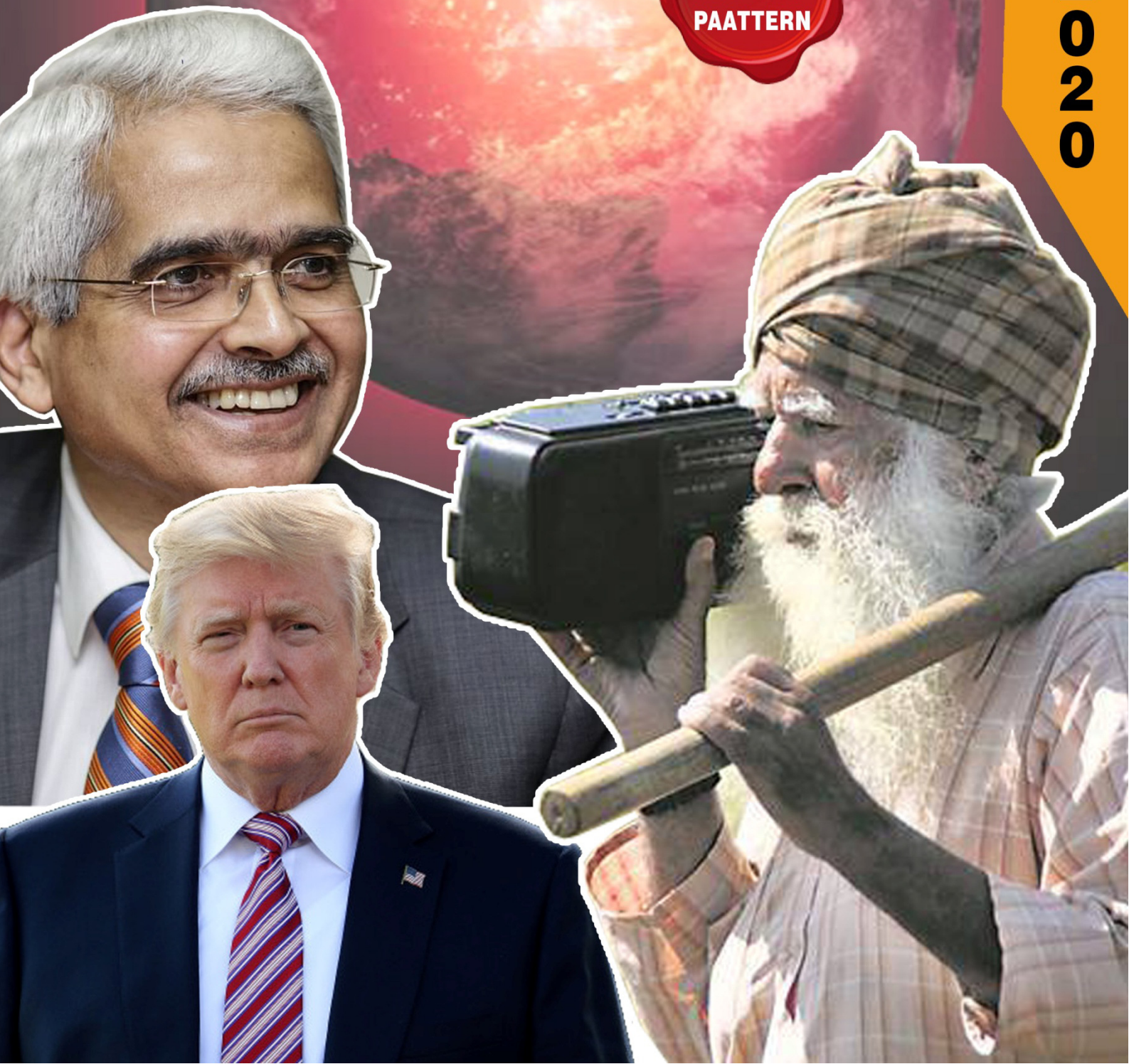


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Focus Articles

COVID-19: Process of emergency approval of vaccines in India

Three vaccine developers have now made applications to India's drug regulator - Central Drug Standard Control Organisation (CDSCO), seeking emergency use approval for their candidate Covid-19 vaccines which are still under trials.

More on the news: None of the developers has yet generated data about the effectiveness of their vaccine from **phase-III trials** conducted in India, which is a **mandatory requirement in the normal process of approval**.

About the three vaccine candidates:

- **COVISHIELD:** Pune-based Serum Institute of India has sought approval for its version of the vaccine developed by Oxford University and AstraZeneca.
- **COVAXIN:** Bharat Biotech, a Hyderabad-based company which is developing the vaccine, in collaboration with National Institute of Virology, an ICMR institute in Pune, has recently started phase-III trials.
- **BNT162b2:** US pharmaceutical major Pfizer hasn't carried out clinical trials in India of its vaccine, developed in collaboration with BioNTech, but has still sought an approval to use it here based on the results of the trials conducted in the US.

Regulatory provisions for approval of vaccines in India:

- **New Drugs and Clinical Trials Rules, 2019:** Governs clinical trials of new drugs and vaccines and their approvals.
 - ✓ **Do not use "emergency use authorisation":** This term is used mainly by the regulatory agencies in the US and has become popular in the context of the current epidemic.
 - ✓ **Accelerated approval process:** However, the 2019 rules provide for an accelerated approval process in several situations that would include the one like the current pandemic.
 - In such situations, there is a prima facie case of the product being of meaningful therapeutic benefit.
 - Accelerated approval may also be granted to a new drug if it is intended for the treatment of a serious, or life-threatening condition, or disease.
 - ✓ **Definition of new drug:** In the 2019 Rules includes a vaccine, that can be considered for approval if "remarkable" effectiveness is reported even from phase-II trials.
 - Such a provision makes even Bharat Biotech eligible to apply for approval.
 - ✓ **Vaccines whose trials have been done outside the country:** The 2019 Rules do not say anything specific about whether data from a trial conducted in another country can be considered while assessing an application for accelerated approval to a drug or vaccine.

Clinical Trials: A clinical trial is a systematic study to generate data for discovering or verifying the clinical and pharmacological profile or adverse effects of a new drug on humans.

- It is the only way of establishing the safety and efficacy of any drug before its introduction in the market for human use and is preceded by animal trials.

Phases of Clinical Trials: Clinical trials are carried out in four phases. Clinical trials of drugs developed in India have to undergo all four phases of trials in India.

- **Phase I** or clinical pharmacology trials or "first in man" study, where the new drug is administered to a small number.
- **Phase II** or exploratory trials, during which the medicine is administered to a group of approximately 10-12 informed patients to determine its effect and also to check for any unacceptable side effects.
- **Phase III** or confirmatory trials, to obtain sufficient evidence about the efficacy and safety of the drug in a larger number of patients.

- **Phase IV** or post-marketing phase or phase of surveillance after the medicine is made available to doctors, who start prescribing it.

Regulatory mechanism in India: Clinical trials in India are governed by the Drugs and Cosmetics Act, 1940, the Medical Council of India Act, 1956 and the Central Council for Indian Medicine Act, 1970.

Features of New Drugs and Clinical Trials Rules, 2019:

- **To promote clinical research in India** by providing for a predictable, transparent and effective regulation for clinical trials.
- To reduce the time for approving applications.
- **Ethics committee will monitor the trials** and decide on the amount of compensation in cases of adverse events.
- **Drug Controller General of India (DCGI)** will decide the compensation in cases of death and permanent disability or other injury to a trial subject.
 - ✓ The application will be deemed to have been approved, in case of no communication from the DCGI.
- **The requirement of a local clinical trial** may be waived for approval of a new drug if it is approved and marketed in any of the countries specified by the DCGI with the approval of the government.
- New drugs approved for use in select developed markets will be automatically allowed in India provided global trials include Indian patients.
- New rules have removed regulations on tests conducted on animals in case of drugs approved and marketed for more than two years in well-regulated overseas drug markets.

Schemes, Bills & Acts

Draft Merchant Shipping Bill, 2020

The Ministry of Ports, Shipping and Waterways has come up with a draft of the Merchant Shipping Bill, 2020 for public consultation.

More on the news:

- It has been a priority of the government of India to replace all archaic colonial laws with modern and contemporary International laws with active participation of people to enhance transparency in the governance.
- For the same, the Ministry has also issued two draft Bills for public consultation, namely '**Aids to Navigation Bill 2020**' and '**Coastal Shipping Bill 2020**'. Moreover, Major Port Authorities Bill 2020 is also under consideration.
- All these Bills are going to generate sweeping waves in the maritime scenario moving India towards a fully developed maritime economy.

About the Bill:

- **Repeal and replace:** The Bill aims to repeal and replace the Merchant Shipping Act, 1958 and the Coasting Vessels Act, 1838.
- **Incorporate the best practices:** It has the primary aim of promoting the growth of the Indian shipping industry by incorporating the best practices adopted by other advanced countries like the U.S., Japan, U.K., Singapore and Australia.
- **Compliant with international laws:** The Bill incorporates all up-to-date IMO Conventions or protocols, to which India is a party.
- **Ensure safety and security:** The Bill incorporates adequate provisions to ensure the safety and security of vessels, safety of life at sea, prevent marine pollution, provide for maritime liabilities and compensations.
- The envisioned advantages of the Bill:
 - ✓ **Promoting ease of doing business** by doing away with requirement of general trading license for Indian vessels
 - ✓ **Embracing digital technology** by enabling electronic means of registration, and grants statutory recognition to electronic agreements, records, etc.
 - ✓ **Increasing tonnage and Vessel as a Tradable Asset** by widening the eligibility criteria for ownership of vessels.
 - ✓ Introducing, for the first-time statutory framework for **regulating maritime emergency response** against maritime incidents.
 - ✓ **Welfare of Indian seafarers** on abandoned vessels and safety of abandoned vessels by including provisions for repatriation of abandoned seafarers.
 - ✓ **Strengthening adjudication and predictability of claims** as assessors may be tasked by the High Courts to present their findings on the degrees of fault of each vessel.
 - ✓ **India an Active Enforcement Jurisdiction** by incorporating powers of the Director-General to take action against vessels that are unsafe, and pose a threat to safety of life at sea and environment.

Significance:

- **Increased opportunities for investment:** The Bill provides greater impetus to a self-reliant domestic investment climate in the maritime industry.
- **Impetus to the quality and quantity of Indian seafarers:** By including provisions regulating the maritime education, training, certification and the recruitment and placement of seafarers.
- **Boost employment opportunities:** For Indian seafarers in the national and international market.
- **Benefits will be extended to ancillary sectors:** Connected with the shipping industry in consonance with 'Atmanirbhar Bharat' initiatives of the government.

PM-WANI: To provide public Wi-Fi service

The Union Cabinet chaired by the Prime Minister has given its approval for the proposal of Department of Telecommunication (DoT) for setting up of Public Wi-Fi Networks to be known as PM-WANI.

About the Public Wi-Fi Access Network Interface (PM-WANI):

- Will be operated by different players:
 - ✓ **Public Data Office (PDO):** It will establish, maintain, and operate only WANI compliant Wi-Fi Access Points and deliver broadband services to subscribers.
 - ✓ **Public Data Office Aggregator (PDOA):** It will be an aggregator of PDOs and perform the functions relating to Authorization and Accounting.
 - ✓ **App Provider:** It will develop an App to register users and discover WANI compliant Wi-Fi hotspots in the nearby.
 - ✓ **Central Registry:** It will maintain the details of App Providers, PDOAs, and PDOs. To begin with, the Central Registry will be maintained by C-DoT.
- Objectives:
 - ✓ **Expected to be more business friendly:** While no registration would be required for PDOs, PDOAs and App Providers will get themselves registered with DoT. This is in line with efforts for **ease of doing business**.
 - ✓ **Stable and high speed Broadband Internet (data) services:** COVID-19 pandemic has necessitated delivery of high speed data services to an increasingly large number of subscribers in the country. This can be achieved by deployment of Public Wi-Fi.
 - ✓ **Creating employment:** And **enhance disposable incomes** in the hands of small and medium entrepreneurs and boost the GDP of the country.
 - ✓ **A step towards digital India:** Proliferation of Broadband Services through public Wi-Fi is a step towards digital India and consequential benefit thereon.

Draft Indian Ports Bill, 2020

Recently, Ministry of Ports, Shipping and Waterways has circulated draft of Indian Ports Bill 2020 for public consultation. The draft bill will repeal and replace the Indian Ports Act, 1908.

Salient features of draft:

- **Seeks to enable the structured growth:** And sustainable development of ports for optimum utilisation of the Indian Coastline by effective administration and management of ports.
- **Will provide measures to facilitate conservation of ports:** Taking into account the prevalent situation with respect to the high number of non-operational ports.
- **Ensure greater investment:** In the Indian maritime and ports sector through the creation of improved, comprehensive regulatory frameworks for the creation of new ports and management of existing ports.
- **Create an enabling environment:** Through the following broad methods:
 - ✓ Constitution of Maritime Port Regulatory Authority.
 - ✓ **Formulation of the National Port policy** and National Port plan in consultation with Coastal State Governments, State Maritime Boards and other stakeholders.
 - ✓ **Formulation of specialised Adjudicatory Tribunals** namely Maritime Ports Tribunal and Maritime Ports Appellate Tribunal to curb any anti-competitive practises and act as a speedy and affordable grievance redressal mechanism.

Significance:

- Ensure safety, security, pollution control, performance standards and sustainability of Ports.
- Ensures that all up-to-date conventions or protocols to which India is a party, are also suitably incorporated.
- Will fill up the gaps for achieving scientific development of Ports and Port Network.
- Enhancing **Ease of Doing Business** and will provide greater impetus towards **Atamanirbhar Bharat** initiatives of the Government.

National

The pardoning powers of President: Comparing US and India

Recently, US President Donald Trump exercised his powers under the Constitution to pardon his former National Security Advisor, twice pleading guilty to lying to the FBI, with less than two months of his presidential tenure remaining.

Extent of the US President's power to pardon:

- **Constitutional mandate:** The US President has the constitutional right to pardon or commute sentences related to federal crimes.
- **Unlimited powers:** The US Supreme Court has held that this power is granted without limit and cannot be restricted by Congress.
- **Discretionary powers:** Clemency is a broad executive power, and is discretionary. This means, the President is not answerable and does not have to provide a reason for issuing one.
- **Limitations:** Article II of the US Constitution says that all Presidents shall have Power to grant Reprieves and Pardons for Offenses against the United States, **except in Cases of Impeachment**.
 - ✓ Also, the power **only applies to federal crimes** and not state crimes and those pardoned by the President can still be tried under the laws of individual states.

Pardoning powers of Indian President:

- **Act on the advice of the Cabinet:** Unlike the US President, whose powers to grant pardons are almost unlimited, the President of India has to act on the advice of the Cabinet.
 - ✓ The President cannot exercise his power of pardon independent of the government.
 - ✓ Rashtrapati Bhawan forwards the mercy plea to the Home Ministry, seeking the Cabinet's advice.
 - ✓ In several cases, the Supreme Court of India has ruled that the President has to act on the advice of the Council of Ministers while deciding mercy pleas.
 - These include Maru Ram vs Union of India in 1980, and Dhananjay Chatterjee vs State of West Bengal in 1994.
- **Article 72 of the Indian Constitution:** The President shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence where the sentence is a sentence of death.
- **Article 74(1):** Although the President is bound by the Cabinet's advice, this article empowers the President to return it for reconsideration once.
 - ✓ If the Council of Ministers decides against any change, the President has no option but to accept it.

The pardoning power of the President includes the following:

1. **Pardon:** It removes both the sentence and the conviction and completely absolves the convict from all sentences, punishments and disqualifications.
2. **Commutation:** It denotes the substitution of one form of punishment for a lighter form. **For example**, a death sentence may be commuted to rigorous imprisonment.
3. **Remission:** It implies reducing the period of sentence without changing its character. For example, a sentence of rigorous imprisonment for two years may be remitted to rigorous imprisonment for one year.
4. **Respite:** It denotes awarding a lesser sentence in place of one originally awarded due to some special fact, such as the physical disability of a convict or the pregnancy of a woman offender.
5. **Reprieve:** It implies a stay of the execution of a sentence (especially that of death) for a temporary period. Its purpose is to enable the convict to have time to seek pardon or commutation from the President.

Hold fresh polls where NOTA got most votes: petition

An advocate has moved the Supreme Court for a direction that fresh elections should be held in a constituency where NOTA ('None of the above' option) garnered the maximum number of votes.

Issues raised by the petition:

- It said political parties choose candidates without consulting the voters, which was a "truly undemocratic" process.
- In turn, if the electorate has rejected these candidates by voting for NOTA, the parties should be barred from fielding them again in the fresh polls.

Constitutional Importance of NOTA

- **NOTA means "None of the Above" option** which enables the voter to officially register a vote of rejection for all candidates who are contesting.
- In *People's Union For Civil Liberties v. Union Of India*, the Supreme Court had ruled that a None of the Above (NOTA) option "may be provided in EVMs" so that voters are able to exercise their "right not to vote while maintaining their right of secrecy".
- The two main key components that came out of the Supreme Court judgment are:
 - ✓ Right to vote also includes a right not to vote i.e right to reject.
 - ✓ Right to secrecy is an integral part of a free and fair election.

What is 'Right to reject'?

- Voting is a formal expression of will or opinion in an electoral process.
- Right to reject implies that a voter while voting has every right not to opt for any of the candidates during an election.
- Such a right implies a choice to remain neutral.
- This may happen when a voter feels that none of the candidate in a candidacy deserves to be elected.
- Right to reject has its genus in freedom of speech and expression.

Case for right to reject:

- **Expression of discontent:** Right to reject and elect a new candidate will give power to the people to express their discontent.
- **Check election malpractices:** Right to reject will check corruption, criminalisation, casteism, communalism.
- **Increased accountability:** Parties would be forced to give tickets to honest and patriotic candidates.
- Recommendations by major bodies:
 - ✓ The 'right to reject' was first proposed by the **Law Commission in 1999**.
 - It also suggested that the candidates be declared elected only if they have obtained 50%+1 of the valid votes cast.
 - ✓ Similarly, the **Election Commission endorsed 'Right to Reject'** in its Proposed Electoral Reforms.
 - ✓ The 'Background Paper on Electoral Reforms', prepared by the **Ministry of Law** in 2010, had proposed that if a certain percentage of the vote was negative, then the election result should be nullified and a new election held.

Concerns:

- The Election Commission of India (ECI) said that if a situation arose where the number of NOTA votes exceeded the number of votes polled by any of the candidates, the candidate with the highest number of votes would be declared winner.
- This, it said, was in accordance with Rule 64 of the Conduct of Elections Rules, 1961.
- This provision made the **NOTA option almost redundant**.

Voter's participation is an essence of democracy. The NOTA button can increase the public participation in an electoral process. The voters' participation in the election is indeed the participation in the democracy itself. Non-participation causes frustration and disinterest, which is not a healthy sign of a growing democracy like India.

Love jihad law: Apprehensions about its implementation

As the Uttar Pradesh Cabinet cleared a draft ordinance against forceful inter-faith conversions - the so-called "love jihad", there are several apprehensions about the intent behind the law and its implementation.

More on the news:

- **Love Jihad or Romeo Jihad is conspiracy theory** alleging that some men target women belonging to other communities for conversion to other religion by feigning love.
- The Uttar Pradesh State Law Commission had proposed such a law, citing rising incidents of forced religious conversions or through fraudulent ways.
- While different states are taking steps towards bringing a similar law, the Uttar Pradesh government is ready to implement.

The proposed law - Uttar Pradesh Vidhi Virudh Dharma Samparivartan Pratishedh Adyadesh 2020 (prohibition of unlawful religious conversion):

- **Defines punishment under three different heads:** Those found guilty of conversion done through - misrepresentation, force, undue influence, coercion, allurement or by any fraudulent means, would face jail term of 1 to 5 years, and a minimum fine of Rs 15,000.
- **In case of a minor:** If such conversion is in case of a minor or a woman from the Scheduled Caste or Scheduled Tribe, then those found guilty would have to face a jail term from 3 to 10 years, with a minimum fine of Rs 25,000.
- **Conversion at the mass level:** Then those guilty would face jail term from 3 to 10 years, with a minimum fine of Rs 50,000.
- **A marriage will be declared "shunya" (null and void)** if the sole intention of the same is to change a girl's religion.
- **Responsibility of the one going for the religious conversion is** to prove that it is not taking place forcefully or with any fraudulent means and if any violation is found under this provision, then one faces a jail term from 6 months to 3 years and fine of minimum Rs 10,000.
- **Who can convert?** Anyone wanting to convert into another religion would have to give it in writing to the District Magistrate at least two months in advance.

Apprehensions about the law:

- **May ignite communalism:** As love jihad has been the part of poll agenda of parties across several states, such law can be used to communalize upcoming elections for luring the electorate of a particular community.
- **Ambiguity in the law:** Use of phrases such as undue influence, allurement and coercion. Also, the question of whether a religious conversion is truly conducted solely for the purpose of a marriage is inherently vague.
- **A matter left entirely to the discretion of the judge:** It is in the subjective assessment and appreciation of these tenuous phrases that the real peril lies.
- **No constitutional or legal basis:** Love jihad law is violative of **Article 21** of the constitution which guarantees individuals the right to marry a person of one's choice.
 - ✓ Also, **Article 25** guarantees freedom of conscience, the practice and conversion of religion of one's choice including not following any religion.

Judiciary's take on the issue:

- **Salamat Ansari-Priyanka Kharwar case:** The Allahabad high court said in a verdict that the right to choose a partner or live with a person of choice was part of a citizen's fundamental right to life and liberty.
 - ✓ However, **religious conversion for marriage is unacceptable** and not good in law.
- **Lily Thomas and Sarla Mudgal cases:** The Supreme Court of India has confirmed that religious conversions carried out for the sole purpose of deriving some legal benefit do not hold water.

J&K's Roshni Act: Who it helped own land, and why it's been scrapped

The Jammu and Kashmir government on October 31 declared all the actions taken under the Jammu and Kashmir State Land (Vesting of Ownership to the Occupants) Act, 2001, also known as the Roshni Act, under which 20 lakh kanals of land was to be transferred to existing occupants, as "null and void".

- It has left thousands of mostly poor people in the Union territory defrauded and terrified of possible homelessness.

Background:

- The Roshni scheme initially envisaged conferment of proprietary rights of around 20.55 lakh kanals of land (1,2,50 hectares) to occupants of which 15.85 per cent of land was approved for vesting of ownership rights.
- In 2001, when the Roshni Act was enacted by the then J&K government led by Farooq Abdullah, **people who had encroached on state-owned land were sold ownership rights to the land.**
- Some of these people then sold tracts of the land they had purchased to mostly poor people and rapid construction took place in every corner of J&K.
- **Corruption issues:** In its 2014 report, the CAG termed the scheme a Rs-25,000-crore scam.
 - ✓ In October 2018, then Jammu & Kashmir Governor Satya Pal Malik had pronounced the law "no longer relevant" because it had "failed to realise the desired objectives and there were also reports of misuse of some its provisions".
 - ✓ Earlier, the Jammu and Kashmir High Court pronounced the Roshni Act "**completely unconstitutional, contrary to law and unsustainable**" and ordered a Central Bureau of Investigation probe on the "**land scam**" enabled by the law.

Jammu and Kashmir State Land (Vesting of Ownership to the Occupants) Act, 2001- The Roshni Act

- It sought to **regularise unauthorised land.**
- Anybody who had grabbed this land in the past, could now come to the government, make an application and pay a certain fee.
- Once the fee was paid, the land or property would be regularised in the hands of the owner.
- The J&K government then said they would collect fees to the tune of roughly Rs 25,000 crore, which would then be used to upgrade the region's electricity generation, thus bringing "roshni" into the lives of the Kashmiris.
- However, in 2014, a report by the Comptroller and Auditor General of India (CAG) found irregularities in the transfer of the encroached land to occupants from 2007 to 2013.
- Later on, the J&K governor repealed the Roshni Act.

The Parliament of India: How it meets?

In response to a letter, the Parliamentary Affairs Minister has said that some opposition parties have opined of doing away with the winter session of the Parliament, amid pandemic.

The power to convene a session of Parliament:

- **Rests with the government:** The decision is taken by the Cabinet Committee on Parliamentary Affairs.
- **The decision of the Committee is formalised:** By the President, in whose name MPs are summoned to meet for a session.
- India does not have a fixed parliamentary calendar:
 - ✓ **By convention,** Parliament meets for three sessions in a year.
 - ✓ **A general scheme** of sittings was recommended in 1955 by the General-Purpose Committee of Lok Sabha.
 - It was accepted by the government of Prime Minister Jawaharlal Nehru, but was **not implemented.**

Sessions of Parliament:

1. The longest - **Budget Session** - starts towards the end of January, and concludes by the end of April or first week of May.
 - (a) The session has a **recess** so that Parliamentary Committees can discuss the budgetary proposals.
2. The second session is the three-week **Monsoon Session**, which usually begins in July and finishes in August.
3. The parliamentary year ends with a three week-long **Winter Session**, which is held from November to December.

Constitutional provisions wrt the summoning of Parliament:

- **Article 85:** It specifies that the central legislature had to be summoned to meet at least once a year, and that not more than 12 months could elapse between two sessions.
 - ✓ Like many other articles, it is based on a provision of The Government of India Act, 1935.
 - ✓ **Dr B R Ambedkar** stated that the purpose of this provision was to summon the legislature only to collect revenue and once-a-year meeting was designed to avoid scrutiny of the government by the legislature.

Functioning of the Parliament over the years:

- **To accommodate political and legislative exigencies:** Governments have shuffled around the dates of sessions.
 - ✓ **Sessions have been cut short** or delayed to allow the government to issue Ordinances. **For example**, in 2016, the Budget Session was broken up into two separate sessions to enable the issuance of an Ordinance.
 - ✓ **Sessions have been stretched** (in 2008), the two-day Monsoon Session was extended until December, so that a no-confidence motion can be moved against the UPA-I government over the India-US nuclear deal.
- **Fewer House sittings:** Over the years, there has been a decline in the sittings days of Parliament.
 - ✓ During the first two decades of Parliament, Lok Sabha met for an average of a little more than 120 days a year.
 - ✓ This has come down to approximately 70 days in the last decade.
 - ✓ One institutional reason given for this is the reduction in the workload of Parliament by its **Standing Committees**, which have anchored debates outside the House (since 1990s).

Way ahead (Recommendations):

- **Parliament should meet for at least 120 days in a year:** By the congress leader Pawan Kumar Bansal in his private member Bills.
- **Parliament should meet for four sessions in a year:** Sitting Rajya Sabha MP Naresh Gujral, in his 2017 private member Bill.
- **Legislative Impact Assessment:** A detailed framework for pre and post Legislative Impact Assessment was needed.
- **Parliamentary committee reforms:** Measures for the effective functioning of Department Related Standing Committees like longer tenure, instead of the present one year, for promoting specialization are needed.
- **Strengthen the role of the opposition:** In order to strengthen the role of the opposition, the institution of shadow cabinet can be formed in India.
- **Shadow Cabinet** - A unique institution of the British cabinet system, is formed by the opposition party to balance the ruling cabinet and to prepare its members for future ministerial office.

International

India hosts SCO summit

India hosted the Heads of Government (HoG) council meeting of the eight-nation Shanghai Cooperation Organisation which was chaired by Vice President Venkaiah Naidu.

More on news:

- Indian PM, Pakistan PM, and Chinese President had joined the virtual SCO summit, chaired by Russia earlier this month.
- The SCO, **seen as a counterweight to NATO**, has emerged as one of the largest transregional international organisations.

About the summit

- The virtual conference was attended by six Prime Ministers, including Chinese Premier and Russian Prime Minister as well as the PMs of Kyrgyzstan, Tajikistan, Uzbekistan, and Kazakhstan.
- The summit took place in **the virtual format**.
- It was the **first time that a Summit-level Meeting was held under India's Chairmanship**, since it gained full membership of the organization in 2017.
- **India assumed the chair of the SCO Council of Heads of Government** on November 2 last year as per rotation from the previous chair – Uzbekistan – and will complete its year-long tenure on November 30 by hosting the summit.
- This Summit is **held annually** at the level of Prime Ministers of SCO and **deals primarily with the trade and economic agenda of the organization**.
- Apart from the SCO member states, **the four observer states of the SCO – Afghanistan, Belarus, Iran, and Mongolia** – will also participate in the summit.

About SCO:

- The Shanghai Cooperation Organisation or the Shanghai Pact, is an economical -political military organisation founded in 2001 in Shanghai.
- China, Kazakhstan, Kyrgyzstan, Russia and Tajikistan were the original 5 founding members of the organisation who found the Shanghai Five Group.
 - ✓ The group was then renamed to Shanghai Cooperation Organisation with Uzbekistan joining the organisation in 2001.
- There are eight member states in the SCO at present, namely, China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, Pakistan and India (both joined in 2017).
- There are about four observer states and six dialogue partners in the SCO at present:
 - ✓ Observer States: Afghanistan, Belarus, Iran and
 - ✓ Dialogue Partners: Armenia, Azerbaijan, Cambodia, Nepal, Sri Lanka and Turkey.
- Objectives of the SCO:
 - ✓ To strengthen mutual trust among the neighbouring member states.
 - ✓ To promote effective cooperation in various fields like economy, trade, politics, culture and research and technology.
 - ✓ To ensure peace, prosperity, security and stability in the region, and
 - ✓ To establish a democratic, fair and rational international eco-political order.
- Organisational Structure of the SCO:
 - ✓ The supreme decision-making body in the Shanghai Cooperation Organisation is the Heads of State Council.
 - ✓ The second highest body of the SCO is the Heads of Government Council.
 - ✓ Whereas the SCO secretariat, Beijing and the Executive Committee of the Anti-Terrorist Structure, Tashkent are the permanent bodies of the SCO.
 - ✓ Regional Anti-Terrorist Structure (RATS) – Established to combat terrorism, separatism and extremism.

India, Sri Lanka, Maldives agree to improve intel sharing

Indian National Security Adviser (NSA) Ajit Doval is visiting Colombo to take part in the 4th NSA Level Meeting on Trilateral Maritime Security Cooperation hosted by Sri Lanka this time.

More on news:

- The first such meeting in six years, the dialogue mechanism involves the Maldives, in addition to India and Sri Lanka.
- India, Sri Lanka and the Maldives agreed to expand the scope of intelligence sharing, including terrorism and cyber security.

More on news:

- National Security Adviser Ajit Doval visited Sri Lanka to participate in the discussions with Sri Lanka and Maldives-the Indian Ocean neighbours.
- Mauritius and Seychelles were represented virtually at the senior officials' level.

Key takeaways of the discussion

- The 4th National Security Adviser-level trilateral Maritime Security Cooperation meeting has been revived after a six-year gap.
 - ✓ It sought to **promote meaningful cooperation in the Indian Ocean Region**, with focus on common issues pertaining to maritime security.
- **Common security threats:** The three countries also exchanged views on common security threats.
- **Cooperation:** They agreed to broad-base cooperation by expanding the scope to improve intelligence sharing and include issues
 - ✓ like terrorism, radicalisation, extremism,
 - ✓ drugs, arms and human trafficking,
 - ✓ money laundering, cyber security and
 - ✓ effect of climate change on the maritime environment.

Significance of the meeting:

- **It involves both the Maldives and Sri Lanka**, countries that have very different geostrategic orientations.
 - ✓ **Maldives' President Ibrahim Solih** has enthusiastically welcomed a greater role for India, as well as the United States, in the region.
 - ✓ **Rajapaksa factor:** However this has not been the case so far with Sri Lanka since last year, with the Rajapaksa brothers back at the top.
 - ✓ Even though Sri Lanka has rhetorically committed to an "India first" approach when it comes to security, **Colombo will engage with other major powers** – like China for its economic development.
- **Perception of India's intelligence services:** Following his electoral defeat then-president (and now prime minister) Mahinda Rajapaksa directly blamed Indian intelligence as being behind it. The meeting may help improve this perception.
 - ✓ Indian intelligence services may also have contributed to Abdulla Yameen's political downturn in Maldives, leading to Solih's victory in 2018.

Recalibrating India-Nepal ties

The Foreign Secretary did not touch upon the issue of the Eminent Persons Group in his latest address while visiting Nepal. Indo-Nepal relations have taken a few hits in recent years.

- The EPG was constituted during the India visit of Nepali PM in 2016, towards the end of the blockade that was imposed by the Madhesi agitators from Nepal's plains bordering Uttar Pradesh and Bihar. As per the agreement, the EPG is to consist of eight members with four members representing each side.
- The EPG has sought extensive review of the 1950 India-Nepal Friendship Treaty.
- Nepal wants India to consider this proposal on priority abscence.

Present phase of relationship

- **India's unofficial blockade of 2015:** It was in opposition to certain terms of Nepal's constitution. It had triggered a wave of anti-India sentiment in the Himalayan Kingdom.
- Prime Minister's recent visit to Nepal
 - ✓ He declared Nepal to be the centrepiece of his government's "**neighbourhood first**" policy.
 - ✓ PM inaugurated the **Ramayan Circuit Bus Route** that will connect Janakpur, Goddess Sita's birthplace, to Ayodhya.
 - ✓ The foundation stone was laid for the \$1.4 billion **Arun-3 hydropower plant** in the east of the country.
 - ✓ In the fourth BIMSTEC Summit, Nepal and India signed a deal on the **construction of the Raxaul-Kathmandu railway line**.

The India-Nepal Treaty of Peace and Friendship of 1950:

- It forms the bedrock of the special relations that exist between India and Nepal.
- Nepalese citizens avail facilities and opportunities on par with Indian citizens in accordance with the provisions of the Treaty.
- Treaty obliged Nepal to inform India and seek its consent for the purchase of military hardware from third countries. Nepal wants to change this provision.
- The Nepal-India Eminent Persons' Group (EPG) is revisiting all bilateral agreements to submit a comprehensive report to both governments on how to reset bilateral relations

India and the Organisation of Islamic Cooperation (OIC)

Recently, India hit out at the Organisation of Islamic Cooperation (OIC) for making factually incorrect and unwarranted references to Jammu and Kashmir.

More on the news:

- The **47th session of the OIC Council of Foreign Ministers** was concluded recently at Niamey, Niger.
- India said that it is regrettable that the grouping continues to allow itself to be used by a certain country. This was in reference to Pakistan.

About OIC:

- The OIC (formerly Organisation of the Islamic Conference) is the world's second largest inter-governmental organisation after the UN, with a membership of 57 states.
- It was established upon a decision of the historical summit which took place in Rabat, Kingdom of Morocco in 1969.
- The OIC's stated objective is to safeguard and protect the interests of the Muslim world in the spirit of promoting international peace and harmony among various people of the world. OIC has reserved membership for Muslim-majority countries. Russia, Thailand, and a couple of other small countries have Observer status.
- It has its headquarter located in Jeddah (Saudi Arabia) and OIC has permanent delegations to the United Nations and the European Union.
- Despite the presence of 185 million Muslims and of their contribution to its pluralistic ethos and contribution to the Islamic world, India is not a member of OIC.

China hydropower company plans first downstream dam on Brahmaputra

China is planning to construct the first downstream dam on the lower reaches of the Brahmaputra river, or Yarlung Zangbo as it is known in Tibet.

- It is aimed to "implement hydropower exploitation in the downstream of the Yarlung Zangbo River" as part of the new Five-Year Plan (2021-2025)



Yarlung Zangbo Hydropower Project

- The dam may be constructed on the **"Great Bend" of the Brahmaputra** and at the **Yarlung Zangbo Grand Canyon** in Medog county.
- At this point, the river falls spectacularly over a 2,000 metre-drop and turns sharply to flow across the border into Arunachal Pradesh.
- China in 2015 operationalised its first hydropower project at **Zangmu in Tibet**, while three other dams at **Dagu, Jiexu and Jiacha** are being developed, all on the upper and middle reaches of the river.

Potential of the great bend

- 50-km section alone offered the potential of developing **70 million kWh**.
- It could provide 300 billion kWh of clean, renewable and zero-carbon electricity annually"
- The project "will play a significant role in realising **China's goal of reaching a carbon emissions peak before 2030 and carbon neutrality in 2060**.

Concerns for India

- India has expressed concerns to China over the four dams on the upper and middle reaches, though Indian officials have said the dams are not likely to impact the quantity of the Brahmaputra's flows in India greatly.
- The Brahmaputra is not entirely dependent on upstream flows with an **estimated 35% of its basin is in India**.
- A dam at the Great Bend, if approved, would raise fresh concerns considering its location downstream and **just across the border from Arunachal Pradesh**.

The Iran challenge: On Joe Biden's Tehran policy

Donald Trump pulled the U.S. out of the Joint Comprehensive Plan of Action (JCPOA), and reimposed sanctions on Iran. Now, for the new US President, one of his most pressing early diplomatic challenges would be Iran.

More on news:

- His promise was to **take the U.S. back to the deal**, but any such move would meet with **strong opposition from its allies in West Asia, especially Israel**.
- After the election, Mr. Biden has reaffirmed his commitment to the nuclear deal. But he has said he will seek to extend the restrictions on Iran and discuss the Islamic Republic's "malign" activities in West Asia.
- Mr. Trump had expected Iran to come to the table to renegotiate the deal, but Tehran did not give in to the pressure.

Joint Comprehensive Plan of Action (JCPOA)

- Iran has been a non-nuclear weapon state party to the **Treaty on the Non-Proliferation of Nuclear Weapons (NPT)** since 1970.
- The Iran nuclear deal (formally the Joint Comprehensive Plan of Action) was signed between **Iran and the P5 (the five permanent members of the UN Security Council) plus Germany and the European Union.**
 - ✓ Under the deal, Tehran agreed to limit its nuclear program in return for relief from the US and other economic sanctions.
 - ✓ **In 2018, the United States unilaterally withdrew** from the JCPOA objecting to
 - Iran's ballistic missile program or
 - its involvement in regional conflicts,
 - sunset clauses of the deal which critics say provide Iran with a patient pathway to acquiring nuclear weapons. because it didn't address

Salient features of JCPOA:

- **Uranium enrichment capacity:** Iran's current capacity of 19,000 gas centrifuges would be reduced by more than two-thirds to 6,104, out of which just over 5,000 would actually be enriching uranium.
- **Fordow underground enrichment plant:** This cavern under a mountain near the city of Qom would be used only for non-military research.
- **The enriched uranium stockpile:** Iran's stockpile of LEU would be reduced from its current level of about 7,500kg to 300kg, a reduction of 96%.

Does India's neighbourhood policy need reworking?

Recent visits by Foreign Secretary Harsh Vardhan Shringla and National Security Adviser Ajit Doval to countries in the region appear to show new energy in India's neighbourhood policy.

- Recently, there have been many strains in ties with neighbours. For instance,
 - ✓ With Nepal over its Constitution in 2015 and now over the map, and
 - ✓ With Bangladesh over the Citizenship (Amendment) Act (CAA).

Need of reworking India's policy

- It is extremely important that our engagement with our neighbouring countries should not be event-oriented; **it should be process-oriented.**
- And we should have a **plan for continuous engagement at various levels.**
- There should be an awareness that there is a price to be paid if we try to always prioritise domestic factors over foreign policy issues.
- **"Generosity and firmness** must go hand in hand. If you have determined what your key interests are, then it is better to make it known what the red lines are.
- **Need clarity regarding China:** It is very easy to accuse any of India's neighbouring countries of being too close to China. But it's very difficult to set out the exact terms of what they should or shouldn't do with China. The only way to really solve all this is to focus on creating interdependence in this region that will give India strategic leverage.

Countering China's forays into the region, including on COVID-19 assistance

- **Connectivity:** Building connections with all our neighbours, whether it is through highways, railways, the revival of riverine transportation or sub-regional energy grids, are things that we can do.
- But this connectivity has to be linked with the '**software of connectivity**'.
 - ✓ The procedures for allowing in cargo or people are still archaic compared to, for example, what we find in Southeast Asia or Europe.
 - ✓ We are the most important transit country.

U.S. engagement in the South Asian region as a counter to China

- India should **work closer together with like-minded partners** that are fellow democracies, that think alike about developmental priorities and also about economic connectivity with the rest of the world.
- **India's objectives and interests should remain the primary elements** in any initiative by other countries in the region.

Is SAARC relevant anymore?

- The format of SAARC is outdated and does not serve the complex, fluid regional cooperation agenda any longer.
- **Pakistan has taken a very different approach to regional connectivity**, where it sees itself mostly as a hub between China and the Gulf or Central Asian regions.
- India therefore had to gravitate more towards the south, to the Indian Ocean region, and the east, across the Bay of Bengal with Southeast Asia.
- India has revived **BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)** and worked in the **BBIN (Bangladesh-Bhutan-India-Nepal)** quadrilateral for a framework on motor vehicle and water governance.

BBIN and BIMSTEC should be pursued for their own merits, but should not replace SAARC. The overall objective and the idea of a fully integrated South Asia is something India should aim for. If India walks out, for example, there could even be a possibility of China being welcomed into SAARC.

SAARC

- Member states - Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.
- A regional organization looking into South Asia
- **Established in 1985**; a product of the Cold War era
- Member countries suffer for mistrust and suspicion
- Suffers from regional politics
- Asymmetric power balance
- Intra-regional trade only 5 percent

BIMSTEC

- Member states – Bangladesh, India, Myanmar, Sri Lanka, Thailand, Nepal and Bhutan
- **Interregional organization** connecting South Asia and South East Asia.
- **Established in 1997** in the post-Cold War.
- Members maintain reasonably friendly relations
- Core objective is the improvement of economic cooperation among countries
- Balancing of power with the presence of Thailand and India on the bloc
- Intra-regional trade has increased around 6 percent in a decade

Explained: What is the intellectual property MoU between India and the US, and how will it help?

India and the US this week signed a Memorandum of Understanding (MoU) on intellectual property cooperation.

- **Intellectual Property (IP)** manages any fundamental development of human insight, for example, creative, scholarly, specialized or logical development.
- **Intellectual Property Rights (IPR)** gives the legitimate rights to the creator to verify their creation.
- These legitimate rights give a restrictive right on the creator/producer or its administrator who utilizes it's his development/item for a constrained time frame.
- **The four categories of intellectual property** protections include:
 - **Trade Secrets:** Trade secrets refer to specific, private information that is important to a business because it gives the business a competitive advantage in its marketplace
 - **Patents:** a patent is a type of limited-duration protection that can be used to protect inventions (or discoveries) that are new, non-obvious, and useful, such a new process, machine, article of manufacture, or composition of matter.
 - ✓ When a property owner holds a patent, others are prevented, under law, from offering for sale, making, or using the product.

- **Copyrights:** A copyright is a type of intellectual property protection that protects original works of authorship, which might include literary works, music, art, and more. Today, copyrights also protect computer software and architecture.
- **Trademarks:** Trademarks refer to phrases, words, or symbols that distinguish the source of a product or services of one party from another. For example, the Nike symbol—which nearly all could easily recognize and identify—is a type of trademark.

What is the MoU about?

- The settlement, between the **Commerce Ministry's Department for Promotion of Industry and Internal Trade (DPIIT)** and the United States Patent and Trademark Office (USPTO), goals to extend IP cooperation between the two nations.

Benefits

- It will facilitate
 - ✓ the change and dissemination of greatest practices,
 - ✓ experiences and data on IP amongst the public in addition to between and amongst the business, universities, analysis and growth (R&D) organisations and Small and Medium-sized Enterprises (SMEs).
- It gives for the change of data and greatest practices on processes for **registration and examination of purposes for patents, logos, copyrights, geographical indications**, and industrial designs, in addition to the safety, enforcement and use of IP rights.

Significance:

- It will be a landmark step forward in **India's journey towards becoming a major player in global innovation** and will further the objectives of **National IPR Policy, 2016**.
- It will **enhance IP cooperation** between India and the US.

National Intellectual Property Rights (IPR) Policy, 2016

Objective: The Policy which is in **compliance with WTO's (World Trade Organisation) agreement on TRIPS (Trade Related aspects of IPRs)**, aims to sustain entrepreneurship and boost Prime scheme 'Make in India.'

- The Policy aims to push **IPRs as a marketable financial asset**, promote innovation and entrepreneurship, while protecting public interest.

Features:

- The plan will be reviewed every five years in consultation with stakeholders.
- In order to have strong and effective IPR laws, steps would be taken — including review of existing IP laws.
- **Special thrust on awareness generation and effective enforcement of IPRs**, besides encouragement of IP commercialisation through various incentives.
- India will engage constructively in the **negotiation of international treaties and agreements in consultation with stakeholders**.
- The government will examine accession to some multilateral treaties which are in India's interest, and become a signatory to those treaties which India has de facto implemented to enable it to participate in their decision making process, the policy said.
- It suggests making the **department of industrial policy and promotion (DIPP) the nodal agency for all IPR issues**.
- Copyrights related issues will also come under DIPP's ambit from that of the Human Resource Development (HRD) Ministry.
- Trademark offices have been modernised.
 - ✓ Examination time for trademarks has been reduced from 13 months to 8 months, with the new target being to bring the time down to one month by March 2017.
- Films, music, industrial drawings will be all covered by copyright.
- The Policy also seeks to facilitate domestic IPR filings, for the entire value chain from IPR generation to commercialisation.
- It aims to promote research and development through tax benefits.

- India will continue to utilise the legislative space and flexibilities available in international treaties and the TRIPS Agreement."
 - ✓ These flexibilities include the sovereign right of countries to use provisions such as Section 3(d) and CLs for ensuring the availability of essential and life-saving drugs at affordable prices.
 - ✓ The policy left the country's patent laws intact and specifically did not open up Section 3(d) of the Patents Act, which sets the standard for what is considered an invention in India, for reinterpretation.
- On compulsory licensing (CL), India has issued only CL for a cancer drug.
 - ✓ As per the WTO norms, a CL can be invoked by a government allowing a company to produce a patented product without the consent of the patent owner in public interest.
 - ✓ Under the Indian Patents Act, a CL can be issued for a drug if the medicine is deemed unaffordable, among other conditions, and the government grants permission to qualified generic drug makers to manufacture it.
- The IPR policy favoured the government considering financial support for a limited period on sale and export of products based on IPRs generated from public-funded research.

Culture and peace: On India's stand against 'UN's selectivity on religions'

At the UN General Assembly discussing resolutions of the **UN Alliance of Civilizations (UNAOC)** on the 'Culture of Peace', India criticised the world body for what it called "selectivity" in seeking to protect Abrahamic religions – Islam, Christianity and Judaism – over others.

- India said the UNGA statement welcomed the **Kartarpur Gurdwara corridor agreement** between India and Pakistan, but failed to note that Pakistan's government has taken over the management of the Sikh shrine, which it called a contravention of the agreement and a violation of Sikh beliefs.
- India asked the United Nations to recognise violence being meted out against religious minorities such as **Hinduism, Buddhism, Jainism and Sikhism**, and not just those pertaining to the three large Abrahamic religions of Judaism, Christianity and Islam.

The United Nations Alliance of Civilizations (UNAOC)

- It was established in 2005, as the **political initiative of Mr. Kofi Annan**, former UN Secretary-General and co-sponsored by the Governments of Spain and Turkey.
- The United Nations Alliance of Civilizations High Representative and Secretariat are based and **operating from New York**.
- **Objective:** The Alliance maintains a global network of partners including states, international and regional organizations, civil society groups, foundations, and the private sector to **improve cross-cultural relations between diverse nations and communities**.

India and UN-Based Better Than Cash Alliance

Department of Economic Affairs (DEA), Ministry of Finance hosted a learning session "**Accelerating Responsible Digital Payments: Unlocking the Role of Fintech in Last Mile Service Delivery**" with leaders from States and Union Territories across India.

- This Peer Exchange is a result of the tremendous success and opportunities highlighted during COVID-19 and is co-organized with the **UN-based Better Than Cash Alliance**.
- During the COVID-19 relief efforts, nearly Rs 68,000 crore of cash was provided as direct benefits transfers directly into the bank accounts of the most vulnerable.

The Better Than Cash Alliance

- United Nations, the Better Than Cash Alliance (BTCA) is a partnership of over 75 governments, companies and international organizations
- **Objectives:** It is committed to accelerate the transition from cash to digital payments to advance the Sustainable Development Goals.

- **India became a member of the Better Than Cash Alliance in 2015** to digitize payments to achieve financial inclusion and to share success stories from **Pradhan Mantri Jan Dhan Yojana**, the world's largest financial inclusion program.
- Alliance is working with several state governments towards the goal of building knowledge and programs where people, governments, and businesses can make and receive digital payments.
- **BTCA is funded** by the Bill & Melinda Gates Foundation, Citi, Ford Foundation, MasterCard, Omidyar Network, U.S. Agency for International Development and Visa Inc. UNCDF serves as the BTCA Secretariat. BTCA is looking to expand in a number of SIDS. The total cost of the project is 38.2 million USD.
- **Significance:** The use of technology to transition from cash to electronic payments
 - ✓ reduces costs,
 - ✓ has the potential to increase transparency and accountability,
 - ✓ diminishes security risks,
 - ✓ enhances access to financial services for the poor and
 - ✓ can drive inclusive economic growth, with a potential for women economic development.

Morocco-Israel deal: Impact on Arab-Israel ties

With the Morocco-Israel deal, Morocco has become the fourth Arab country to normalise ties with Israel in recent times.

More on the news:

- In return for Morocco's decision, the U.S. has recognised Moroccan sovereignty over Western Sahara - a disputed territory in northwestern Africa, which has been under Moroccan control for decades.
- The series of normalisation agreements between Arab countries (the UAE, Bahrain, Sudan and Morocco) and the Jewish state was bringing peace to West Asia.

About the Western Sahara dispute:



- **A former Spanish colony:** Western Sahara is a vast, arid region in northwest Africa, but with less than six lakh inhabitants.
 - ✓ The region first came under Spanish control in 1884, and was made a province called 'Spanish Sahara' by the European country in 1934.
 - ✓ Then in 1957, its northern neighbour Morocco, which had become independent from French rule in 1956, staked its claim over the entire territory.
- **Mineral rich:** Home to abundant reserves of phosphate, a key ingredient in the manufacturing of synthetic fertilisers, lucrative fish resources and is believed to have off-shore oil.
- **Decolonisation:**
 - ✓ Western Sahara's Sahrawi ethnic group began efforts to gain independence from Spain.
 - ✓ **In 1975**, Spain withdrew from Western Sahara, partitioning the region between Morocco, receiving the region's northern two-thirds, and Mauritania the remaining third in the south.
 - The partition took place despite a ruling by the International Court of Justice (ICJ), favouring self-determination for the Sahrawis.

- **Civil war:** The Sahrawi (Polisario front) contested the handover and continued its armed struggle with support from neighbouring Algeria.
 ✓ Morocco strengthened its position by annexing Mauritania's share of Western Sahara, after the latter decided to withdraw from the region. A UNbrokered ceasefire stopped the war in 1991.
- **Current situation:** Since then, Morocco has controlled around 80 percent of Western Sahara, including its phosphate reserves (making it world's largest phosphate reserves) and rich fishing grounds.
- **Current status of the conflict:** Moroccan troops have built a huge sand wall called Berm, from the Atlantic coast of Western Sahara to the mountains of Morocco.

Impact of Morocco- Israel deal:

- **Direct bearing on Western Sahara:** Washington's recognition of Moroccan occupation of Western Sahara in return for Rabat's agreement with Israel could flare up the conflict, as the independence referendum, promised in the 1991 ceasefire, is yet to take place.
- **Would upset Algeria:** The biggest backer of Polisario.
- **Violation of international law:** Among the countries that condemned the U.S. decision is Russia, which said the recognition of Moroccan sovereignty over Western Sahara is a violation of international law.

Raab, Jaishankar to discuss ties upgrade

British Foreign Secretary will meet with the External Affairs Minister as part of a three-day visit to India, to prepare for an expected visit by British Prime Minister Boris Johnson next month.

More on news:

- India has invited Mr. Johnson as a guest for the Republic Day celebrations on January 26.
- India and the United Kingdom would discuss a range of agreements including the upgradation of the relationship to a "**Comprehensive Strategic Partnership**".
- **India and the United Kingdom enjoy a strategic partnership since 2004** which has been marked by regular high-level exchanges and growing cooperation in diverse areas,"

Significance of visit: Post-Covid and post-Brexit

- The visit will pave the way for **further strengthening of the partnership** across trade, defence, climate, migration and mobility, education and health sectors in the **post-Covid, post-Brexit context**.
- India and the U.K. will discuss the framework of the Comprehensive Strategic Partnership, which will include the defence and strategic relationship, Indo-Pacific policy, trade, and cooperation on renewable energy.
- India and the U.K. may begin talks for an "**early harvest**" **Free trade Agreement (FTA)** during the visit.

Defence partnership

- A mutual **defence logistics support agreement** and a **Government-to-Government (G2G) mechanism for defence deals** and a defence training Memorandum of Understanding (MoU) is in process.
- The two countries are close to signing a **G2G agreement on jet engine technology development**.
- The U.K. has asked India for **joint technology development of sixth generation fighter technologies**.
- It also offered the **design of its Queen Elizabeth class aircraft carrier** for Indian Navy's proposed second indigenous carrier.
- The U.K. will deploy a **Liaison Officer at the Indian Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR)** meant to improve Maritime Domain Awareness.

Indian Prime Minister is expected to travel to Glasgow for the **next UN Climate Change Conference (COP26)** in November 2021, and both sides are keen to expand their partnership on fighting global warming and building renewable energy technologies, officials said.

Joint Statement on India-Bangladesh Virtual Summit

Indian Prime Minister and Prime Minister of the People's Republic of Bangladesh held a Summit in virtual format.

- They paid solemn tribute to the martyrs of the Liberation War of Bangladesh, the Muktiyoddhas and the Indian soldiers, for their great sacrifices in 1971.

Signing of Bilateral Documents and Inauguration of Projects: On this occasion, the following bilateral documents were signed by India and Bangladesh:

- Framework of Understanding (FOU) on Cooperation in **Hydrocarbon Sector**;
- Protocol on **Trans-boundary Elephant Conservation**;
- MOU regarding Indian Grant Assistance for **Implementation of High Impact Community Development Projects (HICDPs)** through Local Bodies and other Public Sector Institutions;
- MOU on Supply of Equipment and Improvement of Garbage / Solid Waste Disposal Ground at Lamchori Area for Barishal City Corporation;
- Terms of Reference of **India-Bangladesh CEOs Forum**;
- MoU between Father of the Nation Bangabandhu Sheikh Mujibur Rahman Memorial Museum, Dhaka, Bangladesh and the National Museum, New Delhi, India; and
- MoU on **Cooperation in the field of Agriculture**.

Cooperation in Health Sector: Reiterating the highest priority India attaches to Bangladesh under **India's Neighbourhood First Policy**, Prime Minister assured that vaccines would be made available to Bangladesh as and when produced in India.

Border Management and Security Cooperation

- It was agreed to carry out necessary work to convert the **International Boundary along Kuhsiyara river** into a fixed boundary.
- Both leaders agreed to facilitate **completion of border fencing** at all pending sectors at the international border between both the countries at the earliest beginning from the Tripura (India)- Bangladesh sector.
- **Concern:** The loss of civilian lives at the border is a matter of concern.

Trade Partnership for Growth

- **The Duty Free and Quota Free access is given to Bangladeshi exports** to India under SAFTA since 2011.
- Both Prime Ministers directed the officials to expeditiously conclude the ongoing joint study on the prospects of entering into a bilateral **Comprehensive Economic Partnership Agreement (CEPA)**.
- The consultations on anti-dumping/anti-circumvention duties imposed on export of **jute products from Bangladesh** to India were held.

Connectivity for Prosperity

The recent initiatives include the

- Newly restored **railway link between Haldibari (India) and Chilahati (Bangladesh)**.
- Signing of the second addendum to the **Protocol on Inland Water Transit and Trade (PIWTT)**,
- Trial run of trans-shipment of **Indian goods from Kolkata to Agartala via Chattogram**
- Operationalization of **Sonamura-Daudkandi Protocol route** under the PIWTT.
- Trans-shipment of Indian goods through **Chattogram and Mongla Ports**
- Early operationalization of the **BBIN Motor Vehicles Agreement**.

Cooperation in Water Resources, Power and Energy:

- Bangladesh highlighted the need for early signing of interim agreement for **sharing of the Teesta waters**, as agreed upon by both the governments in 2011.
- It was agreed to expedite implementation of projects including **India-Bangladesh Friendship Pipeline, Maitree Super Thermal Power Project** as well as other projects.

Forcibly Displaced Persons from the Rakhine State of Myanmar: Bangladesh's expectation is to see India assist in the repatriation of the forcibly displaced Rohingyas back to Myanmar.

International partnerships

- Both countries agreed to continue working together towards achieving **early reforms of the UN Security Council, combating climate change, attainment of the Sustainable Development Goals (SDGs) and protection of the rights of migrants.**
- Given the regional and global economic scenarios following the outbreak of COVID 19, regional organisations, such as **SAARC and BIMSTEC** have an important role to play.
- Bangladesh will assume **chairmanship of the IORA** in 2021 and requested the support of India for working towards greater maritime safety and security.
- **New Development Bank:** Bangladesh thanked India for inviting it to join the Institution.

Expanding security net: India's assistance for capacity building to Indian Ocean littoral states

In order to further expand the coastal radar chain network for real time monitoring of the high seas for threats, India is expanding assistance for capacity building to Indian Ocean littoral states.

More on the news:

- According to defence sources, efforts are in advanced stages to set up coastal radar stations in Maldives, Myanmar and Bangladesh.
- Mauritius, Seychelles and Sri Lanka have already been integrated into the country's coastal radar chain network.

Steps taken by Indian government in this regard:

- **IMAC:** The Indian Navy's Information Management and Analysis Centre (IMAC) allows information exchange regarding traffic on the high seas.
 - ✓ The Navy has been authorised by the government to conclude white shipping agreements with 36 countries and three multilateral constructs.
- **Info fusion centre:** The Indian Navy's Information Fusion Centre for the Indian Ocean Region (IFC-IOR) had established itself as the hub of maritime security information in the IOR through white shipping exchange agreements.
 - ✓ Under Phase-I of the coastal radar chain network, 46 coastal radar stations have been set up across the country's coastline.
 - ✓ Under Phase-II of the project (currently underway), 38 static radar stations and four mobile radar stations are being set up by the Coast Guard.

India - Vietnam relations

Recently, the Prime Minister of India and the Prime Minister of Vietnam co-chaired a Virtual Summit.

More on the news:

- During this summit both nations exchanged views on wide-ranging bilateral, regional and global issues.
- They set forth the Joint Vision for Peace, Prosperity and People to guide the future development of India - Vietnam Comprehensive Strategic Partnership.

Outcomes of the summit:

- While adopting this Joint Vision Statement, both nations welcomed the signing of the **Plan of Action** for the period 2021-2023.
- Both nations expressed satisfaction over the successful implementation of the **High Speed Guard Boat (HSGB) Manufacturing Project** for Vietnam Border Guard Command.
- Both nations appreciated the completion of **seven Development Projects** with Indian 'Grant-in-Aid' assistance for the **benefit of the local community** in Vietnam.

Vision for Peace, Prosperity and People:**1. Peace:**

- a) To further strengthen their **Comprehensive Strategic Partnership**, building upon the foundations of deep-rooted historical and cultural bonds, to work towards achieving a **peaceful, stable, secure, free, open, inclusive** and rules-based region.
- b) Recognizing the **emerging geopolitical and geoeconomic landscape** in the region and beyond, the leaders agreed that enhanced defence and security partnership will bring stability in the Indo-Pacific region.
- c) Both sides will engage more closely through for dealing with **traditional and non-traditional security threats** in cyber and maritime domains, terrorism, natural disasters, health security, etc.
- d) The leaders welcome the opportunities to foster **practical cooperation between ASEAN and India** in the key areas with the objectives as stated in the ASEAN Outlook on Indo-Pacific (AOIP) and India's Indo-Pacific Oceans Initiative (IPOI).
- e) The two sides will step up joint efforts in building a strong consensus for early adoption of the **Comprehensive Convention on International Terrorism (CCIT)**.

2. Prosperity:

- a) Acknowledging the new challenges as well as opportunities brought by COVID-19 pandemic, the two sides will work towards **reliable, efficient and resilient supply chains**, and will promote **human-centric globalization**.
- b) They will strive to achieve the target of **US \$15 billion** of trade turnover at the earliest and will set higher levels of ambition for bilateral trade based.
- c) **Complementarities:**
 - i. India's large domestic market and the vision of self-reliance on the one hand and Vietnam's growing economic vitality and capabilities on the other.
 - ii. India's goal to become a US\$5 trillion economy by 2024 and Vietnam's ambition to become a high-income economy by 2045.
 - iii. Two emerging economies with young populations will harness synergies between India's "**Digital India**" mission and Vietnam's "Digital Society" vision.
 - iv. Their shared commitment to **sustainable development** and climate action, while addressing their energy security as developing countries.
 - v. Reinforcing India's development assistance and capacity building outreach in Vietnam by expanding the **Mekong - Ganga Quick Impact Projects** and ITEC and e-ITEC programmes in diverse sectors.

3. People:

- a) The two sides will **intensify efforts to promote closer people-to-people exchanges** by increasing direct flights, providing ease of travelling through simplified visa procedures and facilitating tourism.
- b) The two sides will commemorate and promote understanding and research of their shared cultural and civilizational heritage, including **Buddhist and Cham cultures**, traditions and ancient scriptures.
- c) **Traditional systems of medicine** are of great significance for both countries in achieving the Sustainable Development Goal 2 and 3.

India and Vietnam share a Vision that will serve as a cornerstone for a new era of India - Vietnam Comprehensive Strategic Partnership. In order to realize this vision, concrete Plans of Action will be worked out by the two sides periodically.

India-Vietnam relations (Background):

- The Republic of India and the Socialist Republic of Vietnam enjoy **strong bilateral relations**.
- **Cultural and economic links between** India and Vietnam date back to the 2nd century.
- In contemporary times, relations between India and Vietnam have been governed by **several areas of shared political interests**.

- **In 1992**, India and Vietnam established extensive economic ties, including oil exploration, agriculture and manufacturing.
- The relations between the two countries, especially defence ties, benefited extensively from **India's Look East policy**.
- **Bilateral military cooperation** includes sale of military equipment, sharing of intelligence, joint naval exercises and training in counterinsurgency and jungle warfare. ○ India also regularly deploys its warships for goodwill visits to Vietnamese seas.

Economy

Banking health and the 'K Curve' dynamics

Depositors in Lakshmi Vilas Bank Limited (LVB) recently got bailed out by the RBI. The non-banking financial companies, or NBFCs are also in trouble.

More on news:

- The implications of this financial turmoil will reflect on the **price performance of individual banks**.
- Price action of banks in the market can provide useful insights about the financial system dynamics that will change in the coming years.

'Price to Book Value' ratio (P/BV)

- The key metric for financial companies is the 'Price to Book Value' ratio (P/BV).
- The P/BV reflects on two critical features:
 - ✓ Adequacy of current capital and
 - ✓ Runway available to the entity for profitable growth
- Meaning of the values associated:
 - ✓ A **P/BV ratio above 1** indicates that the market believes that the company can grow and generate Return on Equity (RoE) above the hurdle rate that investors expect.
 - The faster it can grow above the hurdle rate, the greater the P/B multiple (above 1).
 - ✓ A **P/BV below 1**, indicates that the market either does not believe the bank has recognised all its bad loans or has the business model to deliver returns above the hurdle rate.
 - It may be because the bank does not have a good deposit franchise, has bad cost discipline or a broken lending model.
- There are banks that have a P/BV **above 4** while some others are at much below 1, even at 0.25. Some NBFCs have values in excess of 7.

The K Curve

- The K Curve depicts the **inequality existing between different financial entities** in terms of their attributes that determine their future growth and profitability.
- **Widening of the arms of the 'K' would imply that the inequality is increasing**, while narrowing of the span of the 'K' would mean the opposite.

Alpha banks

- **Private sector banks:** Major banks have always had their P/BV above 3 on a consistent basis.
 - ✓ Capital is available in plenty for these banks and the market is optimistic that these banks will generate attractive RoE.
 - ✓ Therefore, they have disproportionate incremental market share on both assets and liabilities.
- **Banks having P/BV of above 1.5:** These banks have access to sufficient capital.

Both the above sets of banks are called **Alpha banks**. They would form one arm of the K, having adequate access to capital and the intrinsic ability to grow market share. The only constraint for these banks would be their ability to grow their liability franchise as changes in market share on deposits are much slower than changes on the asset side.

Private sector banks having a P/BV of 1 or below:

- **Business model issue:** The new generation banks amongst these have to demonstrate consistent growth and stability on the liability side to earn their stripes for a higher P/BV again.
- The market perceives **issues with their lending practices** and thereby, asset quality. That is the reason their P/BV is at very low levels.
- They need to transform themselves by **upgrading technology, add skilled manpower and improve management quality and governance**.

Way forward

- For public banks
 - ✓ Their current **governance model depresses their P/BV**.
 - ✓ These banks should run in a professional manner with an ability to decide their own destiny.
 - ✓ Along with the government move to consolidate PSU banks into few large banks, these banks must have **differing value propositions to offer to the market**.
 - ✓ **Clear level playing field amongst all banks**: Government should move towards transparent and fair compensation for services rendered to various State-sponsored programmes to all players.
 - ✓ PSU banks should be free to adopt human resource practices to on-board lateral talent to fill in skill set gaps and adapt to the new digital world.
- **More Alpha banks needed**: The Alpha banks widen the K Curve and squeeze out the weak banks. However, there is clearly more room for banks to migrate into the Alpha banks set.
 - ✓ For NBFCs, there is no clear path. The more valued NBFCs can become part of the Alpha banks in the long term.

Amalgamation of Lakshmi Vilas Bank with DBS Bank India Limited

The Union Cabinet, chaired by the Prime Minister has given its approval to the Scheme of Amalgamation of Lakshmi Vilas Bank Limited (LVB) with DBS Bank India Limited (DBIL).

Benefits of amalgamation:

- There will be no further restrictions on the depositors regarding withdrawal of their deposits.
- It is in line with the Government's commitment to a **clean banking system** while **protecting the interests of depositors and the public as well as the financial system**.



Background:

- The government had earlier on the advice of the RBI imposed a **30-day moratorium on the crisis-ridden LVB** restricting cash withdrawal at Rs 25,000 per depositor.
- The RBI simultaneously placed in public domain a draft scheme of amalgamation of LVB with DBIL, a banking company incorporated in India under Companies Act, 2013.
- The Reserve Bank had also **superseded the board of the LVB** and appointed an administrator of the bank for 30 days.
- It was done to **protect depositors' interest** and the interest of financial and banking stability.
- **LVB is the second private sector bank after Yes Bank** which has been troubled this year.
- The government rescued Yes Bank by asking state-run State Bank of India to infuse Rs 7,250 crore and take 45 per cent stake in the bank.

Prompt Corrective Action (PCA)

- It is a framework **under which banks with weak financial metrics** are put under watch by the RBI.
- **Applicable**: The PCA framework is applicable **only to commercial banks** and not to co-operative banks and non-banking financial companies (NBFCs).
 - It may be noted that of the 21 state-run banks, **11 are under the PCA framework**.
- It **aims to check the problem of Non-Performing Assets (NPAs)** in the Indian banking sector.
- Essentially **PCA helps RBI monitor** key performance indicators of banks, and taking corrective measures, to restore the financial health of a bank.
- The PCA framework deems banks as risky if they slip some **trigger points** - capital to risk weighted assets ratio (**CRAR**), net **NPA**, Return on Assets (**RoA**) and **Tier 1 Leverage ratio**.
- It has **three risk threshold levels** (1 being the lowest and 3 the highest) based on where a bank stands on these ratios.

Measures under PCA

- Depending on the threshold levels, the RBI can place **restrictions on dividend distribution, branch expansion, and management compensation.**
- Only in an extreme situation, **breach of the third threshold**, would identify a bank as a likely candidate for resolution through amalgamation, reconstruction or winding up.

What is amalgamation?

- An amalgamation is a combination of two or more companies into a new entity.
- Amalgamation is distinct from a merger because neither company involved survives as a legal entity.
- Instead, a completely new entity is formed to house the combined assets and liabilities of both companies.
- Types of amalgamation
- An amalgamation can be in the nature of purchase or merger.
 - ✓ Amalgamation in the nature of purchase is when one company acquires another where the transferor's business is discontinued.
 - ✓ This means the shareholders of the transferor entity no longer have a proportionate share in the combined equity of the parties to the amalgamation.
- Amalgamation in the nature of merger, on the other hand, combines the assets and liabilities, including the interest of the shareholders as well as the business of the parties to the amalgamation.

Merger

- The merger is a process wherein two or more companies/entities are combined to form either a new company or an existing company absorbing the other target companies.
- Basically, it's a process to consolidate multiple businesses into one business entity.

GST inflows top ₹1 lakh cr for second month in a row

In line with the recent trend of recovery, the revenues for November 2020 are 1.4% higher than the GST revenues in the same month last year.

Signs of recovery

- Gross revenues from the Goods and Services Tax (GST) **crossed the ₹1 lakh crore mark for the second month in a row**, with ₹1,04,963 crore collected in November 2020.
- November's GST collections were **boosted by festive spending.**
- The pick-up in GST revenues over the last two months **could reduce the shortfall in GST compensation dues to States.**
- **The average pace of growth in GST collections** in October-November 2020 stood at a moderately healthy 6%.

Cumulative loss due to lockdown: Cumulatively, the GST revenues from the first eight months of 2020-21 add up to ₹6,64,709 crore, reflecting a 17.4% dip from the ₹8,05,164 crore collected in the same period of 2019-20.

- GST revenues had **collapsed to just ₹32,172 crore in April** this year as economic activity was crippled following the national lockdown.
- **Fall in generation of e-way bills:** The sharp moderation in growth in the generation of GST e-way bills in November 2020 relative to the previous month, signals the impact of the change in working days related to the shift in the festive calendar.

Investing in India's youth

With the largest youth population in the world, India faces the difficult task of educating every citizen to become a productive member of society.

Background

- Evidence shows that many people develop 21st century skills on the job, or from courses that focus on practical application of skills.
- This indicates that **vocational education can be a route for many to gain specific skill sets and knowledge** which they can directly apply in their jobs.
- **Technical and Vocational Education and Training (TVET).**
 - ✓ 'Technical and vocational education and training' (TVET) is understood as comprising **education, training and skills development relating to a wide range of occupational fields, production, services and livelihoods.**
 - ✓ TVET, as part of lifelong learning, can take place at secondary, post-secondary and tertiary levels and includes work-based learning and continuing training and professional development which may lead to qualifications.
 - ✓ TVET also includes a wide range of skills development opportunities attuned to national and local contexts.
 - ✓ Learning to learn, the development of literacy and numeracy skills, transversal skills and citizenship skills are integral components of TVET.

Govt. initiatives

- **India's Right to Education Act** guarantees free and compulsory education for the ages of 6 to 14 years, and is based on books and written examinations.
- **The National Skill Development Policy** was launched in 2009 and revamped in 2015, recognising the challenge of skilling with speed and high standards.
- **The Skill India Mission** was launched soon after, and Prime Minister Narendra Modi announced his vision for making India the "skill capital" of the world.
- **The new National Education Policy (NEP)** aims to provide vocational education to 50% of all learners by 2025.
 - ✓ Schools are encouraged to provide students access to vocational education from Grade 6 onwards and to offer courses that are aligned to the local economies and can benefit local communities.

Challenges:

- One of the biggest challenges for expanding the reach of TVET-related courses has been the **lack of aspiration and stigma attached to jobs such as carpentry and tailoring.**

Way forward:

- **UNESCO's State of the Education Report for India 2020** focuses on vocational education and training and showcases the growth of the skills development sector, along with emerging challenges.
- **Public information campaigns involving youth role models**, would go a long way in improving the image of vocational education. At the same time, some common myths around TVET need to be debunked.
- It emphasizes the need for **expanding evidence-based research** as one of its key recommendations.
- **High-quality research based on careful data-gathering and analytics** can add value to all aspects of TVET planning and delivery but is especially useful for creating evidence behind the value of vocational education.
 - ✓ Considering that many employers are unable to find skilled candidates for jobs, promoting skills development and hiring skilled workers can make the economy stronger.

A massive expansion in vocational education will be possible only if the existing skills development systems are leveraged effectively. Hence, for the vision of the National Education Policy to be fulfilled, a robust coordination mechanism for inter-ministerial cooperation will be necessary for bringing the skills development and vocational education systems together.

India slips to rank 131 in global Human Development Index

India has slipped to 131 among 189 countries in the Human Development Index for 2019 compared to 130 the previous year, according to the United Nations Development Programme's (UNDP) Human Development Report 2020.

- However, the **absolute value of the index has gone up for India to 0.645 in 2019** (the year under consideration) compared to 0.642 the year before, reflecting overall better performance.
- **Norway topped the index**, followed by Ireland and Switzerland. Hong Kong and Iceland complete the top five.

Human Development Index

The HDI is a composite index to compare the well-being of people across countries.

→ 3 Dimensions:

- Long & Healthy life
- Access to knowledge
- Standard of Living

Calculation of HDI

- HDI measures average achievement on three basic aspects of
 1. human development,
 2. life expectancy, education, and
 3. per capita income.
- Life expectancy at birth, as an index of population health and longevity.
- Knowledge and education, as measured by the adult literacy rate (two-thirds weighting) and the combined primary, secondary, and tertiary gross enrollment ratio (with one-third weighting).
- **Standard of living** = the natural logarithm of gross domestic product per capita at purchasing power parity.
- HDI = geometric mean of the previous three normalized indices

Key takeaways:

- In all four HDI indicators, India's performance has either improved in 2019 compared to 2018 or remained the same.
- **Life expectancy at birth has improved** to 69.7 years compared to 69.4 years the year before.
- **GNI per capita at \$6,681 in 2019** was higher than \$6,427 in 2018.
- **Expected years of schooling and mean year of schooling** in 2019 remained the same as the previous year at 12.2 and 6.5 respectively.
- **Planetary Pressure Adjusted HDI:** When the HDI is adjusted to include two more elements experimentally introduced by the UNDP to account for planetary pressure (Planetary Pressure Adjusted HDI), its ranking improves by eight positions.
 - ✓ The two new elements are
 - ✓ a **country's material consumption** and
 - ✓ its **carbon footprint**.
 - ✓ India's **performance is much better in these compared to most countries higher up on the HDI**,
- **India's HDI value for 2019 is 0.645**, which puts the country in the medium human development category, positioning it at 131 out of 189 countries and territories.
- **Trends in India's HDI rankings:** Between 1990 and 2019, India's HDI value increased from 0.429 to 0.645, an increase of 50.3%.
 - ✓ Between 1990 and 2019
 - India's life expectancy at birth increased by 11.8 years,
 - mean years of schooling increased by 3.5 years, and
 - expected years of schooling increased by 4.5 years.
 - India's GNI per capita increased by about 273.9% between 1990 and 2019.

Monoculture: The issue raised amidst ongoing farmer's protests

With the ongoing protests by Punjab farmers, the issues of monoculture in the state has been raised.

More on the news:

- The gross cropped area was estimated at **78.30 lakh hectares** (2018-19) in Punjab.
- Out of this, 35.20 lh was sown under wheat and another 31.03 lh under paddy, adding up to 84.6% of the total area planted to all crops.
- That ratio was just over 32% in 1960-61 and 47.4% in 1970-71.

Monoculture Farming:

- **About:** Monoculture farming is a form of agriculture that is based on growing **only one type of a crop** at one time on a specific field. In contrast, a **polyculture** system assumes that a field is sown with two or more crops at a time.
 - ✓ If a different culture is planted on a given field plot each year, the concept of growing a single crop on one field at a time is still referred to as **monoculture**.
 - ✓ The concept of monoculture does not only apply to crops, but to farm animals as well.

Advantages	Disadvantages	Reducing the effects of monoculture farming
<ul style="list-style-type: none"> • Increased productivity and efficiency: Monoculture planting maximizes the efficient use of soil and local climate conditions. • Open a room for new technologies: When growing monoculture crops, agrarians tend to have some extra time and financial resources to refer to new technologies in agriculture. • Specialized production: Industrial monoculture planting allows farmers to specialize in a particular crop, as they usually deal with the same issues and problems that may arise in the process of growing. • Yield maximization: Some types of crops, such as cereals for example, are deemed to have better yields when sown and grown as monocultures, i.e. without other crops adjacent to them on a field. • Easier to manage: Cultivating monoculture crops is easier as compared to polyculture ones. • Higher Revenues: By growing monoculture plants, farmers usually benefit from higher profits. 	<ul style="list-style-type: none"> • Pests management: Farmers who stick to monoculture farming face more difficulties in terms of struggling with pest infestations on their field. • Higher pesticides use: Monoculture crops are more likely to be affected by blight or pests, as these threats can move faster through the area due to its reduced biodiversity. • Soil degradation and fertility loss: Agricultural monoculture upsets the natural balance of soils. • Higher use of fertilizers: As growing only one kind of plant on the same piece of farmland depletes and exhausts the soil by depriving it of biodiversity. • Higher water use: If there is only one type of crop on a given land plot, the root systems of this species are not sufficient to maintain the soil structure around the plants. • Decrease in biodiversity: One of the main problems with monoculture farming is the elimination of biological diversity. • Impact on pollinators: Monoculture farming has also a negative effect on such important participants of the natural reproductive cycle as bees and other pollinators. • Economic risks: When concentrated on growing monoculture crops only, a farmer puts at stake all the potential harvest from the given land plots and the reason for this is quite simple. • Environmental impacts of monoculture: In most subsistence farming practices, crops are grown and harvested to feed a family or local community. 	<ul style="list-style-type: none"> • Implementation of Crop Rotation • Smart use of Fertilizers • Moderate herbicides and pesticides use • More efficient water use • An example of departure from monocultures in the European Union is the "greening" initiative or "green payment", which consists in providing an annual subsidy to farmers who incorporate planet-friendly approaches and methods of growing crops.

Steps taken by the Punjab government:

- Enacting the Punjab Preservation of Subsoil Water Act.
- **Breeding shorter-duration paddy** varieties that scientists at the Punjab Agriculture University (PAU), Ludhiana have developed.
- Way forward:
 - ✓ A sensible strategy could be to limit Punjab's non-basmati paddy area to ensure planting of only shorter-duration varieties.
 - ✓ Water savings can be induced through metering of electricity and direct seeding of paddy.

Draft National Rail Plan

Indian Railways has come up with a Draft National Rail Plan, to address the inadequacies of capacity constraints and improve its modal share in the total freight ecosystem of the country.

More on the news:

- The National Rail Plan will be a common platform for all future infrastructural, business and financial planning of the Railways.
- This plan is being circulated among various Ministries for their views and Railways aim to finalise the Final plan by January 2021.

Objectives of the Plan:

- To create capacity ahead of demand by 2030.
- **Net Zero Carbon emission** by 2030, as part of a national commitment to reduce Carbon emission and to sustain it.
- **Forecast growth of traffic** in both freight and passenger year on year up to 2030 and on a decadal basis up to 2050.
- **Formulate strategies** based on both operational capacities and commercial policy initiatives to increase modal share of the Railways in freight to 45% by 2030.
- **Reduce transit time of freight** substantially by increasing average speed of freight trains from present 22Kmph to 50Kmph.
- **Reduce overall cost** of Rail transportation by nearly 30% and pass on the benefits to the customers.
- **Identify infrastructural bottlenecks** that would arise in future with growth in demand.

Vision 2024:

- The Vision 2024 has been launched (as part of the National Rail Plan), for accelerated implementation of certain critical projects by 2024 such as
 - ✓ 100% electrification,
 - ✓ Multitracking of congested routes,
 - ✓ Upgradation of speed to 160 kmph on Delhi-Howrah and Delhi-Mumbai routes,
 - ✓ Upgradation of speed to 130kmph on all other Golden Quadrilateral-Golden Diagonal (GQ/GD) routes and
 - ✓ Elimination of all Level Crossings on all GQ/GD routes.

Hence, the National Rail Plan envisages an initial surge in capital investment right up to 2030. Post 2030, the revenue surplus generated would be adequate to finance future capital investment and also take the burden of debt service ratio of the capital already invested, without exchequer funding of Rail projects.

Social Justice & Development

National Portal for Transgender Persons

A national portal to help transgender community members in applying for a certificate and an identity card online was launched by Social Justice and Empowerment.

National Portal for Transgender Persons

- It has been developed within 2 months of **Notification of Transgender Persons (Protection of Rights) Rules, 2020**.
- **Aims:** This highly useful Portal **would help a transgender person in applying for a Certificate and Identity card** digitally from anywhere in the country.
- The most important benefit is that it helps the transgender person to get the I-Card without any physical interface and without having to visit any office, the Minister said.
- **Significance:** This portal will help a lot of people from the community to come forward and get Transgender Certificate and Identity Cards as per their self-perceived identity which is an important provision of **The Transgender Persons (Protection of Rights) Act, 2019**.

Benefits:

- **Transparency and accountability:** Through the portal, they can monitor the status of their application that ensures transparency in the process.
 - ✓ The issuing authorities are also **under strict timelines** to process the applications and issue certificates and identity cards without any necessary delays.

Transgender Persons (Protection of Rights) Act, 2019

- The Act **defines a trans person** as someone whose gender does not match the one assigned at birth. It prohibits discrimination against them in employment, education, housing, healthcare and other services.
- It states that transgender persons will have the right to "self-perceived" gender identity.
- But it mandates that each person would have to be recognised as 'transgender' on the **basis of a certificate of identity issued by a district magistrate**.
- Change of gender identity in documents cannot be done without a certification by the District Magistrate after proof of a sex reassignment surgery is provided.
- It **prohibits discrimination** against a transgender person, including denial of service or unfair treatment.
- It seeks to provide **rights of health facilities** to transgender persons including separate HIV surveillance centres, and sex reassignment surgeries.
- It enforces a **minor's right of residence** compelling any trans person below 18 to cohabit with their natal family.
- It calls for establishing a **National Council for Transgender persons (NCT)**.

India needs to rethink its nutrition agenda

The Ministry of Health and Family Welfare has released data fact sheets for 22 States and Union Territories (UTs) based on the findings of Phase I of the National Family Health Survey-5 (NFHS-5).

- The 22 States/ UTs don't include some major States such as Tamil Nadu, Rajasthan, Punjab, Uttar Pradesh, Jharkhand, Odisha and Madhya Pradesh.

Key findings

- **The total fertility rate (TFR)** across most Indian states declined in the past half-a-decade, more so among urban women.
 - ✓ **Urban women recorded a lower fertility rate than women residing in rural areas** across almost all states across time, but this gap has been shrinking.

- ✓ **Sikkim recorded the lowest TFR**, with one woman bearing 1.1 children on average; **Bihar recorded the highest TFR** of three children per woman.
- ✓ In the first round of NFHS held in 1992-93, the national TFR of urban women was 2.7 while that of rural women was 3.7.

The total fertility rate

- It is defined as the **average number of children** that would be born to a woman by the time, she ends childbearing.
- Below-replacement fertility is defined as a combination of fertility and mortality levels that leads to a negative population growth rate, hence a declining population size.
- **Significance:** Both high TFR and TFR below-replacement level can be causes of worry for policy makers and planners.
 - ✓ According to the World Bank, high fertility levels pose health risks for children and their mothers.
 - ✓ **Education and development lead to lower fertility levels**, but when a population does not reproduce enough to be able to replace one generation of humans with the next, the aged population grows and the labour force shrinks.
 - ✓ **India is headed in the right direction** towards reaching the replacement level of fertility.
 - ✓ **We need to invest heavily in human capital**, health and education for a healthy and productive population that can add to national and global accomplishments of the country.
- **The Under 5 and infant mortality rate (IMR) has come down** in 18 states and union territories.
- **The neonatal mortality rate (NMR) (per 1,000 live births) dropped** in 15 states and UTs in comparison to NFHS-4 (2015-16).
- **16 states recorded an increase in underweight** and severely wasted under 5 children.
 - ✓ Of the 22 States and UTs, there is an increase in the **prevalence of severe acute malnutrition** in 16 States/UTs (compared to NFHS-4 conducted in 2015-16).
 - ✓ **The percentage of children under five who are underweight** has also increased in 16 out of the 22 States/UTs.
- **Anaemia levels** among children as well as adult women have increased in most of the States.
- **Most States/UTs also see an increase in overweight/obesity prevalence** among children and adults, once again drawing attention to the inadequacy of diets in India both in terms of quality and quantity.
- The data report an **increase in childhood stunting** (an indicator of chronic undernutrition and considered a sensitive indicator of overall well-being) in 13 of the 22 States/UTs compared to the data of NFHS-4.
- We are likely to see an **increase in prevalence of childhood stunting** in the country during the period 2015-16 to 2019-20. The World Health Organization calls stunting "a marker of inequalities in human development".

NFHS-5

- National Family Health Survey 5 is the recent round of the survey carried on by the **Ministry of Health and Family Welfare (MOHFW)**.
- It contains detailed information **on population, health, and nutrition for India and its States and Union Territories**.
- Each successive round of the NFHS has had two specific goals:
 - ✓ to provide essential data on health and family welfare needed by the Ministry of Health and Family Welfare and other agencies for policy and programme purposes, and
 - ✓ to provide information on important emerging health and family welfare issues.
- The Ministry of Health and Family Welfare (MOHFW), Government of India, designated the **International Institute for Population Sciences (IIPS) Mumbai**, as the nodal agency, responsible for providing coordination and technical guidance for the survey.
- The present NFHS is being conducted on 6.1 lakh sample households, involving household level interviews to collect information on population, health, family planning and nutrition related indicators

Environment

The Paris Agreement is no panacea

Today, the Paris Agreement is deemed as the panacea for all environmental ills but in reality, it has rejected the principles of "common but differentiated responsibilities" and "the polluter must pay".

Trends in global environmental initiatives

The Stockholm Conference (1972):

- The 1972 United Nations Conference on the Environment in Stockholm was the first world conference to make the environment a major issue.
- The participants adopted a series of principles for sound management of the environment including the **Stockholm Declaration and Action Plan for the Human Environment and several resolutions**.
- **It contained 26 principles**, placed environmental issues at the forefront of international concerns and **marked the start of a dialogue between industrialized and developing countries** on the link between economic growth, the pollution of the air, water, and oceans and the well-being of people around the world.
- One of the major results of the Stockholm conference was the **creation of the United Nations Environment Programme (UNEP)**.
- **The Rio Conference (1992):** The United Nations Conference on Environment and Development (UNCED), also known as the '**Earth Summit**', was held in Rio de Janeiro, Brazil, from 3-14 June 1992.
- **The major results of the UNCED Conference were:**
 - ✓ **Agenda 21**, a program of action calling for new strategies to invest in the future to achieve overall **sustainable development** in the 21st century. Its recommendations ranged from new methods of education, to new ways of preserving natural resources and new ways of participating in a sustainable economy.
 - ✓ The Rio Declaration and its 27 universal principles
 - ✓ the United Nations Framework Convention on Climate Change (UNFCCC)
 - ✓ the Convention on Biological Diversity; and
 - ✓ the Declaration on the principles of forest management.
 - ✓ the creation of the Commission on Sustainable Development
- That was when **mounting scientific evidence about the role of anthropogenic emissions in global warming** led to political initiatives to harmonise development and environment.

Developed countries backing off

- **COP 1, 1995:** In the Conference of the Parties that was held in Berlin in 1995, the developed countries made a determined effort to impose mandatory cuts on developing countries.
- The **Kyoto Protocol** enshrined the Rio principles. It fixed emission targets for developed countries and a complex set of provisions was included to satisfy their interests.
 - ✓ Kyoto Protocol had placed mandatory emission cut targets on rich and developed countries.
 - ✓ These countries had to achieve these cuts in the 2005-2012 period.
 - ✓ Later, through amendments made in Doha in 2012, the mandate of Kyoto Protocol was extended till 2020 with fresh targets for these countries.
 - ✓ But it was never ratified by the U.S. Congress and the U.S. withdrew its support in 2001.

Emergence of Paris Agreement

- The end of the Kyoto Protocol and the abandonment of the spirit of the Rio principles were reflected in the **Copenhagen Accord (2009)**, engineered by the U.S. and China on the argument

that a global climate action plan would be possible only if all reductions of the greenhouse gases were made voluntary.

- There was a virtual revolt by the developing countries, but the Paris Agreement was virtually born in Copenhagen, and adopted later in 2015.

Paris agreement: a fundamental change

- The Paris Agreement marked a fundamental change in the principles of Rio and for the first time **brought all nations into a common cause to undertake ambitious efforts to combat climate change.**
- It requires all parties to put forward their best efforts through **nationally determined contributions (NDCs)** and to strengthen these efforts in the years ahead.
- This includes all parties to **report regularly on their emissions** and on their implementation efforts.
- The Paris Agreement **moved away from the principle of common but differentiated responsibilities** and all countries were placed on an equal footing by making reduction of greenhouse gas emissions voluntary.
 - ✓ **Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)** is a principle within the United Nations Framework Convention on Climate Change (UNFCCC) that acknowledges the different capabilities and differing responsibilities of individual countries in addressing climate change.

Issues with Paris Agreement

- Inadequate targets:** The NDCs so far submitted will not result in the desired objective of limiting the increase of global warming to below 2°C.
 - ✓ The scientific community has already rejected the Paris Agreement as a solution. Further temperature rise, even of 1.5°C, may result in the death of 70%-90% of coral reefs across the world.
 - ✓ At 2°C, none would be left.
 - ✓ Even a 1°C hotter planet is not a steady state, says a report of the **Intergovernmental Panel on Climate Change (IPCC)**.
- No commitments:** The Paris Agreement requires that all countries – rich, poor, developed, and developing – slash greenhouse gas emissions.
 - ✓ But no language is included on the commitments the countries should make.
 - ✓ Nations can voluntarily set their emissions targets and incur no penalties for falling short of their targets.
 - ✓ It sets forth a requirement for countries to announce their next round of targets every five years, but does not include a specific requirement to achieve them.

Way forward:

- **Alteration of lifestyles:** The IPCC report acknowledges that "the pathways to avoiding an even hotter world would require a swift and complete transformation not just of the global economy but of society too".
 - ✓ This will only be possible if the world rejects nationalism and parochialism and adopts collaborative responses to the crisis.
 - ✓ The Paris Agreement falls short of that imperative.
- **USA's role:**
 - ✓ U.S. President-elect Joe Biden has already laid out a clean energy and infrastructure plan, a commitment to return to the Paris Agreement, and a goal of net-zero emissions by 2050. The US must be aware of its merits and deficiencies.
 - ✓ The US should be aware of the **development imperatives of the developing nations.**

Global Carbon Project

According to the World Meteorological Organization's (WMO) Global Carbon Project, during the COVID-19 shutdown, the annual global carbon dioxide (CO₂) emission reduced 4.2-7.5 percent in 2020, but it's not sufficient to dent global warming.

According to the estimate report:

- **CO₂ will continue to go up:** At the global scale, an emissions reduction at this scale will not cause atmospheric CO₂ to go down. CO₂ will continue to go up, though at a slightly reduced pace.
- **In line with natural inter-annual variability:** The impact of the pandemic on CO₂ reduction is not significant and not even higher than the natural variability figure.
- **Temporary reduction:** Therefore, temporary reduction in CO₂ emission due to the pandemic would not curb global warming and resultant climate change.

The Global Carbon Project:

- It was established in **2001** (Headquarter - Canberra, Australia) by a shared partnership between the **International Geosphere-Biosphere Programme (IGBP)**, the **International Human Dimensions**.

Programme on Global Environmental Change (IHDP), the World Climate Research Programme (WCRP) and Diversitas.

- It is a **Global Research Project** of Future Earth and a research partner of the World Climate Research Programme.
- **Objective:** To work with the science community to quantify global greenhouse gas emissions and their causes. The main object of the group has been to fully understand the carbon cycle. Its projects include global budgets for three dominant greenhouse gases - carbon dioxide, methane, and nitrous oxide.
- **Contribution:** The study has drawn the attention of the emissions experts, earth scientists, economists, policymakers and the general public on the rising atmospheric concentrations of the main greenhouse gases, carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

World Meteorological Organisation (WMO)

About WMO

- WMO was created in **1950 as an intergovernmental organization**.
- It became a **specialized agency of the United Nations, in 1951**, for meteorology (weather and climate), operational hydrology and related geophysical sciences. WMO is the UN system's authoritative voice on weather, climate and water.
- Secretariat - Geneva, Switzerland.
- Through its members, **WMO provides forecasts and early warnings to nations, which help prevent and mitigate disasters**.
- **WMO Bulletin:** It is the official journal of the World Meteorological Organization, first published in 1952 and is currently issued twice yearly

Objectives

- WMO monitors and forecasts the transport of chemical and oil spills, forest fires, volcanic ash, haze and nuclear isotopes.
- It also draws world attention to the depletion of the ozone layer.

Violations continue in Chardham project, allege environmentalists

Environmentalists have alleged that the contractors deputed by the government to make roads as part of the Chardham project are violating the Supreme Court orders on the appropriate road width to be followed in mountainous terrain.

- **Hill cutting** was rampant with mountain ecosystems being irreversibly harmed in the process.

- **The most probable impact of hill cutting on the environment** such as deforestation, loss of biodiversity, loss of habitat, loss of indigenous culture and heritage, ecological imbalance and climatic change, chances of earthquake will increase, destroying natural beauty, soil erosion and landslide, etc.

Chardham project

- It aims to build an 889-km all-weather road, connecting the Hindu pilgrimage sites of Kedarnath, Badrinath, Yamunotri and Gangotri in the Himalayas.
- It aims to build an under construction **two-lane** (in each direction) **express National Highway with a minimum width of 10 metres** in the Indian state of **Uttarakhand**.
- The **project includes 900 km national highways** which will connect the whole of **Uttarakhand state**.
- The Ministry of Road Transport and Highways (MoRTH) is the coordinator of the project.

The Emissions Gap Report 2020

Recently, in its annual Emissions Gap Report 2020, the United Nations Environment Programme (UNEP) highlighted that there is no reduction in the human-induced greenhouse gas (GHG) emissions and the year 2020 would be one of the warmest years on record.

More on the news: The annual report from UNEP measures the gap between anticipated emissions and levels consistent with the Paris Agreement goals of limiting global warming this century to well below 2°C and pursuing 1.5°C.

Findings from the Emission Gap Report 2020:

- **Record high GHG emissions:** Global GHG emissions continued to grow for the third consecutive year in 2019.
- **Record carbon emission:** Fossil carbon dioxide (CO₂) emissions (from fossil fuels and carbonates) dominate total GHG emissions and consequently the growth in GHG emissions.
- **Forest fires increasing GHG emissions:** Global GHG emissions have grown 1.4 percent per year since 2010 on average, with a more rapid increase of 2.6 percent in 2019 due to a large increase in vegetation forest fires.
- **Land-use change emissions:** Account for around 11 percent of the global total, with the bulk of the emissions occurring in relatively few countries.
- **G20 countries account for the bulk of emissions:** Over the last decade, the top four emitters - China, the United States of America, EU27+UK and India - have contributed to 55 percent of the total GHG emissions.
- **Is the GHG emission rate slowing?:** There is some indication that the growth in global GHG emissions is slowing. However, GHG emissions are declining in Organisation of Economic Cooperation and Development (OECD) economies and increasing in non-OECD economies.
- **Impact of COVID-19 pandemic on the emission level:** CO₂ emissions could decrease by about 7 percent in 2020 compared with 2019 emission levels. However, atmospheric concentrations of GHGs continue to rise.
- **Other GHGs (excluding carbon dioxide) level:** Although CO₂ emissions will decrease in 2020, the resulting atmospheric concentrations of major GHGs (CO₂, methane (CH₄) and nitrous oxide (N₂O)) continued to increase in both 2019 and 2020.
- **Track record of countries on way to attain net zero level:** As of now, 126 countries covering 51 percent of global GHG emissions have net-zero goals that are formally adopted, announced or under consideration.

United Nations Environment Programme (UNEP):

- **Founded in 1972 (Headquarter - Nairobi, Kenya):** Following the United Nations Conference on the Human Environment (Stockholm Conference).
- **Mandate:** It is responsible for coordinating the UN's environmental activities and assisting developing countries in having environmentally sound policies and practices.

- ✓ Its mandate covers a wide range of areas, including the atmosphere, marine and terrestrial ecosystems, environmental governance, and green economic development.
- **Funding:** As a programme of the United Nations, UN Environment is funded solely by voluntary contributions.
- **Member of the United Nations Development Group:** UNEP aims to help the world meet the 17 Sustainable Development Goals.
- **Contribution:**
 - ✓ It has increasingly focused on climate change, helping create or implement environmental treaties and institutions such as the United Nations Framework Convention on Climate Change (UNFCCC).
 - ✓ In 1988 it joined the World Meteorological Organization to establish the Intergovernmental Panel on Climate Change, a leading authority on the science of climate change.
 - ✓ UNEP is also one of several implementing agencies for the Global Environment Facility, the Multilateral Fund for the Implementation of the Montreal Protocol, and the International Cyanide Management Code.
- Other reports published by UNEP:
 - ✓ Actions on Air Quality by UNEP
 - ✓ Global Environment Outlook by UNEP
 - ✓ The Rise of Environmental Crime by UNEP & INTERPOL

IUCN releases updated Red List: 31 species extinct, all freshwater dolphins threatened

The International Union for Conservation of Nature (IUCN), has released an updated Red List of Threatened Species recently.

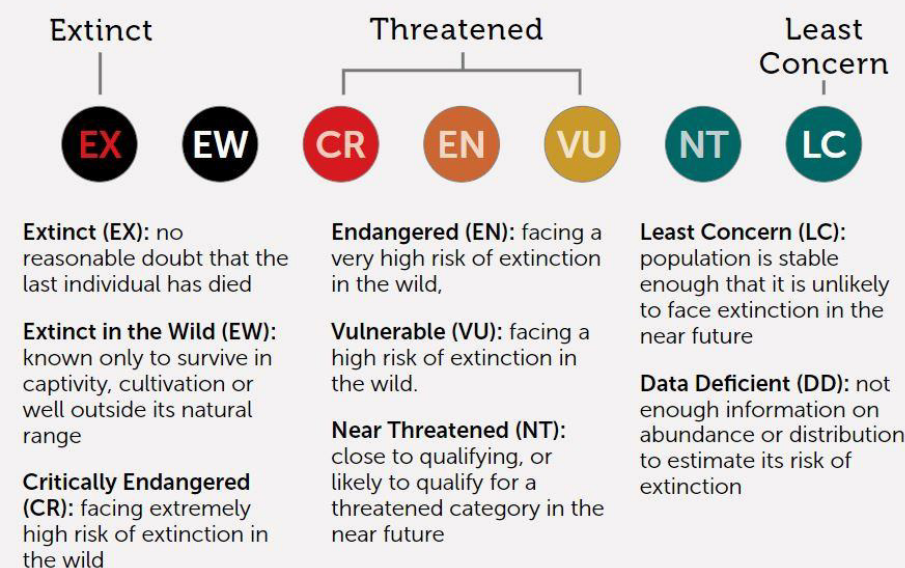
About IUCN Red list: (Updates)

- Global figures:
 - ✓ The new list documents an **additional 31 species** as extinct in the wild including species of fishes, sharks, and frogs.
 - ✓ There are now 1,28,918 species on the IUCN Global Species Programme and nearly a third or 35,765 of them are threatened with extinction.
 - These include **all five world's freshwater dolphins** - Ganga, Amazon, Indus, Irrawaddy and Tucuxi - are threatened with extinction.
 - ✓ Of the total 1,28,918 species assessed by IUCN (in descending order of threat) - 902 are Extinct, 80 are Extinct in the Wild, 7,762 are Critically Endangered, 13,285 are Endangered, 14,718 are Vulnerable.
- In India:
 - ✓ The list categorises 1,174 species as threatened with extinction, including golden langur and Javan rhinoceros.
- Success stories:
 - ✓ **European bison (Bison bonasus):** Europe's largest land mammal, which has moved from 'Vulnerable' to 'Near Threatened', due to conservation efforts.
 - ✓ **The Oaxaca Treefrog (Sarcohyala celata):** Also improved from 'Critically Endangered' to 'Near Threatened' because of conservation action by local communities in Mexico.

The International Union for Conservation of Nature (IUCN):

- IUCN is an **international organization** working in the field of nature conservation and sustainable use of natural resources.
- It is a **membership union** uniquely composed of both government and civil society organisations.
- It was created in **1948**, as the global authority on the status of the natural world and the measures needed to safeguard it. It is headquartered in **Gland**, Switzerland.
- 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.

THE RED LIST CATEGORIES



- It is recognized as the **most authoritative guide** to the status of biological diversity and also a key indicator for the SDGs and Aichi Target.

Cyclone Nivar

The Bay of Bengal will see its second Severe Cyclone of the year, after Super Cyclone Amphan formed earlier this year. It is likely to hit the Tamil Nadu coast.

More on the news:

- Red alert issued in TN and Puducherry:** The India Meteorological Department has forecast the development of a cyclone in the Southwest region of the Bay of Bengal, off Tamil Nadu coast.
 - ✓ After the cyclone Gaja in 2018, this will be the **second cyclone to cross Tamil Nadu in the last two years.**
 - ✓ Once intensified, the cyclone would acquire its name 'Nivar', proposed by Iran.
- Intensity associated:** The depression will intensify into a cyclone soon.
 - ✓ At this stage, the wind speed is expected to range between 70 to 80 km/ hr gusting to 90km/ hr.
 - ✓ The cyclone **may further gain strength into a Severe Cyclone category** (90 to 100 km/hr gusting to 110 km/hr).
- Areas to be affected**
 - ✓ Heavy rain (64 to 115mm) is also forecast over Rayalaseema, Telangana, coastal **Andhra Pradesh, Tamil Nadu, Puducherry, Karaikal and south interior Karnataka.**
 - ✓ Southern **Chhattisgarh and Odisha** will also come under the influence of the cyclone with some rainfall activity.
- Damage expected:
 - ✓ Temporary houses and huts could suffer damage. Power and communication lines, trees could be uprooted. Standing crops could be hit due to the saline water carried landwards by the cyclone.

About Tropical cyclones or hurricanes

- Location:** They use warm, moist air as fuel and therefore form over warm ocean waters near the equator.
- Mechanism:**
 - ✓ When the warm, moist air rises upward from the surface of the ocean, it creates an area of low air pressure below.

- ✓ After this, the air from the surrounding areas, which has higher pressure, enters this space, eventually rising when it becomes warm and moist too.
- ✓ As the warm and moist air continues to rise, the surrounding air will keep entering the area of low air pressure.
- ✓ Ultimately, when the warm air rises and cools off, the water in the air forms clouds.
- ✓ And this corresponding system of clouds and winds continues to grow and spin, fuelled by the ocean's heat and the water that evaporates from its surface.
- ✓ As such storm systems rotate faster and faster, an eye forms in the center.
- **Direction:**
 - ✓ Storms that form towards the north of the equator rotate counter-clockwise.
 - ✓ On the other hand, those that form south of the equator spin clockwise because of the rotation of the Earth on its axis.

Cyclone Burevi: Will not be as strong as Cyclone Nivar

Cyclonic Storm Burevi was a weak tropical cyclone which made landfall in Sri Lanka, becoming the first to do so since a depression in 2014, and brought minimal impact to Southern India in December 2020.

More on the news:

- This is the third cyclone formed within the last 10 days in the Arabian Sea and the Bay of Bengal.
- The India Meteorological Department (IMD) has warned of heavy rain for Tamil Nadu and Kerala.

About Cyclone Burevi:

- **Named by the Maldives:** The cyclone is expected to cross Tamil Nadu's southernmost district of Kanyakumari.
- **Comparing with Cyclone Nivar:**
 - ✓ Developed in the Bay of Bengal, the very severe cyclone Nivar (wind speeds of 89 to 117 km/hr), had hit near Karaikal recently.
 - ✓ The overall sea conditions, in the southwest region of Bay of Bengal, currently remain disturbed due to the recent crossing of Nivar.
 - When such consecutive systems develop in the same region, the predecessor system leads to upwelling - the process in which cooler waters from lower ocean surfaces are pushed towards upper ocean surfaces.
 - In the absence of warm sea surface conditions, any cyclone, will not get enough fuel to intensify further while at sea.
 - ✓ This is why meteorologists say there is a high possibility that Cyclone Burevi would not strengthen beyond the intensity of a cyclonic storm.

Science & Technology

China's Chang'e-5: Probe to the Moon

Soon, China's Chang'e-5 lunar mission will become the first probe in over four decades to **bring back samples of lunar rock from a previously unexplored portion** of the Moon.

Background:

- Earlier, China's Chang'e-4 probe successfully provided images from the far side of the Moon (or dark side) in 2019.
- Chang'e-4 was the **first probe to land in this portion of the Moon**.
- The first samples of rocks from the Moon were collected during the Apollo 11 mission. Also, the Soviet Union's Luna probe collected soil samples from below the lunar surface.

About the Chang'e-5 mission:

- **Lunar sample return mission:** Named after the Chinese Moon goddess, it is the Chinese National Space Administration's (CNSA) mission set to launch from the Wenchang Space Launch Center on Hainan Island in China by Long March-5 rocket.
- The goal of the mission: To land in the Mons Rumker region of the moon, where it will operate for one lunar day (two weeks long) and return a sample of the lunar rock possibly by digging deep into the surface of the Moon.
- **Components:** The mission comprises a lunar orbiter, a lander and an ascent probe that will lift the lunar samples back into orbit and return them back to Earth. ✓ It comprises a robotic arm, a coring drill, a sample chamber and is also equipped with a camera, penetrating radar and a spectrometer.

Significance of the mission:

- **Help to unravel some important questions:** In lunar science and astronomy, including the Moon's age, the formation of the Moon, the similarities and differences between the Earth and the Moon's geologic features and history.
- **Can give information about the solar system itself:** For example, the shape, size, arrangement and composition of individual grains and crystals in a rock can tell about the radiation history of the Sun.
- **Information about the Earth and the Moon's shared history:** As rocks found on the Moon are older than found on Earth.

eVIN: Its importance in the distribution of Covid-19 vaccines

Recently, the Prime Minister of India in a video conference with heads of all the states and Union territories, informed that the government is using eVIN – Electronic Vaccine Intelligence Network, to identify primary beneficiaries and vaccine distribution networks.

More on the news:

- The government is using eVIN in association with the **United Nations Development Program (UNDP)**.
- The conference was held to assess preparedness on Covid-19 vaccination programme in India, expected to take place early next year.

About Electronic Vaccine Intelligence Network (eVIN):

- **Implemented under the National Health Mission (NHM)** by the Ministry of Health and Family Welfare in partnership with the United Nations Development Programme (UNDP).

- **An innovative technological solution:** First launched in **2015** across 12 states for strengthening immunization supply chain systems across the country.
 - ✓ It aims to promote the government of India's **Universal Immunization Programme** by providing real-time information on vaccine stocks and flows, and storage temperatures across all cold chain points in the country.
 - ✓ It combines state-of-the-art technology, a strong IT infrastructure and trained human resources to enable real time monitoring of stock and storage temperature of the vaccines kept in multiple locations across the country.
- **Reached 32 States and Union Territories (UTs):** And will soon be rolled-out in the remaining States and UTs of Andaman & Nicobar Islands, Chandigarh, Ladakh and Sikkim.

Significance of eVIN:

- **Helped create a big data architecture:** It combines
 - ✓ **Technology:** To facilitate evidence-based decision-making by making available online real-time information.
 - ✓ **Governance:** To ensure efficient vaccine logistics management by systemizing record keeping.
 - ✓ **Human Resources:** To empower the state cold chain network by building the capacities of government cold chain handler.
- **Vaccine availability has increased** to 99% in most health centers. This has ensured that every child who reaches the immunization session site is immunized, and not turned back due to unavailability of vaccines.
- **Continuation of the essential immunization services:** This robust system has been used with the requisite customization during the COVID pandemic for ensuring continuation of the essential immunization services, like protecting children and pregnant mothers against vaccine preventable diseases.

Preparations for introduction of Covid-19 vaccine:

- **National Expert Group on Vaccine Administration for Covid-19 (NEGVAC) has been formed** as the highest group that will guide the strategies for vaccine introduction.
- **Prioritization of population:** It is anticipated that initially the supply of the vaccine will be limited based on risk assessment for vaccination and subsequently other groups will be included for vaccination.

GATI: For achieving gender equity in science

The Department of Science and Technology (DST), Government of India, will incorporate a system of grading institutes - GATI, based on a programme started by the United Kingdom in 2005 called the Athena SWAN, to achieve gender equity in science.

More on the news:

- Gender equity in science is one of the focuses of the new Science, Technology and Innovation Policy, currently being drafted by the DST.
- The system of grading institutes will depend on the enrolment of women and the advancement of the careers of women faculty and scientists.
- The concept borrows from a programme started by the United Kingdom in 2005 called the **Athena SWAN (Scientific Women's Academic Network)**.

About the Athena SWAN:

- **An evaluation and accreditation programme:** Enhancing gender equity in science, technology, engineering, mathematics and medicine (STEMM).

- **Develop action plans for improvement:** Participating academic institutions are required to analyse data on gender equity and develop action plans for improvement.
 - ✓ The programme recognises such efforts with bronze, silver or gold accreditation.
- **Commitment from institutions:**
 - ✓ To addressing unequal gender representation;
 - ✓ Tackling the gender pay gap;
 - ✓ Removing the obstacles faced by women in career development and progression;
 - ✓ Discriminatory treatment often experienced by trans people;
 - ✓ Gender balance of committees and zero tolerance for bullying and sexual harassment.
- **Indian version:** In India this programme will be called GATI (Gender Advancement through Transforming Institutions).
 - ✓ For the pilot, 25 institutes will be shortlisted to carry out self-assessment on gender equity in their departments.
 - ✓ The British Council is assisting the DST, with each institute in India under GATI having a partner institute (under Athena SWAN) in the UK for guidance.

Need for such a programme:

- **Gender inequality:** India is ranked 108 out of 149 countries in the 2018 Global Gender Gap report.
- **Poor representation in S&T:** According to DST, the share of women involved in scientific research and development was 14.71% in 2015-16.
- **High drop out:** The DST has also found that women are either not promoted, or very often drop out mid-career to attend to their families.

Way ahead:

- **Need to resolve government red tape:** As most universities, barring the IITs and NITs, are run and funded by the government as well.
 - ✓ This means that these institutions need to be made **independent** so that they can control institutional policies, recruitment and promotions.
 - ✓ The DST has tied up with the **National Assessment and Accreditation** Council (under the UGC) aiming to push gender equity through them.
- **Run intensive gender sensitisation programmes:** Especially for the top leadership of institutions, and work within existing rules such as pushing for women members on selection committees during recruitment processes.
- **Consider policy changes:** Such as providing financial incentives through grants to institutes.

ARTPARK to usher in a new model in AI & Robotics

An AI & Robotics Technologies Park (ARTPARK) set up in Bengaluru will promote technology innovations in AI (Artificial Intelligence) & Robotics leading to societal impact.

ARTPARK

- ARTPARK, is a unique not-for-profit foundation established by **Indian Institute of Science (IISc), Bengaluru** with support from AI Foundry in a public-private model.
- **Funding:** It is funded from the Department of Science & Technology(DST), Govt. of India, under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS).

National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)

- The Mission aims to create a **strong foundation and a seamless ecosystem for CPS technologies** by coordinating and integrating nationwide efforts encompassing knowledge generation, human resource development, research, technology and product development, innovation and commercialization.

- ✓ **Cyber Physical Systems (CPS)** are a new class of engineered systems that integrate computation and physical processes in a dynamic environment. CPS encompasses technology areas of Cybernetics, Mechatronics, Design and Embedded systems, Internet of Things (IoT), Big Data, Artificial Intelligence (AI) and many more.
- It is implemented by the **Department of Science & Technology (DST)** with a total outlay of Rs. 3660 Crore for a **period of five years**.
- The mission will be implemented through a **network of 15 Technology Innovation Hubs (TIHs)**, 6 Sectoral Application Hubs (SAHs) and 4 Technology Translation Research Parks (TTRPs).

Global Innovation and Technology Alliance (GITA)

On the 9th Foundation Day of Global Innovation and Technology Alliance (GITA), Union Ministry of Science & Technology, Government of India has underlined how GITA served as a catalyst for nurturing innovation and industrial R&D.

About GITA:

- **A Public Private Partnership:** It is between Technology Development Board (TDB) of the DST and India's apex industry association Confederation of Indian Industry (CII).
- Focused On:
 - ✓ Professionally managing Government's industrial innovation funds,
 - ✓ Providing flexibility to industry for R&D, including with global partners and
 - ✓ Delivering commercialisable products and services to Indian and global markets.
- Offering:
 - ✓ Funding
 - ✓ Capacity Building,
 - ✓ Deployment
 - ✓ Strengthening of the innovation Ecosystem
- Partners:
 - ✓ Department of Science and Technology (DST)
 - ✓ Technology Development Board (TDB)
 - ✓ Ministry of Electronics and Information Technology (MeitY)
 - ✓ Department for Promotion of Industry and International Trade (DPIIT)
 - ✓ Defence Research and Development Organisation (DRDO)
 - ✓ Ministry of Micro, Small & Medium Enterprises (MSME)
 - ✓ Department of Heavy Industry (DHI)
- **Get Funding for R&D:** Get up to 50% of your R&D expenditure if you want to develop new technology or products in partnership with industry from Canada, Israel, Korea, Italy, Spain, Sweden.

Significance:

- Nurturing the cultivation of the **scientific temperament** in the country for AtmaNirbhar Bharat.
- Have a clear mandate to **stimulate industry investment** in R&D and its demonstration to deliver commercialised products and services.
- **Increased collaborations** with countries like Israel, Canada, Sweden, Korea, Italy and Finland in science and tech and innovation.
- Has been focussing on **development of indigenous technologies** that are new and relevant to India and globally and facilitating novelty in innovation from India.

- Will help in **integrating the complete knowledge** chain in order to understand how science & technology can help achieve a self-reliant India.
- The Department of Science and Technology (DST), Government of India through GITA has been able to successfully engage in implementation of bilateral industrial R&D projects in collaboration with some of the most innovative nations - Israel, Korea, Canada, Finland, Italy, Spain, and UK.

Quantum Communication: QKD technology for secure communication

Recently, Defence Research & Development Organisation (DRDO) developed Quantum Key Distribution (QKD) technology, to show secure communication.

More on the news: The technology is developed by the Centre for Artificial Intelligence and Robotics (CAIR) (a laboratory of the DRDO), Bengaluru, and the DRDO Young Scientist Laboratories (DYSLs), Mumbai.

About QKD:

- The secure part of any information transfer protocol is in the **distribution of the key** used to encrypt and decrypt the messages.
- Such standard key distribution schemes, usually based on mathematical resolution of problems, are **vulnerable to algorithmic breakthroughs** and the possibility to run new codes on the up and coming quantum computers.
- The solution to ensuring the security of the key transfer process lies in **using the laws of quantum physics**, wherein any eavesdropping activity will leave tell-tale signs and hence will be easily detected.
 - ✓ This is achieved by using **Quantum Key Distribution** or QKD.
- **qkdSim:** Earlier, to ensure safety in secure quantum communication platforms, researchers from Raman Research Institute (RRI) have come up with a unique simulation toolkit for end-to-end Quantum Key Distribution (QKD) simulation named as 'qkdSim'.
- **Significance - Secure communications:**
 - ✓ Are vital for defence and strategic agencies world over.
 - ✓ Quantum based communication offers a robust solution to sharing the keys securely.

Quantum communication:

- It is a field of **applied quantum** physics closely related to quantum information processing and quantum teleportation and **uses subatomic particles** to securely communicate between two points.
- These subatomic particles are mainly **quantum entanglement of photons**.
- It ensures that **nobody taps into the line** as a photon can be neither separated nor duplicated.
- In case the intruder (hacker) tries to crack the message in Quantum communication, it will change its form in a way that would alert the sender and cause the message to be altered or deleted.
- Quantum communication boasts **ultra-high security communication**, as tapping the network will inevitably corrupt the signal.
- **Micius:** China had successfully launched the world's first quantum satellite in 2016, dubbed as Quantum Experiments at Space Scaler (QUESS) satellite (Nickname - Micius).
 - ✓ It provides the world's longest super-secure quantum communication line connecting Hefei, capital of Anhui province to Shanghai, the country's financial hub.

National Mission on Quantum Technologies and Applications:



केन्द्रीय बजट
UNION BUDGET 2020

Budget 2020 announced Rs 8,000 crore over the next 5-yrs in the National Mission on Quantum technology and its applications

- The areas of focus for the NM-QTA Mission will be in fundamental science, translation, technology development and towards addressing issues concerning national priorities
- The mission can help prepare next generation skilled manpower, boost translational research and also encourage entrepreneurship and start-up ecosystem development.
- Quantum principles will be used for engineering solutions to extremely complex problems in computing, communications, sensing, chemistry, cryptography, imaging and mechanics



- Their applications which will be boosted include those in aero-space engineering, numerical weather predictions, simulations, securing the communications & financial transactions, cyber security, advanced manufacturing, health, agriculture, education
- It can bring India in the list of few countries with an edge in this emerging field will have a greater advantage in garnering multifold economic growth and dominant leadership role

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