark because they are cooler, less dense regions than the surrounding plasma and are regions of open, unipolar magnetic fields.

- The appearance of the hole prompted to issue an alert for geomagnetic storms.

- The coronal hole was discovered by NASA's Solar Dynamics Observatory (SDO) near the Sun's South Pole.

- **These holes allow solar wind (or geomagnetic storms) to escape more readily into the space,** which are ranked from G1 to G5 - with the latter being the most powerful.

- The continuous flow of charged particles form the Sun are known to impact the Earth's magnetic field, satellites, mobile phones and GPS.

UPWARD LIGHTNING

In News: Brazilian researchers recently succeeded in taking pictures of positive upward discharges of electricity from lightning conductor rods, travelling to connect with the negative discharge from lightning in the clouds.

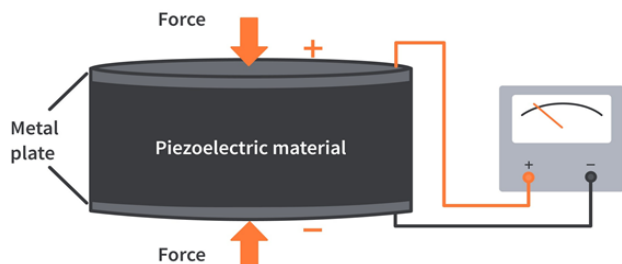**More on the Topic:**

- The event, known as "upward lightning" or upward flashes, has been known for long.

- Upward lightning is a **phenomenon where-by a self-initiated lightning streak develops from a tall object that travels upward toward an overlaying electrified storm cloud.**

- For this to happen, **storm electrification and the resulting presence of a cloud charge region are enabling factors.**

- The vertical elevation of a tall object accentuates the electric field locally on the ground, resulting in conditions favourable for the initiation of an upward streak (called a leader) from a tall object, which can also develop in response to an electric field change created by a nearby preceding lightning flash.

PIEZOELECTRIC EFFECT

In News: For the first time, scientists have reported evidence of the piezoelectric effect in liquids.
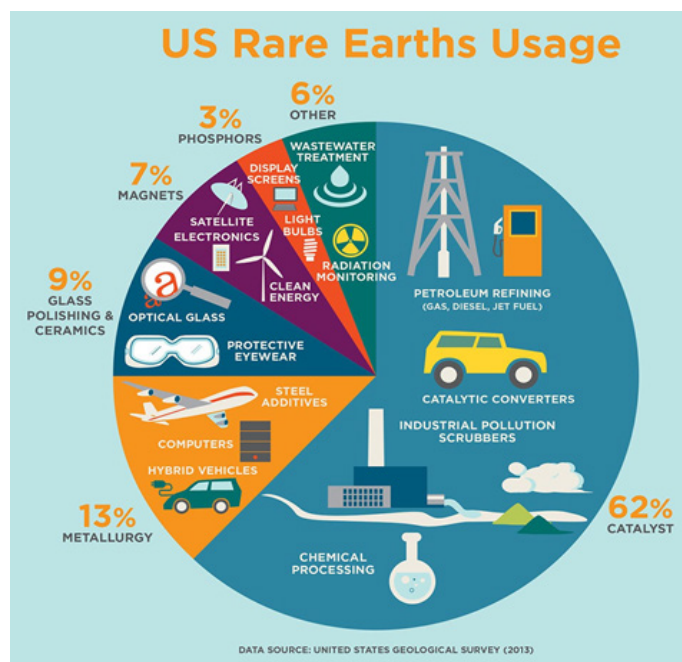

More on the Topic:

- In the piezoelectric effect, a body develops an electric current when it is squeezed.
- Quartz is the most famous piezoelectric crystal: it is used in this capacity in analog wristwatches and clocks.
- Such crystals are also used in cigarette lighters, electric guitars, TV remote controls, audio transducers, and other instruments where converting mechanical stress to a current is useful.

Science behind Piezoelectricity:

- Piezoelectricity is **the generation of electric charges in certain solid materials in response to applied mechanical stress.**
- Piezoelectric property essentially is based on the interplay between mechanical and electrical features of a material.
- The bonds that keep materials together are **electrons** and these electrons are the basis for electricity
- There exists a connection between material mechanics and material electronics.
- Therefore, changing one will impact the other.

RARE EARTH ELEMENT DEPOSIT AT ANDRA PRADESH

In News: Hyderabad based National Geophysical Institute (NGRI) has found large deposits of fifteen rare-earth elements (REE) in Anantapur District of Andhra Pradesh.

More on the Topic:

- Post- harvest losses of onion in India are significant. Onion noticeably gets rotted and starts sprouting even in cold storage.
- The major REE discovered identified were: **Allanite, Ceriate, Thorite, Columbite, Tantalite, Apatite, Zircon, Monazite, Polychlore Euxenite and fluorite.**
- The REE of the lanthanide series are used in many **critical components and electronic devices such as cellphone, televisions, computers, automobiles, and various industrial applications.**

About Rare Earth Elements:

- The 17 rare earth elements (REE) include the 15 Lanthanides (atomic numbers 57 — which is Lanthanum — to 71 in the periodic table) plus Scandium (atomic number 21) and Yttrium (39).
- REEs are classified as light RE elements (LREE) and heavy RE elements (HREE).
- Some REEs are available in India — such as Lanthanum, Cerium, Neodymium, Praseodymium and Samarium, etc. Others such as Dysprosium, Terbium, and Europium, which are classified as HREEs, are not available in Indian deposits in extractable quantities.
- Hence, there is a dependence on countries such as China for HREEs, which is one of the leading producers of REEs, with an estimated 70% share of the global production.

Why Rare Earth Elements are Important?

- Minerals like Cobalt, Nickel, and Lithium are required for batteries used in electric vehicles. REEs are an essential — although often tiny

— component of more than 200 consumer products, including mobile phones, computer hard drives, electric and hybrid vehicles, semiconductors, flatscreen TVs and monitors, and high-end electronics.

- India is seen as a late mover in attempts to enter the lithium value chain, coming at a time when EVs are predicted to be a sector ripe for disruption.

- The coming years is likely to be an inflection point for battery technology—with several potential improvements to the **Li-ion technology,** with alternatives to this tried-and-tested formulation being in advanced stages of commercialisation.

- India has an ambitious plan to convert a large percentage of its transport to electric, and would require these minerals.

- According to the plan, 80% of the country's two- and three-wheeler fleet, 40% of buses, and 30 to 70% of cars will be EVs by 2030.

- If India is not able to explore and produce these minerals, **it will have to depend on a handful of countries, including China, to power its energy transition plans to electric vehicles.** That will be similar to our dependence on a few countries for oil.

BIOTRANSFORMATION TECHNOLOGY

In News: UK-based startup claims to have developed Biotransformation technology that can alter the state of plastics and make them biodegradable without leaving behind any micro plastics.

Phase 1 Product service life **Phase 2** Weathering **Phase 3** Biodegradation in the natural environment of bioavailable waxes

More on the Topic:

- Biotransformation technology is a novel approach to ensure plastics that escape refuse streams are processed efficiently and broken down.

- Plastics made using this technology are **given a pre-programmed time during which the manufactured material looks and feels like conventional plastics** without compromising on quality.

- Once the product expires and is exposed to the external environment, it self-destructs and biotransforms into bioavailable wax.

- This wax is then consumed by microorganisms, converting waste into water, CO_2, and biomass.

- This biotransformation technology is the **world's first that ensures polyolefins fully biodegrade in an open environment causing no microplastics.**

Significance:

- **Food packaging and health care industries** are the two prime sectors that could use this technology to reduce waste.

- Within healthcare and pharma industries, this technology provides biodegradable solutions for non-woven hygiene products like diapers, sanitary napkins, facial pads, etc.

India's Plastic Scenario:

- India is generating 3.5 billion kgs of plastic waste annually and that the per capita plastic waste generation has also doubled in the past five years.

- Of this, a third comes from packaging waste.

- According to 'Plastics: The Potential and Possibilities' report 2023, India recycles only 30% of its plastic waste.

What are the alternatives to reducing plastic waste in India?

- A switch to **jute or paper-based packaging** could potentially cut down plastic waste.

- This could also **build sustainability within the paper industry,** and save on the import bill on ethylene solutions.

- The **wooden packaging** is yet another alternative, but that will make the packaging bulkier and increase cost.

TROPOSPHERIC EMISSIONS MONITORING OF POLLUTION (TEMPO) INSTRUMENT

In News: Tropospheric Emissions Monitoring of Pollution (TEMPO) instrument was launched recently.

More on the Topic:

- It was **launched by NASA.**

- The Tropospheric Emissions: Monitoring of Pollution (TEMPO) instrument is on its way to a geostationary orbit where it will monitor major air pollutants across North America.
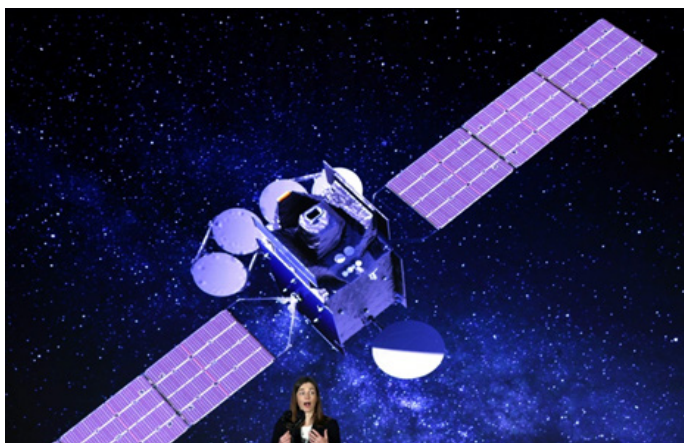
- TEMPO will take important scientific observations, including that of ozone, nitrogen oxide, sulphur dioxide and formaldehyde levels.

- TEMPO will be **the first space-based instrument that is capable of measuring air quality over North America hourly** during the daytime with a resolution of several square miles.

- The current limit is about 100 square miles, or about 258 square kilometres.

- Using TEMPO data, **scientists will be able to study rush hour pollution, the potential for improved air quality alerts, the impact of lightning on the ozone layer, the movement of pollution from forest fires and volcanoes and even the effects of fertiliser application.**

- TEMPO will join South Korea's Geostationary Environment Monitoring Spectrometer and the European Space Agency's Sentinel-4 satellite to become an air quality monitoring satellite constellation that **will track pollution across the Northern Hemisphere.**

QUANTUM COMPUTING-BASED TELECOM NETWORK LINK

In News: India's first quantum computing-based telecom network link is now operational in Delhi.

More on the Topic:

- The network has been developed by C-DoT (Centre for Development of Telematics).

- In quantum communication, information is encoded **in the properties of individual photons.**
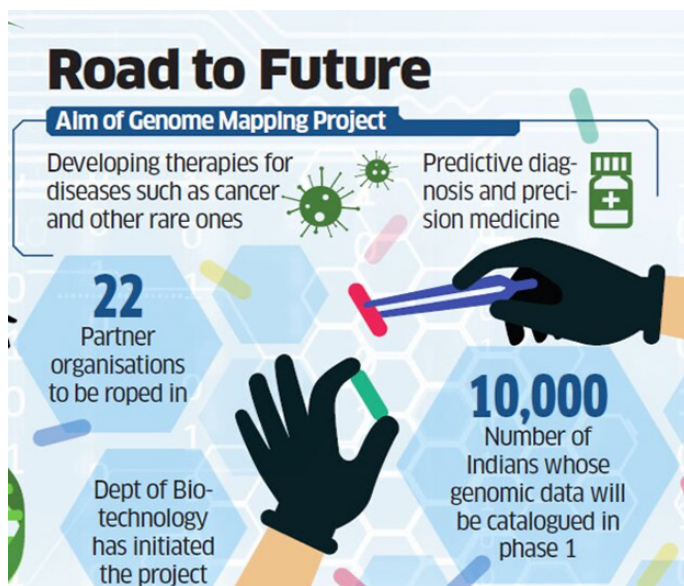
- Here, when someone tries to tap into the system, the property of the photon changes in an irreversible manner.

- This ensures that you can detect any type of tapping or any attempt to intercept, so the system remains secure.

- This is in contrast to what happens in present day communication.

- Today, if two parties are communicating and someone taps into the system to intercept data, it goes undetected most of the time in the current digital systems.

About Quantum Key Distribution:

- QKD involves **sending encrypted data as classical bits over networks,** while the keys to decrypt the information are **encoded and transmitted in a quantum state using qubits.**

- In quantum communication network, data is transmitted via qubits. Qubits are particles – usually photons of light – in a superposition state, meaning they can be in multiple states and represent numerous combinations of 0 and 1.

- If a hacker tries to read them in transit, super-fragile quantum state "collapses" to either 1 or 0 and attempt to hack will also be recorded eventually.

THE GENOME INDIA PROJECT

In News: About two-thirds of The Genome India Project is completed.

Road to Future
Aim of Genome Mapping Project

Developing therapies for diseases such as cancer and other rare ones

Predictive diagnosis and precision medicine

22 Partner organisations to be roped in

Dept of Bio-technology has initiated the project

10,000 Number of Indians whose genomic data will be catalogued in phase 1

More on the Topic:

- Through whole-genome sequencing, the plan is **to build an exhaustive catalogue of**

genetic variations for the Indian population.

- This would aid in the designing of genome-wide association chips which will facilitate further large-scale genetic studies in a cost-effective manner.

- The GIP aims to collect **10,000 genetic samples** from citizens across India, to build a reference genome.

- This project is led by **the Centre for Brain Research at Bengaluru-based Indian Institute of Science,** which acts as the central coordinator between a collaboration of 20 leading institutions, each collecting samples and conducting its own research.

- For conducting the project, **investigators in hospitals will lead the data collection through a simple blood test** from participants and the information will be added to biobanks.

Significance of The Genome India Project:

- The Indian population of 1.3 billion consists of over 4,600 population groups, and many of them are endogamous.

- These factors have contributed to the genetic diversity of the current population.

- Thus, **the Indian population harbours distinct variations and often many disease-causing mutations** are amplified within some of these groups.

- Therefore, findings from population-based or disease-based human genetics research from other populations of the world cannot be extrapolated to Indians.

- Creating a database of Indian genomes means that **researchers anywhere can learn about genetic variants that are unique to India's population** groups and use that to customise drugs and therapies.

- Some of the priority **areas are Precision health, Rare genetic disorders, Mutation spectrum of genetic and complex diseases** in the Indian population, Genetic Epidemiology of Multifactorial Lifestyle Diseases, and Translational Research.

- The United Kingdom, China, and the United States are among the countries that have programmes to sequence at least 1,00,000 of their genomes.

- **It is necessary to create public infrastructure such as genomic databases** – similar to what the Information Technology industry has created – for India's biotechnology

sector to expand and have more valuable companies and start-ups.

Concerns of India:

- Carbon border taxes could result in **market distortion.**

- India exports about $2 billion worth of products annually to EU that would attract the CBAM levy.

- It is likely to unfairly protect EUdomestic industries from international competition – a practice known as **'green protectionism.'**

- This will be harmful to industries in India.

About Genome Sequencing:

- Genome sequencing is figuring out **the order of DNA nucleotides,** or bases, in a genome the order of Adenine, Cytosine, Guanines, and Thymine that make up an organism's DNA.

- Genome is the complete set of genetic information in an organism.

ADJUVANTS

In News: A Chinese research team has now created two novel broad-spectrum adjuvants that can dramatically boost the immune response to vaccines using computer-aided molecular design and machine learning
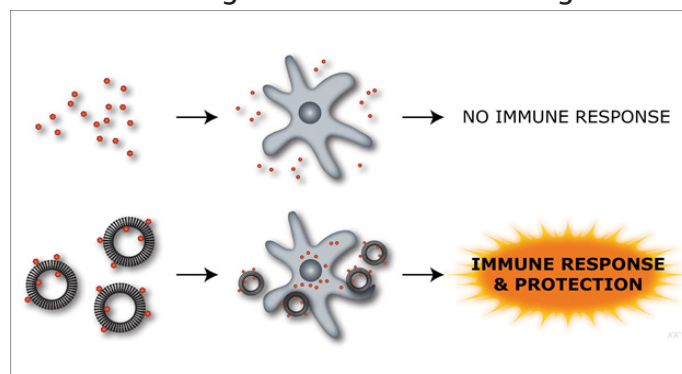
More on the Topic:

- Many vaccines contain compounds known as adjuvants in addition to an antigen that stimulates the immune system.

- Adjuvants allow for lesser quantities of the vaccine and fewer doses.

- Generally, they are injected alongside an antigen to help the immune system generate antibodies that fight the antigen.

- Adjuvants amplify and prolong the effect of vaccine immunizations. Aluminum salts have been successfully used as adjuvants for many decades.

REPORTS AND INDICES

GLOBAL FOOD POLICY REPORT

In News: International Food Policy Research Institute (IFPRI) has released its Global food policy report.

More on the Topic:

- In 2021, some 768 million people across the world were undernourished. This was well above the 572 million reported in 2014.

- **In 2022, the food insecurity was exacerbated by the Russia-Ukraine war** and related spikes in food and fertiliser prices.

- In fact, **the fertiliser prices rose by 199%** between May 2020 and the end of 2022, stated the World Economic Forum recently.

- As a result, there has been an increase in the number of people at risk due to food insecurity, hunger, and malnutrition.

- In 2022, **as many as 205 million people in 45 countries experienced crisis-level acute food insecurity or worse,** nearly double the number in 2016.

- The crisis continues in 2023 too, and the hunger levels are higher than ever before.

- With climate change, as many as 72 million more people will be undernourished by 2050, as compared to a scenario without climate change. Climate crisis also affects conflict and displacement.

Recommendations:

- An annual investment in the range of $300-400 billion is required to make food systems more resilient and sustainable.

- **Strengthening Agrifood value chains** to support livelihoods and food security during crises. It advised governments to maintain a business environment that fosters flexibility, technical and financial innovation.

- More proactive response to food system shocks with focus on three key areas: **Crisis prediction and preparation; building resilience before and during crises; and making crisis response supportive and inclusive of women, forced migrants and other vulnerable groups.**

- **Investing in early warning systems is essential** to save lives, livelihoods and money. This could enable anticipatory action before a shock turns into a crisis.

Indian Food Security Initiatives:

- National Food Security Act, 2013 covers 75% of the rural population and 50% of the urban population under:

- Antyodaya Anna Yojana: It constitute the poorest of-the-poor, are entitled to receive 35 kg of foodgrains per household per month.

- Priority Households (PHH): Households covered under PHH category are entitled to receive 5 kg of foodgrains per person per month.

LOGISTIC PERFORMANCE INDEX (LPI)

In News: India has climbed six places on the World Bank's Logistic Performance Index (LPI) 2023. Singapore topped the index.

More on the Topic:

- India was ranked 44th on the index in 2018 and has now climbed to 38th in the 2023 listing. India's performance has drastically improved from 2014, when it was ranked 54th on the LPI.

- In 2022, the Prime Minister launched the National Logistics Policy (NLP) to ensure quick last-mile delivery, end transport-related challenges, save time and money of the manufacturing sector and ensure desired speed in the logistics sector.

- These policy interventions are fructifying, which can be seen in India's jump in LPI and its other parameters.

- LPI is a benchmarking tool created to help countries identify challenges and opportunities

they face in their performance on trade logistics.

- **LPI 2023 ranks countries on six dimensions of trade - including customs performance, infrastructure quality, and timeliness of shipments.**

THE STATE OF GLOBAL CLIMATE REPORT

In News: The World Meteorological Organization (WMO) has published the State of the Global Climate 2022 recently. WMO is a specialised agency of UN with 193 Member States and Territories (including India).

More on the Topic:

- Rising global temperatures in 2022 contributed to **more frequent and intense extreme weather events all around the world.**

- These extreme weather events included **heatwaves, droughts, wildfires, cold extremes, heavy rain, flooding, tropical cyclones and other extreme storms** such as tornadoes in the United States.

- Many of these events have also been **attributed to climate change due to human-emitted greenhouse gases in the atmosphere,** which are also at a record high.

- For global temperature, **the years 2015-2022 were the eight warmest on record(in the 173-year instrumental record)** despite the cooling impact of a La Niña event for the past three years.

- This **despite the cooling impact of a La Niña** event for the past three years – a "triple dip"

that has happened only three times in the past 50 year.

- Record levels of three main heat trapping greenhouse gases – **carbon dioxide, methane, and nitrous oxide in the atmosphere turned the past eight years (2015-22) into the warmest on record** with 2022 being the "fifth or sixth" warmest year ever.

- **Global mean temperature in 2022 was 1.15°C above the 1850–1900 average.** Years 2015 to 2022 were eight warmest on record despite cooling impact of a La Niña event for past three years.

- Overall, **58% of ocean surface experienced at least one marine heatwaves during 2022.**

Region wise Highlights:

- China suffered from its **most extensive and long-lasting heatwave on record,** which extended from mid-June to the end of August.

- There were 366 locations around the country that broke their highest temperature record during the period.

- Southern regions of China suffered from a 20 to 50% rainfall deficit.

- The severe drought led to the **Yangtze river drying up** and reaching its lowest level on record at Wuhan.

- **The heatwaves were followed by drought in most of the European countries,** with water levels in many of the major rivers such as the Rhine, Loire and Danube, falling to record low levels.

- Germany, France, the UK and Italy recorded their driest periods in almost 50 years.

- The ongoing **intense drought in the Horn of Africa also intensified** with the fourth and fifth consecutive poor rainfall seasons in Kenya, Somalia and Ethiopia.

- Droughts also continued in Chile in South America and the western and southern states in the United States.

- **The heatwaves in India and Pakistan in the spring and summer seasons of 2022 brought down the yield of wheat crops,** significantly pushing the Government of India to ban wheat exports from the country.

- A WWA study showed these heatwaves to have become 30 times more likely due to climate change.

- The summer heatwaves in Pakistan were

followed by **devastating floods in August,** which killed around 1,700 people and affected 33 million people.

- **Storms and tropical cyclones** had a particularly drastic impact on the island country of Madagascar.

GLOBAL UNICORN INDEX

In News: The Hurun Research Institute's Global Unicorn Index 2023 was launched recently.

Unicorn

['yü-nə-ˌkȯrn]

A term used in the venture capital industry to refer to a private startup with a valuation of over $1 billion.
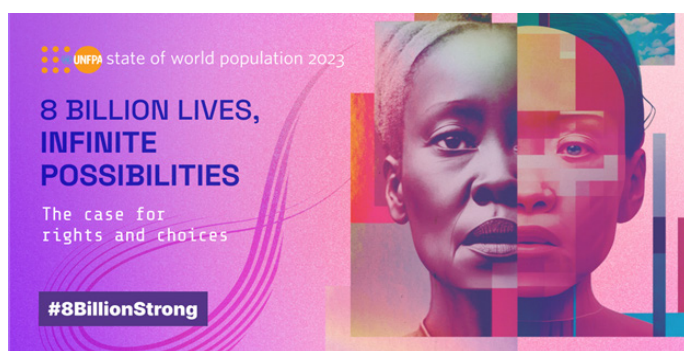
More on the Topic:

- India is the third-largest hub for startup unicorns, with a total of 68 companies in the billion-dollar valuation club.

- As per the index, India (68 unicorns) added 14 new unicorns since pandemic began and stands behind USA (666) and China (316).

- In business, a unicorn is a **privately held startup company valued at over US$1 billion.** The term was first published in 2013, coined by venture capitalist Aileen Lee, choosing the mythical animal to represent the statistical rarity of such successful ventures.

UNFPA STATE OF WORLD POPULATION REPORT 2023

In News: UNFPA has released State of World Population Report 2023.

More on the Topic:

- While the global population touched 8 billion last November, it is growing at its slowest rate since 1950, having fallen under 1% in 2020.

- **Last year, China remained the most populous country** with an estimated 144.8 crore people while India's population was estimated at 140.6 crore.

- The estimated global population is 8,045 million, of which 65% is between 15-64 years, 24% between 10-24 years, and 10% above 65 years.

- **Central and Southern Asia is expected to become the most populous region in world by 2037.**

- More than half of projected increase in global population up to 2050 will be concentrated in eight countries —**Democratic Republic of Congo, Egypt, Ethiopia, India, Nigeria, Pakistan, Philippines and United Republic of Tanzania.**

India Specific Findings:

- With its population estimated to touch 142.86 crore by the middle of this year, marginally ahead of China at 142.57 crore, India is on track to be the world's most populous country.

- **68% of India's total population is between the ages of 15 and 64 years,** which is considered the working population of a country. About 25% is between 0-14 years; 18% between 10 and 19 years, 26% between 10 and 24 years, and 7% above 65 years.

- India's population is expected to grow for the next three decades after which it will begin declining.

- India's total fertility rate (births per woman in the reproductive age) is estimated at 2.0.

- In India, **life expectancy at birth is estimated at 71 years for men and 74 years for women** in India.

TREATED WATER REPORT

In News: Reuse of Treated Wastewater in India: Market Potential and Recommendations for Strengthening Governance - report was released recently by the Council on Energy, Environment and Water (CEEW).

More on the Topic:

- India treats only 28% of the total sewage it generates per day from its urban areas.

- Tier-1 and -2 cities, which make up 72% of

the urban population treats only only 30% of it's sewage.

- India will produce over 35,000 million cubic meters of wastewater by 2050, and currently, **only 10 States have treated wastewater reuse policies.**
- 11 of the 15 major river basins are likely to face water stress by 2025.
- It is "essential to explore alternative sources of water to address the demand-supply gap."

Why India Should Re use Water?:

- Reusing treated wastewater for irrigation could have generated 28 million metric tonnes of fruit and vegetable produce and 96600 crore in revenue in 2021 alone.
- Further, using wastewater for irrigation in 2021 would have saved 1.3 million tonnes of greenhouse gas emissions and 5 crore in fertilizer use.
- **Nine times the area of New Delhi could have been irrigated** using the treated wastewater available in India for the irrigation sector in 2021.
- Market value of treated wastewater in India will be 83 crore in 2025 and Rs 190 crore in 2050 if we have the mechanism to sell it to select sectors.

Recommendations:

- All Indian states must **define reuse-specific wastewater treatment standards for safe reuse across different sectors.**
- States should develop **effective outreach plans to build public confidence** and nudge behaviour for the successful implementation of wastewater reuse projects.
- Wastewater needs to be considered **an integral part of water resources** and hence addressed in all water management related policies, plans, and regulations.
- **Urban local bodies** should be empowered to formulate and adopt long-term, city-level wastewater reuse plans.
- **Need-based and demand-driven technological advancements** for effectiveness of waste-water treatment.

INDIA RANSOMWARE REPORT 2022

In News: The India Ransomware Report 2022 was released by CERT-In.

More on the Topic:

- There has been a 53% increase in ransomware incidents in India in 2022 when compared to 2021.
- In 2022, among various sectors, IT and ITeS was majorly impacted followed by finance and manufacturing.
- Major ransomwares such as Lockbit, Makop, and DJVU/Stop ransomware continued targeting critical infrastructure organisation and "disrupted critical services in order to pressurise and extract ransom payments."
- The motivation towards perpetrating ransomware attacks was not just money, but also "geo political conflicts".
- This trend may continue further when ransomware broadens its spectrum beyond financial aspects and becomes an arsenal for cyberwarfares.

About Ransomware:

- Ransomware is **a type of malware that prevents users from accessing their system or personal files and demands ransom payment in order to regain access.**

- The malware may usually be injected remotely by tricking the user into downloading it upon clicking an ostensibly safe web link sent via email or other means, including hacking.

TRIPLE THREAT REPORT

In News: Triple Threat report related with water was released by UNESCO.

More on the Topic:

- The report reveals that a lack of monitoring of water, sanitation, and hygiene (WASH) related programs, projects, and policies in a third of the developing nations is causing problems.

- This lack of monitoring makes mitigation more challenging, and it's affecting 10 African countries where children are most affected by the convergence of three water-related threats: **inadequate water, sanitation and hygiene, related diseases, and climate hazards.**

More About Triple Threat:

- Less than 50% access to at least basic water or sanitation services.

- Within top 20 countries with highest burden of deaths attributable to unsafe WASH among children under 5.

- Despite these global improvements, approximately **four million children under the age of five die every year due to unsafe water, sanitation, and hygiene practices** globally.

- Chad, in particular, has the lowest percentage of access to basic WASH facilities and has the world's highest burden of deaths of children under five years due to unsafe WASH.

**Benefit Importance of WASH:**

- Whatever the healthcare systems may be the adequate Water, Sanitation and Hygiene (WASH) amenities, including waste management and environmental cleaning services, are critical to their safe functioning.

- When a healthcare facility **lacks adequate WASH services, infection prevention and control are severely compromised.**

- Safe WASH is not only a prerequisite to health, but **contributes to livelihoods, school attendance and dignity** and helps to create resilient communities living in healthy environments.

- Diarrhoeal deaths as a result of inadequate WASH were reduced by half during the Millennium Development Goal (MDG) period, with the significant progress on water and sanitation provision playing a key role.

- WASH is an essential element of **quality Universal Health Coverage, is recognised by the UN as a fundamental human right, and is cost-effective.**

STATE ENERGY EFFICIENCY INDEX 2021-22

In News: Union Minister of Power and New & Renewable Energy has released the report of State Energy Efficiency Index (SEEI) 2021-22.
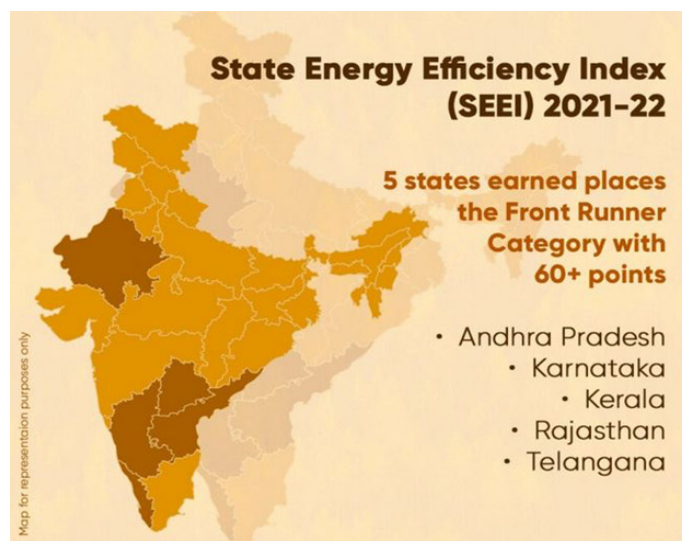
More on the Topic:

- The index developed by the Bureau of Energy Efficiency (BEE), a statutory body under the Ministry of Power, in association with Alliance for an Energy-Efficient Economy (AEEE).

- The index assess the annual progress of states and UTs in energy efficiency implementation, for FY 2020-21 and 2021-22.

- SEEI 2021-22 has an updated framework of

50 indicators aligned with national priorities.

- Programme-specific indicators have been included this year to track outcomes and impacts of state-level energy efficiency initiatives.

Performance of the States:

- In SEEI 2021-22, 5 states - Andhra Pradesh, Karnataka, Kerala, Rajasthan and Telangana - are in the Front Runner category (>60 points) while 4 states - Assam, Haryana, Maharashtra, and Punjab - are in the Achiever category (50-60 points).
- Further, Karnataka, Andhra Pradesh, Assam and Chandigarh are the top-performing states in their respective state groups.
- Telangana and Andhra Pradesh showed the most improvement since the last index.

Recommendations:

- **Develop and implement State Energy Efficiency Action Plans.** Facilitate fiscal support for EE by earmarking funds.
- Strengthen institutional capacity by appointing EE nodal officers in all government departments and setting up EE cells in district and head offices.
- Mainstream monitoring and reporting of energy data through transparent online portals.
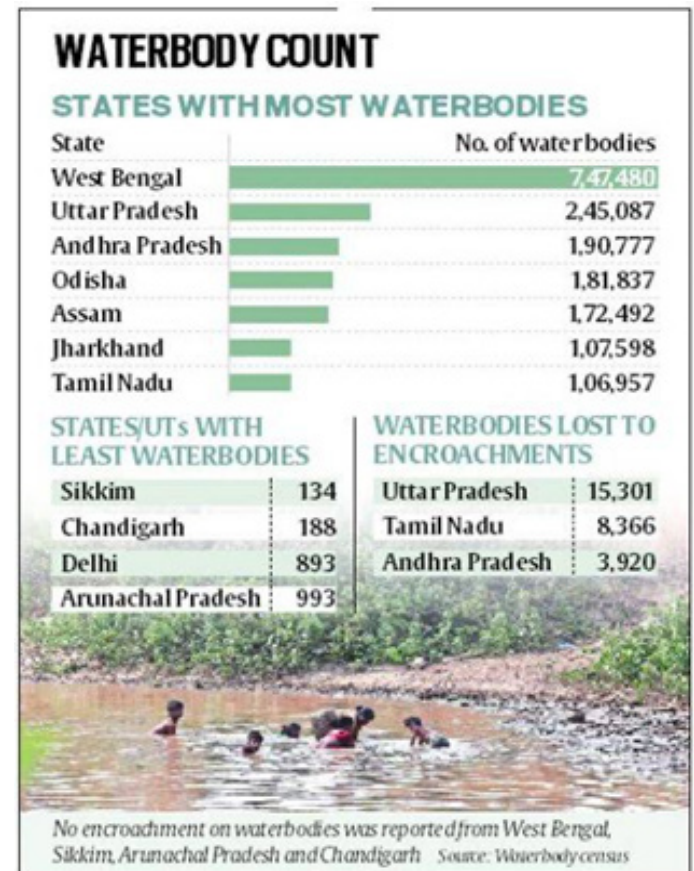
Objectives of the Index:

- The index is designed **to help track progress on state goals for energy savings and reduction in emission intensity** and outlines the following recommendations to help states drive change in EE.

About Bureau of Energy Efficiency:

- The Government of India set up the Bureau of Energy Efficiency (BEE) in 2002 under the provisions of the Energy Conservation Act, 2001.
- It functions under **Ministry of Power.**
- The primary objective of BEE is **reducing the energy intensity of the Indian economy.**
- BEE coordinates with designated consumers, designated agencies and other organizations and recognise, identifies and utilise the existing resources and infrastructure, in performing the functions assigned to it under the Energy Conservation Act.
- The Energy Conservation Act provides for regulatory and promotional functions.

FIRST EVER CENSUS ON WATER BODIES IN INDIA

In News: Ministry of Jal Shakti has conducted the first-ever census of water bodies across the nation.

WATERBODY COUNT

STATES WITH MOST WATERBODIES

State	No. of water bodies
West Bengal	7,47,480
Uttar Pradesh	2,45,087
Andhra Pradesh	1,90,777
Odisha	1,81,837
Assam	1,72,492
Jharkhand	1,07,598
Tamil Nadu	1,06,957

STATES/UTs WITH LEAST WATERBODIES		WATERBODIES LOST TO ENCROACHMENTS	
Sikkim	134	Uttar Pradesh	15,301
Chandigarh	188	Tamil Nadu	8,366
Delhi	893	Andhra Pradesh	3,920
Arunachal Pradesh	993		

No encroachment on waterbodies was reported from West Bengal, Sikkim, Arunachal Pradesh and Chandigarh   Source: Waterbody census

More on the Topic:

- The census provides a comprehensive inventory of India's water resources, including natural and man-made water bodies like ponds, tanks, lakes, and more, and to collect data on the encroachment of water bodies.
- The Census also highlighted disparities between rural and urban areas and varying levels of encroachment and revealed crucial insights into the country's water resources.

The key features/findings of the Census are as follows:

- Out of all the water bodies 97.1% (23,55,055) are in rural areas and only 2.9% (69,485) are in urban areas.
- **Top 05 States in terms of number of water bodies are West Bengal, Uttar Pradesh, Andhra Pradesh, Odisha and Assam** which constitute around 63% of the total water bodies in the country.
- **Top 05 States in terms of number of water bodies in urban areas are West Bengal, Tamil Nadu, Kerala, Uttar Pradesh and Tripura,**

whereas in rural areas, top 05 States are West Bengal, Uttar Pradesh, Andhra Pradesh, Odisha and Assam.

- **59.5% of water bodies are ponds,** followed by tanks (15.7%), reservoirs (12.1%), Water conservation schemes/percolation tanks/check dams (9.3%), lakes (0.9%) and others (2.5%).

- **55.2% of water bodies are owned by private entities** whereas 44.8% of water bodies are in the domain of public ownership.

- Out of all public owned water bodies, **maximum water bodies are owned by Panchayats,** followed by State Irrigation/State WRD.

- Out of all private owned water bodies, **maximum water bodies are in hands of Individual owner/farmer** followed by group of individuals and other private bodies.

- Top 05 States which lead in the private owned water bodies are West Bengal, Assam, Andhra Pradesh, Odisha and Jharkhand.

- Out of all 'in use' water bodies, major water bodies are reported to be used in pisciculture followed by Irrigation.

- Top 05 States wherein major use of water bodies is in pisciculture are West Bengal, Assam, Odisha, Uttar Pradesh and Andhra Pradesh;

- Top 05 States wherein major use of water bodies is in irrigation are Jharkhand, Andhra Pradesh, Telangana, West Bengal and Gujarat.

- **78% water bodies are man-made water bodies whereas 22% are natural water bodies.** 1.6% (38,496) water bodies out of all the enumerated water bodies are reported to be encroached out of which 95.4% are in rural areas and remaining 4.6% in urban areas.

- The information on water spread area was reported in respect of 23,37,638 water bodies. Out of these water bodies, 72.4% have water spread area less than 0.5 hectare, 13.4% have water spread area between 0.5-1 hectare, 11.1% have water spread area between 1-5 hectares and remaining 3.1% of water bodies have water spread area more than 5 hectares.

INDIA JUSTICE REPORT

In News: The India Justice Report 2022 was released recently.

More on the Topic:

- The Report (initiated by Tata Trusts in 2019) is a first-of-its-kind national periodic report that ranks the capacity of states to deliver justice.

- This report is based on overall data of **4 pillars of justice delivery namely Police, Judiciary, Prisons, and Legal Aid.**

- The India Justice Report (IJR) was **initiated by Tata Trusts in 2019,** and this is the third edition.

- The foundation's partners include the Centre for Social Justice, Common Cause, Commonwealth Human Rights Initiative, DAKSH, TISS-Prayas, Vidhi Centre for Legal Policy and How India Lives, IJR's data partner.

- Each pillar was analysed through the prism of **budgets, human resources, workload, diversity, infrastructure, and trends against the state's own declared standards and benchmarks.**

- This third IJR also separately assesses **the capacity of the 25 State Human Rights Commissions** in the country.

Highlights of the Report:

- Karnataka has achieved the top rank among the 18 large and mid-sized States with populations over one crore.

- The State of Tamil Nadu has ranked in second position and Telangana in Third. The State of Uttar Pradesh is at rank 18 which is the lowest.

- The list of Seven Small States with a population less than one crore each, was topped by Sikkim.

- The report **brings together otherwise siloed data on the 4 pillars of Justice delivery.**

DISASTER MANAGEMENT

COALITION FOR DISASTER RESILIENT INFRASTRUCTURE (CDRI)

In News: The CDRI is hosting the fifth edition of the International Conference on Disaster Resilient Infrastructure (ICDRI) in New Delhi.

More on the Topic:

- This event aims to bring "solutions integrating resilience in infrastructure to ensure access, delivery and continuity of essential services to people and communities".

- Disaster resilient infrastructure include vital buildings, public communal facilities, transit systems, telecommunications, and power systems that are strategically designed to withstand the impact of a natural disaster like a flood, earthquake, or wildfire.

- Disaster resilient architecture is one of the pivotal aspects of risk management and disaster preparedness.

Significance of Disaster Resilient Infrastructure:

- According to the **Sendai Framework for Disaster Risk Reduction (SFDRR), upgraded disaster resilience of infrastructure is a foundation for sustainable development.**

- Building an infrastructure system that is resilient to disasters is vital for **economic growth with sustainable development.**

- While India has been hailed for its reduction in the number of human casualties in disasters, the country lags behind in protecting property and infrastructure during natural disasters or extreme weather events.

- The World Bank calculated that the economic losses due to disasters during the late 90s and early 2000s were close to 2% of the GDP.

About Coalition of Disaster Resilient Infrastructure (ICDRI):

- The Coalition for Disaster Resilient Infrastructure (CDRI) is **a partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the** private sector, and knowledge institutions that aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development.

- India announced the creation of a CDRI after the Asian Ministerial Conference on Disaster Risk Reduction (2016).

- **Infrastructure Resilience Accelerator Fund** was announced in 2023 acts as a financial resource and is key to the success of initiatives

INDIAN SOCIETY/SOCIAL ISSUES/SOCIAL JUSTICE

RANGANATH MISHRA COMMISSION

In News: Supreme Court stated that government may need to re-check its stance on Ranganath Mishra report.

'COMPLEX, CONSTITUTIONAL QUESTION'

More on the Topic:

- The matter of providing the Scheduled Caste quota benefits to Dalits who converted to Christianity or Islam has come up before earlier governments as well.

- The Ranganath Mishra Commission's report submitted in 2007 recommended that **SC status be completely delinked from religion and be made religion-neutral like STs.**

- It had recommended permitting Dalits who converted to Islam and Christianity to avail Scheduled Caste status.

- However, the then government rejected the proposal on grounds that it was not substantiated by field studies.

ART & CULTURE, ANCIENT AND MODERN INDIA

GLOBAL BUDDHIST SUMMIT

In News: The Global Buddhist Summit, a two-day congregation in New Delhi has concluded recently with Delhi Declaration.

More on the Topic:

- The summit has been hosted by the **International Buddhist Confederation in collaboration with the Indian Ministry of Culture.**
- The theme of the two-day summit was **"Responses to Contemporary Challenges: Philosophy to Praxis".**
- The summit has been participated by delegates from nearly 30 countries, including Taiwan, Myanmar, Thailand, Vietnam, Sri Lanka, and Mongolia.
- Monks, scholars and heads of Buddhist organisations from these countries attended the event in Delhi.

India - Buddhist Diplomacy:

- Summit highlighted **the rising role of Buddhism in India's soft power strategy.**
- Soft power enables a change of behaviour in others, without competition or conflict, by using persuasion and attraction.
- While India organised the Buddhist Summit in India this year, **Prime Minister Modi was in Buddha's birthplace of Lumbini in Nepal last year to take part in a traditional shilanyas ceremony** to start the construction of the India International Centre for Buddhist Culture.
- Besides the Buddhist Centre, **a memorandum of understanding was also signed between the Indian Council of Cultural Relations and the Lumbini Buddhist University** for the establishment of the Dr Ambedkar Chair of Buddhist Studies.
- Ambedkar had converted to Buddhism along with a large number of his followers.
- **Presence of Dalai Lama and Tibetan government-in-exile in Dharamshala** has bolstered India's image in global Buddhist community.
- India is leveraging its soft power and its shared Buddhist credentials across Asia to build goodwill in the region.
- This is not new. Successive governments in the past have brought into play India's rich historical and cultural heritage to establish people-to-people links.
- The Buddhist diplomacy could potentially help with, **'Neighbourhood First' policy, 'Act East' policy** etc.

ABHILEKH PATAL

In News: PM praised"Abhilekh patal" a portal with over 1 Crore Pages of Historical Records of the National Archives.

More on the Topic:

- It is a full-featured web-portal to access the National Archives of India's reference media and its digitized collections through the internet.
- The National Archives of India is the repository of the non-current records of the Government of India and is holding them in trust for the use of records creators and general users.

- It is an Attached Office of the Ministry of Culture, Government of India.

HAKKI PIKKIS TRIBE

In News: More than 181 members of the Hakki Pikki tribal community from Karnataka are stuck in violence-hit Sudan.

More on the Topic:

- The Hakki Pikki is a tribe that lives in several states in west and south India, especially near forest areas.

- Hakki Pikkis (Hakki in Kannada means 'bird' and Pikki means 'catchers') are a semi-nomadic tribe, traditionally of bird catchers and hunters.

- They are **well-known for their traditional medicines.** For a long time, the group lived in the deep woods and developed its plant and herb-based medicinal systems.

- Traditional medicinal knowledge of the Hakki-Pikkis is in high demand in numerous African countries. As a result, for many years, community members have travelled to the continent.

PAHADI KORVAS

In News: An event of mass suicide has been reported among the Pahadi Koreas tribe.

More on the Topic:

- The tribe is one of the 75 Particularly Vulnerable Tribal Groups (PVTGs) in country.

- They live mostly in mountainous regions and live in houses made of wood and bamboo. They are Hunter gatherers and practice subsistence farming.

About Particularly Vulnerable Tribal Groups (PVTGs):

- PVTGs are more vulnerable among the tribal groups.

- Due to this factor, more developed and assertive tribal groups take a major chunk of the tribal development funds, because of which PVTGs need more funds directed for their development.

- There are total 75 PVTGs out of 705 Scheduled Tribes, spread over 17 states and one Union Territory (UT), in the country (2011 census).

Government of India follows the following criteria for identifiaction of PVTGs.

- Pre-agricultural level of technology

- Low level of literacy

- Economic backwardness

- A declining or stagnant population.

KAMAKHYA TEMPLE CORRIDOR

In News: Assam is planning to construct a corridor at the Kamakhya Temple in Guwahati on the lines of the Kashi-Vishwanath Temple Corridor in Varanasi.

More on the Topic:

- Located by the banks of Brahmaputra in **Nilachal Hill in Guwahati,** Kamakhya Temple is considered one of the oldest and sacred places of worship.

- Temple is one of the **51 Shakti Peethas in country and dedicated to Goddess Kamakhya.**

- The temple has **four chambers including Garbha griha** (sanctum sanctorum), which is a cave under the ground level that houses a rock fissure instead of an idol. Three mandapas known as calanta, pancharatna and nata-mandira.

- Millions of pilgrims and tourists visit the temple every year, especially during the Ambubachi Mela held in June every year.

KHAYAL MUSIC

In News: Khayal music is news.

More on the Topic:

- Khayal is the more widely practised of the two raga-bound genres with roots in north India.

- The early form of **khayal emerged in the late 16th century when Sufi musicians based in the region between Delhi and Jaunpur adapted the cutkula form,** which used a Hindi dialect, to devotional forms such as the Persian qaul and tarana sung in Sufi communities from Amir Khusro's (1253-1325) tradition.

- The khayal is related to the **longer melodic form known as the dhrupad but has fewer restrictions.**

- The earliest version of khayal evolved into today's drut bandish. It is the fast composition, also called the **chhota khayal,** which is meant to be sung in a spritely tempo.

- The members who played this style had close relationships with **Vaishnava sects.**

- Later, **Niyamat Khan Sadarang** (1670-1748), a famous dhrupad singer played a key role in developing khayal.

GOND PAINTING

In News: Madhya Pradesh's Gond painting got GI tag.

More on the Topic:

- Gond paintings are a form of painting from folk and tribal art that is practiced by one of the largest tribes in India with whom it shares its name.

- Dindori district of Madhya Pradesh is the original source of Gond painting.

- Gond comes from the Dravidian expression, Kond which means 'the green mountain'.

- It is mainly done on walls and floors of houses.

- Natural colors obtained from various sources like flowers, stones, etc. are used.

BASAVESHWARA

In News: PM Modi has paid tribute to Social Reformer Basaveshwara On His Birth Anniversary.

More on the Topic:

- Known for Socio-Religious Reforms, Anubhava Mantapa, Vachana Literature and Lingayat Movement in south India. Basavanna was

Born 1105 CE Basavana Bagewadi, in Bijapur district, Karnataka, India Died in 1167 CE Kudalasangama, Karnataka, India.

- Basavanna was a 12th-century philosopher, statesman, Kannada poet in the Shiva-focusse Bhakti movement and a social reformer during the reign of the Kalachuri-dynasty king Bijjala I in Karnataka, India.

- **Basavanna spread social awareness through his poetry,** popularly known as Vachanaas. Basavanna rejected gender or social discrimination, superstitions and rituals but introduced Ishtalinga necklace, with an image of the Shiva Linga, to every person regardless of his or her birth, to be a constant reminder of one's bhakti (devotion) to Shiva.

- As the chief minister of his kingdom, he introduced new public institutions such as the Anubhava Mantapa (or, the "hall of spiritual experience"), which welcomed men and women from all socio-economic back-grounds to discuss spiritual and mundane questions of life, in open.

THE LANGUAGE FRIENDSHIP BRIDGE

In News: The Indian Council for Cultural Relations (ICCR) has envisaged a special project called 'The Language Friendship Bridge'.

More on the Topic:

- Through the project, India is planning to create a pool of experts in languages spoken in countries like Myanmar, Sri Lanka, Uzbekistan and Indonesia to facilitate better people-to-people exchanges.
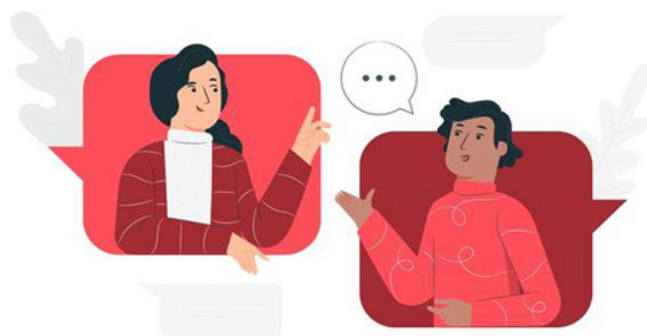
- It plans to **train five to 10 people in the official languages of each of these countries.**

- The ICCR has decided on 10 languages in the first phase. They include,Kazakh, Uzbek, Bhutanese, Ghoti (spoken in Tibet), Burmese, Khmer (spoken in Cambodia), Thai, Sinhalese and Bahasa (spoken in both Indonesia and Malaysia).

VAIKOM SATYAGRAHA

In News: Tamil Nadu Chief Minister announced that the government was planning year-long events to commemorate the Vaikom Satyagraha that was launched to end caste discrimination in a local temple a century ago.

More on the Topic:

- March 30 marked the commencement of the centenary year of the Vaikom temple street entry movement that was launched in 1924.

- It was a milestone in temple entry movements in India.

- This non-violent movement was **to end the prohibition imposed on backward communities in using the roads around the Vaikom Mahadeva temple.**

- It was the prelude to the temple entry proclamation of Kerala in 1936.
- Launched by leaders in Kerala such as T.K. Madhavan, K.P. Kesava Menon and George Joseph, on the advice of Mahatma Gandhi, the movement was sustained and successfully conducted by Periyar E.V. Ramasamy, then president of the Tamil Nadu Congress, and others between 1924 and 1925.
- Mahatma Gandhi himself visited Vaikom in March, 1925.
- The movement was backed by Gandhiji, Chatampi Swamikal, and Sree Narayana Guru.
- The campaign gained popularity throughout India, and supporters arrived from around the country.

About Periyar:
- Erode Venkatappa Ramasamy, revered as Periyar was **an Indian social activist and politician** who started the Self-Respect Movement and Dravidar Kazhagam.
- He is known as the **'Father of the Dravidian movement'.**
- He rebelled against gender and caste inequality in Tamil Nadu.

NATIONAL MISSION ON CULTURAL MAPPING

In News: In a bid to harness the unique cultural heritage of rural India, the government has identified and documented distinctive features of more than one lakh villages across the country under 'My village my Heritage program' of the National Mission on Cultural Mapping.

More on the Topic:
- The entire exercise has been carried out under the **'Mera Gaon Meri Dharohar' (My Village My Heritage) programme** of the National Mission for Cultural Mapping (NMCM).

- The NMCM aims **to develop a comprehensive database of art forms, artists and other resources across the country.**
- Though launched by the Culture Ministry in 2017, the programme got off to a slow start and was handed over to the Indira Gandhi National Centre for Arts (IGNCA) in 2021.
- Detailed field surveys were carried out by joint teams of the Culture Ministry and the Common Services Centres (CSC), under the Ministry of Electronics and IT (MEITY) to create the dossiers.

'Mera Gaon Meri Dharohar' (My Village My Heritage) programme:
- In this cultural asset mapping, villages have been broadly divided into seven-eight categories based on whether they are **important ecologically, developmentally and scholastically,** if they produce a famous textile or product, and if they are connected to some historical or mythological events such as the Independence struggle or epics like the Mahabharata.
- Short films have been made on **750 clusters villages.** The films, which gives a 360 degree view of the village, have been shot using drones.
- The detailed dossiers on these villages as well as the films which have been shot will be made available in May on a web portal called **'The National Cultural Work Place'.**
- The web portal would contain a **virtual living museum of all villages documented.**
- There would also be a facility for uploading a village through crowd-sourcing and allowing villagers to edit and upload village data themselves.

Examples of the Categories:
- The ecological category, for example, includes **the Bishnoi village near Jodhpur in Rajasthan,** which is a case study for **living in harmony with nature,** and Uttarakhand's Raini village, which is famous for the Chipko movement.
- There are also villages which have developmental importance like **Modhera in Gujarat, which is the first solar-powered village in India.**
- The villages under the **historical category include Kandel in Madhya Pradesh, the site of the famous 'Jal Satyagraha',** and the villages of Hanol in Uttarakhand and Vidurashwathar of Karnataka, which are linked to the Mahabharata.

- **Suketi in Himachal Pradesh, Asia's oldest fossil park,** and Pandrethan in Kashmir, the village of Shaivite mystic Lal Ded, are also classified for their historical importance.

BASOHLI PAINTING

In News: The world-famous Basohli paintings from Kathua district have obtained the Geographical Indication (GI) tag following approval of the National Bank for Agriculture and Rural Development, Jammu.

More on the Topic:

- The Pahari School of Art developed in the mountainous regions of **Basohli, Kulu, Guler, Kangra, Jammu, and Garhwal between the 17th and 19th centuries**.

- The first centre of the Pahari school materialized at Basohli with its own bold and flamboyant style.

- The characteristic features of these paintings were the use of bright and bold colours like red, yellow, and blue in the borders, as well as for the generally flat background.

- The other distinguishing part was the facial features- **a prominent nose and lotus-shaped eyes.**

- The female figures can be categorised into three types according to their attire.

- The dressing style of both males and females resemble the clothes worn in the Mughal or Rajput courts.

- **Depiction of flora was not unusual in Basohli paintings.** The artists' favourite was the bright red flowers of rhododendron.

- The most distinctive feature of these paintings was, however, the portrayal of jewellery-embossed white paint was used for pearls and the wing-case of beetles for emerald green.

GAMOSA

In News: Gamosa carf became the site of controversy in Assam.

More on the Topic:

- It is generally **a white rectangular piece of cloth with primarily a red border on two sides and red woven motifs on the other two sides.**

- Although the cotton yarn is the most common material for making/weaving gamosas, there are special occasion ones made from Pat silk.

- It is a symbol of the culture and identity of Assam and had received the Geographical Indication (GI) tag in 2022.

Practice Questions

1) Which of the following statement/s are true?
1. Malaria is caused by bacteria.
2. It is transmitted by the bite of infected mosquitoes.

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

2) Which of the following statement/s are true?
1. Basavanna was a 12th-century philosopher, statesman, Kannada poet in the Shiva-focusse Bhakti movement.
2. He was a social reformer during the reign of the Kalachuri-dynasty.

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

3) LockBit is?

(a) Ransomware   (b) Trojan Virus

(c) Cryptocurrency   (d) None of the above

4) Monitoring Centre – PRAYAG is being launched by?

(a) Ministry of Agriculture

(b) Ministry of Jalshakti

(c) Ministry of Women and Child Development

(d) Ministry of Science and Technology

5) Gandhisagar Wildlife Sanctuary is located at?

(a) Odisha   (b) Madhya Pradesh

(c) Uttar Pradesh   (d) Haryana

6) Kamakhya temple is located at?

(a) Assam   (b) Manipur

(c) Tripura   (d) Nagaland

7) Which of the following statement/s are true?
1. SuperBIT is a highly-stabilized, high resolution telescope that operates in the stratosphere.
2. It was launched by NASA.

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

8) Which of the following statement/s are true?
1. Strain refers to the deformation that occurs in rocks when it is under pressure from other rocks.
2. NISAR satellite jointly developed by ISRO and the NASA of the U.S. will map the most earthquake-prone regions in the Himalayas.

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

9) Which of the following statement/s are true?
1. Zero Budget Natural Farming (ZNBF) means raising crops without using any fertilisers and pesticides or any other external materials.
2. ZBNF helps in retaining soil fertility, to ensure a chemical free agriculture and ensure low cost of production (zero cost).

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

10) Which of the following statement/s are true?
1. NavIC is designed with a constellation of 7 satellites and a network of ground stations operating 24x7.
2. NavIC offers two services: Standard Position Service (SPS) for civilian users and Restricted Service (RS) for strategic users.

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Mains Questions

1. Examine the challenges and opportunities associated with the adoption and implementation of decentralized clean energy systems in India.

2. Analyse the water dispute between Telangana and Andhra Pradesh, highlighting the historical, geographical, and political factors that have contributed to the conflict.

1. b   2. c   3. a   4. b   5. b

6. a   7. c   8. c   9. c   10.c

FIND ANSWERS

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