

CURRENT AFFAIRS

WEEKLY

WEEK: 3

JULY
2022

MAINS

GS-II

- THE PROPOSAL FOR AN INDIA-SPECIFIC NORM FOR ASSESSING VEHICULAR SAFETY IN COLLISION
- BIG TECH VS STATE
- THE QUESTION OF 'LEGITIMACY' OF SUPREME COURT
- MPS' PANEL OPPOSES MEDIATION BILL
- BRING A NEW ACT ON BAILS, SUPREME COURT TELLS CENTRE

GS-III

- MAKING GOOD USE OF POPULATION BONUS KEY TO INDIAN ECONOMY
- RBI PAVES THE WAY FOR INTERNATIONAL TRADE IN TERMS OF RUPEE
- BANKS INVOKE SARFAESI ACT TO RECOVER DUES
- SHRINKFLATION, PLAYING OUT IN INDIA?
- VOLATILITY IN GLOBAL ENERGY MARKETS: IMPLICATIONS FOR INDIA
- CIRCULAR PRODUCTION MIGHT BE THE ANSWER TO INDIA'S TEXTILE WASTE PROBLEM
- ENVIRONMENT
- GREEN TECHNOLOGY CAN HURT THE ENVIRONMENT
- DECODING THE FLOOD FURY IN INDIA
- EU'S SUSTAINABLE FINANCE TAXONOMY
- THE SEARCH FOR DARK MATTER-LUX-ZEPLIN (LZ)

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- Statue of Peace of Swamy Ramanujacharya inaugurated in Srinagar
- Who are the Tamils of Moreh in Manipur?
- Birth centenary celebration of Swami Atmasthananda
- Ancient Buddhist site finally in focus

GEOGRAPHY

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- Derecho turns the sky green in the US

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- Chhattisgarh gets Centre's nod for World Bank funded school project
- Mission Vatsalya
- Sashakti: Delhi police's self-defence training helping women fight back

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- Shinzo Abe: India-Japan ties

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- Centre to promote dragon fruit cultivation in 50,000 hectares
- Pokkali gasping

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- In rare sighting, three Indian skimmers spotted in Nal Sarovar sanctuary
- Pilikula biological park
- Ambulances for plants are taking root in India. Traffic give way, trees need first aid
- Red pandas to make a home in the forests

SCIENCE AND TECHNOLOGY

- World Zoonosis Day
- Why deepest-ever infrared image of distant universe is iconic, NASA explains

GS SCORE

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— Disclaimer —

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION: A

(MAINS)

CURRENT AFFAIRS

THE PROPOSAL FOR AN INDIA-SPECIFIC NORM FOR ASSESSING VEHICULAR SAFETY IN COLLISION

CONTEXT

The government approved a Draft GSR (general statutory rules) notification seeking comments on a proposal to introduce the Bharat New Car Assessment Program (Bharat-NCAP).

◎ BACKGROUND

- The introduction of the Bharat NCAP would entail giving vehicles a star rating based on their performance in crash tests.
- The voluntary programme aligns existing test regulations at home with **global crash testing protocols**.

◎ ANALYSIS

What is Bharat NCAP?

- It is a **new car safety assessment programme** (NCAP).
- It proposes a mechanism of awarding 'Star Ratings' to automobiles based upon their performance in crash tests.
- The proposed assessment will allocate Star Ratings from 1 to 5 stars.



Why Car Safety Star Ratings is important?

- Car Safety Star Ratings were earlier made visible on cars. The ratings could be equated to efficiency ratings in AC, fridge, and other electronics used in car.
- It helped customers to decide, what they wanted in their budget.
- BNCAP standard is aligned with **global benchmarks** and it is beyond **minimum regulatory requirements**.
- **Rollout:** BNCAP will be rolled out from April 1, 2023.

- **Applicability:** It will be applicable on type-approved motor vehicles of category M1 with gross vehicle weight less than 3.5 tonnes, manufactured or imported in the country.
 - **M1 category motor vehicles** are used for the carriage of passengers, comprising eight seats, in addition to driver's seat.

Global new car assessment programs (NCAP)

- Global NCAP was established in 2011 and is a project of the **U.K.-based Towards Zero Foundation**.
- The **United States National Highway Traffic Safety Administration** was the first to come up with an NCAP in 1978.
- The **Australasian NCAP** was created in 1993, **Japan NCAP** in 1995, **Euro NCAP** in 1997, **Korean NCAP** in 1999, **China NCAP** in 2006, **Latin NCAP** in 2010 and **ASEAN NCAP** in 2011.

It is a standardized platform establishing cooperation and coordination among new car assessment programs (NCAPs) globally for universal adoption of the United Nations' standards for vehicular safety.

- It provides reliable information about the crash safety of a vehicle based on certain common criteria and procedures.
- In turn, this helps the vehicle acquire a foothold in international markets.



How would the vehicles be evaluated?

- Parameters: Bharat NCAP would assign vehicles between one and five stars on parameters such as
 - Adult Occupant Protection (AOP)
 - Child Occupant Protection (COP)

Safety Assist Technologies (SAT)

Offset collisions are those where one side of a vehicle's front end and not the full width hits the barrier.

- It would study frontal impact, side impact and the possibility of a door opening up after a crash.
- The major change proposed with the Bharat NCAP is the speed for frontal **offset crash testing** – at 64 kmph in comparison to the existing tests conducted at 56 kmph.

Criteria for star rating of vehicles:

The protocol varies among NCAPs. According to draft notification the **voluntary** Bharat NCAP would assign vehicles between one and five stars, based on full vehicle crash test in **three categories** –

- Adult occupant protection:** After the test collision, the dummy would be checked for injuries on the head, neck, chest, knee, pelvis area, lower leg, foot and ankle. There must not be any rib compression or injury to the knee joint.
- Child occupant protection:** For assessing child protection, the NCAP would evaluate the impact to a child restraint system (CRS) and airbag safety.

The child must not be ejected from the CRS and his/her head must be contained within the shell of the CRS preventing any outside blow following a crash.

Child restraint system

CRS are portable seats designed to protect children during vehicle collisions.

- Safety assist technologies:** Cars must have manual switches to disable airbags which should not be within the child's reach.

Mechanism: The car is crashed into an aluminium deformable barrier impersonating an opposing force of the same magnitude of a crash-like situation, with a 40% overlap.

- Also, Bharat NCAP would conduct its **frontal offset crash testing** at 64 kmph instead of the prevailing 56 kmph norm.

- Offset collisions are those where one side of a vehicle's front and not the full width hits the barrier.

Incentives: Vehicles that can accommodate a broad variety of child seats available in the domestic market would be rewarded.

- Higher ratings would be accorded to vehicles with a permanent warning label on frontal airbags

Why does India need to crash-test vehicles?

- Indian vehicles have historically not been crash-tested in the country.
- Despite being home to only **1% of the world's** vehicles, India shoulders **11% of the global road crash fatality burden**, according to the non-profit Save Life Foundation.

NCRB Data

- India recorded 3, 54,796 cases of road accidents during 2020 in which 1, 33,201 people died and 3, 35,201 were injured.
- The government data showed that more than 60% of road accidents were caused due to over speeding, accounting for 75,333 deaths and 2, 09,736 were injured.

Why safety is not the priority?

- Structural issues:** Vehicles sold in India are often sub-par in terms of safety features like the requisite number of airbags, and have unstable structures, unable to protect their occupants in the event of a road crash.
- More focus on price:** Price sensitive market allows car makers to focus on price than safety because Indians prefer budget friendly vehicles.
- Lack of regulation:** India's Central Motor Vehicle Rules (CMVR) mandate a safety and performance assessment. However, this does not involve a crash test rating.

Expected Benefits

- Export worthiness:** It is intended to increase the **export-worthiness** of vehicles and **competition** on safety parameters among manufacturers, as well as instill **consumer confidence** in their safety.
- Reduction in road accidents:** India aims to reduce road accidents and deaths by 50 percent by 2030.

- **Passenger safety:** It will ensure structural and passenger safety in cars.
- **Help in making India atmanirbhar:** This program will make automobile industry in India Atma Nirbhar and will make India the top automobile hub worldwide.

How is BNCAP aligned with GNCAP?	How BNCAP is different from other NCAPs?
<ul style="list-style-type: none"> • Bharat NCAP's testing protocol to be aligned with global crash-test protocols keeping in mind the Indian regulations. 	<ul style="list-style-type: none"> • Additionally, Bharat NCAP will not be limited to passive safety tests and testing internal combustion engine vehicles, but also test and rate CNG and electric vehicles based on their crash performance.

- | | |
|---|---|
| <ul style="list-style-type: none"> • Auto firms in India currently follow AIS-145, which enforces safety features to vehicles. | <ul style="list-style-type: none"> • Also, unlike other NCAP formats, which award separate star ratings for adult and child protection, BNCAP is likely to get a single unified rating for adult and child protection. |
|---|---|

Summing Up

The proposed move follows India's focus on "zero tolerance for road accidents". India is striving to reduce road accidents by 50% by the year 2025.

Bharat NCAP rating criteria would emerge as a turning point in the domestic automotive sector in terms of product, technology and safety, since it would provide a platform that would test vehicular safety as per Indian conditions.

BIG TECH VS STATE

CONTEXT:

Social media platform, Twitter, moved the Karnataka High Court over the government's orders to block certain tweets and handles under Section 69 of the Information Technology Act 2000.

● ANALYSIS:

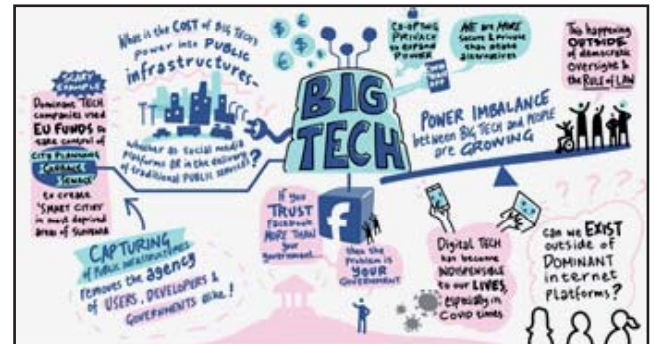
Why Social media is a highly complicated issue?

- While the birth of social media is based on the democratic principles of the Internet and its technological ability to be open and accessible to all, it has evolved to not only be inclusive and participative but also disruptive.
- The features of openness, obscurity and anonymity that once gave strength to marginalised communities are now giving room for malicious intentions to grow.
- It is now increasingly being blamed for
 - breeding toxicity
 - promoting polarization
 - amplifying disinformation
 - birthing malicious intentions
 - swaying elections



Tech giants' controversial incidences in India:

- Facebook (Instagram) in 2020, failed to take any action on the controversy called **Bois Locker Room** (mostly led by Indian teenagers).
- Facebook employees themselves are questioning the Facebook India team's content regulation practices and procedures.
- CCI (Competition Commission of India) opened two antitrust investigations against Google in 2020.



- One due to the unfair promotion of its own payment application (Google Pay).
- The other for engaging in anti-competitive practices by restricting companies from creating modified versions of the Android operating system for smart TVs.
- In 2019, the Enforcement Directorate (E.D.) launched an investigation into alleged violations by **Amazon and Flipkart** for their ban on foreign direct investment in **business-to-consumer (B2C) businesses**, except where specific conditions are met.
- Twitter displayed a map of Leh as part of China and later as part of the state of Jammu and Kashmir (rather than a separate Union Territory). Twitter was served with a legal notice for this.

How Tech giants create impact on India?

- Use of a targeting algorithm:** Tech giants use user search data to serve ads to users. Ads are specifically targeted to users based on their recent internet searches.
- Lack of transparency and privacy concerns:** The way technology companies process user data is not transparent enough. This raised serious privacy concerns and also prompted antitrust investigations by various governments. One such example is the Facebook Cambridge Analytica scandal. WhatsApp's recent privacy policy has also raised widespread concerns.
- Monopolistic business practices:** tech giants engaged in predatory pricing and monopolistic business practices. They usually crowd out competitors through anti-competitive behavior. For example, the accusation on Amazon that it

favors its own branded products over third party products.

- ◉ **Social impacts:** Big tech is the main medium for fake news, hate speech, etc. Countries considered these to be undemocratic activities.
- ◉ **Influence on the legislative actions:** The combined market capitalization of big tech is higher than the GDP of most countries except China and the US. Their sheer economic presence and market presence (as Google handles over 90% of online searches) forces them to create aggressive clauses in their terms of service, contractual agreements, etc.

How big techs are regulated in India?

- ◉ The government passed the **Competition Act, 2002**. The Act established the Competition Commission of India (CCI). The law was later amended in 2007. The CCI was established to eliminate practices that have an adverse effect on competition. The Commission also promotes and maintains competition, protects the interests of consumers. CCI will intervene if any of the tech giants engage in anti-competitive practices.
 - For example, in 2018 the CCI closed an investigation into Google's advertising policies. The CCI said that Google abused its dominant position and engaged in anti-competitive practices. The CCI also imposed a fine of Rs 136 crore on Google.
- ◉ Second, the **Information Technology Act, 2000** regulates all activities related to the use of computer resources in India. Some of the important provisions of the Act are
 - **Section 69** of the Act gives the government the power to issue directions to "intercept, decipher or monitor any information generated, transmitted, received or stored" in any digital device.
 - **Section 69A** of the Act gives the government the power to block access to any information generated, transmitted, received or stored or hosted in the digital space.
 - Intermediaries (providers of network services, telecommunications services, Internet services and web hosting) are required to store and maintain the specified information. They also have to obey the instructions issued by the government from time to time.
 - In return, intermediaries are protected from legal action for user-generated content (big techs have used this clause to waive responsibility and liability in the digital space).

◎ CONCLUSION:

There will undoubtedly be a negative effect on Indian entrepreneurs and enterprises, and eventually the sovereignty of the nation, if the monopolistic and anti-competitive actions of giant tech firms are not reined in.

THE QUESTION OF 'LEGITIMACY' OF SUPREME COURT

CONTEXT:

Recently, US Supreme Court pronounced the verdict and overturned ROE vs. WADE case and made abortion illegal. This judgment questioned the legitimacy of Supreme Court.

- But this question of “declining legitimacy of a Supreme Court” is a concern of all democrats, even in India. So we can also use the litmus test of Legitimacy on Indian Supreme Court.

◎ BACKGROUND:

- For decades, the Supreme Court has attracted disproportionate public attention and international admiration for its judicial interventions with its well-known innovations like-
 - public interest litigation
 - basic structure doctrine
 - the concomitant judicialisation of politics in India
- From last few instances, however, there has been a general sense of disappointment with the Supreme Court, with a widely shared lament that the court has failed to be a protector of democratic institutions.

The brief aims to trace the departures in the Court's behaviour, as well as discuss the continuities in its approaches to constitutional interpretation.

The concept of 'Judicial Legitimacy'

- The **power to declare invalid an expression** of the will of a democratically elected legislature involves a responsibility of a special kind. Fidelity and not bravery or creativity is the quality that sustains judicial legitimacy.
- Courts need to display legitimacy and fairness constantly and must continue to respect the terms of the trust upon which they exercise their authority.
- Legitimacy is a **precious property**. It must be carefully nurtured.
- The **acceptance of judicial decisions** requires their legitimacy. Judicial power rests on trust.

Aspects of legitimacy:

- Court's role in enforcing the core principle of “**limited government**”.
- Court's recognition, and endorsement of the **fundamental distinction** between “**rule of law**” and “**rule by law**” — prepositions matter.

- Court's role as the promoter of “**constitutional morality**”.
- Judicial activism

What makes a court illegitimate?

- Accusations that the Supreme Court has gone “rogue” are often another way of saying that it has tacked too far to the right of public opinion.
- The Supreme Court — or any court, for that matter — would be less legitimate if it factored public opinion into its decision-making.

Why a judicial verdict carries legitimacy?

- A legal order or judicial verdict carries legitimacy. It can be more easily be defended, at least in the public narrative.
- An action – even if the objective is destructive – has to be validated by the law.
- In other words, it has to be accepted in the eyes of its recipients, otherwise it will lose its claim of legitimacy.

Jacques Derrida (1992) says the law must not be just a law but it should be a 'just' law.

Why is legitimacy important?

- A larger impact:** The judiciary not only decide **matters of fundamental importance** to individual citizens and to society at large but also affect with their judgments and rulings even the ordinary affairs of every individual who seeks the aid of the courts.
- On behalf of society:** In order to do this, judges are given an authority and powers which are very far reaching. Such authority and powers are exercised on behalf of society as a whole.
- Accountability:** The judiciary provides a public service. It is axiomatic that it should account to the society it serves.

Erosion of credibility in case of India:

- **Government interference:** In 2018, **four senior sitting judges** of the Supreme Court held a press conference and aired their grievances against the administration of the court by the then Chief Justice, hinting at government interference.
- **Unexplained transfers:** Transfers of judges without adequate reason is a common affair.
- **Sealed cover:** The **increasing incidence of sealed-cover jurisprudence**, where the government engages privately with the court, in a public hearing, without sharing information with the opposite party, has occasioned considerable protest.
- **Erosion of constitutional morality:** India also saw Erosion of constitutional morality most clearly in the case of Fr Stan Swamy who was denied a straw, denied decent healthcare, and denied bail all in the name of "**rule of law**".
- **High rate of case pendency:** As of May 2022, over 4.7 crore cases are pending in courts across different levels of the judiciary. Of them, 87.4% are pending in subordinate courts, 12.4% in High

Courts, while nearly 1, 82,000 cases have been pending for over 30 years.

- **Under trials on the rise:** As per the Prison Statistics-2020, released by the National Crime Records Bureau (NCRB), under trials accounted for 76% of the total inmates in around 1,300 prisons across the country.

The executive need to ensure that the strength of the judiciary is adequate to discharge its constitutional duty of rendering effective justice to all within a reasonable time.

◎ WAY FORWARD:

Supreme courts need to be vigilant about these threats to their "legitimacy". They need to stand not just some distance away from the dynamics of political power, to avoid being pulled under by its eddies, but also some distance above these dynamics so that they can reflect on their privileged position and their sacred responsibility. They should follow the constitution and adjudicate on the matters which questions the constitutionality of the law.

MPS' PANEL OPPOSES MEDIATION BILL

CONTEXT:

Parliamentary Standing Committee on Law and Justice, headed by Sushil Kumar Modi, has recommended substantial changes to the Mediation Bill, meant for the institutionalization of mediation and establishment of the Mediation Council of India.

Mediation in India:

- Mediation is a structured, interactive process where an impartial third party assists disputing parties in resolving conflict through the use of specialized communication and negotiation techniques.
- It is a **voluntary process** where the **disputing people decide to mutually** find a solution to their legal problem by entering into a written contract and appointing a mediator.

Mediation India is divided into two categories which are commonly followed:

Famous Mediation Cases - landmark decision by Supreme Court of India:

- Perry Kansagra Vs Smriti Madan Kansagra on 15 February, 2019

- Afcons Infra Ltd Vs M/S Cherian Varkey Constructions (2010)
- B.S. Krishnamurthy v. B.S. Nagaraj (2013)

- Court referred Mediation:** The court may refer a pending case for mediation in India under **Section 89 of the Code of Civil Procedure, 1908**.
 - This type of mediation is frequently used in **Matrimonial disputes**, particularly divorce cases.
- Private Mediation:** In Private Mediation, qualified personnel works as mediators on a fixed-fee basis. Anyone from courts, to the general public, to corporates as well as the government sector, can appoint mediators to resolve their dispute through mediation.



ADR

- **Alternate Dispute Resolution (ADR)** refers to the means by which disputes are settled outside the traditional court system.
- There are the modes of ADR in India:
 - Arbitration
 - Negotiation
 - Mediation
 - Lok Adalats

(see figure below)

Why does India need the Mediation Act?

- Chief Justice of India (NV Ramana) addressed the inaugural **Singapore-India Mediation Summit, 2021**.
- He said the Indian judiciary is facing the **pendency of cases crossing the 45-million** mark, burdening the three-tier justice delivery system.
- He also stated that **mediation should be made mandatory** as the first step for dispute resolution and a law should be framed in this regard.

Key-highlights of the Mediation Bill, 2021

The Mediation Bill, 2021 seeks to promote mediation, particularly institutional mediation, and provide a mechanism for enforcing mediated settlement agreements.

- **Pre-litigation mediation:** Parties must attempt to settle civil or commercial disputes by mediation before approaching any court or certain tribunals.
 - Even if they fail to reach a settlement through pre-litigation mediation, the court or tribunal may at any stage refer the parties to mediation if they request the same.
- **Disputes are not fit for mediation:** The Bill contains a list of disputes which are not fit for mediation. These include disputes:
 - Relating to claims against minors or persons of unsound mind.
 - Involve criminal prosecution.
 - Affects the rights of third parties.
- **Applicability:** The Bill will apply to mediations conducted in India:
 - Involving only domestic parties.
 - Involving at least one foreign party and relating to a commercial dispute (i.e., international mediation).
 - If the mediation agreement states that mediation will be as per this Bill.

- If the central or state government is a party, the Bill will apply to:
 - Commercial disputes
 - Other disputes as notified.
- **Mediation process:** Mediation proceedings will be confidential, and must be completed within 180 days (may be extended by 180 days by the parties).
- **Mediators:** Mediators may be appointed by:
 - The parties by agreement
 - A mediation service provider (an institution administering mediation).
 - They must disclose any conflict of interest that may raise doubts about their independence.
 - Parties may then choose to replace the mediator.
- **Mediation Council of India:** The central government will establish the Mediation Council of India.
 - The Council will consist of a chairperson, two full-time members (with experience in mediation or ADR).
 - Three ex-officio members (including the Law Secretary, and the Expenditure Secretary), and a part-time member from an industry body.
 - **Functions of the Council include:**
 - Registration of mediators
 - Recognizing mediation service providers
 - Mediation institutes (which train, educate, and certify mediators).
- **Mediated settlement agreement:** Agreements resulting from mediation (other than community mediation) will be final, binding, and enforceable in the same manner as court judgments. They may be challenged on grounds of:
 - Fraud
 - Corruption
 - Impersonation
 - Relating to disputes not fit for mediation.
- **Community mediation:** Community mediation may be attempted to resolve disputes likely to affect the peace and harmony amongst residents of a locality.
 - It will be conducted by a panel of three mediators (may include persons of standing in the community, and representatives of resident welfare associations).

Important recommendation made by the Committee

- It recommended a singular controlling authority for all types of mediation service providers and mediation institutes, instead of multiple authorities proposed in a bill.
- The time limit provided for the completion of a

mediation process should be capped at 90 days with an extended period of 60 days, instead of 180 days.

- The provisions should be made to authorize **Mediation Council of India** only as the single nodal authority to control mediation service providers and mediation institutes.

BRING A NEW ACT ON BAILS, SUPREME COURT TELLS CENTRE

CONTEXT:

Recently, a Bench of Justices S.K. Kaul and M.M. Sundresh said jails were overflowing in India while conviction rates remained an abysmal low.

◎ BACKGROUND

- The matter came up in the Supreme Court as it was delivering its verdict in the Satender Kumar Antil versus Central Bureau of Investigation (CBI) case.
- It noted then that jails in India are flooded with under trials.

Example (British law on bail)

- The Supreme Court referred to the British law on bail, while asking the Centre to formulate a 'Bail Act'.
- A key feature of the Bail Act of the United Kingdom, 1976 is "**reducing the size of the inmate population**". The law also has **provisions for ensuring legal aid for defendants**.
 - ▶ The act states that **all defendants will be granted bail except for those charged with an imprisonable offence** unless substantial grounds exist for believing the defendant on bail would not surrender to custody, would commit an offence while on bail, or would interfere with witnesses or otherwise obstruct the course of justice.

◎ ANALYSIS

Types of Offence

- Bail is a **fundamental aspect** of any criminal justice system and the practice of bail grew out of the need to safeguard the fundamental right to liberty.
- The term bail has not been explicitly defined in **Code of Criminal Procedure, 1973**.
- **Sections 436 to 450 of the Code of Criminal Procedure, 1973** contains primary provisions relating to granting of bail and bonds.

In India's legal system, the term offence has been categorised as **bailable offences** and **non-bailable** under the Code of Criminal Procedure (CrPC).

- **Bailable Offence:** As per **IPC Section 2(a)**, a bailable offence means an offence that is shown as bailable in the First Schedule.
 - ▶ Which is made bailable by any other law for the time being in force; 'non-bailable offence' means any other offence.
- **Non-bailable Offence:** The term 'non-bailable' doesn't imply that bail can't be granted at all.
 - ▶ It simply means that the accused can't claim it as a matter of their right at the time of the arrest or custody.
 - ▶ But they can approach the court when while they are under trial.
 - ▶ In non-bailable offences, it's the court's discretion to grant bail to the accused. And the same must be decided judiciously.

Penal Code:

- The penal code of a country consists of all the laws that are related to crime and punishment.
- Indian Penal Code:
- It is the official criminal code of India.
- It is a comprehensive code intended to cover all substantive aspects of criminal law.
- The objective of the Indian Penal Code is **to lay what is right and what is wrong and to lay down the punishment for committing such wrong**.

Grim scenario

- High rate of prison population in India is under-trial.
- Prisons in India are overcrowded to occupancy of more than 100%.
- The powerful, rich and influential class obtain bail promptly within no time, while the poor, underprivileged, downtrodden mass languish in jail as under-trials for years due to denial of bail.
- The rate of conviction in criminal cases in India is abysmally low.

Rate of conviction in criminal cases in India:

As per data maintained by **National Crime Record Bureau**, the conviction rate of States/UTs relating to cognizable crime under **Indian Penal Code (IPC)** and **Special & Local Laws (SLL)** crimes during 2018, 2019 and 2020 is 66.6, 66.4 and 73.4 respectively.

Suggestive measures by Top Court:

- The judges suggested that **bail applications should be disposed of within two weeks.**

- The pleas for **anticipatory bail should be decided within six weeks.**
- Investigating agencies and their officers are duty-bound to comply with section Section 41-A of the Criminal Procedure Code (Notice of appearance before police officer).
- The proper directions and non-compliance would entitle the accused to grant bail.
- It further directed all state governments, Union Territories, and high courts to file status reports in four months.

MAKING GOOD USE OF POPULATION BONUS KEY TO INDIAN ECONOMY

CONTEXT:

India is projected to surpass China as the world's most populous country in 2023, according to the 27th edition of the United Nations' World Population Prospects, 2022.

◎ BACKGROUND

Growth of Population in India:

- The growth of population is the change in the number of people living in a particular area between two points in time. Population growth has two components namely; natural and induced.
 - ▶ **Natural growth** is analyzed by assessing the crude birth and death rates.
 - ▶ The **induced components** are explained by the volume of inward and outward movement of people in any given area.
- **The history of the growth of India's population can be divided into four distinct phases:**
 - ▶ stagnant growth stage (1901-1921)
 - ▶ steady growth stage (1921-1951)
 - ▶ rapid growth stage (1951- 1981)
 - ▶ high growth with definite signs of slowing down (1981-2011)
- It took 123 years for the population to double to 2 billion in 1927. Since then, the number of years taken to add a billion people has only dropped.
- The last billion, which will take the population to 8 billion later this year, will be added in just 11 years.

World Population	Year
1 billion	1804
2 billion	1927
3 billion	1959
4 billion	1974
5 billion	1987
6 billion	1998
7 billion	2011
8 billion	2022

Source: United Nations Population Fund

- ▶ Other countries are the Democratic Republic of the Congo, Egypt, Ethiopia, Nigeria, Pakistan, the Philippines, and Tanzania.
- **China and India accounted for the largest populations in these regions**, with more than 1.4 billion each in 2022.
- **Central and Southern Asia** is expected to become the most populous region in the world by 2037.

Comparison with China:

- The population of China was 1,144 million in 1990 compared with India's at 861 million then.
- The UN projections say that by 2050, India's population will reach 1,668 million, far exceeding China's declining population at 1,317 million.

◎ ANALYSIS

Findings of the Report:

- The world's two most populous regions in 2022 were
 - ▶ **Eastern and South-Eastern Asia**, with 2.3 billion people, (29 percent of the global population),
 - ▶ **Central and Southern Asia**, with 2.1 billion (26 percent)
- Half of the projected increase in global population up to 2050 will be concentrated in just eight countries, which includes India.

The rising Population of India could be turned into an economic asset:

- **Larger Manpower:** India's population is termed as a young population as the average age of the Indian population is around 25-26 years, which is considered a productive age.
- **India as a global Production Hub:** India's young population, and its demographic dividend, gives India the potential to become a global production hub as well as a large consumer of goods and services.



- **The increasing size of India's Consumer Market:** The growth in India's consumer market would be primarily driven by a favorable population composition and increasing disposable income.
 - ▶ The economy is now significantly driven by rural demand due to rising income levels, changing lifestyles, habits, and tastes, increasing literacy levels, and increasing expectations of rural consumers. The **consumption habits** of the rural consumer are also **gradually mirroring** those of their urban counterparts.

Concerns:

- **Confederation of Indian Industry (CII)** in its report on India's Demographic Dividend warns that there is an **acute shortage of time** and that **India's working-age** population is necessary but **not sufficient for it to sustain economic growth**.
- **The population as a liability:** If India does not create enough jobs and its workers are not adequately prepared for those jobs, its demographic dividend may turn into a liability.
- **Short window of opportunity:** It is expected that India's working-age population will start declining in the decade post-2050. Thus, 2020-50 provides India with a short window of opportunity to harness its demographic dividend.
- **Asymmetric demography:** The growth in the working-age ratio is likely to be concentrated in some of India's poorest states and the demographic dividend will be fully realized only if India can create gainful employment opportunities for this working-age population.

- **Lower Skilled workforce:** The proportion of formally skilled workers as a percentage of the total workforce stands at 24 percent in China, **52 percent in the USA, 68 percent in the UK, and 80 percent in Japan**, against a **paltry 3 percent in India**.
- **Over exploitation of the natural resources:** Rapid population explosion has led to the over-exploitation of natural resources and degradation of the environment.
- **Illegal activities:** Many people turn towards illegal activities due to unemployment and poverty, which leads to the waste of manpower, both in illegal activities and in keeping these in check.
- **Malnutrition, Starvation, and Famine:** When the availability of resources is scarce, starvation, malnutrition, along with ill health, and diseases caused by diet deficiency such as rickets become more likely.
- **Jobless growth-** There is mounting concern that future growth could turn out to be jobless due to de-industrialization, de-globalization, the fourth industrial revolution, and technological progress.

Required measures

- **High-quality school education, relevant higher education, and skill development aligned to industry needs** are some of the pre-requisites if India is to become an economic powerhouse that not only creates good quality jobs for its youth but also serves the rest of the world.
- The **youth may be offered skill vouchers and scholarships** which can be **linked to the national skill qualification framework**. This can

create an **industry-ready model**, thus leading to a transformation from a **supply-based** to a **demand-based skill system**.

- **Corporate investment in employee education and training** can play a critical role to meet the demand for high-skilled workers. Thus, greater government-industry collaboration holds the key to skilling the burgeoning workforce.
- **Skill development to increase the employability of the young population.** India's labor force needs to be empowered with the right skills for the modern economy. The government has established the **National Skill Development Corporation (NSDC)** with the overall target of skilling/ up-skilling 500 million people in India by 2022. The recently announced '**Agnipath Scheme**' is also expected to give a boost to the 'skilled workforce' in India.
- **Job Creation:** The nation needs to create ten million jobs per year to absorb the addition of young people into the workforce. Schemes like **Start-up India** and **Make in India**, if implemented properly, would bring the desired result in the near future.

- **Promoting businesses' interests and entrepreneurship** would help in job creation to employ the large labor force.

- **Improvements in health, education, the macroeconomic environment, and good governance** can go a long way toward attaining the demographic dividend.

◎ CONCLUSION:

The **population can be our strength** only **when we have the resources and power to feed and provide the basic facilities, health care, and jobs**. But in reality, we don't have the necessary resources to do this. So, we must put our efforts into the prevention of further increase in the population. We need to **strike a balance between quality and quantity**. The demographic dividend of India will become a liability if the country does not produce enough jobs and the required workforce. India's young population, and its demographic dividend, give India the potential to become a global production hub as well as a large consumer of goods and services.

RBI PAVES THE WAY FOR INTERNATIONAL TRADE IN TERMS OF RUPEE

CONTEXT:

In the backdrop of the western sanctions on Russia, the Reserve Bank of India (RBI) has put in place a mechanism to facilitate international trade in rupees.

◎ BACKGROUND:

- Recent geopolitical dynamic is creating a significant impact on the economies of several nation, leading to decline in their forex reserve.
- Russian invasion on Ukraine has push the price of crude oil in the international market to its all-time high.
- Western sanctions on Russia and economic crises in several nations have impacted the international trade.
- In the backdrop of these situations India has launched a mechanism to settle payment system for imports and exports in terms of Indian domestic currency, i.e., Rupee.

◎ ANALYSIS:

Rupee settlement system for International trade:

- Banks acting as authorized dealers for such transactions would have to obtain prior approval from the regulator to facilitate this.

Nostro and Vostro Accounts:

- Nostro and vostro are terms used to describe the same bank account; these terms are used when one bank holds the money of another bank.
- They are used to distinguish between the two sets of accounting records kept by each bank.
- Nostro comes from the Latin word for "our", as in "our money that is deposited in your bank".
- Vostro means "your" as in "your money that is deposited in our bank".

- All exports and imports under the invoicing arrangement may be denominated and invoiced in rupees.
- The exchange rate between the currencies of two trading partner countries can be determined by the market.
- Exporters and importers can now use a special Vostro account linked to the correspondent bank

of the partner country for receipts and payments denominated in rupees.

- These accounts can be used to make payments for projects and investments, manage the flow of advances on imports or exports, and invest in Treasury bills under the Foreign Exchange Management Act of 1999 (FEMA).
- Also bank guarantee, set-off of export receivables, export advance, utilization of surplus, approval process, documentation etc. related aspects would be included in FEMA rules.

Essentiality of the move:

- The rupee is at an all-time low against the dollar.
- The mechanism is intended to facilitate trade with sanctioned countries.
- Payments became a pain point for exporters immediately after the outbreak of the Russia-Ukraine war, especially after Russia was cut off from the SWIFT payment gateway.
- As a result of the Trade Facilitation Mechanism, we see an easing of payment problems with Russia.

Key Concept

Currency Convertibility:

- Convertibility is the ease with which a country's currency can be converted into gold or another currency through global exchanges.
- A convertible currency allows a government to pay for goods and services in a currency that may not be the buyer's own.

- The move would also reduce the risk of forex volatility, especially with respect to the Euro-Rupee parity.

Key fact

Convertibility of Rupee:

- In order to face a serious deficit in the current account of the balance of payments, the Government of India introduced partial convertibility of the rupee from 1 March 1992.

- Under this system, 60 percent of foreign exchange earnings were convertible in rupees at the market exchange rate and the remaining 40 percent were at the officially fixed exchange rate.
- **Capital account convertibility** refers to the similar liberalization of a country's capital transactions, such as loans and investments, both short-term and long-term.

- We see this as the first step towards 100% convertibility of the rupee.
- It will also help stabilize the rupee.

What will be positive implications on Indian Economy?

- **It will boost India's exports and currency:** This move would boost the growth of global trade with an emphasis on exports from India (eg tea exports) and support the growing interest of the global business community in the domestic currency.
- **Speeding up transactions with sanctions-hit Russia:** India's trade with Russia in 2021-22 was \$13.1 billion.
- **Final Settlement in Indian Rupees:** As per the existing provisions of the Foreign Exchange Management Act, the final settlement must be made in free currencies except for Nepal and Bhutan. Now, if RBI approves, final settlement for all countries can be in Indian Rupee.
- **Save foreign exchange and reduce trade deficit:** Because India imports more than it exports. It will boost forex flows and as a step to stabilize the rupee.
- **It will help build better relations with Russia:** The opening of the trade route shows the importance of Russia as India's trading partner in the face of growing pressure from Western countries to sever ties.
- **Can be used for other neighboring countries as well:** Several countries including Iran, Sri Lanka and some in Africa and Latin America are facing shortage of forex. As such, the new mechanism will help India promote its exports in these countries.

What does this means for exports?

- Several countries including Sri Lanka and some in Africa and Latin America are facing forex shortages.
- As such, the new mechanism will help India promote its exports.
- It will also help buy discounted oil from Russia, which now accounts for 10% of all imported oil.

How will this impact the trade deficit?

- The gap between India's exports and imports widened to record highs.
- This puts pressure on the current account deficit, which some economists estimate would nearly double to more than 3% of GDP in FY23.
- The RBI's decision may not benefit the foreign account immediately, but in the medium term demand for dollars may fall.
- This is partly because it can take time to open new vostro accounts between banks.

What are major issues associated with this system?

- A similar Vostro account set up to trade with Iran has dried up as India has been stopped from buying oil from Iran due to US sanctions.
 - ▶ Exporters said the payment problem in the Iranian market was limiting them from filling the gap left by Sri Lanka, which is in the midst of a severe financial crisis.
- Western countries could put pressure on India not to allow any such mechanism.

◎ CONCLUSION:

The new settlement system of payments in term of rupee, will pave the way for India to boost up the exports from India. This move will also be beneficial for world south diplomatic policy for India. Along with elimination of the expected concerns India needs to focus on unprecedented emerging economical threat, internal security and money laundering challenges.

BANKS INVOKE SARFAESI ACT TO RECOVER DUES

CONTEXT:

Banks have invoked the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act against telecom infrastructure provider GTL to recover their pending dues.

- The recovery action has been initiated by IDBI Bank on behalf of lenders, whose total exposure to GTL stood at Rs 7,250 crore as of December, 2021.

● ANALYSIS:

What is it?

- SARFAESI (Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest) Act, 2002 was introduced to protect financial institutions from loan defaulters.

Elements of the SARFAESI Act:

- It's provisions are in effect for modifying the four laws listed below:
 - Indian Stamp Act, 1899.
 - The recovery of the debts due to the Banks and Financial Institutions Act, 1993 (RDBFI).
 - The Depositories Act, 1996 and for those matters that are connected therewith or incidental thereto.
 - The Reconstruction and Securitisation of Financial Assets and Enforcement of Security Interest Act, 2002.
- In order to collect bad debts, under this law, banks can take control of securities pledged against credit, manage them or sell them for the purpose of collecting fees without judicial intervention.
- **Applicability:** The law applies throughout the country and applies to all property, movable and immovable, pledged as security to creditors.
- **Objective:** The SARFAESI Act has two main objectives:
 - Recovering the financial institutions' and banks' non-performing assets (NPAs) in a timely and effective manner.
 - Allows financial organisations and banks to sell residential and commercial assets at auction if a borrower defaults on his or her debt.

Need of the Act

- Before the law was enacted in December 2002, banks and other financial institutions were forced

to take a **lengthy route** to recover their bad debts.

- The lenders would appeal in civil courts or designated tribunals to get hold of 'security interests' to recovery of defaulting loans, which in turn made the recovery slow and added to the growing list of lender's non-performing assets.
- Recognising that one out of every five borrowers is a defaulter, the government was under obligation to provide proper mechanisms for debt recovery as well as to foreclose the security.
- Hence, the SARFAESI Act, 2002 (the Securitisation Act) attempts to fulfil these dual goals, as well as to provide a wide legal framework for asset Securitisation and asset reconstruction.

What are the powers of the banks under the act?

- The Act comes into play if a borrower defaults on his or her payments for more than six months.
- The lender then can send a notice to the borrower to clear the dues within 60 days.
- In case that doesn't happen, the financial institution has the right to take possession of the secured assets and sell, transfer or manage them.
- The defaulter, meanwhile, has recourse to move an appellate authority set up under the law within 30 days of receiving a notice from the lender.
- According to a 2020 Supreme Court judgment, co-operative banks can also invoke SARFAESI Act.
- According to the Finance Ministry, the non-banking financial companies (NBFCs) can initiate recovery in Rs. 20 lakh loan default cases.

How this act is beneficial?

- **Sweeping powers to the banks:** If a borrower defaults on a loan by the banks against collateral, banks get sweeping powers to recover the loan from the borrower by taking possession of the collateral.
- **Time efficient:** No involvement of courts are required in the process to invoke and proceed with

SARFAESI Act, this reduces the time of recovery by the financial institutions.

- **Financial stability:** Asset Reconstruction Companies (ARCs) comes into play when SARFAESI Act is being imposed. Such intervention of the ARCs increases the financial stability of the banks by purchasing the bad loans.
- **Future transactions:** Banks with reduced NPAs and bad loans get a wider base for future transactions which may ensure better profitability of the banks.
- **Securing the lenders money:** Provisions of the Act provides a security to the lenders who have financed their capital in certain projects.

- **Impacting financial stability of the financial institutions.**

- **Assessing the Risk weightage asset**

- Maintaining the buffer under the guidelines of the Basel norms and Reserve bank of India.

- **Reducing burden on government exchequer**

◎ CONCLUSION:

SARFAESI Act provides stability and sustainability to the financial institutions and improves the credit guarantee of the creditors. The issues related to the act regarding complexities of dual regulation and ARCs should be resolved in order to mobilise the public funds for better developmental process. Apart from the legal measures banks and financial institutions need to follow the guidelines under Basel norms and central bank to reduce the share of NPAs and increase their credibility and profitability.

Shortcomings of the Act	Required measures
<ul style="list-style-type: none"> • Unsecured creditors • Dual regulations: The recovery process is regulated not only by the SARFAESI Act, but also by Insolvency and Bankruptcy Code. 	<ul style="list-style-type: none"> • Assessment of credibility of the borrowers • Comprehensive regulation

SHRINKFLATION, PLAYING OUT IN INDIA?

CONTEXT

Owing to global crises like COVID-19 and the war in Ukraine, many businesses are shrinking the size of their products to maintain or increase their profits in a process known as shrinkflation.

◎ WHAT IS SHRINKFLATION?

This term was first coined by **British economist Pippa Malmgren** in 2009.

- Shrinkflation, in economics, is the practice of cutting down the size or quantity of a product, while the rate of the item remains the same or slightly increases.
- The term, in some cases, may indicate lowering the quality of a product or its ingredients without hiking the product price.
- Shrinkflation is mostly common in the FMCG industry, especially in the food and beverages sector.

Shrinkflation simplified

- This is a form of inflation that isn't easily visible to you, the consumer. Yet it has been creeping into your consumption basket lately, one small cut at a time.
- To tackle high raw material costs, several fast-moving consumer goods (FMCG) companies in India are downsizing product packets, while keeping the price unchanged.
- Dubbed 'shrinkflation', this effectively means consumers are paying the same for less of the product.

How does it work for companies?

- In the case of rising inflation, manufacturers usually opt for shrinkflation.
- Instead of hiking the price of any product, companies reduce the size of the item keeping the price of the product untouched.
- According to the companies, shrinkflation helps them to bear the brunt of higher input costs.
- The firms adopt this method as it will not immediately affect the buyer and they hope the consumers will not be able to notice the reduction in quantity at first glance.



Why is shrinkflation adopted?

- Mostly, the practice of shrinkflation is adopted when there is a surging inflation in the market.
- Rising costs of production, higher raw material cost, price rise in commodities such as oil, coal, and steel, and high labour cost may cause shrinkflation.
- Besides, stiff competition in the marketplace can also cause shrinkflation.

Shrinkflation in the Indian market

- Several major FMCG companies have opted for shrinkflation. Firms such as **Hindustan Unilever, Nestle, Dabur, P&G, Coca-Cola, and Pepsico** have adopted this method.
 - Haldiram has cut down the size of its *aloo bhujia* packet to 42 gm from 55 gm.
 - Nestle has reduced the quantity of Maggi from 80 gm to 55 gm.
 - Soap brands like Vim have cut down the size of its soap to 135 gm from 155 gm.
 - Amid rising costs of edible oils, grains, and fuel, Britannia and Dabur have both chosen the path of shrinkflation.

Responsible reasons

- The sharp rise in inflation causing a drastic decline in consumption across the board.
- The ongoing Russia-Ukraine war that caused supply disruption and rising cost in energy basket.

RBI's corrective measure

- To tame the surging inflation, the central bank, in an unscheduled policy review meeting of its **Monetary Policy Committee (MPC)**, on May 4, 2022, hiked the policy repo rate with immediate effect under the **liquidity adjustment facility (LAF)** by 40 basis points to 4.40 per cent..
 - LAF is a tool used in monetary policy, primarily by the RBI that allows banks to borrow money through repurchase agreements (repos) or to make loans to the RBI through reverse repo agreements

Impact on global market

- Shrinkflation is not an Indian phenomenon alone. Restaurants and food joints in the US have

implemented similar measures to save costs. According to the Bloomberg report quoted above, Domino's Pizza and Subway have reduced sizes of their products to mitigate rising expenses. Burger King will also see the same reduction for their nugget meals.

- The US is battling higher inflation, which is at a 40-year high. Many manufacturers either have hiked prices of their products or adopted shrinkflation to tackle the rising input costs.
- Not only the restaurants and eateries, groceries and other FMCG companies in the US are also going for shrinkflation.
- Several news reports mentioned that from Gatorade to toilet papers, everything can see quantity reduction in the US market.

VOLATILITY IN GLOBAL ENERGY MARKETS: IMPLICATIONS FOR INDIA

CONTEXT:

With the partial removal of Russian fossil fuels from the international market, there has been a volume of implications for the Indian global energy markets.

◎ BACKGROUND:

- Russia is the largest net exporter of fossil fuels (coal, oil, and gas).
- It is the world's largest oil (crude and products) exporter shipping 8 million barrels per day (b/d) into global markets.
- The world's **largest natural gas exporter with 210 BCM** (billion cubic meters) of exports through pipeline alone.
- Russia is also amongst the **top ten coal producers in the world** accounting for over **5 percent of global output**.

◎ ANALYSIS:

Why India is vulnerable to fluctuation in global oil economy?

India's long-term vulnerability to price shocks emanates from the given points:

- There is a marked increase in global crude prices on trend basis over the last three decades.
- India's exchange rate has been depreciating on a persistent basis over this period.
- India's dependence on imported oil has steadily increased.

India's domestic Crude Oil and Natural Gas Production:

- It has declined steadily since 2011-12.
- India produced **30.49 Mt of Crude petroleum in 2020-21, declining by 5.21%** over the previous fiscal year.
- The production of **natural gas** was 28.67 BCM in 2020-21, declining by 8.05% over the previous year.
- **Assam, Gujarat and Rajasthan**, which together **account for more than 96 per cent of oil** from onshore fields, and from the aged offshore Mumbai High Field.

Crude Oil: Requirement & Impact in India Market

Crude Oil:

- It is a **mixture of hydrocarbons** that exists in liquid phase in natural underground reservoirs.
- It **remains liquid at atmospheric pressure** after passing through surface separating facilities.

Uses of the Crude Oil:

- It is used for **energy carriers** that can be combined into gasoline, jet fuel, diesel, and heating oils.
- Heavier products are **used to make tar, asphalt, paraffin wax, and lubricating oils**.

- Oil price risk is the biggest threat to the Indian economy as supply losses even in the worst cases are not likely to result in significant volume risk.
- The production losses from Russia (of up to 1 million barrels per day) will be manageable in the short term, but a more severe supply shock will need a collective response from the supply side, but this is very difficult to achieve.
 - The worst-case estimate for the loss of supply from Russia put it at around 4 mb/d.
- **OPEC (Oil-producing and Exporting Countries)** production increases can make up less than 40 percent of this loss.
- US shale production increases are constrained by capital discipline in the industry and supply increases from Iran are subject to reaching a nuclear deal.
- Oil sector is **likely to remain in deficit in 2022** with the supply deficit in the worst case put at about 1.3 mb/d.
- Crude prices are expected to remain volatile ranging from US\$100/b to US\$130/b.

Natural Gas: Requirements and Impact on India

- India is likely to be exposed to both price and volume risk, especially in the case of its spot gas imports.
- India's self-sufficiency ratio for natural gas in 2021-22 was 50.9 percent.**
- Roughly 50 percent of imported gas LNG (liquefied natural gas) about 75-80 percent is sourced through long-term contracts and the rest through spot purchases.
- However, any sustained increase in gas and oil prices in the international market could lead to an upward price shift in negotiations for long-term contracts.
- Exporters are likely to demand a higher slope in their revised contracts. Germany has signed an agreement with Qatar for LNG supplies recently.
- Competition from Europe (which will probably buy gas at any price) for Middle Eastern LNG could reduce space for favourable price negotiations by India.

Import of LNG:

- Under a scenario where Russian flows on **Nord Stream 1, the Yamal-Europe pipeline, and the Ukraine routes** are curtailed between April 2022 and March 2023, the ability of **Europe to refill its storage is expected to be severely compromised and lead to global price increases.**
- In this context, **Indian industrial gas users are likely to substitute gas with alternative fossil fuels primarily coal and pet coke.**

- In the long run, higher gas prices will compromise India's goal of increasing the share of gas in its primary energy basket from **6 percent to 15 percent** which will mean **higher carbon emissions.**

Liquefied Natural Gas (LNG):

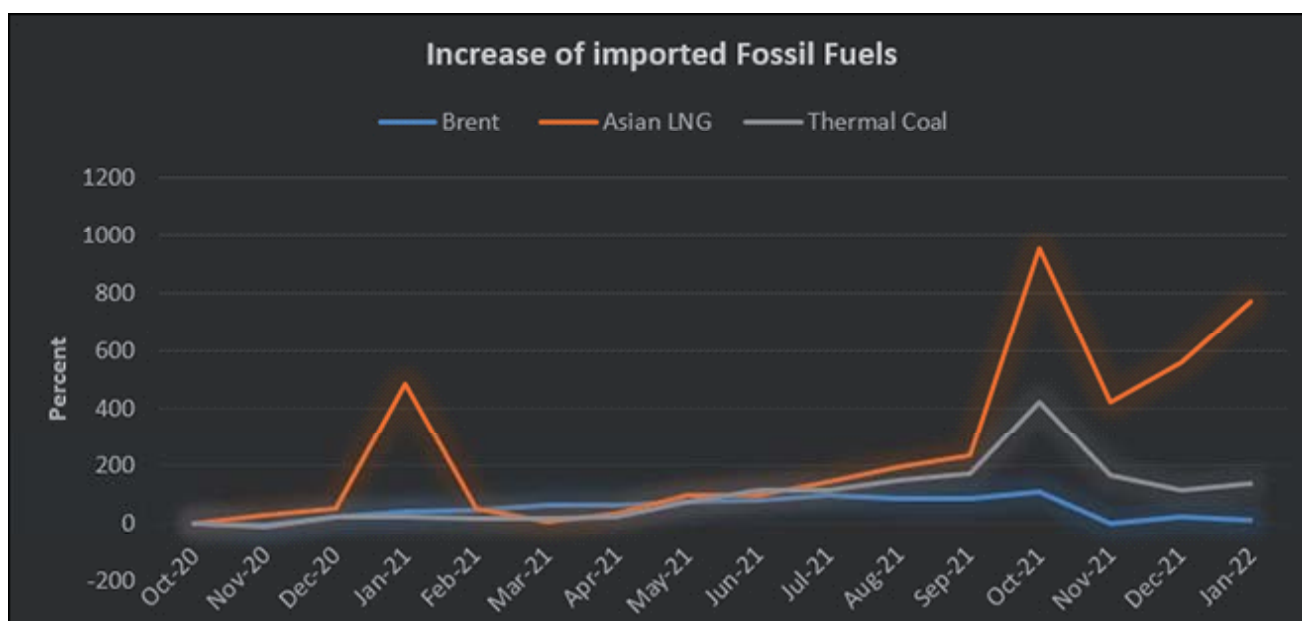
- It is natural gas that has been cooled down to liquid form for ease and safety of non-pressurized storage or transport.
- It takes up about 1/600th the volume of natural gas in the gaseous state.
- LNG is odorless, colorless, non-toxic and non-corrosive.

Uses of LNG:

- It can be used in a variety of ways: Residential uses for natural gas include cooking, heating homes and generating electricity, while commercial uses for natural gas include heating, generating electricity, manufacturing products like fertilizers, paints and medicines, and occasionally fueling commercial vehicles.

What measures are required?

- Reduce dependence:** There is a need to reduce India's dependence on imported oil by accelerating the pace at which the pursuit of non-conventional energy sources is being carried on.
- Accelerate search for domestic reserves:** There is also a need to accelerate unexploited domestic oil and gas reserves, both offshore and on land.



- **Diversify sources:** As far as global crude prices are concerned, there is a need to diversify sources from which crude oil is being imported into India.
- **Increase storage capacity:** The capacity for storage of oil needs to be expanded so that more options are available for absorbing external price shocks.
- **Protection, with awareness:** Consumers and industrial users need to be exposed to long term trend in global crude prices while they should also be protected against excessive volatility around this trend.
 - ▶ Releases from strategic reserves can reduce the volatility in supply and therefore prices.

◎ **WAY FORWARD:**

The partial removal of Russian oil, gas, and coal from international markets led to the Global Energy Crisis. The Europeans are trying to replace Russian energy resources. However, we expect the result of such actions to be an increase in gas prices on the spot market and an increase in the cost of energy resources for end consumers.

In recent context, the Indian diplomacy should negotiate with the exporters and support the Indian Industry with the help of Government-owned banks. This implications led big-boost in the Indian energy sector.

CIRCULAR PRODUCTION MIGHT BE THE ANSWER TO INDIA'S TEXTILE WASTE PROBLEM

CONTEXT:

Environmental degradation due to the waste production by the India's Textile Industries.

◎ BACKGROUND:

- Indian textile industry is the **second largest producer of textiles in the world** with a massive raw material and textiles manufacturing base. **China** is the largest textile producing and exporting country in the world.
- India is one of the **largest producers of cotton and jute in the world**. India is also the **2nd largest producer of silk in the world** and **95% of the world's hand-woven fabric comes from India**.
- Textiles** is the third largest source of waste in most of the Indian states after Plastic, Paper & compost.

Indian Textile Journal

- More than 1 million tonne textiles are disposed every year.
- Textile waste is also the third-largest source of municipal solid waste in India.

ISSUES WITH TEXTILE INDUSTRY:

- Global **production** of clothing and its consumption has **increased in the last fifty years**. It has become a way of making an impression and non-verbal communication.
- The average **life span** of a garment is roughly **three years**, and so, textiles generate a huge amount of waste.

What are the waste products of textile industry?

- The major wastes generated by this sector are fibre wastes. These include soft fibre wastes, yarn spinning (hard fibre) wastes, beaming wastes, off-cuts, packaging, spools.

IMPACT ON ENVIRONMENT:

- Five per cent** of all global landfills is being taken up by dumped textile waste.
- Clothes do not biodegrade** while in a landfill, and could remain there for more than 200 years before

decomposing. This **also increases the carbon footprint** of the garments in the landfill.

- Greenhouse gas emissions by the global textile industry are greater than those from shipping and international air travel combined.

ENVIRONMENTAL PERFORMANCE INDEX

- India was ranked at the bottom position of the Environmental Performance Index (EPI) 2022, with 151st position in waste management

CIRCULAR TEXTILES PRODUCTION:

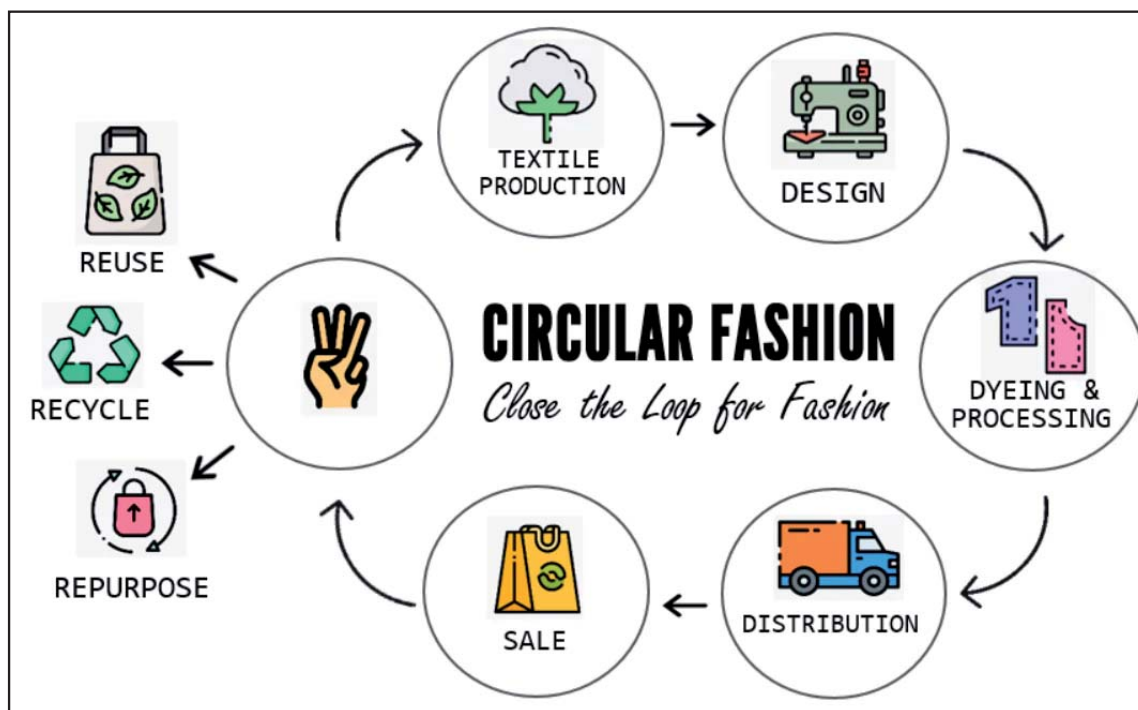
In this **green process**, discarded textiles are shredded, cleaned, organised, revamped and reassembled. The products are then tested for quality and marketed after adding new parts.

BENEFITS:

- Circular textiles production (CTP) is **designed** to be recuperative and renews and increases a product's life cycle.

EXAMPLE:

- In Panipat, recycling industry turns waste into blankets which they supply to NGOs.
- Wleather (woven leather)**- made by weaving leather and other discarded textile waste together to create handloom
- It **overcomes the limits** of the linear economy model by addressing concerns such as resource scarcity, natural resource use and recycling of discarded items within the economy.
- It **safeguards the environment** by reducing up to 80 per cent of emissions.
- It **decreases energy usage by up to 60 per cent**, raw material consumption up to 70 per cent and product costs up to 60 per cent.
- Sustainable production of textiles.**
- Recycling industry **provides Employment** to handloom weavers who have lost their job because of power looms.



GOVERNMENT INITIATIVES:

- **Mega Investment Textiles Parks (MITRA)** scheme launched by Ministry of Textiles- This scheme will build a world-class infrastructure with plug-and-play facilities to let global champions in exportation.
- **FDI-** India has approved 100% FDI in the Indian textiles sector under the automatic route.
- **Project SU.RE. – Sustainable Resolution** launched by Ministry of Textiles- It is a commitment by India's apparel industry to establish a sustainable pathway for the fashion industry.

INITIATIVES BY TEXTILE INDUSTRY

- **Eco-friendly textile:** Creation of eco-friendly textiles to process waste material into a fibre.

Example: Disposed PET bottles are turned into flakes that are finely turned into a thread in several deniers and cut for spinning into yarn, utilizing waste PET bottles that could otherwise have been incinerated or discharged into landfills or oceans.

- **Cotton:** Cotton is a vital ally of textile industry so for this industries are relying on Regenerative Organic Farming practice to magnify their sustainable cotton portfolio.
- **Green energy:** industries are focusing on increasing their green power mix like applying solar rooftops and also allying the biomass supply.
- **Plastic recycling:** Industries are committing to plastic recycling for packaging as they are

substituting virgin polyester with recycled LDPE. They are also reducing plastic consumption by utilizing textile scrap by recycling factory trash.

CONCERNS:	REQUIRED MEASURES
<ul style="list-style-type: none"> • Lack of awareness and knowledge on the part of Textile Industry about environmental hazards • Flouting of environmental norms by industries • Rising Consumerism • Rise in demand leads to cheap clothing • Synthetic clothing leaches thousands of micro plastics in the environment. • Lack of budget support, financial viability and infrastructure are some other challenges. 	<ul style="list-style-type: none"> • Shift from linear – take, make, use, dispose – model to a circular model or circular economy • Famous fashion brands can encourage and educate customers by creating a platform of sharing, returning and re-buying the products. • Sense of sustainable fashion should prevail among customers like second-hand clothing, sharing and swapping of clothing articles.

GREEN TECHNOLOGY CAN HURT THE ENVIRONMENT

CONTEXT:

The study, published in the journal *Nature Ecology and Evolution*, has highlighted the potential negative impacts of green technology adoption on the environment and in particular marine ecology.

◎ BACKGROUND:

- The study highlighted the emerging threats that could have a major impact on marine biodiversity over the coming decades.
- A multidisciplinary team of 30 experts has used a technique called '**horizon scanning**' to make their conclusion.

Horizon scanning:

- Horizon scanning, which is also known as **environmental scanning** is "a technique for **detecting early signs** of potentially important developments through a systematic examination of potential threats and opportunities, with emphasis on new technology and its effects on the issue at hand".

◎ ANALYSIS:

Detrimental Impacts of Green Technology on Environment:

• Growing Footprint:

- ▶ Renewable energy often requires more land than fossil fuel production, with infrastructure fragmenting or even eliminating high-quality wildlife habitats.
- ▶ It can also lead to a variety of other impacts on wildlife, including behavioral changes and direct mortality.

• Biodegradable Polymers:

- ▶ In the backdrop of growing public pressure, there has been an attempt to **replace fossil fuel-based plastic** with **biodegradable polymers**, such as the '**biodegradable plastic bags**' made of plant starches. The point of concern is that the researchers are claiming that these materials **do not biodegrade under natural conditions** in the ocean and their widespread adoption **can cause marine litter** as well.

• Lithium-based energy storage systems:

- ▶ **Lithium extraction** inevitably **harms the soil** and also causes air contamination. The common environmental side effects of lithium mining are **water loss**, ground destabilization, **biodiversity loss**, **increased salinity of rivers**, contaminated soil, and toxic waste
- ▶ **Deep-sea 'brine pools'**: The deep-sea 'brine pools' of more saline water, contain higher concentrations of lithium and could become future sites for extraction. These ecosystems **support diverse species**, many of which are largely undiscovered. The rising demand for lithium-powered electric vehicles could put these environments at risk.
- ▶ Additionally, the majority of batteries are **not properly recycled**, causing the impacts on the environment to be costly.

Mining for copper, needed for electric wires and circuits and **thin-film solar cells**, and **mining for lithium** used in **batteries**, has been **criticized in Chile** for depleting local groundwater resources across the Atacama Desert, destroying fragile ecosystems, and converting meadows and lagoons into salt flats.

Impact of solar energy:

- The environmental disadvantages of solar energy include **habitat loss**, **alteration in land use**, the **strain on water resources**, exposure to hazardous materials, and **pollution of soil**, air, and water resources.
- The photovoltaic manufacturing process employs toxic chemicals such as:
 - ▶ hydrochloric acid
 - ▶ sulfuric acid
 - ▶ nitric acid
 - ▶ hydrogen fluoride
 - ▶ 1,1,1-trichloroethane
 - ▶ Acetone

- **Concentrating solar:** Concentrating solar plants known as “**power towers**” produce beams of sunlight intense enough to incinerate insects and birds.
- **Impact of Wind turbines:** Wind turbines, both land-based and offshore, kill millions of migratory birds and bats each year from collisions.
- **Impact of Hydroelectric dams:**
 - It **blocks migration routes for fish**, preventing them from breeding and causing high juvenile mortality rates.
 - **Flooding land for a hydroelectric reservoir destroys the forest**, wildlife habitat, agricultural land, and scenic lands. For example, in the **Three Gorges Dam in China**, entire communities had to be relocated to make way for reservoirs.
 - Hydroelectricity is hydrology-dependent. The system depends on precipitation levels, which can fluctuate from year to year, causing instability.
- **Impact of growing demand for Biofuel:**
 - The production of biofuel feedstocks, particularly food crops like corn and soy, could **increase water pollution from nutrients, pesticides, and sediment**.
 - Increases in irrigation and ethanol refining could **deplete aquifers**.
 - **Global decline in food production**-As more land is directed towards biomass production.
 - **Habitat Loss:** The habitat loss following land conversion for crop production, for example from forest or grassland.
 - **Loss of agrobiodiversity:** the intensification on croplands, in the form of crop genetic uniformity. Most biofuel feedstock plantations are based on a single species which increases the susceptibility of these crops to new pests and diseases.

Required measures

- There is need to reconsider maritime influences and technologies.

Green curse refers to a situation when a country's increased investment in renewable energy, such as solar and wind power, generates a new set of resource and energy-related violent conflicts.

- India can adopt **horizon scanning** as part of a larger foresight process to gather information on relevant trends and developments (monitoring) and explore their possible implications.
- India can play a pivotal role in breaking the “**green curse**” by **persuading South Asian countries** to adopt **sustainable practices in mining** critical minerals needed for solar power devices.
- India should look at more **sustainable mining** models based on low carbon technology.
- **REEs (rare-earth elements)** like **neodymium and dysprosium** are needed for **magnets in electric generators and wind turbines** that involve mining practices that are environmentally damaging and need to be revamped.

◎ CONCLUSION:

- Green growth has become one of the **best alternative strategies for sustainable development**. Although environmental technologies play a fundamental role in green growth, further investigations are required to understand whether and **how environmental technologies affect green growth**.
- In the **absence of rigorous studies**, the **long-term impact** on the environment **remains unknown** and can lead to a fresh set of problems. It requires a **mindful approach to avoid various environmental pitfalls** in the transition from nonrenewable energy resources to renewable energy resources.

DECODING THE FLOOD FURY IN INDIA

CONTEXT:

After the sweltering heatwave, the monsoons have finally hit India. However, monsoon has brought with it new problems in the form of flash floods in the different parts of the country.

◎ BACKGROUND

India is a peninsular country surrounded by the **Indian Ocean, Arabian Sea and Bay of Bengal**. This geographical placement makes the country prone to floods.

- Earlier, the floods used to be purely anthropogenic factors and not heavy downpours.
- But over the last four decades, India has been reeling from the effects of climate change like many parts of the world.
- The global rise in temperatures has led to large periods of no rain followed by extreme precipitation, an observation which is becoming a trend.
 - A case in point** is the **southwest monsoon** period in India from June to September during which the country receives the bulk of its rainfall.
 - The rains bring relief from scorching heat to millions in the country but have also been causing massing floods in parts of the country in recent years.

Global rainfall data for over the last century also shows an alarming trend. The number of rainy days is decreasing while intense rainfall events of 10-15 centimetre per day are increasing. This means that more amount of water is pouring down in lesser time. For example, globally, 50 per cent of annual precipitation (rain, snow and ice) is received in just 11 days.

when this additional water cannot be drained in a proper manner.

- Today, the destruction caused by floods is immense because of creased population density and spread of people in every part of the country.

Types of Floods in India:

Coastal (Surge Flood):

- It occurs in areas that lie on the coast of a sea, ocean, or other large body of open water.
- Eastern coast of India** is vulnerable to this type of floods due to frequent cyclonic activities.

Fluvial (River Flood):

- It occurs when **excessive rainfall over an extended period of time** causes a river to exceed its capacity.
- It can also be **caused by heavy snow melt and glacial level outburst**.

Pluvial (Surface Flood):

- It is caused when **heavy rainfall** creates a flood event independent of an **overflowing water body**.

Which regions are susceptible to floods?

The most flood-affected state in India falls under the **Ganga River basins and Brahmaputra**. The **Indo-Gangetic- Brahmaputra plains** in North and Northeast India carry nearly 60% of India's total river flow.

◎ ANALYSIS

Understanding floods

- Floods are **natural disasters affecting the crops, livestock, infrastructure, and human beings**.
- Rainfall of about 15cm or more in single day** causes flood.
- Floods occur when water bodies like rivers carry more amount of water than their capacities and

- Northern states:** Himachal Pradesh and Punjab, covering Uttar Pradesh and Bihar. Cloudburst and torrential rainfall have caused flood in Uttarakhand and Kashmir.
- Northeast:** Assam and Arunachal Pradesh
- Coastal states:** The coastal states of Odisha and Andhra Pradesh, parts of Telangana and Gujarat also witness yearly floods.

- ▶ The small rivers of Kerala, originating in Western Ghats and flowing to the Arabian Sea, cause considerable damage when in spate.
- ▶ The **deltaic region of the Mahanadi, the Godavari, the Krishna and the Kaveri suffer from occasional food** owing to the large-scale silting and consequent change in the river course.

Why Parts of India are seeing extreme rainfall & floods?

- **Climate change:** Rise in average global temperatures have led to a worrying trend of no rain for long periods and then a sudden bout of excessive rainfall, causing extreme weather events.
- **Increased warming:** While the frequency of low-pressure systems in the Bay of Bengal has declined, this extra moisture is transported in from the Arabian Sea. Monsoon winds (westerlies) over the northern Arabian Sea are exhibiting increased variability (large fluctuations), driving surges of moisture supply, leading to extreme rain episodes across the entire central Indian belt.
- **Poleward shift in LLJ:** A poleward shift in the monsoon **low level jetstream (LLJ)**, which transports moisture from surrounding oceans to the Indian land mass, has been detected.
 - ▶ The poleward shift is reflected in the future projections in a warming scenario, with the magnitude of shift depending on the degree of warming.
- **Strengthening of the cross-equatorial sea-level pressure gradient:** Enhanced land-sea contrast resulted in a strengthening of the cross-equatorial sea-level pressure gradient over the Indian Ocean, resulting in the northward shift of the zero absolute vorticity contour from its climatological position.

Other reasons of increasing Flood in India:

Example

In 2020, the glacial burst in the **Chamoli district** of Uttarakhand in India is an example of the imbalance in ecological processes caused by human activities.

- **Callous urbanisation:** With a massive surge in urbanisation — an increase in built-up area undermines natural drainage systems.
- **Excessive mining:** Excessive sand mining can alter the river bed, force the river to change its course, erode banks and lead to flooding.
- **Rapid development:** Increasing development of infrastructure may be creating problems in places where they did not exist earlier.
- **Unsustainable human activities**
- **Others:**
 - ▶ wide variations in rainfall both in time and space with frequent departures from the normal pattern
 - ▶ inadequate carrying capacities of rivers
 - ▶ river bank erosion and silting of river beds
 - ▶ landslides
 - ▶ poor natural drainage in flood prone areas
 - ▶ snowmelt and glacial lake out-bursts

Assessing the impacts

- **Human cost:** All natural disasters, including floods extract heavy human costs.
- **Impact on agriculture:** Floods are now increasingly affecting the non-farm sector in India.
- **Threats to coastal cities:** India's largest coastal cities, like Mumbai and Kolkata, are facing the severest threats from climate-induced flooding.
- **Economic loss:** The prospect of greater wealth destruction during natural disasters is also worse news for the Indian economy.

Important Flood Control Measures taken by Government

The **Central Water Commission (CWC)** is the nodal agency entrusted with the task of flood forecasting and early flood warnings.

Being a natural phenomenon, the **total elimination or control of floods is neither practically possible nor economically viable**. Hence, flood control measures aim at providing a **reasonable degree of protection against flood damage** at economic costs. The various **control measures of flood** adopted by government and citizens:

- **Dam construction:** The government has constructed many dams and authorities which includes:
 - ▶ Damodar Valley Corporation for Damodar River
 - ▶ Narmada Control Authority for Narmada River
 - ▶ Hirakund dam on Mahanadi
 - ▶ Ukai dam on the Taps
 - ▶ Bhakra dam across Sutlej

- **Steps for flood control:** The **Central Water Commission and National Flood Control Board** in partnership with the **National Disaster Management Authority** (NDMA) has taken many steps for flood control.
 - ▶ Among other **structural measures**, flood embankments, flood banks and levees have been constructed all along the major rivers, so that excess water in their channel does not cause havoc a nearby areas.
- **Diversion of water flow:** The **flood spill channel skirting Srinagar city and the Supplementary Drain in Delhi** are examples of diverting excess water to prevent flooding of the urbanized areas.
- **Forecasting:** India Meteorological Department (IMD) issues **flood forecasting and warning** which are of **immense help in relocation** of the vulnerable section of population.
- Further, many **watershed developments projects** have been taken up under MGNREGA, which will eventually help in controlling the flood.

Where does lie the solution?

- Planting Mangroves
- Optimizing Technology
- Taking Structural and Non-Structural Measures
 - ▶ **Structural measures** (such as redesigning buildings or designing physical barriers to disasters)
 - ▶ **Non-structural measures** (planning evacuation, preparing for emergency situations in flood)

◎ CONCLUSION:

- As floods cause major damage to life and property every year. It is time the Central and the State governments prepare a long-term plan that goes beyond piecemeal measures like building embankments and dredging to control floods.
- Also, there is a need for an integrated basin management plan that brings all the river-basin sharing countries as well Indian states.

EU'S SUSTAINABLE FINANCE TAXONOMY

CONTEXT:

EU has recently agreed to label investments in some gas and nuclear power plants as environment-friendly.

WHAT IS THE EU TAXONOMY?

About: The EU taxonomy regulation describes a framework to classify "green" or "sustainable" economic activities executed in the EU.

Previously, there was **no clear definition** of green, sustainable or environmentally friendly economic activity.

Aim: The EU taxonomy regulation **creates a clear framework** for the concept of sustainability, exactly defining when a company or enterprise is operating sustainably or environmentally friendly. Compared to their competitors, these companies stand out positively and thus should benefit from higher

investments. Thereby, the legislation aims to reward and promote environmentally friendly business practices and technologies.

The EU Taxonomy is **not a mandatory** list of economic activities for investors to invest in.

Criteria for classification:

It also sets out four conditions that an economic activity has to meet to be recognised as Taxonomy aligned/sustainable economic activity: -

- Making a substantial contribution to at least one environmental objective;



- Doing no significant harm to any other environmental objective;
- Complying with minimum social safeguards;
- Complying with the technical screening criteria.

WHAT'S THE TAXONOMY FOR?

- It is a **tool that helps in translating** the climate and environmental objectives into clear criteria.
- It will create a **frame of reference** for investors and companies.
- It will **support companies** in their efforts to plan and finance their transition, help mitigate market fragmentation.
- It will **protect against green washing** and accelerate financing of those projects that are already sustainable and those in transition.
- **Sustainable finance framework**- It is an important element of a much broader sustainable finance framework that will deliver a complete toolkit for financing the transition.
- Aids in the implementation of **European Green Deal**- The added value of the EU Taxonomy is that it can help scale up investment in green projects that are necessary to implement the European Green Deal.

EUROPEAN GREEN DEAL

The European Union's (EU) Green Deal is the EU's main new growth strategy to transition the EU economy to a sustainable economic model, ensuring:

- no net emissions of greenhouse gases by 2050
- economic growth decoupled from resource use
- no person and no place left behind

Objective:

To become **the first climate neutral continent** by 2050, resulting in a cleaner environment, more affordable energy, smarter transport, new jobs and an overall better quality of life.

WHO DOES IT APPLY TO?

- **Providers of financial products** - including pension providers - in the EU must disclose which investments comply with the taxonomy's climate criteria. For each investment, fund or portfolio,

they must disclose what share of underlying investments comply with the rules.

- **Large companies and listed firms** must also disclose what share of their turnover and capital expenditure complies.
- That means **polluting companies** can get recognition for making green investments.
- **For example**, if an oil company invested in a wind farm, it could label that expenditure as green.

WHAT MAKES A "GREEN" INVESTMENT?

The rules classify three types of green investments.

- **First**, those that substantially contribute to green goals, **for example**, wind power farms.
- **Second**, those that enable other green activities, **for example**, facilities that can store renewable electricity or hydrogen.
- **Third**, transitional activities that cannot be made fully sustainable, but which have emissions below industry average and do not lock in polluting assets or crowd out greener alternatives.

WHAT DOES IT SAY ABOUT GAS AND NUCLEAR ENERGY?

- The rules for gas and nuclear energy, however, have been long delayed amid intense lobbying from governments who disagree on whether the fuels help fight climate change.
- The European Parliament supported that proposal in a vote, paving the way for the new rules to add gas and nuclear power plants to the EU "taxonomy" rulebook from 2023 which will **enable investors to label** and market investments in them **as green**.

GAS:

- Gas projects replacing coal and emitting no more than 270 grams of CO₂ equivalent per kilowatt-hour can get a temporary green label, or if annual emissions don't exceed an average of 550 kilograms per kilowatt-hour over 20 years.
- Such plants would have to obtain construction permits by 2030, and have plans to switch to renewable or low-carbon gases by end-2035.

NUCLEAR: Nuclear is eligible if new plants that are granted construction permits by 2045 avoid significant harm to the environment and water resources.

- Gas and nuclear power plants are classed as **transitional activities**.

THE SEARCH FOR DARK MATTER- LUX-ZEPLIN (LZ)

CONTEXT:

Recently World's most sensitive dark matter detector, a Dark matter detector experiment named LUX-ZEPLIN (LZ) in South Dakota (U.S) delivered its first results. The machine could help unlock one of the biggest mysteries in physics 'the nature of dark matter by directly detecting its constituent particles for the first time.

◎ BACKGROUND:

- The Universe is driven by **four fundamental forces**: gravity, electromagnetism, and strong and weak nuclear forces.
- So, when matter behaves in a way that is odd or unexplainable using the given fundamental forces, one idea that often gets considered is that there might be another force at work.
- Perhaps there is a fifth fundamental force we haven't yet discovered, for example, the mystery of dark matter.

About LUX-ZEPLIN (LZ):

- LUX-ZEPLIN (LZ) is a next-generation dark matter experiment, selected by the US Department of Energy (DOE) as one of the three 'G2' (for Generation 2) dark matter experiments.
 - Axion Dark Matter eXperiment Gen 2
 - **LUX-ZEPLIN (LZ)**
 - Super Cryogenic Dark Matter Search at SNOLAB
- LUX-ZEPLIN, the world's most sensitive **Weakly Interacting Massive Particles (WIMP)** dark matter detector, is actively taking data at deep below the Black Hills of South Dakota in the Sanford Underground Research Facility (SURF).
- **It is the most sensitive dark matter detector in the world.** To give an idea of the degree of difficulty in measuring evidence of a dark particle, it is said that the chamber of this LZ detector, can contain only one gram of dust if it is to detect a dark matter particle.

What are WIMPs?

- WIMPs (weakly interacting massive particles) are among the top prospects for explaining dark matter.
- They are **unseen** because it does **not emit, absorb, or scatter light**, still the dark matter's presence and gravitational pull are nonetheless fundamental to our understanding of the universe. For example, the **presence of dark matter, estimated to be about 85 percent of the total mass of the universe**, shapes the form and movement of galaxies.

- All this invokes researchers to explain what is known about the large-scale structure and expansion of the universe. This **"missing mass"** is considered to be one of the most pressing questions in particle physics.

What is Dark Matter?

- **Dark matter:** It is a hypothetical form of matter thought to account for **approximately 85% of the matter in the universe**. It forms the skeleton on which galaxies form, evolve, and merge.
- Dark matter is made up of particles that **do not have a charge**. So, these particles are "dark", namely because **they do not emit light**, which is an electromagnetic phenomenon, and "matter" because **they possess mass like normal matter and interact through gravity**.
- **Evidence for dark matter:** It comes from calculations showing that many galaxies would fly apart, that they would not have formed, or that they would not move as they do if they did not contain a large amount of unseen matter.

Why is Dark Matter so elusive?

- It is **not easy to detect dark matter** any other way besides gravitationally. Also, the Gravitational force, besides not being fully integrated and understood by particle physicists, is extremely weak.
- Unfortunately, all Earth-bound lab ways of seeing and measuring particles involve having them interact either electromagnetically or via nuclear force. **A particle that interacts so weakly becomes rather elusive to detect.**

Why do physicists believe strongly that dark matter exists?

- If we look at stars all the way from the Centre of any galaxy to its rim, the way the velocities of the observed stars change may be plotted.
- While plotting if we assume that only the visible matter exists and nothing else then there is a **marked difference between the observed plot of star speeds and the calculated value** as you move from the inner part of the galaxy towards its rim.

- Now if you assume there is a certain fraction of matter which exerts a gravitational pull on the rest of the stars in the galaxy, for it cannot be seen in any other way and **recalculate the plot, it fits in with the observed value**. This means that there is a definite amount of dark matter in the galaxy.

Potential candidates to be qualified as Dark Matter particles:

- The WIMP:** The *weakly interacting massive particle, or 'WIMP'*, is a hypothetical particle that looks promising. It would be completely different from the type of matter we know and would interact via the electromagnetic force, which would explain why they are largely invisible in space.
- The axion:** Axions are low-mass, slow-moving particles that don't have a charge and only interact weakly with other matter which makes them difficult – but not impossible – to detect. Only axions of a specific mass would be able to explain the invisible nature of dark matter – if they are any lighter or heavier, we would be able to see them.
- The MACHO:** MACHO stands for '*massive astrophysical compact halo object*' and was one of the first proposed candidates for dark matter. These objects, including neutron stars, and brown and white dwarfs, are composed of ordinary matter.
- The Kaluza-Klein particle:** The Kaluza-Klein theory is built around the existence of an invisible '*fifth dimension*' curled up in space, in addition to the three spatial dimensions we know (height, width, depth), and time. This kind of particle **could**

interact both via electromagnetism and gravity. However, as it is curled up in a dimension we can't see, we wouldn't observe it by just by looking at the sky

- The gravitino:** Theories combining general relativity and '*supersymmetry*' predict the existence of a particle called the gravitino. The gravitino would be the superpartner of the hypothetical '*graviton*', thought to mediate the force of gravitation. And in some models of supergravity where the gravitino is very light, it could account for dark matter.
- Other candidates for dark matter are hypothetical particles such as **sterile neutrinos, supersymmetric particles, geons, or primordial black holes.**

The neutrino could have been an excellent candidate if it had been more massive. However, being too light, it doesn't fit.

CONCLUSION:

It is essentially impossible to understand our observation of history, of the evolutionary cosmos without dark matter. So, while there's little doubt that dark matter exists, there's lots of doubt about what it is. The leading theory is that it involves things called WIMPs- weakly interacting massive particles. If that's the case, LUX-ZEPLIN could be able to detect them. The search is on to find one of these candidates.

SECTION: B

(PRELIMS)

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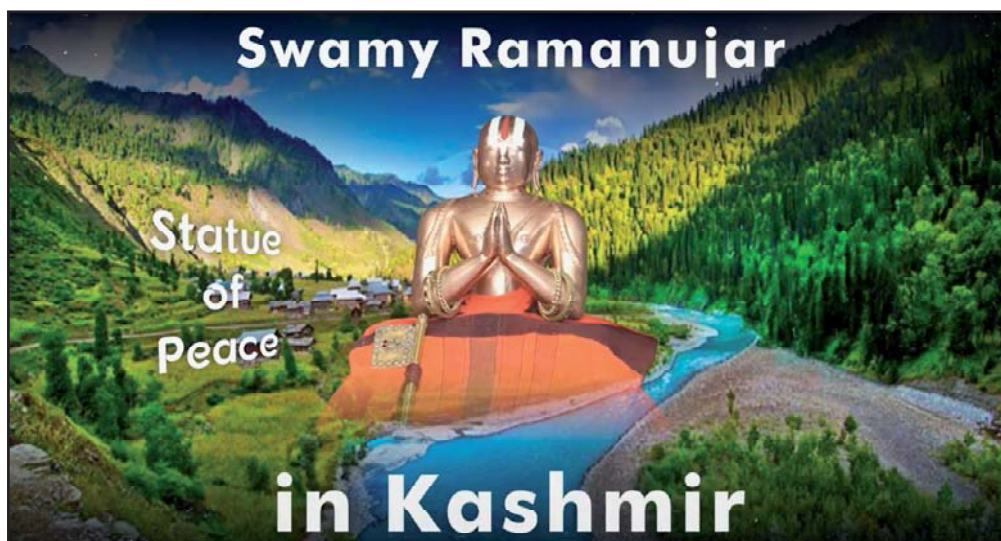
STATUE OF PEACE OF SWAMY RAMANUJACHARYA INAUGURATED IN SRINAGAR

◎ CONTEXT:

Home Minister Amit Shah unveiled the 'statue of peace' of Swamy Ramanujacharya in Srinagar, Jammu and Kashmir.

Swamy Ramanujacharya:

- **Ramanujacharya (1017 to 1137 CE)** was a Tamil-Hindu theologian, philosopher and social reformer of the Vaishnava school of thought of the Sanatan Dharma.
- He was one of the earliest reformers of the discriminatory caste system and helped people who were considered untouchables to get absorbed into the Sri Vaishnava Bhakti movement to attain spiritual liberation.
- Born in 1017 in Sriperumbudur in Tamil Nadu, Ramanujacharya is revered as a Vedic philosopher and social reformer.
- He travelled across India, advocating equality and social justice.
- Ramanuja appealed for the protection of nature and its resources like air, water, and soil. He went on to write nine scriptures known as the navaratnas, and composed numerous commentaries on Vedic scriptures.
- **Belief:** Sri Ramanujacharya liberated millions with the foundational conviction that every human is equal regardless of nationality, gender, race, caste, or creed.
- **Vishishtadvaita:** Sri Ramanujacharya was a famous proponent of Vishishtadvaita, a sub-school of Vedānta.
- **Bhakti Movement:** Bhakti movement was greatly influenced by Sri Ramanujacharya's philosophical teachings of devotionism.
 - Ramanujacharya revived the Bhakti movement, and his preachings inspired other Bhakti schools of thought.
 - He is considered to be the inspiration for poets like Annamacharya, Bhakta Ramdas, Thyagaraja, Kabir, and Meerabai.
- **Temple Entry:** Sri Ramanujacharya opened the doors of temples to all people, including those subjected to extreme discrimination.
- **Literary Contributions:** Sri Ramanujacharya's literary contributions include bhāṣya on the Brahma Sutras and the Bhagavad Gita, all in Sanskrit.

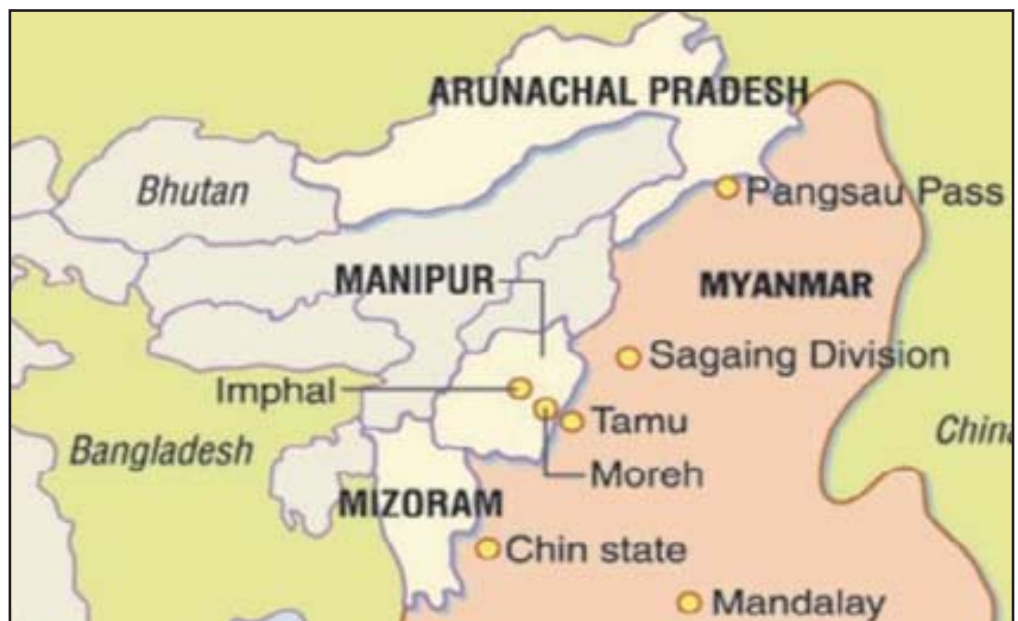


WHO ARE THE TAMILS OF MOREH IN MANIPUR?

◎ **CONTEXT:** Two Tamil residents of the town of Moreh in Manipur on the India-Myanmar border were found dead in Myanmar's Tamu.

Tamils of Moreh:

- The Tamils of Moreh are **primarily traders**.
- The Tamil community became one of the most influential communities in Moreh, the border town, **110 km from the capital city of Imphal**.
- The community is represented by a body called **the Tamil Sangam**, and it dominates a grid of lanes and timber, cement houses in the heart of Moreh.
- **Sri Angalaparameshwari temple** in **Moreh** is the **second largest temple complex** in the North East after **Guahati's Balaji temple**.
- There is a **Tamil Youth Club** which organises cultural events every month and girls are trained in **Bharatnatyam**.
- **Timithi**, or the **fire walking festival**, is held every year between March-April.



How Tamils got settled in Manipur?

- As the 19th century saw British colonialism spread like wild fire across the world, South Asian countries became sort of inter-linked colonies.
- In the wake of the growing Raj, thousands of Indians from Tamil Nadu began to leave in search of greener pastures, and migrated to Burma (now Myanmar) attracted by the country's growing labour prospects.
- Contrary to most military or administrative migrations from India during this time, such as to Sri Lanka or China, the Tamils in Burma were **predominantly involved in rice cultivation and trade**.
- They came to be known as '**Kala Lumyo**' in **Burmese land**.
- As the British Empire declined in 1948, this Tamil community's fortunes began to decline too.

■ Change in power in Myanmar in 1960s:

- The Burmese Military Junta took over in the 1960s.
- Subsequently, two decisions by the then Burmese government, drastically changed things for the Indian diaspora in the country.
- The **Enterprise Nationalization Law**, passed by the Revolutionary Council in 1963, nationalized all major industries, including import-export trade, rice, banking, mining, teak and rubber and the **Indian government was asked to withdraw its diaspora from their lands.**
- In **1965**, the then Indian Prime Minister **Lal Bahadur Shastri sent the first batch of ships** to Rangoon – from Kolkata, Chennai, Vishakapatnam and Kochi.
 - A reluctant Indian diaspora, with a considerable Tamilian population, headed to a land they no longer considered home.
 - The Tamilians were taken to Chennai and housed in refugee camps there and few others across the state.
- But this new life remained unpalatable to many who then decided to head back to Myanmar.
 - Those who travelled by land, walked through Moreh – a route made familiar by Netaji Subhas Chandra Bose's INA.
 - The Indian diaspora became the first settlers of Moreh, along with a handful of Kuki and Meitei families that had lived there since the 1940s.

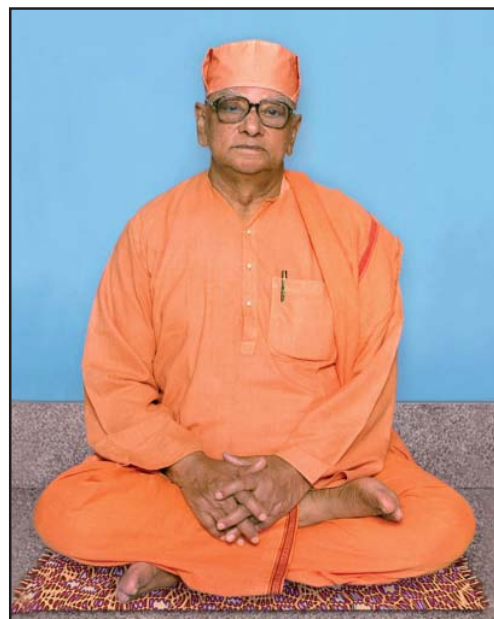
BIRTH CENTENARY CELEBRATION OF SWAMI ATMASTHANANDA

◎ CONTEXT:

PM addressed the birth centenary celebration of Swami Atmasthananda.

Swami Atmasthananda:

- Swami Atmasthananda was the 15th President of the Ramakrishna Math and the Ramakrishna Mission.
- Swami Atmasthananda was born on the holy Buddha Purnima—the thrice-blessed day on which Buddha was born, attained enlightenment, and entered nirvana.
- He hailed from Kshetripara of Dinajpur, now in Bangladesh. He was born in 1919.
- His pre-monastic name was Satykrishna.
- At the age of 22 years, Satykrishna joined the Ramakrishna Order at Belur Math.
- He was elected a trustee of the Ramakrishna Math and a member of the Governing Body of the Ramakrishna Mission in 1973.



- In 1975, he was appointed as an Assistant Secretary of the twin organisations. He also became the Secretary of relief operations of the Math and Mission.
 - Under the stewardship of Swami Atmasthananda, the Math and Mission conducted massive relief and rehabilitation services in various parts of India, Nepal, and Bangladesh.
- He became the General Secretary of the Ramakrishna Math and the Ramakrishna Mission in 1992 and continued to be in that post for five years till 1997 when he became a Vice-President of the Order.
- In 2007, Swami Atmasthananda was elected the President of the Ramakrishna Math and Ramakrishna Mission.
 - He was the 15th President of the Order.

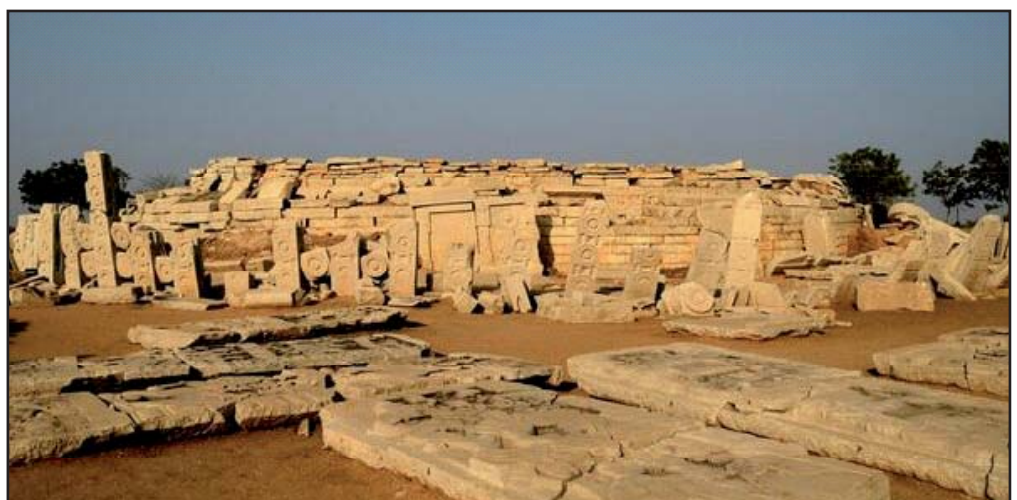
ANCIENT BUDDHIST SITE FINALLY IN FOCUS

◎ CONTEXT:

Archaeological Survey of India has now taken up conservation work at Sannati Buddhist site near Kalaburagi.

About:

- Sannati is an **ancient Buddhist site on the bank of river Bhima** near **Kanaganahalli in Kalaburagi district** of Karnataka.
- The ASI excavation at Sannati has unearthed the remains of a large stupa- known as the **Shakya Maha Chaitya** along with several sculptures that were strewn around.
- The stupa is likely to have been initially built during **Asoka's reign and later renovated by Satavahana kings**, and has inscriptions depicting **Buddhist art** (depiction of **Jataka tales** and miracles of the Buddha) and culture in the region.
- It also has **symbolic and anthropomorphic forms of the Buddha**-these depict the **Manusha Buddhas**, depicted with symbols such as nagamucchalinda (serpent with five or more hoods), **elephant, swan, dharmachakra** and empty throne with cushions.
 - The slabs are decorated with architectural motifs and flora and fauna, which form part of the **festoons and garlands**.



Archaeological Survey of India (ASI)

- The **Archaeological Survey of India (ASI)** functions under the **Ministry of Culture**.

- It is the premier organization for archaeological researches and protection of the cultural heritage of the nation.
- Maintenance of ancient monuments and archaeological sites and remains of national importance is the prime concern of the ASI.
- Besides, it regulates all archaeological activities in the country as per the provisions of the **Ancient Monuments and Archaeological Sites and Remains Act, 1958**.
- It also regulates **Antiquities and Art Treasure Act, 1972**.

6-LANE TUNNEL AT KHAMBATKI GHAT ON PUNE-SATARA HIGHWAYS (NH-4) TO BE COMPLETED BY 2023

◎ CONTEXT:

The new 6-Lane tunnel at Khambatki Ghat on Pune-Satara highways (NH-4) is a twin tunnel with 3 lanes each & currently under construction is expected to be completed by 2023.

Khambattaki Ghat Project:

- The Khambattaki Ghat project is a new initiative towards saving time and money while accelerating highway development.
- Two new three-lane twin tunnels have been constructed on this ghat route to reduce the length of the Pune-Satara route and save fuel.
- The new six-lane tunnel at **Khambatki Ghat on Pune-Satara Highway (NH-4)** is a twin tunnel with three lanes each.
- The construction work of this tunnel is in the final stage.
- The total capital cost for the 6.43 km long project is approximately Rs 926 Crore
- The development of this corridor has been considered important from the point of view of increased mobility level of the people.
- This twin tunnel will facilitate traffic on Mumbai-Bengaluru National Highway and reduce traffic for **Pune, Satara, Solapur**.
- Fuel will be saved and pollution will be reduced.



DERECHO TURNS THE SKY GREEN IN THE US

◎ CONTEXT:

States of Nebraska, Minnesota and Illinois in the US were hit by a storm system called a 'Derecho'.

- As the storm rolled in, winds gusting at around 140 km per hour, snapped power lines and knocked down trees.

About

- Derecho, according to US's National Weather Service "a widespread, long-lasting, direct storm" associated with "a fast-moving rain belt or thunderstorm".
- The word comes from the Spanish word '**la derecha**' meaning '**straight**'. Straight storms are those where thunderstorms do not change unlike a hurricane.
- These storms travel hundreds of miles and occupy a large area.
- As it is a warmer climate, Derecho usually - not always - occurs during the summer from May, and hits hard in **June and July**.
- However, they are rare compared to other storm systems such as hurricanes or hurricanes.

Classification

- For a storm to be classified as a derecho it must have wind gusts of at least 93 km per hour. The Wind damage swath extending more than 400 km.
- According to University of Oklahoma's School of Meteorology, the time gap between successive wind damage events should not be more than three hours.

Types of Derecho

- **Progressive:** A progressive derecho is associated with a short line of thunderstorms that may travel for hundreds of miles along a relatively narrow path. It is a summer phenomenon.
- **Serial:** A serial derecho, on the other hand, has an extensive squall line wide and long sweeping across a large area. It usually occurs during spring or fall.
- **Hybrid:** Hybrid ones have the features of both progressive and serial derechos.

What happens in during Derecho?

- Severe thunderstorms result in a '**green sky**' due to light interacting with the huge amount of water they hold.
- Big raindrops and hail scatter away all but the blue wavelengths due to which primarily blue light penetrates below the storm cloud.
- This blue then combines with the red-yellow of the afternoon or the evening sun to produce green.

(see image on next page)

Why do some thunderstorm clouds glow GREEN?



Photo Credit: Dean Cosgrove (6/16/13 Cherry County)

It's all about **OPTICS!**

Thunderstorms usually happen later in the day when the sky takes on a subtle reddish color as the sun angle slowly begins to approach the horizon.



How is this related to thunderstorm cloud color?

Water/ice particles in storm clouds with substantial depth and water content will primarily scatter blue light. When the reddish light scattered by the atmosphere illuminates the blue water/ice droplets in the cloud they will appear to glow **GREEN**.

It takes a tremendous amount of water content within the cloud to achieve this color, which usually means a substantial amount of ice (large hail) has to be present!

This phenomenon is typically a visual warning sign that the thunderstorm is capable of producing very large hail!



Photo Credit: Haney Ranch (6/16/13 Cherry County)



Photo Credit: Trish Rodocker (6/16/13 Near Halsey)



National Weather Service – North Platte, Nebraska

IT ACT SEC 69A

◎ CONTEXT:

Microblogging platform Twitter moved the Karnataka High Court seeking to set aside multiple blocking orders of the Central government as well as to alter their directions to identify specific violative content than imposing a blanket ban on individual accounts.

What led to this?

- In June, MeitY served Twitter notices which alleged that the platform was being non-compliant with the Information Technology Rules 2021.
- It warned that non-compliance to the rules would mean initiating criminal proceedings against Twitter's chief compliance officer, and losing safe harbour under Section 79(1) of the IT Act.
- Section 79 (1) of the IT Act gives immunity to intermediaries from content posted by third parties.

Why was MeitY not happy with Twitter?

- MeitY's contention with Twitter was that the platform was not complying with its blocking orders in its entirety.
- The ministry was also miffed with the ministry's failure to act on such takedown notices, served under Sec 69A of the IT Act.

What is Sec 69A of the IT Act?

Under Sec 69A of the IT Act, Central government, represented here by MeitY, or any other specially-authorised officer, can issue blocking orders to platforms like Twitter under specific ground such as:

- Interest of sovereignty and integrity of India
- Defence of India
- Security of the state
- Friendly relations with foreign states
- Public order
- Preventing incitement to "commission of cognisable offence relating to the above".

So why did Twitter not comply with MeitY's requests?

- While Twitter complied with several notices of MeitY but it did not comply with a few citing that the orders by the ministry were problematic.
- However, it is not yet to what degree they are compliant because in the Karnataka High Court, Twitter is seeking judicial review of a few of the blocking orders of the government and ultimately for the court to set them aside.

Shreya Singhal Judgement's Order

- **Section 66A** of the **Information Technology Act, 2000** is struck down in its entirety being violative of **Article 19(1)(a)** and not saved under **Article 19(2)**.
- **Section 69A** and the **Information Technology (Procedure & Safeguards for Blocking for Access of Information by Public) Rules 2009** are constitutionally valid.
- **Section 118(d)** of the **Kerala Police Act** is struck down being violative of **Article 19(1)(a)** and not saved by **Article 19(2)**.

CHHATTISGARH GETS CENTRE'S NOD FOR WORLD BANK FUNDED SCHOOL PROJECT

◎ CONTEXT:

The Chhattisgarh Government has received in- principal nod from the Centre to go ahead with a \$300 million school education project which State is negotiating with the World Bank.

About

- The initiative will allow the Chhattisgarh Government to borrow **\$300 million** over a period of **five years**.
- It will allow the state to pay significantly lower than market rates of interest, and repay it over a period of **20 years**.
- This will boost the **Chhattisgarh's Education system**.

What is an In-principal nod process?

- An in-principle nod means that the Centre has no objection to the State borrowing money from an external financial institution such as the World Bank.
- This is not the final approval but it paves the way for the State to proceed with subsequent discussions.

- Similarly, the World Bank has also approved in-principle that it's willing to fund the project.

Procedure to be followed to sanction funds by the World Bank

- A World Bank team's visit to Chhattisgarh.
- Then a Detailed Project Report (DPR) will be prepared with the Centre and the World Bank, which will be put up before the World Bank Board and the Centre for a final approval.
- The DPR will also have a detailed plan on how the money will be spent.

Contributions of World Bank for Education in India

- The World Bank has been associated with India's school education system **since 1994**.
- The \$500 million **Strengthening Teaching-Learning and Results for States Program** (STARS) of 2021, to improve the quality and governance of school education in six Indian States.

World Bank

- The International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA), two of the World Bank Group's five international entities, are known as the World Bank.
- It was formed with the International Monetary Fund at the 1944 Bretton Woods Conference.
- The World Bank Group is a global partnership of 189 countries and five constituent organisations committed to alleviating poverty and promoting prosperity.
- The World Bank Group's five development institutions are:
 - International Bank for Reconstruction and Development (IBRD)
 - International Development Association (IDA)
 - International Finance Corporation (IFC)
 - Multilateral Guarantee Agency (MIGA)
 - International Centre for the Settlement of Investment Disputes (ICSID)
- **Functions:**
 - It helps creditworthy middle-income and low-income countries by providing loans, guarantees, advice services, and risk management tools.
 - IBRD finances investments in a variety of areas and provides technical assistance and experience at all stages of a project's development.
 - It also aids governments in improving their countries' investment climate, eliminating service delivery bottlenecks, and strengthening institutions and policies.

MISSION VATSALYA

◎ CONTEXT:

Recently, the Women and Child Development Ministry released guidelines in order to access Central funds and benefits under Mission Vatsalya.

What is in the guidelines?

- **Name:** States have been mandated to retain the official and original name of the **Mission Vatsalya**, in order to access Central funds and benefits.
- **Compilation:** States have been mandated to comply with each guideline or instruction issued by the ministry for the Scheme.

- **Process detailing:** Guidelines also talks about the process in detail, through which funds will be given to states by defining institutionalised arrangements.
- **Grading for child institution:** State governments are mandated to engage in exercise to provide grades to **child care institutions (CCI)** at fixed intervals.
 - Grading will be done on the basis of quality of services, infrastructure, well-being of children with respect to health & education, as well as restoration & rehabilitation of children.
- **Education:** The staff in special units will have to know sign language, Braille, etc.
- Recognising that many districts do not have facilities to receive infants who are abandoned and vulnerable to be trafficked, the Mission envisages setting up cradle baby reception centres in at least one specialised adoption agency in a district.
- Mission Vatsalya will support **State Adoption Resource Agencies (SARA)**, which will support the **Central Adoption Resource Authority (CARA)** in promoting in-country adoption and regulating inter-country adoption.
 - SARA shall coordinate, monitor and develop the work related to non-institutional care including adoption in the state.

About Mission Vatsalya

- It is an umbrella scheme for child protection services in the country.
- **Objective:** to secure a healthy and happy childhood for each and every child in the country.
- It promotes family-based non-institutional care of children in difficult circumstances based on the principle of institutionalisation of children as a measure of last resort.
- It will be implemented as a Centrally Sponsored Scheme in partnership with state governments and UT administrations, with a fund-sharing pattern in a 60:40 ratio.
- For the eight states in the Northeast as well as Himachal Pradesh, Uttarakhand and the UT of Jammu and Kashmir the Centre and state/UT's share will be 90:10.
- The Centre will cover the whole cost in UTs without a legislature.
- Mission Vatsalya, in partnership with states and districts, will execute a 24×7 helpline service for children, as defined under JJ Act, 2015.
- Components under Mission Vatsalya include:
 - Improve functioning of statutory bodies
 - Strengthen service delivery structures
 - Upscale institutional care and services
 - Encourage non-institutional community-based care
 - Emergency outreach services
 - Training and capacity building



SASHAKTI: DELHI POLICE'S SELF-DEFENCE TRAINING HELPING WOMEN FIGHT BACK

- ◎ **CONTEXT:** Delhi Police's Special Police Unit for Women and Children (SPUWAC) organised the 18th Summer Camp 2022 under its special initiative 'Sashakti' for the purpose of creating awareness about women's safety.

About:

- Under the initiative, Delhi Police will provide self-defence training to girls, working women and housewives with a view of empowering them.
- These classes are conducted free of cost both online and offline. This prepares women to deal with any situation at any given point in case they don't have immediate help around or when police may take time to reach the spot



SHINZO ABE: INDIA-JAPAN TIES

- ◎ **CONTEXT:** The unfortunate demise of Japan former PM and India's ally Shinzo Abe has shocked the world. India remembered its friend, who has led the India-Japan relations to the new heights, announced one day of state mourning.

Mapping the evolving relations

- The friendship between India and Japan has a long history rooted in spiritual affinity and strong **cultural and civilization ties**.
- India and Japan established diplomatic relations on 28 April 1952. Japan is regarded as a key partner in India's economic transformation.
- In the recent past, the India Japan relationship has transformed to a partnership of great substance and purpose.
- Japan's interest in India is increasing due to a variety of reasons including India's large and growing market and its resources, especially the human resources.

January 17, 2019



INDIA-JAPAN DEFENCE & SECURITY PARTNERSHIP

by Sameer Patil,
Director, Centre for International Security,
& Fellow, National Security Studies

Defence and security cooperation is a critical component of India's strategic partnership with Japan, flourishing since 2015 through enhanced political and bureaucratic dialogue and exchanges in military staff. Bilateral interactions apart, New Delhi and Tokyo have had opportunities for regional engagement through the trilateral Malabar naval exercises (between Indian, U.S. and Japanese navies) and consultations within the Quad. This infographic examines the India-Japan partnership in the defence and security arena.

 **GATEWAY HOUSE**
INDIAN COUNCIL ON GLOBAL RELATIONS

Major Agreements & Mechanisms

- Agreement between the Government of Japan and the Government of the Republic of India Concerning the Transfer of Defence Equipment and Technology (2015)
- Agreement between the Government of Japan and the Government of the Republic of India Concerning Security Measures for the Protection of Classified Military Information (2015)
- Implementing arrangement for deeper cooperation between the Japan Maritime Self-Defence Force and Indian Navy (2018)
- Acquisition and Cross-Servicing Agreement (under negotiation)



Policy Dialogues

- Annual Defence Ministerial Dialogue
- National Security Advisers' Dialogue
- Defence Policy Dialogue
- 2+2 Dialogue at the level of Foreign and Defence Secretaries
- Foreign and Defence Ministerial Dialogue (proposed)
- Staff-level dialogue at the level of the three services
- India-Australia-Japan-U.S. Consultations (informal mechanism, known as the 'Quad'), first summit of the grouping's leaders on the sidelines of the 2017 ASEAN Summit in Manila



Military Exercises

SERVICE	EXERCISE	COMMENCED IN	FOCUS
Navy	JIMEX	2012; resumed in 2018 after a five-year gap; accompanied by regular air Anti-Submarine Warfare (ASW) exercises	ASW, Visit Board Search and Seizure (VBSS) drills, cross deck helicopter operations
	MALABAR	Held annually since 1992 (India-U.S.); permanent Japanese participation since 2015	Aircraft carrier operations, air defence, ASW, VBSS operations
Air Force	SHINYUU MAITRI	2018	Joint mobility, Humanitarian Assistance and Disaster Relief operations
Army	DHARMA GUARDIAN	2018	Counter Terrorism



Defence Cooperation

- Joint Working Group on Defence Equipment and Technology Cooperation – initiated in 2014
- Project Arrangement concerning the cooperative research on the Visual Simultaneous Localisation and Mapping Based Global Navigation Satellite System Augmentation Technology for Unmanned Ground Vehicle and robotics – signed in 2018
- Japan-India Defence Industry Forum – held in 2017
- Ongoing negotiations for purchasing ShinMaywa US-2 amphibious aircraft

Shinzo Abe's Vision for India

Shinzo Abe (21 September 1954 – 8 July 2022), was a Japanese politician who served as prime minister of Japan and President of the **Liberal Democratic Party (LDP)** from 2006 to 2007 and again from **2012 to 2020**.

- He was the **longest-serving prime minister** in Japanese history.
- Abe sees India as the key to expanding Japan's security options beyond its current US-centric framework, while Modi views Japan as central to the success of India's '**Look East**'
- '**Abenomics**' and '**Modinomics**' are both geared to the same goal – reviving laggard growth — yet they need each other's support for success.
- **Economic strategy for Japan:** Whereas Tokyo sees New Delhi as important to its own economic-revival strategy; India looks at Japan as a critical source of capital and commercial technology and a key partner to help upgrade its infrastructure and manufacturing base.

- Abe's reassertion of the right of collective self-defence and his relaxation of Japan's self-imposed arms export ban have opened the path to closer military cooperation with India, including co-production of weapon systems.
- **Foreign investments:** India — the biggest recipient of Japanese aid — has already become one of the largest destinations for **Japanese FDI** among major economies. Japan has a solid heavy manufacturing base, while India boasts services-led growth. India is a leader in software and Japan a leader in hardware.
- **Attracting Demographic dividend:** India has the world's largest youthful population, while Japan is aging more rapidly than any other major developed country. Whereas Japan has financial and technological power, India has human capital and a huge market.



India Japan – Major Diplomatic Initiatives

- A **Social Security Agreement (SSA)**
- A bilateral swap agreement between the **Reserve Bank of India (RBI)** and **Bank of Japan (BoJ)**.
- **Political and security cooperation** as mandated by the **Action Plan of 2009** witnessed steady progress in 2012.
- A **new Cyber Security Dialogue** was held at Tokyo on 5 November 2012, while a newly established Maritime Dialogue.
- The **60th Anniversary** of establishment of diplomatic relations between India and Japan was celebrated through various events both in India and Japan.
- **QUAD** grouping initiated by Japan.

CENTRE TO PROMOTE DRAGON FRUIT CULTIVATION IN 50,000 HECTARES

- ◎ **CONTEXT:** Addressing a National conclave on the fruit, Centre has decided to promote the cultivation of dragon fruit, known as a “super fruit” for its health benefits.

Background

- The dragon fruit was introduced to home gardens in India in the
- The **low maintenance and high profitability** of dragon fruits has attracted the farming community throughout India.

- Considering the cost effectiveness and global demand for the fruit due to its **nutritional values, its cultivation can be expanded in India.**
- This exotic fruit is cultivated in **3,000 hectares in India** and the plan is to increase cultivation to **50,000 hectares in five years.**
- India is now importing about 15,491 tonnes of dragon fruits but has potential to match the production of China.



About

- The **dragon fruit (Hylocereus undatus)** is indigenous to the Mexico.
- It is a member of the **cacti family.**
- It is also known as 'Pitaya', 'Pitahaya', strawberry pear, noblewoman and 'queen of the night' throughout the world.
- It is now produced mainly in **Vietnam**, helping it to boost its economy.
- **Mizoram** tops among the States that cultivate this fruit in India.
- The **red** and **pink** varieties of the fruit give better yield.
- It costs approximately about **400 per Kg** in India.

Climatic Condition

- It is hardy and grows in diverse climatic conditions with varied soils, especially in the semi-arid and arid regions of India.
- It prefers slightly acidic soil and can tolerate some salts in soil too.
- Flowering and fruiting of dragon fruits coincide with the monsoon season in India (June to November).

Features

- Its flowers are **hermaphrodites** (male and female organs in the same flower) in nature and open at night.
- The plant sustains yield for **more than 20 years**, is high in **nutraceutical properties** (having medicinal effects) and good for value-added processing industries.
- It is a rich source of **vitamins and minerals.**
- The fruit is considered good for **diabetic patients**, low in calories and high in nutrients like iron, calcium, potassium and zinc.

Advantages for India

- There has been a steep increase in dragon fruit cultivation in Maharashtra, Karnataka, Andhra Pradesh, West Bengal, Telangana, Tamil Nadu, Odisha, Gujarat and the Andaman and Nicobar Islands, as well as in many north eastern states.
- The country produces approximately 12,000 tonnes of the fruit every year.
- **Other Benefits:**
 - Farmers will get high price for their cultivation.
 - The fruit can be grown in degraded and rainfed lands.
 - Farmers will get incentives under the Mission for **Integrated Development of Horticulture (MIDH)**.
 - Processing infrastructure can also be developed with the help of the Food Processing Ministry.

Government Interventions in India

- The **Gujarat Government recently renamed dragon fruit as 'kamlam'(lotus)** and announced an incentive for farmers who cultivate it.
- The **Haryana Government** also provides a grant for farmers who are ready to plant this exotic fruit variety.
- The **Government of Maharashtra** has taken the initiative to promote dragon fruit cultivation in different areas of the state by providing good quality planting material and subsidies for its cultivation through the Mission on **Integrated Development of Horticulture (MIDH)**.

POKKALI GASPING

◎ CONTEXT:

Pokkali rice farming in Ernakulam district of coastal Kerala is under threat due to 'mismanaged' infrastructure.

About

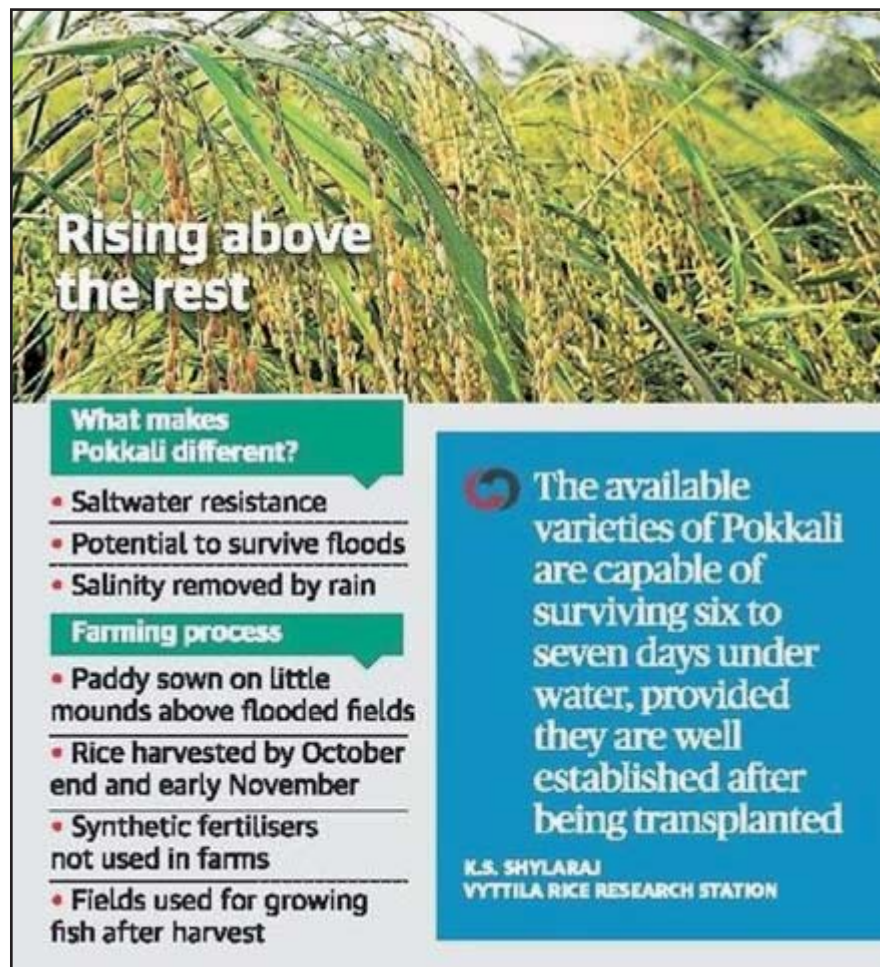
- Pokkali is a variety of rice **endemic** to coastal Kerala, and is unique because it can grow in
- It is endemic to coastal regions of three Kerala districts—**Ernakulam, Thrissur and Alappuzha**.
- However, while this variety of rice seems ideal to farm, several Pokkali farmers allege that they are not receiving adequate support to keep up with the crop cycle, which is vital to pokkali farming.

(see image on next page)

Key Features

- Pokkali rice is famous for their salinity **tolerance gene SalTol QTL** and is significant for the International rice improvement programmes for salinity tolerance.
- The rice is cultivated once a year from **April to November**, in the low-lying fields adjacent to Kerala's backwaters and the **Arabian Sea**.
- The fields are mostly submerged in salt water for a major portion of the year, and are used for the cultivation of shrimp during this time.
- **Shrimp cultivation** aids the Pokkali rice in providing nutrition, since the paddy does not require any artificial fertilisers or pesticides to grow.

- Pokkali farms are supposed to adhere to a double crop calendar — paddy between April and October during the low saline phase of monsoon and saline aquaculture between **November and March when salinity soars**.



- It has got **Geographical Indication Certificate (GI)** and **Genome Community Award**.

What is Aquaculture?

- Aquaculture refers to the production of aquatic animals and plants under controlled conditions.
- According to Food and Agriculture organisation (FAO), aquaculture is understood to mean the farming of aquatic organisms including fish, crustaceans, molluscs and aquatic plants.
- It can be classified into following categories;
 - Freshwater aquaculture
 - Coastal aquaculture
 - Sea farming
 - Brackish water aquaculture

Shrimp farming: A type of Aquaculture

- In this marine shrimps are produced for human consumption.
- The formation of Brackishwater Fish Farmers' development Authority, in marine states proved to be of great help to shrimp farming

- **Andhra Pradesh, Odisha, Tamilnadu, Kerala and West Bengal** have developed shrimp farming in a big way
- Nellore district of Andhra Pradesh is a prolific producer of shrimp, that it has earned the distinct name of Shrimp capital of India

Why Farmers are facing issues in cultivating these varieties?

- **Due to Backwaters:** Pokkali farmers are finding it difficult to keep up with this cycle is because the salt water from their fields is not being pumped out in a timely fashion.
- **Pumps required:** Since their fields touch the backwaters, huge pumps are required to drain them of the saltwater.
- **Centre- State disputes:** While the machinery has been provided by the state government, it is the farmers' union in the region, 'Maruvakkad Padasekhara Karshaka' Union that controls it. And they are not doing an effective job.

What are Backwaters?

- Backwater is water turned back in its course by an obstruction on opposing current or the flow of tide in a river channel.
- The backwater regions of Kerala are one of the most popular tourist destinations in the world.

Significance:

- The **backwaters of Kerala** was formed by the combined processes of soil erosion from the uplands during the monsoon rains, the constant beating of the sea – waves on the shoreline, and human interferences in nature's way.
- The alluvial soil deposits over centuries and millennia filled up the periphery of the sea close to the mountains and hills.
- It was the result of monsoon rainwater flowing down through thousands of streams, brooks and rivulets on the mountain – sides forming the tributaries of the major rivers draining the vast quantity of monsoon rainwater of **3–4 months each year**.

IN RARE SIGHTING, THREE INDIAN SKIMMERS SPOTTED IN NAL SAROVAR SANCTUARY

◎ CONTEXT:

Three Indian skimmers, an endangered bird species on the International Union for Conservation of Nature (IUCN) list, were spotted in Nal Sarovar Bird Sanctuary (NSBL)—the famous wetland near Ahmedabad.

Background

■ About Indian Skimmers

- Indian Skimmer (*Rynchops albicollis*) is a **waterbird species**.
- In India, the species can be sighted near the **Chambal River** in Central India, in few parts of Odisha and in Andhra Pradesh.
- **IUCN Red List Status-** Endangered
- **CITES Status:** Not listed.
- The Indian skimmer grows to a length of **40-43 cm**.



- It has black upper parts, white forehead, collar and lower parts, long, thick, deep orange bill with a yellow tip and longer lower mandible.
- In flight, it has a **white trailing-edge** to wing and a short forked tail with blackish central feathers.
- It breeds **colonially on large**, exposed sand-bars and islands between **February and May**.
- It feeds on surface-dwelling fish, small crustaceans and insect larvae.
- It emits a nasal *kapor kip* notes, particularly in flight and when disturbed.
- They have last been recorded in areas of Prayagraj in Uttar Pradesh, Kakinada in Andhra Pradesh and Porbandar, Jamnagar and Rann of Kutch in Gujarat.
- The bird's range includes the **Indian subcontinent and Southeast Asia**.

Major threats

- Habitat degradation.
- Exploitation and degradation of rivers and lakes
- Excessive and widespread increases in disturbance.
- Predation by corvids like House crows (*Corvus splendens*), presence of stray and domestic dogs has been known to decimate breeding colonies.

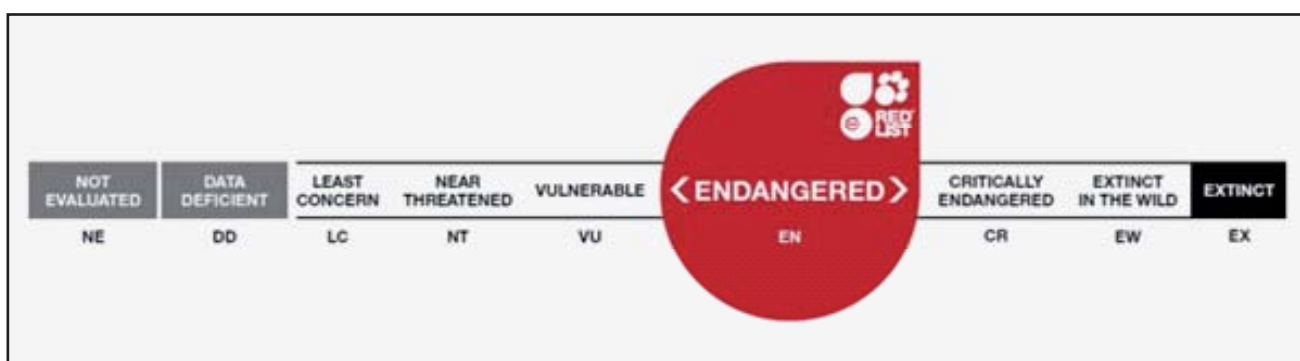
Nal Sarovar Sanctuary

- Nal Sarovar Bird Sanctuary, consisting primarily of a 120.82-square-kilometre (46.65 sq mi) lake and ambient marshes, is situated about 64 km to the west of Ahmedabad near Sanand Village, in the Gujarat state of India.
- Mainly inhabited by migratory birds in winter and spring, it is the largest wetland bird sanctuary in Gujarat, and one of the largest in India.
- It was declared a bird sanctuary in April 1969.
- It has declared as a Ramsar site in 2012.

International union for Conservation of nature (IUCN)

- IUCN is a membership union uniquely composed of both government and civil society organisations.
- Created in **1948**, it is the global authority on the status of the natural world and the measures needed to safeguard it.

- The **IUCN Red List** of Threatened Species is the world's most comprehensive inventory of the global conservation status of plant and animal species.
- It uses a set of quantitative criteria to evaluate the extinction risk of species. These criteria are relevant to most species and all regions of the world.
- The IUCN Red List Categories define the extinction risk of species assessed.
- **Nine categories** extend from NE (*Not Evaluated*) to EX (*Extinct*).
 - Critically Endangered (CR), Endangered (EN) and Vulnerable (VU) species are considered to be threatened with extinction.
- It is recognized as the most authoritative guide to the status of biological diversity.
- It is also a key indicator for the **SDGs** and **Aichi Targets**.



PILIKULA BIOLOGICAL PARK

◎ CONTEXT:

Mangalore's Pilikula Biological Park got temporarily closed because of flooding and rain damage to some enclosures.

About:

- Pilikula the name derived from the local tulu language 'Pili' means Tiger and 'Kula' means pond.
- Pilikula is an integrated theme park with a wide variety of features; Pilikula has many attractions of cultural and scientific interest.
- Pilikula extends over an area of 375 acres along the banks of **Gurupura River**.
- Pilikula presently includes a Biological Park, Botanical and Medicinal Gardens, Regional Science Centre, Lake Garden and Boating, Heritage and Artisan Village, Jungle Lodges, Golf Course, Amusement and Water Park.
- Pilikula probably the first project of its kind in India, it is inspired by the concept of providing a wholesome experience of the native natural and cultural heritage of the region along with all modern recreational facilities.
- The park has well equipped veterinary hospital complex with quarantine, post treatment ward and post-mortem block, X-ray and ultrasound scanning facilities.
- Central Zoo Authority has funded the construction of hospital complex.
- Pilikula Biological Park is aesthetically one of the best designed premises in the country meeting all modern international standards of Zoo management.
- The park serves as a good educational center for students of all ages in enriching their knowledge on conservation of wildlife.

AMBULANCES FOR PLANTS ARE TAKING ROOT IN INDIA. TRAFFIC GIVE WAY, TREES NEED FIRST AID

◎ **CONTEXT:** Tree ambulance services are starting up across India, bringing sick plants back to life.

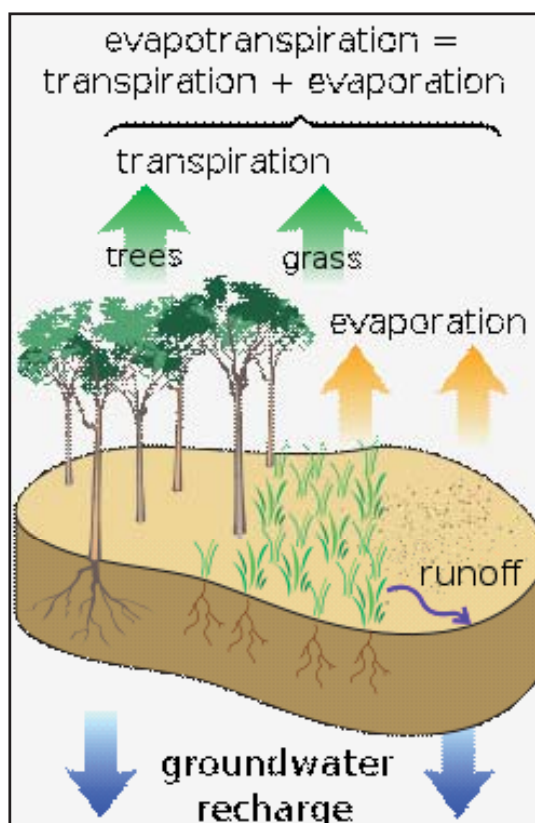
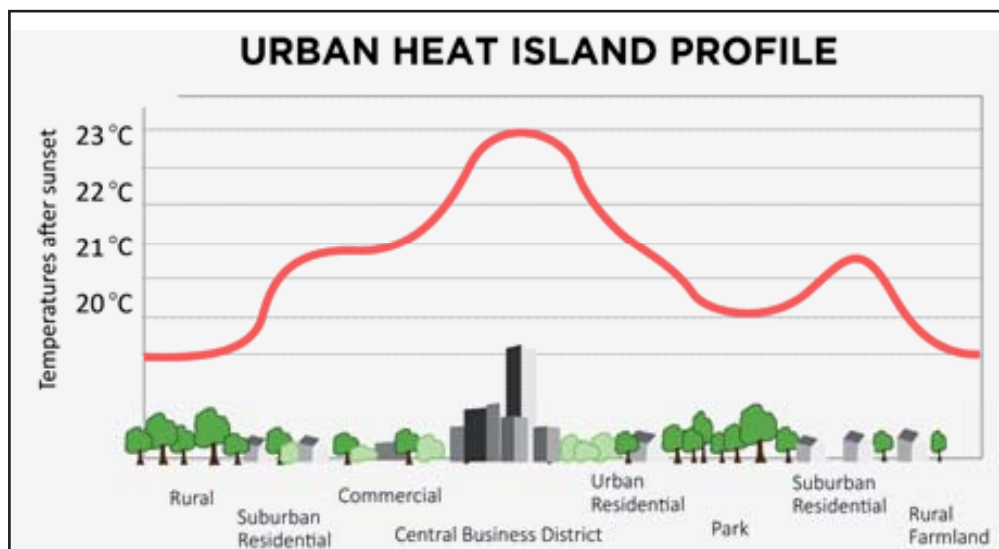
What is the concept of 'Tree Ambulance'?

- They are run by botanists, gardeners and tree surgeons and provide free services.
- The work is helping cool down India's cities by reducing "urban heat islands".
- These tree ambulances are also playing a role in protecting biodiversity.
- The country's first tree ambulance was set up in Chennai by the "Green Man of India".
- In a one-of-its-kind move, Chennai environmentalist Dr Abdul Ghani, has launched a tree ambulance service to provide first-aid service to trees. Tree Ambulance aims to deliver a positive environmental impact by exclusively caring for trees.
- The idea of tree ambulance is to save trees by care for sick ones and help bring uprooted ones back to their feet.



How it helps us?

- Tree loss creates heat islands
- One way the tree ambulance teams are protecting the environment is by tackling the problem of urban heat islands. These occur when trees are lost as cities are built, leaving less shade and moisture to keep people and places cool.
- Heat islands can increase energy costs, greenhouse gas emissions and heat-related illness and death, as well as lead to poorer water quality. *(see figure on next page)*
- But trees and other plants can counter this by reducing surface and air temperatures. They do this by providing shade and because they help water move into the atmosphere through a process called evapotranspiration – the sum of water evaporating from the land and the leaves of plants.



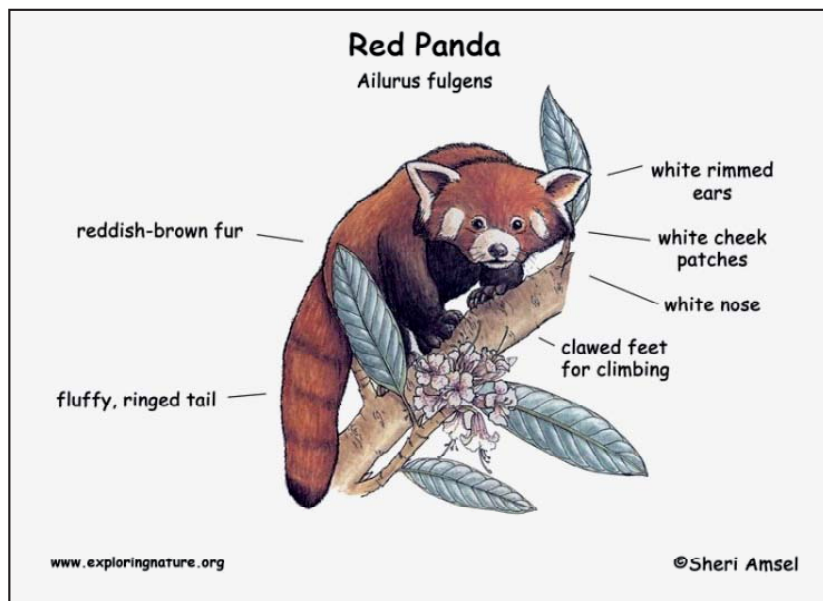
RED PANDAS TO MAKE A HOME IN THE FORESTS

- ◎ **CONTEXT:** The Singalila National Park, the highest protected area in West Bengal, launches programme that aims to release about 20 Red Pandas in a period of five years

About:

- Although sharing the same name as the Giant Panda, they are only distantly related to them, and are actually more closely related to raccoons.

- **Distribution:** Most Red Pandas can be found in the temperate forests of the Himalayas and some high mountain areas of China and Myanmar (Burma).
- **Physical Features:** Their fur is long, thick and fuzzy to protect it against rain and cold in its mountainous habitat of up to 5000m altitude.
- Its colour helps the panda to blend with the reddish moss and white lichen growing on fir trees. They are 50 – 60 cm long and weigh between three and six kgs.
- Red pandas are generally quiet, but subtle vocalizations—such as squeals and twitters—can be heard at close proximity. They are also capable of creating a high-pitched whistle.



- Red Pandas are listed as endangered, this is due to various factors, but the main one being humans.
- Loss of habitat and poaching has seen numbers of Red Pandas in the world drop to as low as 10,000.
- **Diet**
 - Bamboo constitutes 85 to 95 percent of the red panda's diet. Unlike giant pandas which feed on nearly every portion of bamboo, red pandas feed selectively on the most nutritious leaf tips and, when available, tender shoots.
 - They may also forage for roots, succulent grasses, fruits, insects and grubs, and are known to occasionally kill and eat birds and small mammals.

WORLD ZOOONOSIS DAY

© **CONTEXT:**

World Zoonosis Day is observed annually on July 6 to commemorate the first immunisation against a zoonotic illness.

- **Indian Immunologicals Limited (IIL) organised a nationwide free vaccination camp against zoonotic diseases on account of World Zoonosis Day 2022.**

What is Zoonosis?

- Zoonotic diseases **originate in animals** and can spread to humans.
- Infections occur through bites or contact with the infected animal's bodily fluids.

- **Virus, bacteria, fungi, prions or parasites cause zoonosis.**
- Rabies, Ebola, certain strains of Swine flu, leptospirosis, brucellosis, anthrax, Zika and Ebola viruses, rickettsioses, plague, chikungunya, dengue and Japanese encephalitis, are the most notorious zoonotic diseases.

Origin of World Zoonosis Day

- World Zoonosis Day was instituted on **6 July 1885** to educate and raise awareness about zoonotic diseases that can transmit from animals to humans.
- It commemorates **French biologist Louis Pasteur**, who administered the **first dose of the first vaccine against rabies**.



India, a potential hotspot for zoonotic diseases:

- A recent report from the State of the World's Forests 2022 predicts India as a potential hotspot for zoonotic viral diseases.
- Zoonotic diseases such as rabies have imperilled human health since antiquity.
- Dogs are the source of most human rabies deaths, contributing up to 99% of all rabies transmissions to humans, and every year it causes 18,000 to 20,000 deaths.

WHY DEEPEST-EVER INFRARED IMAGE OF DISTANT UNIVERSE IS ICONIC, NASA EXPLAINS

- © **CONTEXT:** President Joe Biden and NASA released the clearest-ever image of our young Universe, dating to the time soon after the Big Bang.

About:

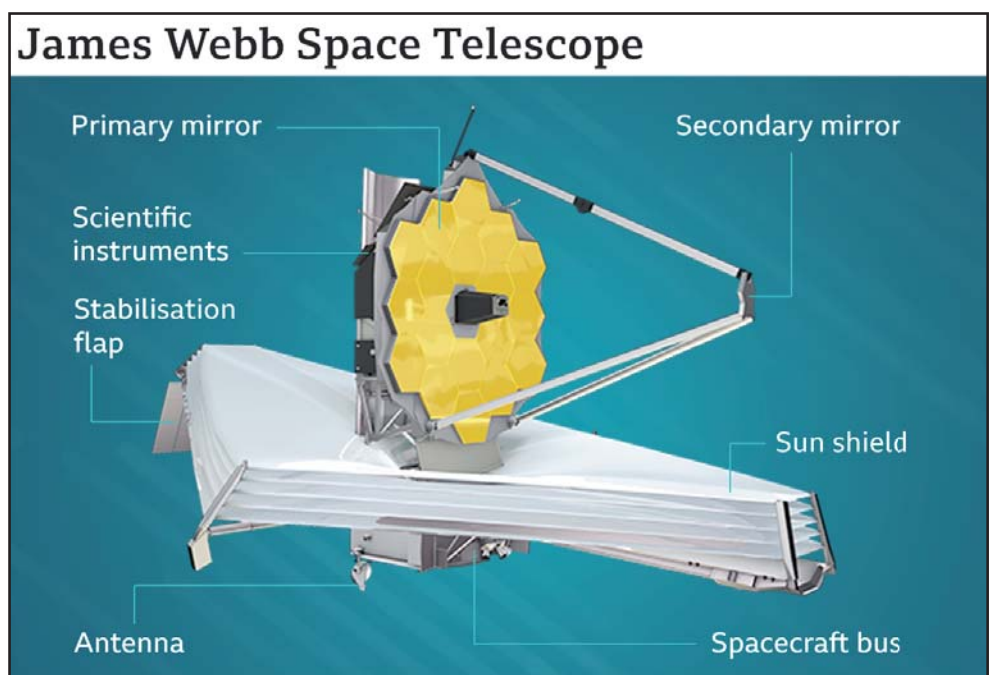
- The first image from the \$10 billion James Webb Space Telescope is the farthest humanity has ever seen in both time and distance, closer to the dawn of time and the edge of the universe.
- Light travels at 186,000 miles per second. And that light that you are seeing on one of those little specks has been travelling for over 13 billion years.
- Webb is considered the **successor to the highly successful, but aging Hubble Space Telescope**.
 - Hubble has stared as far back as 13.4 billion years. It found the light wave signature of an extremely bright galaxy in 2016.
 - Astronomers measure how far back they look in light-years with one light-year being 5.8 trillion miles (9.3 trillion kilometers).

James Webb Space Telescope (JWST):

- JWST is a general-purpose observatory with a large aperture telescope optimised for **infrared observations** and a suite of state-of-the-art astronomical instruments capable of addressing many outstanding issues in astronomy.
- It was named after former administrator of NASA James E. Webb. It was launched as an international collaboration between NASA, ESA (European Space Agency) and the Canadian Space Agency. It costs around \$9.7 billion, and is billed as the next-generation space telescope (NGST).

■ Key features of JWST are-

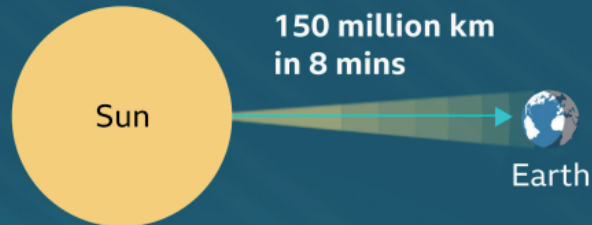
- JWST will operate in an orbit around the Earth-Sun L2 Lagrange point, ~ 1.5 million kilometres away from Earth. This makes its operation, pointing and stability requirements much simpler in comparison with HST
- It orbits around the Earth at an altitude of ~570 km above it.
- The telescope and the instruments will operate at the extremely low temperature of -233°C, which prevents the instrument's own infrared emission from overwhelming the signals from the astronomical targets



How James Webb is able to see back in time

Light from the Sun takes eight minutes to reach us, so we see the star as it was eight minutes ago

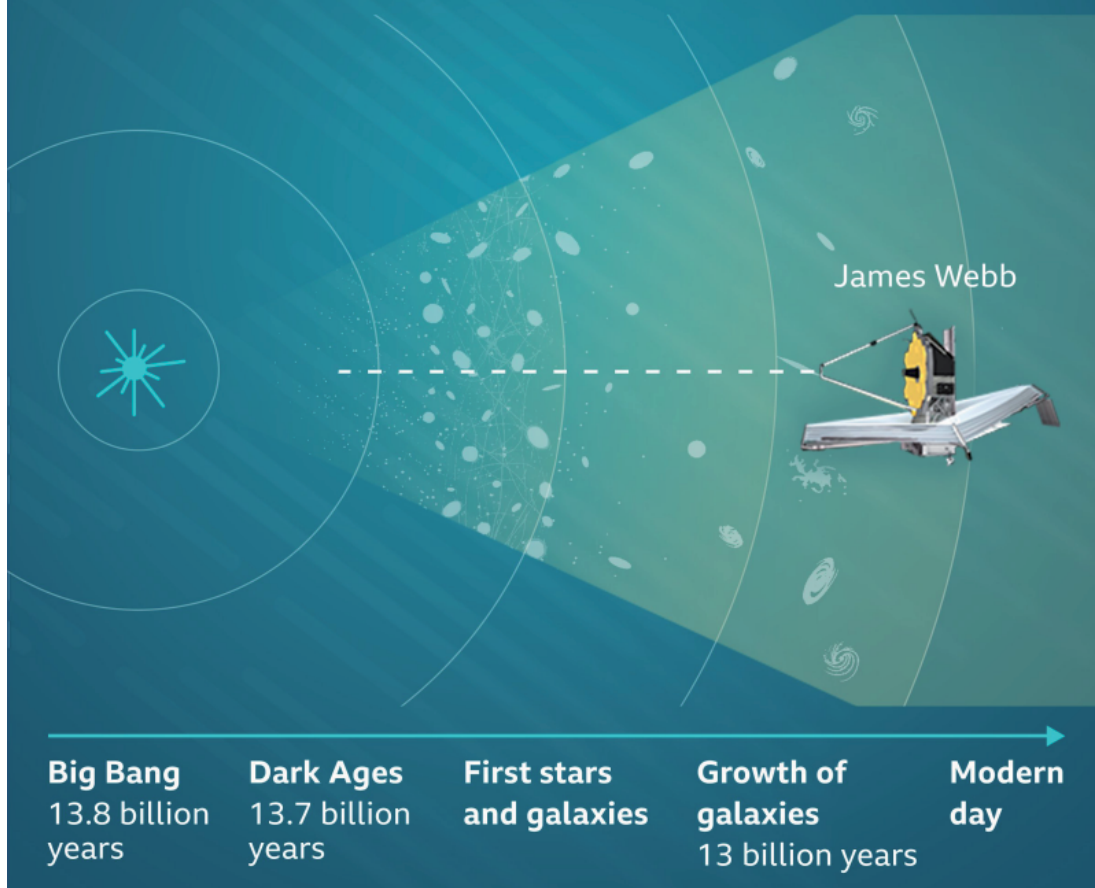
If the Sun disappeared it would take us eight minutes to notice



Light from a distant star may take years to reach us across the expanse of space, so we see it as it was years ago



Light from the first stars began its journey billions of years ago so Webb will see those stars as they were billions of years ago



Potential benefits of the JWST Mission-

The launch of JWST is touted as the next big event in study of space events. It has the potential to explore following thing in universe-

Universe's first galaxies-

- It is possible to observe different life stages of galaxies and stars by observing light emitted by the galaxies in time space.
- Reveal the birth of stars and planets and how they die

Look for exo-planets with the potential for life-

- If life exists outside of Earth, it will release distinct chemical signatures, such as by breathing carbon dioxide and photosynthesizing out oxygen that can transform a planet. Analysing the chemicals in a planet's atmosphere will not only allow scientists to look for life, but also enable them to assess a planet's habitability.

Study black holes from a different angle-

- Nothing can escape a black hole, not even light. But there is a plenty of stuff that revolves around stars i.e. stars, dust and entire. This telescope will allow scientists to see different goings particularly the cooler gases.

SECTION: C

(DATA)

CURRENT AFFAIRS

SOWING REPORT: LOWEST AREA UNDER PADDY IN A DECADE

Crop	Area sown (Area reduced)
Paddy	7.22 million hectares (mha)
Oilseeds	54.43 lakh hectares
Groundnut	20.51 lakh hectares
Maize	31.84 lakh hectares
Cotton	84.60 lakh hectares
Arhar (Pulses)	16.58 lakh hectares
Urad (Pulses)	7.47 lakh hectares

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