

GS CONNECT

It gives us immense pleasure to present an innovative approach to master current affairs. Current is a passing wind and diverse issues happen at the same time. It is to an extent chaotic. Newspapers, magazines and various other sources report the chaos per se. With our experience of current affairs we have tried to give “the current” a medium to travel. It is the syllabus of the UPSC with their components that are the medium through which the “Current is Passed” to the readers. Ever since the new syllabus of the UPSC came into existence, current has been gaining significance both at prelims as well as mains examination. This book is meant to cover current affairs and related questions arising from those events. We have not only covered the current events for their factual contents but also presented it in such a way that any question asked from that topic gets covered. Moreover, topics are also “peppered” with the relevant facts/key concepts that are related to the theme. We have also given questions for practice both, subjective and objective, so that candidates are oriented to the examination mode. It is a collection covering myriad source yet in a manageable size. To use this book we recommend you to master the components of general studies (GS) syllabus as broken into rows and columns (provided in the beginning after preface). Each cell comprising of the portion of GS becomes the connect for the current and every news subsequently covered guides the reader to the address of the syllabus. It is logical to expect that same issue may be connected to more than one topic of the syllabus. Further, the news also has some additional vistas opened for the readers by adding a box with a title **“PEPPER IT WITH”** where we expect the students to build further around the theme.

We are also trying to reach the remotest part of the country with our spirit and zeal of “Mains Answer Writing”, which has been admired by students, CSE rankholders and other scholars. Continuing in line with the effort, we have started with programs like 7 Question (7Q) Challenge, Shell Points, Stock Points, Content Enrichment Booklet etc.

When it comes to evaluation, we are altogether at a different level. We are also reaching every nook and corner with this expertise for the aspirants of CSE. Now you can write a Mains Answer and get it evaluated from our Expert Team and can get Feedback. **Drop a mail at evaluation@ksgindia.com for registering yourself in our race to perfection.** Don't wait, it's your golden chance to crack this exam and fulfill your passionate dream.

Team KSG

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GS - I	Culture-Art Forms, Literature and Architecture from ancient to modern times.	Indian history significant events, personalities, issues and the Freedom Struggle	Post independence issues, National boundary and disputes	Indian society features, issues, globalization and diversity	Women - issues and developments	Urbanization - problems and remedies	Distribution of industries and resources - India and world	Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc			
GS - II	Indian constitution- Amendments, acts and bills.	Legislative, executive and judicial processes.	Constitutional, non-constitutional, judicial, quasi-judicial, administrative and other types of bodies.	Federal structure and local bodies. Their powers and functions.	Government policies and various governance issues like transparency, accountability and governance	Committees and schemes.	Non-government issues, self-help groups and role of civil society	Vulnerable sections of our society and social sector issues and initiatives.	International Relation-India and other countries, various Indian and international agreements, effects of other countries on India and international institutions.		
GS - III	Various measures to boost Indian economy- planning, policies, management.	Government budgeting and issues related to budget.	Agriculture, animal husbandry and transport	Food security- measures to boost food security and food processing. Issues related to land- reforms	Industries and infrastructure -their growth and investment model	Space and technology , IT space, robotics and computer	Disease, biotechnology and human welfare	Innovations, intellectual property, Awards, POI and other important aspects of S&T	Environment; government initiatives, various judgment, pollution, degradation and conservation efforts	Disaster & Disaster Management	Challenges to internal security, Various Security forces and agencies and their mandate. Cybersecurity; moneylaundering and its prevention.
GS - IV	Ethical issues related to family society, education, Corruption etc.	Ethics in public and private administration	Issues	Related laws and rules	Governance/ e - Governance	Ethics in international issues	Personalities and their teachings	Other important topics			
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News Excerpt

The J&K Lieutenant Governor's administration has introduced New Land Grants Rules, 2022 in Jammu and Kashmir which has paved the way to auction all commercial buildings and land on lease, bringing it at par with the rest of the country. The new land rules have ended leaseholders' rights for extension in the Union Territory.

Pre-Connect

Land Leasing in J&K

- The new rules will replace the J&K Land Grants Rules 1960, which dealt with the special rules regarding allotment of government land on lease in erstwhile State of J&K.
- These land laws were considered as the backbone of J&K's upper middle class and allowed a new chain of hotels and commercial structures to come up in prime locations, including places like Pahalgam and Gulmarg over the years.
- However, In the opinion of J&K LG, amendments were needed because the previous land laws were regressive and doesn't provide appropriate returns to the landholders.

The New Rules

Several Significant Changes have been done under the new Rules

- **Non-Extension:** The leases of current land owners will not be extended in case of their lease expired. Exception is provided for expired residential leases. The leases will include both types viz. expired before new rules or issued under new rules.
- **Reduction of Lease Period:** The lease period has been reduced to 40 years from 99 years.
- **Diversification of Use:** The use of land on lease has been diversified to several arenas such as:
 - Education, health care, agriculture, tourism, skill development and development of traditional art, craft, culture and languages.
 - Hydro-electric projects, stadiums, playgrounds, gymnasiums or other recreational purposes.
 - Self-employment or for housing purposes of ex- servicemen, war widows and the families of martyrs.
 - Facilities for migrant workers, buildings and other construction workers.

Further, the government had made it clear that if the outgoing lease holder won't evict the properties than they will face evictions under the new rules.

Advantages of the New Rules

- ✓ It brings **J&K on a par with rest of India**, now any **person legally competent under the Section 11 of the Indian Contract Act, 1872 can bid for the new properties being opened up.**
- ✓ It will bring innovations and new ideas to the tourism industry of the UT, which act as a major source of revenue for the UT.
- ✓ It will benefit local population as new avenues for employment will open up in the UT as more investment pour-in.
- ✓ It is the logical extension to the objectives envisioned for UT by the government after the abrogation of Article 370 and 35-A.

Concerns

Local people and business community has raised several concerns regarding the change of rules these include:

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Centers of Excellence (CoE) in J&K

- ❖ Israel to open 2 CoE in J&K as part of Indo-Israel Agriculture Project (IIAP).
- ❖ IIAP aims at introducing crop diversity, increased productivity and improving water use efficiency.
- ❖ It is implemented by establishing CoE in which knowledge is utilised according to local conditions.
- ❖ According to Israeli official, the region has potential to produce fruits and vegetables by using modern technology and it is ready to support in form of expertise and technology

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- Business community opined that the rules are formed without proper consultation with relevant stakeholders.
- It is also feared that changed could halt business activity adding to sufferings of small, medium, and large-scale business owners.
- Local land holders see the move as opening up the gateway to the outsiders to buy prime properties in J&K. A sensitive issue the UT.
- There is also fear among the locals that it will lead to crony capitalism.
- Local population is also concerned about the deterioration of the local environment and eco-sensitive zones, that will affect their livelihood.
- There is also concern about rights of Scheduled Tribes as implementation of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 is very slow. While, under Dogra rule (1845-1947), the nomadic and semi-nomadic pastoral communities were given access to pastures and state land.

Significance

- ✚ The move will open J&K economy for global investors and help the UT reach its full economic potential.
- ✚ It will help in promoting the spirit of competitive federalism in the UT.
- ✚ Transparency in the auction process will help in building trust in the local population. It will also allay the fear among the locals that the objective of abrogation of Article 35-A was demographic change. The move will prove that the objective of the government is development on the lines of “Sabka Sath Sabka Vishwas Sabka Vikas” model.
- ✚ To ensure that whole process doesn't become a tool for money laundering and terror financing government had debarred participation of convicts under PMLA 2002.
- ✚ It will also help in addressing the illegal land-grab done by several political parties of the UT.

Conclusion

The new rules are focused on improving the Ease of Doing Business by streamlining the process of land leasing according to contemporary period. However, all the stakeholders must be consulted properly and the matter should be looked through the prism of humanity.

PEPPER IT WITH

National Tourism Policy 2022,
Narco Terror in J&K, Hybrid
Terrorism in J&K, Roshni Act,
Land Bank

RIGHT TO FREEDOM

News Excerpt

Supreme Court expanded Article 19 ambit by highlighting that not just state but even private citizens can face consequences of its violation. The move opens up a range of possibilities in Constitutional law.

Pre-Connect

Article 19- Right to Freedom

- It provides 6 rights which were protected against state only and not private individuals: -
 - Right to freedom of speech and expression.
 - Right to assemble peaceably and without arms.
 - Right to form associations or unions or cooperative societies.
 - Right to move freely throughout the territory of India.
 - Right to reside and settle in any part of the territory of India.
 - Right to practice any profession or to carry on any occupation, trade or business.
- Article 19 (2) to 19(6) lists six grounds to impose reasonable restrictions on each right provided under 19(1).
- Article 19 is a right invoked against the state whereas some fundamental rights such as those prohibiting untouchability, trafficking and bonded labour are explicitly against both the state and other individuals.

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Supreme Court's Verdict

- SC asserted that, "A fundamental right under Article 19 and 21 can be enforced even against persons other than the State or its instrumentalities".
- It said that it will be violative of basic constitutional principles of equality if a category of people (public servants) is subjected to more controls than usual just because they are part of the legislature or the executive.

Significance of the verdict

- ✓ **Increased burden of work-** This interpretation could bring an obligation on the state to ensure that private entities also abide by Constitutional norms. For example- seeking enforcement of privacy rights against a private doctor.
- ✓ **Evolved thinking-** The original thinking of the court changed over a period of time from 'State' to 'Authorities' to 'instrumentalities of State' to 'agency of the Government' etc. To finally including private individuals.
- ✓ The Court relied on the **2017 verdict in Puttaswamy judgement** where a nine-judge bench unanimously upheld privacy as a fundamental right. One of the key arguments by the government was that privacy is a right enforceable against other citizens and, therefore, cannot be elevated to the status of a fundamental right against the state.
- ✓ **Foreign Reference-** The Court referred to several foreign jurisdictions like the landmark New York Times vs. Sullivan case in which the US Supreme Court found that defamation law was inconsistent with the Constitutional guarantee of the freedom of speech and expression. The SC noted a shift in US law from a "purely vertical approach" to a "horizontal approach."
- ✓ **Used a mix of vertical and horizontal approach-** A vertical approach provides weight to individual autonomy, choice and privacy, while the horizontal approach seeks to imbibe Constitutional values in all individuals. For example- a horizontal application of the right to life would enable a citizen to bring a case against a private entity for causing pollution which would be a violation of the right to a clean environment. The court said that these approaches which appear to be bipolar opposites, raise the age-old question of 'individual vs. society'.
- ✓ **Ensure uniformity in law application-** Freedom of speech and expressions are powerful tools in the hands of political parties and leaders to communicate their points of view to their audience. Additional restrictions on the speech of leaders would act as obstacles in communication with the citizens.
- ✓ **Shows faith in citizens-** Responsibility is left to the people who are the ultimate authority to decide. They can be vested with responsibilities and followers should check that leaders must behave, especially when they are in power.

Freedom of Speech on social media

- ❖ Free speech is all about empowering users to share their opinions on almost anything under the sun. They can decide whether to appreciate, criticize, agree, disagree etc. on any topic of their interest.
- ❖ Posting on social media is also considered as an expression of free speech applicable to all citizens in physical world.
- ❖ Silencing voices by suspending or banning accounts goes against the very spirit of free speech.
- ❖ In a significant judgment the High Court of Tripura ordered the police to avoid prosecuting the activist arrested over a social media post for criticizing government. It also asserted that that posting on social media was tantamount to a "fundamental right" applicable to all citizens, including government employees.

PEPPER IT WITH

Fundamental Rights, MPs and MLAs Right to Freedom of Speech

Way Forward

- There need to prevent the misuse of freedom of speech as a tool to spread hatred against the state. At the same time ensure freedom of speech and expression enshrined in Constitution are not violated.
- Awareness generation among people to use their expressions responsibly with caution.
- Ensuring that the grievances of the people are timely addressed.
- Leaders should act as a role model for the citizens and set example by showcasing acceptable public behavior.

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PROTECTION OF MONUMENTS IN INDIA

News Excerpt

The Ministry of Culture recently submitted its report titled 'Issues relating to Untraceable Monuments and Protection of Monuments in India' to the Parliamentary Standing Committee on Transport, Tourism and Culture in which it told Parliament that 50 of India's 3,693 centrally protected monuments have gone missing.

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Pre-Connect

Historical Monuments

- India has a diverse cultural history which is beautifully showcased by many historical monuments spread across the country representing its tangible cultural heritage.
- India ranks sixth in the world with 40 UNESCO World Heritage Sites of which 32 are cultural sites. These sites are a reminder of the past, acting as the guardian of Indian culture.
- They present a combination of different styles and influences of various dynasties, religions, traditions and customs and vary from rock cut architecture, temple architecture, tombs, forts, palaces, minars, stupas to the monument complexes at Hampi, Mahabalipuram and Khajuraho representing a very wide range and diversity.
- They directly contribute to the economy by attracting tourists. The iconic Taj Mahal, Ajanta and Ellora caves, Konark Sun Temple, etc. are on all tourists bucket list.
- There are countless masterpieces which are not well known with even locals being unaware of their importance.
- It is very important to ensure the protection of historical monuments across the country and the same is also reflected in **Article 49 of the Constitution of India** which states the following:
 - Protection of monuments and places and objects of national importance:** It shall be the obligation of the State to protect every monument or place or object of artistic or historic interest, [declared by or under law made by Parliament] to be of national importance, from spoliation, disfigurement, destruction, removal, disposal or export, as the case may be.

AMASR Act

- **The Ancient Monuments and Archaeological Sites and Remains (AMASR) Act regulates the preservation of monuments and archaeological sites of national importance.**
- The Act protects monuments and sites of historical significance that are **more than 100 years old**. Monument includes temples, cemeteries, inscriptions, tombs, forts, palaces, step-wells, rock-cut caves, and even objects like cannons.
- **The Archaeological Survey of India (ASI)** which works under the Ministry of Culture, functions under this Act.
- According to the provisions of AMASR Act, ASI officials are supposed to regularly inspect the monuments to assess their condition.
- Apart from various conservation and preservation operations, ASI officials can also file police complaints, issue show cause notices for the removal of encroachments, and communicate to the local administration the need for demolition of encroachments.

Issue

- ✓ The ASI was founded in 1861 which remained largely dysfunctional in the 19th century owing to fund crunch, it became very active decades after independence. However, the focus of successive governments was on health, education and infrastructure, rather than protecting heritage.
- ✓ Within the scope of heritage the aim was to uncover more monuments and sites instead of conservation due to which many sites were lost to activities like urbanisation, construction of dams and even encroachments.
- ✓ In 2013, a Comptroller and Auditor General (CAG) report said that at least 92 centrally protected monuments across the country had gone missing.
- ✓ As per the recent ASI submission to the Parliament, of the 50 missing monuments 14 have been lost to rapid urbanisation, 12 are submerged by dams, and 24 are untraceable.

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Challenges

- **Soft penal provisions**- The inadequate penal provisions in the AMASR Act are proving to be a non-deterrent for the culprits. According to the act guilty shall face upto 3 months of jail or upto Rs 5000 fine or both.
- **ASI is powerless**- The powers available with ASI to deal with encroachment are not sufficient as they are dependent on local police, which sometimes works in nexus with the culprits. However, it has the authority to issue show cause notices and eviction notices to culprits but these powers are not being effectively used.
- **Shortage of manpower**- The never-ending shortage of manpower at ASI is hindering the normal functioning of the organization.
- **The lack of focus**- ASI's is focused on overseeing construction activities in surrounding areas rather than protecting monuments which needs to be revived through legislative intervention to ensure that conservation is once again the focus of the AMASR Act.
- ASI said a comprehensive physical survey of all monuments has never been conducted after Independence.
- **Scarcity of land**- Land is a scarce resource as a result its encroachment is common, even the historical importance of a site is of little significance for the culprits.

Way Forward

- ✚ Experts suggest that the ASI officers should have powers to seal the site of illegal construction by the time so, the demolition can be done as it would be effective in curbing the issue of encroachments.
- ✚ Regular staffing of personnel at all Centrally Protected Monuments can allow ASI to stop encroachments at the early stage before any illegal construction has taken place.
- ✚ The CAG report recommended that the periodic inspection of each protected monument be carried out by a suitably ranked officer.
- ✚ Given the tourism potential of monuments if maintained and marketed well is immense, the monetary benefits of an initial investment in historical sites could yield enough returns to be able to afford to sustain the maintenance itself.

Rapid urbanisation, and the increasing demand for space allows neglected monuments to become spaces into which settlements can easily encroach. Thus, much more must be done to prevent monuments of history from vanishing.

DELIMITATION IN ASSAM

News Excerpt

The Election Commission of India has begun the process of delimitation of Assembly and Parliamentary constituencies in Assam. The process will be based on Census data from 2001. The last delimitation of constituencies in Assam was done in 1976 on the basis of the 1971 Census.

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Pre-Connect

- Delimitation is the act of redrawing boundaries of Lok Sabha and State Assembly seats to represent changes in population.
- The Delimitation Commission is appointed by the President of India and works in collaboration with the Election Commission of India. It is composed of the retired Supreme Court judge, the Chief Election Commissioner of India and respective State Election Commissioners.
- The Delimitation Commission works without any executive influence.
- The Constitution mandates that the Commission's orders are final and cannot be questioned before any court as it would hold up an election indefinitely.
- The main objective of delimitation is to provide equal representation to equal segments of a population.
- The population does not grow uniformly across all areas of a state. Hence, delimitation of constituencies not only reflects an increase in population but changes in its distribution.
- Under Article 82, Parliament is to enact a Delimitation Act after every Census. Once the Act is in force, the Union government sets up the Delimitation Commission.

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- The Commission is supposed to determine the number and boundaries of constituencies in a way that the population of all seats, so far as practicable, is the same.
- The draft proposals of the Delimitation Commission are published for public feedback. The Commission also holds public sittings. After hearing the public, it considers objections and suggestions, and carries out changes, if any, in the draft proposal.
- The final order is published in the Gazette of India and the State Gazette concerned and comes into force on a date specified by the President.

PEPPER IT WITH

J&K delimitation, Election commission, Electronic voting machine

Assam Delimitation

- **Section 8A in The Representation of the People Act, 1950:** If the President is satisfied that the situation and the conditions prevailing in the States of Arunachal Pradesh, Assam, Manipur or Nagaland are conducive for the conduct of delimitation exercise, he may, by order, rescind the deferment order issued under the provisions of section 10A of the Delimitation Act, 2002 in relation to that State, and provide for the conduct of delimitation exercise in the State by the Election Commission.
- Delimitation panels were set up thrice (1952, 1962 and 1972) before the exercise was suspended in 1976 in view of the family planning programmes in the States.
- The last Commission was set up in 2002 but before its exercise was completed in 2008, the delimitation of four north-eastern States namely Arunachal Pradesh, Assam, Manipur and Nagaland was deferred due to security risks. Jammu and Kashmir was also left out of that delimitation exercise for similar reasons.
- Apart from law-and-order various organisations in Assam were opposed to delimitation in 2008 due to various reasons related to illegal immigrants, migrants etc.
- In 2020, the government set up a Delimitation Commission for J&K, Assam, Arunachal Pradesh, Manipur and Nagaland. But a year later, in March 2021, the government omitted the four North-Eastern states when it extended the tenure of the Commission.
- The commission, headed by Justice Ranjana Desai, went on with redrawing the boundaries of J&K, giving its final award in May 2022. Now, the government and the EC have revived the delimitation plan for Assam.
- The 2001 Census is being used as Constitution provides under Article 170 that the population numbers to be used for drawing boundaries of constituencies would be as per the 2001 Census until the first Census after 2026 is published.
- In the case of J&K the Jammu and Kashmir Reorganisation Act, 2019 had mentioned the population in the 2011 Census as the basis of delimitation.

Delimitation Dilemma

- ❖ The Constitution mandates that the number of Lok Sabha seats allotted to a state would be such that the ratio between that number and the population of the state is, as far as practicable, the same for all states.
- ❖ However, this provision meant that states that took little interest in population control could end up with a greater number of seats in the Parliament.
- ❖ The fear of losing meaningful political representation was especially great in the southern states which not only had greater success in controlling populations but also become economically developed. They generated a lot more per capita revenue than the northern states.
- ❖ Delimitation on the basis of population would disenfranchise them politically.
- ❖ To allay these fears, the Constitution was amended during in 1976 to suspend delimitation until 2001.
- ❖ Another amendment postponed this until 2026. It was hoped that the country would achieve a uniform population growth rate by this time.

Concerns related to Delimitation

- ✓ **Not using 2011 census-** While most have welcomed the delimitation process in Assam, some have raised concern for using the 2001 census for the process rather than the 2011 census.
- ✓ Assembly elections in Assam are due in 2026. When the delimitation was kept in abeyance in 2008, one of the reasons was that the National Register of Citizens had not been finalised. Now, the Opposition parties in the state have pointed out that the NRC issue remains unresolved.

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FREEDOM OF SPEECH

News Excerpt

The Supreme Court on January 3, 2023 held that there is no reason to impose “additional restrictions” on the right to free speech of Ministers, and the government is not vicariously liable for disparaging remarks made by them, even if the comments are traceable to state affairs or meant to protect the government.

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Case

- The case Kaushal Kishor v the State of Uttar Pradesh is linked to the Bulandshahar rape incident of 2016.
- The then Minister of the State termed the incident as a political conspiracy which offended the survivors who filed a writ petition before the apex Court.
- The court directed him to submit an unconditional apology and it also noted that the case raises serious concerns regarding the state obligation and freedom of speech and expression.

Supreme Court Verdict

- Five judge constitutional bench said that no additional restrictions against free speech can be imposed except those mentioned under Article 19(2) of the Constitution.
- A statement made by a minister even if traceable to any affairs of the state cannot be attributed to the government by invoking the **principle of collective responsibility**.
- Further, it said while citizens had the right to petition the Court for violations of Article 19 (freedom of expression) and Article 21 (right to life), a statement made by the Minister, inconsistent with the rights of the citizens, may not by itself be actionable. But if it leads to omission or commission of offence by a public official, then remedies can be sought against it.
- **The Prime Minister or the Chief Minister does not have disciplinary control over the members of the Council of Ministers. In a country like ours, where there is a multi-party system and where coalition Governments are often formed, it is not possible at all times for a Prime Minister/Chief Minister to take the whip whenever a statement is made by someone in the Council of Ministers.**
- SC asserted that the “reasonable restrictions” on free speech for citizens, including Ministers and public

Whip

- ❖ The system of the whip is inherited by India from colonial British rule. Although it is not mentioned in the constitution, in the Rules of the House, or any Parliamentary Statute
- ❖ It is a written order that political parties use for floor management in the legislature.
- ❖ In essence, it means directing the lawmakers to follow the party line. Therefore, considered an important office-bearer of the party in the legislature.
- ❖ Political parties appoint a Chief Whip along with additional Whips.
- ❖ A whip is not applicable in the Presidential and vice-presidential elections.
- ❖ There are three types of Whips:
 - One-line whip: It informs the members about a vote and allows them to abstain from the same.
 - Two-Line whip: It directs the member to be present in the House at the time of Voting. However, no special instructions on the voting pattern.
 - Three-line whip: It is issued to members directing them to vote as per the party line. It is the strictest of all the whips.
- ❖ A legislator may face disqualification proceedings if she/he disobeys the whip of the party unless the number of lawmakers defying the whip is 2/3rds of the party's strength in the house. Disqualification is decided by the Speaker of the house.

A ‘**constitutional tort**’ is a violation of one’s constitutional rights, particularly fundamental rights, by an agent of the government, acting in his/her official capacity. A court of law can award monetary compensation to the victim in such a case.

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functionaries, were “exhaustive”. Besides, the state has an affirmative duty to protect when there is a threat to personal liberty, even by a non-State actor.

- The fundamental right to free speech and right to dignity could be enforced against private parties. Therefore, the judgement said that there was no need to bring in further shackles on free speech in the guise of protecting the “competing” fundamental right to life and dignity under Article 21 of persons at the receiving end of a Minister’s comments.
- It was further held that a statement made by a Minister inconsistent with the rights of a citizen may not constitute a violation of constitutional rights of the latter and become actionable as a “constitutional tort”.
- No one can either be taxed or penalised for holding an opinion which is not in conformity with the constitutional values. It is only when his opinion gets translated into action and such action results in injury or harm or loss that an action in tort will lie

The Dissenting Judgment

- ✓ Justice B V Nagarathna wrote a separate judgment and said freedom of speech and expression is a much-needed right so that citizens are well informed and educated on governance.
- ✓ While she agreed that further restrictions need not be placed on speech, she opined that hate speech strikes at the foundational values by making society unequal and also attacks citizens from diverse backgrounds.
- ✓ Regarding statements made by a Minister which are traceable to affairs of government, she said that such statements are vicariously or by association attributable to the government. If the statements are disparaging, the government is vicariously liable.

PEPPER IT WITH

Freedom of Speech and expression, principle of collective responsibility

SUPREME COURT UPHOLDS DEMONETIZATION

News Excerpt

A Constitution Bench of the Supreme Court recently upheld by a 4:1 majority the decision taken by the central government six years ago in 2016 to demonetise currency notes of Rs 500 and Rs 1,000 denominations. The bench held that the Centre’s notification dated November 8, 2016, was valid and satisfied the test of proportionality.

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Pre-Connect

About Demonetisation

- Demonetisation is the act of making a currency invalid by stripping off its legal status.
- Currency notes are legal tenders issued by a central bank, promising the owner to give the value marked on the notes.
- Demonetization is used as a tool to stabilize the currency and fight inflation, facilitate trade and access to markets, and push informal economic activity into more transparency.

Objectives

- To flush out black money
- To free the country from corruption
- To deal a blow to cross-border terrorism by eliminating counterfeit currency

Supreme Court Verdict

- ✓ The majority view relied on the government’s argument that merely because the process was initiated by the Centre, it could not be struck down.

History of Demonetization

- ❖ **1946:** Legal tender high denomination notes of Rs 500, Rs 1,000, and Rs 10,000 were withdrawn
- ❖ **1978:** To curb black money generation Currency notes of ₹ 1,000, ₹ 5,000 and ₹ 10,000 were banned.
- ❖ **2016:** RBI withdrew the legal tender status of ₹ 500 and ₹ 1,000 denominations of banknotes of the Mahatma Gandhi Series.

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- ✓ The ruling notes that the minutes of the RBI Central Board meeting that recommended demonetisation on November 8, 2016 itself stated that the RBI and the Centre had discussed the idea for over six months before it was notified.
- ✓ On the merits and soundness of the decision, the majority stated that the court cannot determine the effectiveness of economic policy. However, it agreed with the Centre's contention that the decision had to be made in secrecy and in haste for it to be effective.
- ✓ The majority decision applies a four-pronged test of proportionality to the constitutionality of the decision. The four ingredients of the test to be satisfied are: i) legitimate purpose (ii) rational connection with the purpose (iii) necessity (iv) whether the action taken is proportional or balanced.
- ✓ The majority verdict states that curbing fake currency, black money and terror funding are legitimate interests of the state and have a rational nexus with demonetisation.
- ✓ For the third aspect, the court has to determine if the decision was necessary, and that there were no alternative measures that could have achieved a similar purpose with a lesser degree of harm for citizens. Here, the court said that it is "exclusively within the domain of the experts" i.e. RBI.
- ✓ On the fourth aspect, the court said "what alternate measure could have been undertaken with a lesser degree of limitation is very difficult to define".
- ✓ The court cited an earlier instance of demonetisation in 1978 where a three-day period was provided for exchanging the demonetised notes. This was upheld by a Constitution Bench of the court. Relying on this decision, the majority view said that the said period of 52 days cannot be construed to be "unreasonable, unjust and violative of the petitioners' fundamental rights."

Section 26(2) of the RBI Act, 1934

It allows the central government to declare that "any series of bank notes of any denomination shall cease to be legal tender" after a recommendation from the central board of RBI.

The Executive Debate

In India, there is division of power based on the doctrine of separation of power. Challenging of pure executive decisions like demonetization in courts might not set the right precedent for Indian Democracy. Every decision taken by political executive is tested in the court of masses during every election. If people are not happy with any decision of the government, they can always vote out the political executive. Further, the mammoth pendency of cases which the judiciary faces, entertaining such cases might result in wasting the precious time of the court. It can also lead to policy paralysis in the government, in which crucial decisions are delayed due to fear of courts.

Dissenting Judgement:

- The Government's demonetisation initiative reflected a concern to address "disparate (economic) evils," showed "foresight," and was motivated by the "best intentions and noble objects," but the way it was done, it violated the law and highlighted how the central bank didn't apply an independent mind.
- Because it "arose" from the Centre, the Government should have brought an ordinance or a law in Parliament to implement the note ban rather than get Reserve Bank of India to give a recommendation and issue a notification the way it did.

Conclusion

While the decision to demonetise cannot be reversed, the arguments presented in court, and the judgment now, have far-reaching implications for the policy-making process and institutional ethos in the country. While the decision of the demonetisation got the green signal from the majority of the judges, the dissenting judgment must be read carefully for the glaring institutional gaps and weaknesses it points to.

PEPPER IT WITH

Doctrine of separation of powers, Jurisdiction of Supreme Court, Seventh Schedule.

ELECTORAL REFORMS

News Excerpt

The Election Commission has recently come out with a plan to test its latest proposal to help domestic migrants cast their ballots for their home constituencies, from polling stations in the cities they work in.

Pre-Connect

Need For Remote Voting

- Though voter turnout has increased over the years since the first few general elections after Independence when it hovered around 50%, the last three Lok Sabha polls have seen an average of one-third of registered voters sit out the elections.
- In 2019, 67.40% of the 91.20 crore registered electors voted, slightly higher than 66.44% in 2014. In 2009, the turnout was 58.21%.
- One of the reasons, according to the EC, was internal migration that took electors away from their home constituencies.
- The EC had formed a committee of officers to come up with solutions for remote voting in 2016, however, there were several unanswered questions. The term domestic migrant was not defined and counted in a central database.
- The EC letter pointed out that the Registrar General of India, the Union Labour and Employment Ministry and the National Sample Survey Organisation had different meanings of “migrant”.
- The 2011 Census says 45.36 crore Indians or 37% of the population are “migrants” and 75% of these migrants moved due to marriage or other family-related reasons.

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Current Proposal of Remote Voting

- Working with the Electronics Corporation of India, a company under the Department of Atomic Energy, the EC has come up with a prototype Remote Voting Machine (RVM), which is a modified version of the existing Electronic Voting Machine (EVM).
- The RVM will be able to handle 72 constituencies in a single remote polling booth. The special remote polling booths would be set up in different states when elections are on in the home state of migrants.
- The EC proposed using this in a State Assembly election as a pilot so internal migrants within a state can cast their ballots.
- The remote voter will have to pre-register for the facility by applying online or offline with the Returning Officer of the home constituency. The special polling stations would then be set up in the places of current residence of the remote voters.
- The RVM is a standalone and non-networked system. Instead of a paper ballot sheet, the RVM would have a dynamic ballot display that can change with the selection of different constituencies.
- The system would have a device similar to the VVPAT so voters can verify their votes. The units will save the number of votes for each candidate for each of the constituencies, to be tallied on counting day. The results would then be shared with the home RO.

Securing the Voting Process through RVM

- ✓ According to the EC, the RVM, like the EVM, would not be connected to the internet.
- ✓ The RO in the remote location will load the symbols of candidates into the unit using a laptop. These laptops would not be connected to the internet.
- ✓ Representatives of political parties and candidates would be invited to be present when the symbols are loaded onto the unit.
- ✓ The symbols would be visible on a display unit for all to see.

Components of RVM

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- RCU (Remote Control Unit, which has similar controls to the existing CU. The RCU can also store the result of the total number of votes as per candidate and the constituency).
- RBU (Remote Ballot Unit, which consists of the electronic dynamic display (BUOD) instead of a fixed ballot paper sheet in a BU,
- BUOD (Ballot unit overlay Display), which can dynamically display the list of candidates based on the constituency number read by the constituency card reader).
- RVVPAT (Remote Voter Verified Paper Audit Trail, which has similar functionality to existing M3 VVPAT. In addition, it can store symbols of different AC/PCs with candidate images).
- CCR (Constituency Card Reader, which is a barcode reader to read the constituency number of a particular voter. It is connected to the PDCU Unit).
- PDCU (Public Display Control Unit, which acts as an interface between CCR, Public display and RBU. It enables the list of candidates of the particular constituency to be displayed on public display and the RBU simultaneously).
- RSLU (Remote Symbol Loading unit, which is used to capture symbols of Remote AC/PCs candidates from laptops under the control of Home RO. The same symbols will then be loaded into RVVPAT under the control of Remote RO).

Challenges with remote electronic voting

- ✚ Unambiguous identification: The participant in a vote or election must be clearly identified and authorised.
- ✚ Authenticity of the e-voting servers: Citizens must have the guarantee that their votes are sent to the official servers.
- ✚ There is also a threat of cyberattacks like possibility of interception and modification of votes.
- ✚ The administrative challenges include enumerating remote voters-self declaration, ensuring secrecy of voting at remote locations, provision of polling agents at remote voting booths, and ensuring identification of voters to avoid impersonation.
- ✚ Protection of voter's privacy from third party and secrecy of his intention must be maintained.
- ✚ Technological challenges include familiarity of the voters with the Multi-Constituency Remote EVM and counting of votes.

Way Forward

- ⇒ Use of digital signature or individual code in order to access the system.
- ⇒ Voter could be marked in electronic electoral register to ensure universal voting, as soon as the vote is casted.
- ⇒ ECI has to plan to map the population of migrant workers across the country to prepare a roadmap for introduction of remote voting.

PEPPER IT WITH

Functions of Election Commission, SVEEP, cVIGIL, Voter Helpline App, Postal Ballot

Conclusion

The initiative, if implemented, can lead to a social transformation for the migrants and connect with their roots as many times they are reluctant to get themselves enrolled at their place of work for various reasons.

ISSUES WITH JUDICIARY

News Excerpt

On the occasion of the celebration of Constitution Day, the President of India in her speech asserted that citizens should be effective stakeholders in the dispensation of justice.

Pre-Connect

Function of Indian Judiciary

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Functions of Indian Judiciary

Administration of Justice

To apply the law to specific cases or disputes. When it brought before the courts and renders the appropriate awards and judgment. Under the doctrine of the 'stare decisis' the previous decision of judges are regarded as binding on forthcoming similar cases.

Guardian of the Constitution

Any law or executive order which violates any provision of the constitution is declared unconstitutional or null and void by the judiciary

Protector of Fundamental Rights

The judiciary protects the rights of people against the encroachment of the government or any other association or individual. The superior courts enforce the fundamental rights of the people through appropriate writs

Advisory Function

In India the Supreme Court, the highest court of law, may give advisory opinion on constitutional questions. Such advice is given even in the absence of an actual dispute, when the President so desire.

Supervisory Function

Higher courts, in most cases, are assigned the task of supervising the work of the lower courts. The High Courts supervise the work of the subordinate courts in India.

Non-judicial or Administrative Functions

Miscellaneous functions like the courts may grant certain licenses, administer the estates of deceased persons and appoint receivers. They register marriages; appoint guardians of minor children.

Judicial Structure in India

- The Constitution of India provides for a single integrated judiciary with a hierarchical structure.
- The Supreme Court is at the apex, below it, there are High Courts, the next step in the hierarchy are the district courts and at the bottom of the judicial pyramid are the subordinate courts.
- The lower courts function under the direct superintendence of the higher courts.
- In India, the courts from top to bottom deal with the disputes arising under the laws enacted by the Union Parliament as well as by state legislatures.

Issues and Challenges Faced by the Indian Judiciary

The Indian judiciary has had its share of critical concerns such as

✓ Pendency-

- According to the Law Ministry data soon pendency across Indian courts could reach the 50 million mark.

Safeguards for Judiciary in India

Security of Tenure



Judges in India have the security of tenure, this ensures that judges could function without fear or favours. They can be removed on the ground of proven misbehavior or incapacity by the President.

Security of Salary



The salaries of the judges cannot be changed to their disadvantage during their term of office. The only reduction permitted is during a period of financial emergency.

No Vote



Salaries of the judges are charged on the consolidated fund and are not subject to vote either in Parliament or Legislative assemblies

Bar on Legislature



Legislatures cannot discuss the conduct of a judge or the discharge of his duties except when there is a motion for his removal.

Full Control over Functioning



Courts in India are free to decide their procedure of work as well as conditions of services of its employees without any interference from the third party.

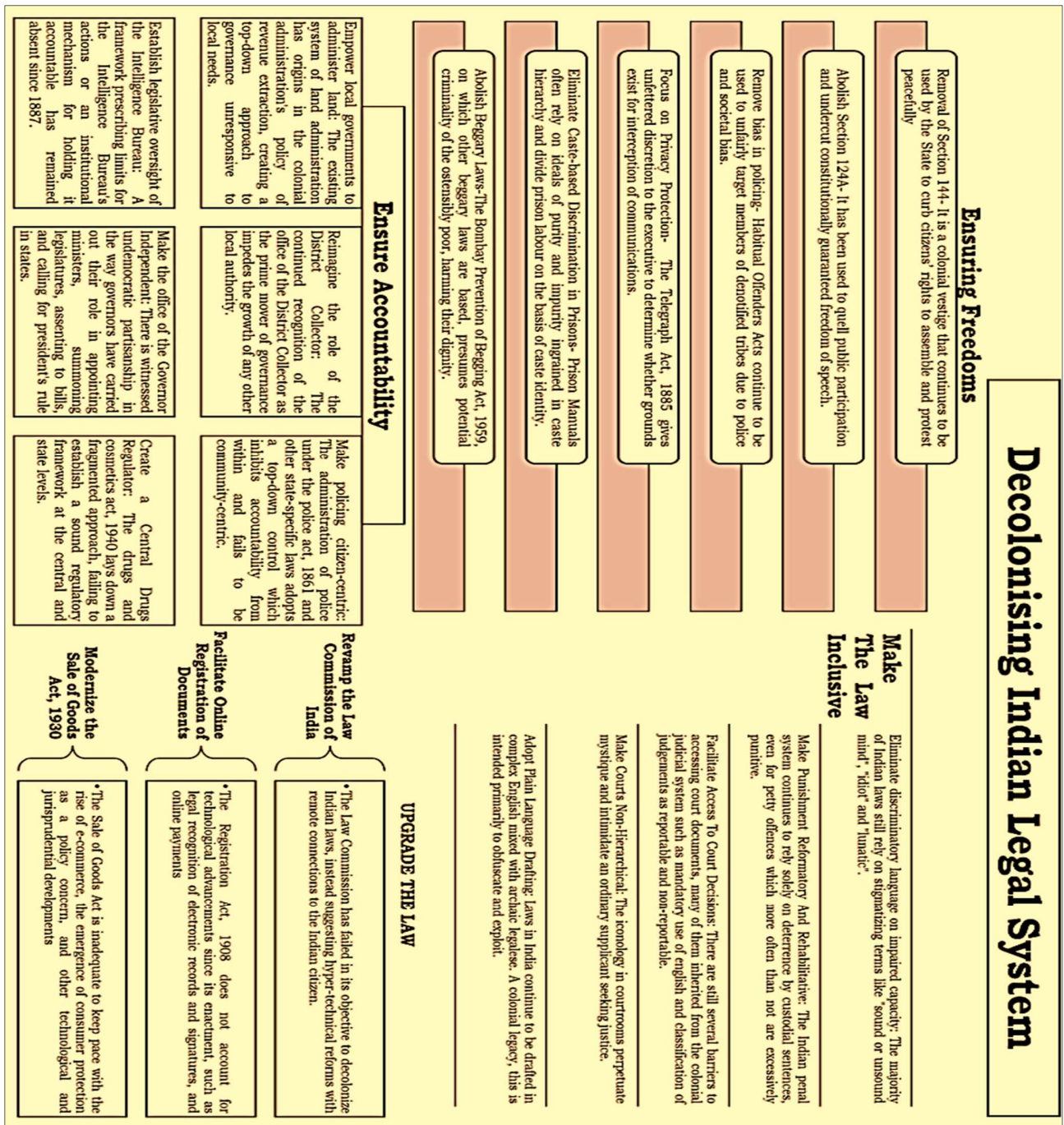
Contempt of Court



If any person or body tries to lower the authority of the courts, then the courts have the power to punish them for contempt of court.

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- The majority of the cases are pending with the subordinate judiciary.
- Supreme Court in *Anil Rai vs State Of Bihar case (2001)* has asserted that delay in reasoned judgment by the courts amounts to a violation of the Right to Life as guaranteed under Article 21 of the Constitution.
- According to a report by Vidhi Centre, 70% of civil cases get more than three adjournments.
- ✓ **Vacancy**
 - As per the data provided by the Ministry of Law and Justice district courts in India have a total vacancy of 5,850 judges. Similarly, 333 posts of HC judges lie vacant.
 - Insufficient appointments is one of the key reasons for pending vacancies.
 - The lack of an adequate number of judges means a greater workload per judge.
- ✓ **High Cost of Justice**
 - Ex-President of India, Shri Ram Nath Kovind asserted that India has acquired a reputation for an expensive legal system. This he attributed to both delay and affordability of fees which restricts a poor person from reaching the door of justice.
 - In *Vinod Seth vs Devinder Bajaj case (2010)*, Supreme Court asserted that Under no circumstances, costs should be a deterrent to a citizen with a genuine or bona fide claim, or to any person belonging to the weaker sections whose rights have been affected, from approaching the courts.
- ✓ **Undertrial Prisoners**
 - As per the data from the National Crime Record Bureau (NCRB) 2021, among the 5,54,034 inmates across India's prisons, 77.1% were under-trials.
 - As per the data from World Prison Brief, India currently has the sixth-highest share of pre-trial detainees in the world.
 - Prolonged undertrial detention can violate the rights to liberty and fair trial, and also adversely impact the lives and livelihood of those incarcerated, and increases the risk of torture or other ill-treatment.
- ✓ **Tribunalisation of Justice**
 - Tribunals were created to fast track the justice dispensation system. They were envisaged as cost-effective, and accessible and give scope for specialization and expertise required to decide complex cases of a technical nature.
 - However, Tribunals got entangled in a web of bureaucratic red-tapism and suffered policy mismatch and confusion. Further, verdicts of Tribunals are challenged in the higher judiciary, thereby adding to the pendency of cases.
- ✓ **Infrastructure Woes**
 - Ex-CJI, NV Ramana had once remarked that *Good judicial infrastructure for courts in India has always been an afterthought. It is because of this mindset that courts still operate from dilapidated structures making it difficult to effectively perform their functions.*
 - Even after seven decades of independence the budgetary allocation for the judiciary (including the contributions from the states) still falls far below 1 percent of GDP.
 - Further, another issue is the underutilization of funds, this is primarily attributed to the inability of states to contribute to the Central Sector Scheme (CSS) funds and bureaucratic delays.
- ✓ **Lack of Gender and Social Diversity**
 - Courts in India suffer from a lack of both gender and social diversity. As per Data, From about the 256 judges appointed to the Supreme Court since its inception, only 11 have been women, and only two of these 11 have been a part of the Collegium.
 - Total female representation on the Bench of the higher judiciary remains a mere 11.2 percent. Further, several high courts did not have even a single female judge in 2021.
 - Representation from backward classes is also lackadaisical in the Indian judiciary.



✓ **Uncle Judges Syndrome**

- It refers to the corrupt practice in the Indian judiciary where relatives of a judge are either favored in the judgement or appointed in the judiciary. Former CJI RM Lodha once remarked that every third High Court Judge is an Uncle.
- This creates a breeding ground for favoritism and nepotism in the Indian judiciary.

✓ **Quality of Free Legal Aid**

- Free Legal Aid is implicitly a fundamental right under Articles 14 and 21. Further, DPSP- Article 39-A advocates the provision for free legal aid to citizens in need.

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- Free legal services are provided under the Legal Services Authorities Act, 1987, and are operationalized by the National Legal Services Authority (NALSA).
- However, Legal aid to the poor does not mean poor legal aid. There has to be better standard, better quality, and better level.
- But those who are providing free legal aid face several issues such as their pay is not commensurate with the work, payments from the legal aid services authority are often delayed, legal aid counsel are not respected as much as private lawyers in court, and they do not get any social security benefits as they are not employees.
- Further, A 2018 study by the Commonwealth Human Rights Initiative (CHRI) found that India has five legal aid lawyers per 100,000 population. This is a serious cause of concern.

Way Forward

As India celebrates its 75th year of independence, issues plaguing the Indian judiciary cannot be allowed to continue. For this, there are several reforms need to be undertaken such as:

- **Addressing Pendency**- Several steps can be taken to address judicial pendency such as:
 - SC and HCs should identify in which areas of the pending cases the question and law involved are the same or substantially the same. Such cases should be clubbed together.
 - Frequent transfers of subordinate courts' judges and staff require reconsideration.
 - Penalize adjournment culture to deter it and use incentives and disincentives to tackle all large-volume types of cases that take advantage of the delay in the courts.
 - There is a need to harmonize the CrPC (Code of Criminal Procedure) and give some powers back to the District Magistrate from the Judicial Magistrate.
- **Addressing Vacancy**-
 - Introduction of the All India Judicial Services (AIJS) on the line of All Indian Services (AIS).
 - Senior lawyers must be promoted to accept a judgeship and the High Courts and the Supreme Court should both be transparent as far as the process of appointing judges is concerned.
- Despite NALSA having several success stories in its bag, there is still scope to significantly improve the quality of free legal aid provided in the country. As former CJI UU Lalit warned, **Litigation cannot be allowed to become a bleeding wound.**
- To address the infrastructural woes, the government can consider the idea of creating a National Judicial Infrastructure Cooperation (NJIC) as recommended by former CJI NV Ramana to act as a coordinating agency to speed up the infrastructure work.
- There is a need to implement the recommendation of the 230th report of the Law Commission which suggested that the Judges, whose kith and kin are practicing in a High Court, should not be appointed in the same High Court. Further, judicial audits of lower courts should also be taken into account.
- On the question of diversity, there is a need to promote substantive diversity rather than make diversity a token symbol to evoke a feeling of representation and inclusivity in the highest courts. For this to be realized the discourse on diversity and merit should be harmoniously construed rather than making them mutually exclusive.

Digital Judiciary

With the onset of the pandemic, Indian Judiciary took several strides toward modernizing itself with the help of ICT (Information-Communication-Technology), these include:

- ❖ SUVAS (Supreme Court Vidhik Anuvaad Software) is an artificial intelligence system that can help with the translation of court decisions into regional dialects.
- ❖ SUPACE (Supreme Court Portal for Assistance in Court Efficiency) to first understand judicial processes that require automation, and then to assist the Court in improving efficiency and reducing pendency by encapsulating judicial processes that can be automated through AI.
- ❖ The E-courts Project was conceived to transform the Indian judiciary by enabling courts with ICT (Information and Communication Technology). It is a pan-India project for District Courts across the country, overseen and sponsored by the Ministry of Law and Justice and the Department of Justice. The goal was to deliver citizen-centric services in a timely and effective manner.

News Excerpt

Recently, as per data submitted in the Parliament, the number of Organ Donations was highest in 2021 but deceased donations are still uncommon in India. As per data from Organ India (NGO), In 2019, India had a Deceased Organ Donation rate of 0.52 donors per million population, far below the global average of 7.91 donors per million population.

Pre-Connect

About Organ Donation

- It is the process of surgically removing an organ or tissue from one person called a **donor** and placing it into another person suffering from organ failure, called a **recipient**.
- The process of recovering organs is called retrieval. The organs can be retrieved from **living or deceased persons**.

Organ Donation in India

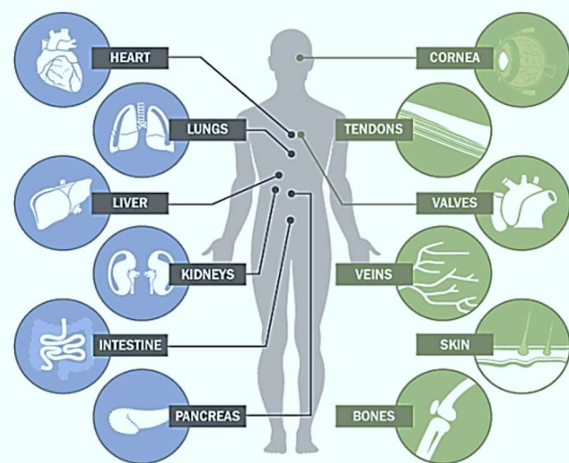
- Data suggest that only 0.01% of Indians have given consent to donate their organs after their death.
- According to the Global Observatory on Donation and Transplantation, India performed the third-highest number of transplants in the world in 2019. At the same time, India reported a dismal organ donation rate of 0.65 per million population.
- There is also a geographical skew in deceased donations. This could be because most organ transplant and harvesting centers are concentrated in a few states.
- It is estimated that 1.5-2 lakh persons need kidney transplants every year and only around 8,000 get one. Same is the case for liver transplants and heart transplants.
- The Government is implementing **National Organ Transplant Programme (NOTP)** to

National Organ and Tissue Transplant Organisation (NOTTO)

It is a national-level organization set up under the Ministry of Health and Family Welfare and functions as an apex center for coordinating all activities and networking for the procurement and distribution of organs and tissues and maintaining of registry of organs and tissue donations and transplantation. At the state level and regional level it is State Organ and Tissue Transplant Organization (SOTTO) and Regional Organ and Tissue Transplant Organization (ROTTO).

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LIFESAVING & HEALING ORGANS & TISSUES



Brain Stem Death

It is a condition of absent brain stem reflexes but the presence of few cortical as well as hypothalamic integrity such as osmoregulation where a person permanently loses the potential for consciousness and the capacity to breathe. A person's organs with brain stem death can survive for 2-3 days if kept on a ventilator as the heart continue to beat. Thus, organs can be surgically removed with the family's consent.

promote organ donation and transplantation across all States and UTs.

- Organ donation in India is regulated under the Transplantation **of Human Organs Act (THOA), 1994, and Transplantation of Human Organs and Tissues Rules, 2014**. Under the act, Brain death is identified as a form of death.

Need for Deceased Organ Donations

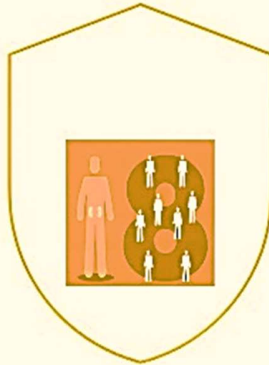
- There is a big gap between the demand and supply of human organs and tissues in India.

Types of Organ Donation



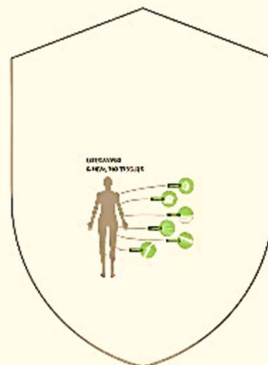
Living Organ Donation

It is donating a portion of a liver or one of the kidneys to a patient while the donor is still alive. Donors can be friends, spouses, family members, or altruistic donors.



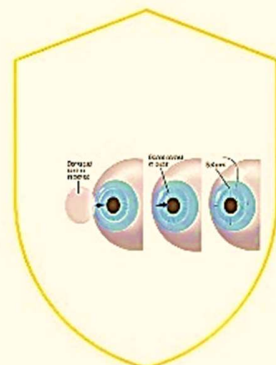
Deceased Organ Donation

It is when an organ or part of an organ can be given at the time of the donor's death. This is called a deceased donation. Most transplants are done through deceased donation. A Single person can save up to 8 life.



Tissue Donation

It can also be a life-saving solution for someone in need. The types of tissue that can be donated include tendons, valves, veins, skin, and bones.



Cornea donation

It can help in restoring sight for people who have gone blind. Anyone above 18 years can be a cornea donor irrespective of age, eye color, and quality of sight.

Increasing rates of diabetes and organ-specific diseases (especially of the liver and the kidneys) have contributed to higher demand for organ transplants as well.

- ✓ High Demand for organ transplantation due to the increase in the prevalence of lifestyle diseases.
- ✓ Organs like hearts and lungs can only be retrieved from deceased donors.
- ✓ Living organ donation is risking healthy donors and it should be reserved for situations in which there is no acceptable alternative.

Issues related to Organ Donations

- Lack of awareness among the people about the process of organ donation, which gives rise to superstitions and misconceptions about the practice
- Religious constraints and infrastructural problems also act as barriers to donating organs.
- The protocols to declare a person to be 'brain-dead' are also unclear and vary from hospital to hospital. This results in confusion and delays.
- Brain-stem death doesn't find a place in the Registration of Births and Deaths Act 1969 as a result leads to prolonged ventilation support.
- Care work is often considered to be a woman's primary responsibility, and these social conditions indirectly coerce women to donate their organs when a family member is in need.

Process of becoming an organ donor

- ❖ Taking pledge on the NOTTO website.
- ❖ Mailing a filled-in Form 7 of the Transplantation of Human Organs Act.
- ❖ Consent of family is required after the death of the individual so it is important for donors to explain their beliefs to the members of their family.
- ❖ The organs cannot be harvested if the family refuses.

Spain Model

The organ donation rate in Spain is highest in the world- 49.6 per million population. Spain has opting-out legislation, therefore a person is considered as donor automatically until they explicitly opt out.

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- Registration Policy in India often confines people from donating organs after death as they have certain misconceptions and fear.
- Organ trading is one of the major causes of distrust among donors and a major concern for the government.

Way Forward

- It is only through awareness programmes that the number of deceased donations can be increased. Large-scale advertising campaigns should aim to educate people about the benefits of organ donation. Replication of the "Netra Daan Maha Daan" like the campaign can go long way in increasing public support for Organ Donation.
- The concept of brain death needs to be adequately dealt with so that the organs of the deceased can be retrieved and utilized and do not go waste. It should also involve cases of cardiac arrest death so that organs can be harvested in the golden hour.
- There is a need to set up a robust regulatory mechanism to hold healthcare professionals and intermediaries accountable. The appropriate authorities should continuously verify donors and recipients and their relationship, to curb false claims.
- A central organ-sharing registry or a recipient registry is an absolute must so that donated organs can be shared fairly and transparently.
- Apart from developing an equitable and transparent system, There is also a need for a uniform definition of 'death' to ensure that medical care is consistent, regardless of whether organ donation takes place. This will involve delinking 'brain deaths' from organ donation and including them as a form of 'death' in the Registration of Births and Deaths Act.
- Revising post-mortem protocols is a step in the right direction however, it alone cannot push the wheels of Organ Donation in India.

Ethical principle of organ donation

The Ethics of organ donation revolves around the concept of Utilitarianism. It holds that the most ethical choice is the one that will produce the greatest good for the greatest number. Organ donation can result in saving multiple lives.

Transplant Tourism

Transplant tourism is the movement of organs, donors, recipients or transplant professionals across jurisdictional borders for the purpose of organ trafficking and transplant commercialism.

India is one of four commonly known organ-exporting countries where foreign nationals seek low-cost medical care and relatively easier access to organs. Internet is used to attract foreign donors. Further, private hospitals in some states favouring foreign transplant-recipients over Indian ones on organ waiting lists. But prioritising foreign citizens over Indians isn't justifiable when 5 lakh people die every year for want of transplantable organs.

PEPPER IT WITH

Istanbul Declaration on Organ Trafficking and Transplant Tourism, National Organ Donation Day

ROAD SAFETY IN INDIA

News Excerpt

The beginning of the new year is marked by serious incidents of road accidents in India. While on one hand, India is pushing for infrastructural growth by building road infrastructure, adherence to road safety norms remains in shambles.

Pre-Connect

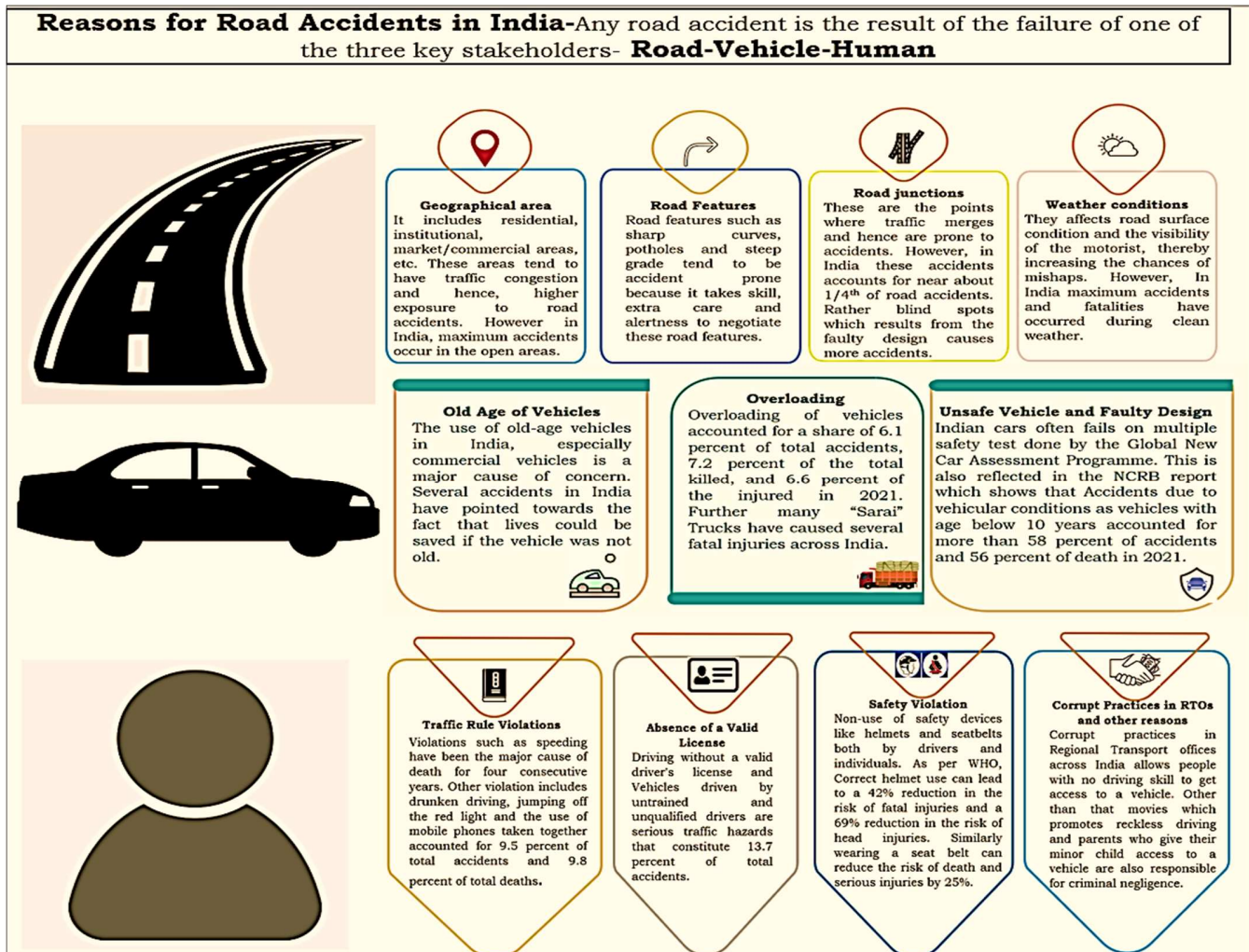
The key finding of the NCRB report on Road Accidents in India-2021:

- Road accident cases in the country have increased from 3,54,796 in 2020 to 4,03,116 in 2021.
- The maximum increase in the number of traffic accident cases in States was reported in Tamil Nadu >Madhya Pradesh> Uttar Pradesh> Maharashtra>Kerala from 2020-21.
- The fatalities in road accidents have increased by 16.8% in comparison with 2020 data.
- Road accident victims largely constitute young people in the age groups of 18 - 25, 25 - 35, and 35 - 45, and these age profiles together accounted for around 67.6 percent of accident deaths in the last three years.

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- Two-wheelers are the reason for the maximum number of fatal road accidents followed by cars and trucks/lorries.
- Most of the road accidents were reported between 18:00 hrs to 21:00 hrs (Night), accounting for 20.2% of total road accidents.
- The National Highways have accounted for the highest number of road accidents with the highest number of deaths contributing 30.3% of total road accidents. State Highways have reported 23.9% of road accidents in the country followed by other roads.



- Major causes of road accidents include speeding accounting for 59.7% of total accidents followed by dangerous/careless driving or overtaking (25.7%) and followed by driving under influence of drugs/alcohol (1.9%).






Government Initiatives for Road Safety

- **Identification and Rectification of Accident Blackspots**: High priority has been accorded to the identification and rectification of black spots (Blind Spots). Further, Emergency and medical facilities for road accident victims are provided as per the respective agreements signed between NHAI and the contractor.
- **Road Safety Audits**: It is mandatory to carry out the Road Safety Audit of all highway projects at all stages. It is being carried out as per the applicable standards laid down by the Indian Road Congress (IRC).

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Rights of Road Users under Motor Vehicle Amendment Act (2019)

	RIGHT TO LIFE	<ul style="list-style-type: none"> ❖ Protection of Good Samaritans from any Criminal or Civil Liability. ❖ Timely medical assistance/cashless treatment to road crash victims.
	RIGHTS OF VULNERABLE ROAD USERS	<ul style="list-style-type: none"> ❖ The rights of vulnerable road users such as pedestrians, cyclists, rickshaw pullers etc. ❖ It empowers States to regulate activities of pedestrians and non-motorized road users in public places
	RIGHT TO SAFE ROADS	<ul style="list-style-type: none"> ❖ It ensures compliance with design, construction and maintenance standards. ❖ It calls for setting up of a National Road Safety Board for advising on all matters related to road safety and traffic management.
	RIGHTS OF CHILDREN TO SAFE COMMUTE	<ul style="list-style-type: none"> ❖ It proposes that every child above the age of four years being carried on a motorcycle must wear a helmet. ❖ It makes mandatory for every child to be secured by a safety belt or a child-restraint system. ❖ It provides for adult accountability states that the guardian of the juvenile or owner of the vehicle shall be liable in case an offence has been committed by a Juvenile under this Act.
	RIGHT TO SEEK REDRESSAL	<ul style="list-style-type: none"> ❖ It provides right to seek insurance and settlement of claims within a reasonable time frame and deals with settlement of claims by insurance companies and procedures to be followed. ❖ It constitutes a Central Motor Vehicles Crash Fund to provide compulsory insurance cover to all road users in the country.

➤ **Increase in Pedestrian Facilities** through the construction of Pedestrian Underpasses (PUP), Pedestrian Subways (PSW), and Foot Over Bridges (FOBs).

➤ **Mandatory fitment of safety technologies:** To enhance the safety aspect of the vehicle, from time to time, MoRTH notifies mandatory fitment of various safety technologies:

- Fitment of both driver and co-driver **Airbags is compulsory.**
- Mandatory fitment of **ABS (Anti-Brake Locking System)**, applicable for 4-wheelers and 2-wheelers with engine capacity greater than 125 cc.
- Other safety technologies such as seat belt reminders for driver and co-driver, over-speed warning systems, reverse parking sensors, and manual override for central locking doors are compulsory.

○ **Bharat New Car Assessment Program (BNCAP)**- Under this program motor vehicles will be tested as per Standard AIS -197, and a star rating will be assigned based on its performance in respect of adult occupant protection, child occupant protection, and safety assist technology.

World Bank assessment on Road Accidents in India

- ❖ Road crashes endanger the lives and livelihoods of millions of road users globally and in India.
- ❖ Road accidents not only lead to untold and unaccounted suffering and loss for victims and their families, but also, it drains the GDP of countries by claiming millions of economically productive young lives.
- ❖ Key Findings of World Bank report are:
 - The socio-economic burden of road crashes is disproportionately borne by poor households.
 - Within households, women bear the brunt of caregiving activities post-crash, leading to a double burden of labour and mental load and exacerbated inequality of opportunities in returning to livelihoods and income generating tasks.
 - Inequality in insurance coverage and delay in accessing compensation mars the quick recovery process for Low Income household.
 - Information asymmetry and poor awareness of legal compensation among Low Income Households (LIH) compounds their distress. Awareness about the compensation process and insurance clauses is also very low among the LIH.

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➤ Training and Capacity Building:

- To strengthen the fitness check regime in the country, the Ministry of Road Transport and Highways is setting up model Inspection and Certification Centres in States/UTs.
- To ensure good driving skills and knowledge of rules of road regulations among drivers and to strengthen the system of driver licensing and training- Model training institutes are being set up by the government.

- **The Motor Vehicles Act, 2019:** It will bring reforms in the area of Road Safety, bring citizen facilitation, and transparency, reduce corruption and remove intermediaries with the help of information technology.

Way Forward

Several Steps can be taken to improve Road Safety in India, these include:

- ✓ **Need for effective institutional mechanisms and awareness building:** Focus should be on protecting the vulnerable rural population. Further, compliance with rules from the police end is also necessary, especially in the filing of FIRs.
- ✓ **Institutionalize post-crash emergency care and make health infrastructure & coverage more accessible & inclusive:** Focus should be on reducing Out-of-Pocket-Expenses for the poor and increasing health insurance coverage and extending its scope to address post-crash disability and mental health effects.
- ✓ **Provide a Social Security Net for crash victims from LIH through State Support:** Focus should be on providing vocational and educational support for victims and their families through community programs and special schemes for jobs, skilling & education.
- ✓ **Create an accessible legal framework for availing insurance and compensation for road crash victims:** Focus must be on broadening the scope of insurance policies by including rehabilitation and recovery of crash victims. Government must make provisions to provide interim compensation to crash victims to provide immediate relief.
- ✓ **Recognize the gendered impact of road crashes and address it through participative governance & special schemes for women:** Focus must be on encouraging small businesses in work-from-home set up, low-interest loans, and emergency cash transfers to post-crash turned female-headed households.
- ✓ **Strengthen post-crash support for children and young adults through state support:** Focus must be on framing a rigorous policy on child road safety and providing support for children and adolescents affected by road crashes, especially for those who are from LIH.

PEPPER IT WITH

Haryana 15-point strategy for road safety, Road Safety Week, Good Samaritan

DISPLACEMENT OF TRIBES

News Excerpt

The cost of development in India often includes tribes displacement. One such issue emerged in Telangana where displacement of the Gutti Koya tribes has become a cause of concern.

Pre-Connect

Tribal displacement is a serious governance problem in India with major socio-economic consequences, data points out that there were about 60 million displaced people from independence to 2000. As per the Expert Group on Prevention of Alienation of Tribal Land and its Restoration set up by the Government of India out of the total displaced people due to development projects, 47 percent is tribal population.

Ways of Tribal land alienation in India: XaXa Committee highlighted the following ways of Tribal displacement in India-

- Acquisition of land by state based on the principle of 'eminent domain' for 'public purpose' without a 'land for land' provision for rehabilitation.

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- Environmental pollution due to development projects often damages the land in the area, In the vicinity of which the tribal population lives or depended for livelihood. In such situations tribal people displaced are not entitled to any compensation.
- Corruption of the revenue functionaries and officials leads to incorrect interpretation of laws and manipulation of records. This causes illegal land alienation.
- State Laws are amended to include provisions that facilitate land alienation of tribal communities.
- Lands that have not been fully surveyed and those which carry no record of user practices are classified as Government land. These are often community land of tribals, Further most State tenancy laws recognize only individually owned registered land, thereby creating more complication.
- The acquisition of tribal lands for settling refugees has resulted in land alienation and displacement. There is also encroachment of tribal land by immigrants.
- The creation of National Parks has resulted in the alienation of rights and consequent displacement and forced migration of tribal people.
- Conflicts in the Northeast have resulted in tribal people losing everything and being displaced from their home grounds.

Fifth Schedule (Article 244(1))



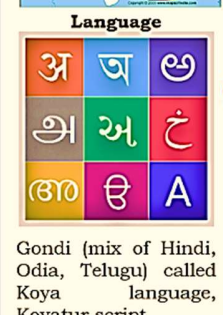

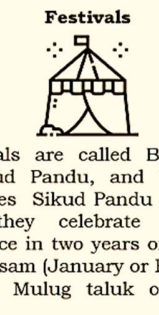
- ❖ It has provisions relating to the administration of Scheduled Areas other than in Northeast India.
- ❖ Areas can be designated as well as can be ceased as Scheduled Areas on the order of the President.
- ❖ The Governor of such state should submit a report to the President regarding the administration of Scheduled Areas.
- ❖ It provides for the creation of a Tribes Advisory Council (TAC) in such states to advise on matters pertaining to the “welfare and advancement” of the Scheduled Tribes “as may be referred to them by the Governor”.
- ❖ It grants extensive powers to the Governor who can direct that a law enacted by the Parliament or the State Legislative Assembly shall not apply to a Scheduled Area, or may apply subject to certain amendments or restrictions as he/she specifies after advice from TAC and President’s final assent.

About Gutti Koya

- The majority of them are found in the forests of **Bhadradi Kothagudem, Mulugu, Jayashankar Bhupalpally, and Khammam districts** in Telangana and few have settled in Andhra Pradesh in the forests of East and West Godavari districts.
- Presently they are classified as “Other Category” and not as tribals in Telangana.
- They have not seen much development, have no electricity, no proper roads, and medical facility is limited to Auxiliary Nurse Midwives (ANMs) and Accredited Social Health Activists (ASHA) who visit them.
- Most of the families don’t have ration cards or NREGA job cards.

Gutti Koya- No Place to Call Home

- ✓ Gutti Koya Tribe faced displacement due to the fight between Naxals and Salwa Judum in Chattisgarh, they were the collateral damage.

<p>Location</p> 	<p>Gutti Koya (Also known as Madia and Dorla) Tribal Profile</p> <p>Occupation</p>  <p>Traditionally shifting cultivators but presently settled cultivation. The Koyas own large herds of cows and bullocks. According to the Koya traditional system, chom or wealth means cattle, because a Koya without cattle has no status in the society</p>
<p>Language</p>  <p>Gondi (mix of Hindi, Odia, Telugu) called Koya language, Koyatur script</p>	<p>Culture</p>  <p>Kommu Koya tribal dance and Bija Pandu dance</p> <p>Festivals</p>  <p>Four Annual festivals are called Bijja Pandu, Kodta Pandu, Bimud Pandu, and Idu or Ikk Pandu. Other includes Sikud Pandu and Kurum Pandu. Further, they celebrate Sammakka Saralamma Jatra once in two years on full moon day of the Magha Masam (January or February) at Medaram village in Mulug taluk of Warangal district.</p>

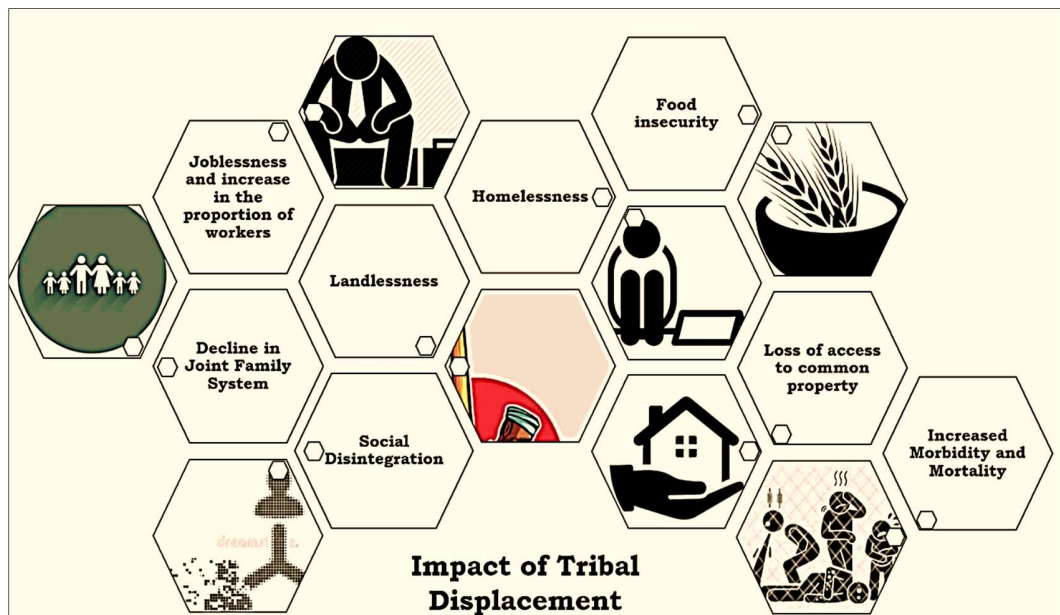
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- ✓ In search of a new home, they went to Telangana. However, in the state of Telangana, they are not considered as Scheduled Tribe, and therefore they don't have access to safeguards provided to the scheduled tribes.
- ✓ Further, their dependence on the forest came in conflict with the forest department, especially their practice of shifting cultivation known as "Podu". The afforestation drive under the Haritha Haram program is also disrupting their livelihood.
- ✓ Such a situation leaves them vulnerable and prone to exploitation. They can become an easy target for Naxal recruitment.
- ✓ To ease their ordeal two things can be done- Firstly, Central Government should declare Gutti Koya as ST in Telangana. Secondly, Chattisgarh and the Central government should develop a rehabilitation package.

Way Forward

To address the problem of tribal displacement, XaXa Committee recommended several measures such as:

- Rights-based approach for rehabilitation for socio-economic reconstitution of displaced tribals. The whole process should be democratic and the rights of tribal communities to say 'no' to the acquisition of their land and to access and manage forests and other areas.
- As directed in the landmark Samatha judgment and the PESA Act, every Gram Sabha should have the



Impact of forced displacement on

Tribal Women

- ❖ Vulnerability to violence and early marriage increases.
- ❖ Scarcity in resources access to information, assistance during health problems or sickness, child care, economic assistance.
- ❖ Morbidities and mortality increase among Adivasi women.
- ❖ Adverse effect on deep relationship with the forests and natural resources.

Children

- ❖ Nutrition of children gets adversely affected especially among tribal communities.
- ❖ Children gets severely stunted (height below WHO child growth standard.)
- ❖ Children especially tribals between the age group of 6 to 59 months have some degree of anaemia.

power to prevent the alienation of tribal land.

- In the interest of weaker sections such as tribal communities, the threshold should be kept very low and provisions of the law should apply to all cases.

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- The unutilized tribal land available with the government should be legally mandated to return to the original landowner/successors or use the same for the resettlement of displaced tribals. HEC, Hatia, and Ranchi which State wishes to utilize for other purposes but tribals are demanding it back.
- As per Vijay Kelkar Committee on Fiscal Consolidation, unutilized and under-utilized land resources should be used for “raising resources” to “finance infrastructure.”
- The issue of inalienable land should get adequate recognition at the policy level.
- The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Settlement Act (2013) is weak in matters relating to skill development and provision for livelihood-displaced tribals. Thus, a new tribal-friendly act is required.
- Women require special consideration and affirmative action.

PEPPER IT WITH

Forest Rights Act, 2006, SC/ST (Prevention of atrocities) Act, Vanbandhu Kalyan Yojana

BAN ON ALCOHOL

News Excerpt

There is a continuous rise in the number of deaths due to the consumption of illegal hooch across the country. The real cause of concern is the rise in the number of deaths in the states where alcohol consumption is banned, especially in the state of Bihar.

Pre-Connect

Alcohol under Constitution

- Constitutionally, under Article 47, the state must bring about prohibiting the consumption, except for medicinal purposes of intoxicating drinks and drugs which are injurious to health.
- Further, Alcoholic liquors for human consumption are a state subject and therefore it is the State's right and responsibility to draft laws regarding the production, manufacture, possession, transport, purchase, and sale of intoxicating liquors.
- Thus, laws regarding alcohol differ from state to state, falling in the whole spectrum between prohibition and private sale.

States with Alcohol Prohibition

- **Mizoram:** The Mizoram Liquor (Prohibition) Bill, 2019 was passed by Governor to replace the four-year-old Mizoram Liquor (Prohibition and Control) or MLPC Act, 2014
- **Gujarat:** Only Indian state to have a death penalty for the manufacture and sale of homemade liquor that results in fatalities as per Bombay Prohibition (Gujarat Amendment) Bill, 2009.
- **Bihar:** After becoming a dry state in 2015 it prohibited the sale of Alcohol state-wide.
- **Nagaland:** It became a dry state in 1989 after Nagaland Liquor Total Prohibition Act (NLTP) banned the sale and consumption of alcohol.

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Tragedy of Illegal Hooch in India

What is Hooch?

Hooch refers to the poor-quality alcohol made from coarse Jaggery, local yeast extracted from plants, citrus peels from oranges, sweet lime, etc.

Why it is Dangerous?

The crude methods of production that hooch-makers employ are unhygienic. It is produced without any quality checks as a result many times it also consists of highly toxic elements.

What are the Adulterants?

The adulterants used include organic waste, battery acid, and industry-grade methanol, all of which are highly toxic. A high concentration of methanol instead of ethanol can be poisonous.

What is the Extent of the Problem?

Data points towards the fact that over 3.46 lakh people arrested and close to 150 lakh liters of country-made and Indian Made Foreign Liquor being seized from April 2016 to February 2021.

What Aggravates the problem?

The policy of ban on alcohol has opened avenues for both smuggling and mass production of illegal hooch. The Consumption of illegal hooch increases in the poor households and this the reason why it has become a major problem in Bihar.

What is the impact of Illegal hooch?

Over the last few years, India has seen a rise in the number of deaths due to the consumption of spurious liquor. According to Lok Sabha data released on July 19, 2022, almost 6000 individuals died between 2016 and 2020 due to hooch tragedies.

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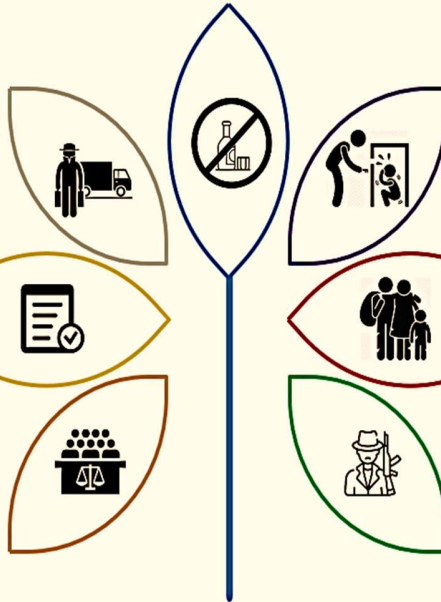
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Problems With Alcohol Ban

Smuggling: Ban often leads to increase in smuggling from the neighboring states. So, it causes double whammy of both revenue loss and emergence of Black Market.

Increased Cost of Compliance: The cost of compliance of such ban are high, States often spends more on enforcement without getting the expected results and loses more.

Increase Judicial Burden: Rise in criminal cases and arrests related to prohibition leads to overburdening of the state's judicial administration.



Increase in Juvenile Crimes: Minors are often targeted by smugglers to be used as bootleggers, especially those who belong to poor households. They become disposable assets of smugglers

The burden on the poor: There have been cases where the entire family of an alcoholic is liable to imprisonment if any family member violated the liquor ban, and imposing a collective fine on a whole village if there was any violation of the prohibition.

Increase in Mafia Culture: It creates an ecosystem where liquor mafia thrives creating problem for the maintenance of law and order. It also laid foundation for other organised crimes.

- **Lakshadweep:** Only Union Territory in India to ban the sale and consumption of alcohol except for the island of Bangaram.

Reasons For Alcohol ban

- ✓ **Women Issues:** Women have been the prey of domestic violence and physical abuse because of high alcohol consumption in families. As per NCRB data, 70-85% of offences against women are due to alcoholism. A report by the Sexual Violence Research Initiative says that crimes against women have declined both in terms of rate (registered cases per 100,000 female population) and incidence after prohibition.
- ✓ **Death cases due to spurious alcohol:** National Crime Records Bureau (NCRB) data show that 6,172 people died between 2016 and 2020 due to the consumption of illicit hooch in India.
- ✓ **Increase Spending on key social indicators:** It is expected that the money a person saves from the non-consumption of alcohol, would be utilized in spending on the health and education of children.
- ✓ **Culture and sentiments:** Lakshadweep banned both the consumption and sale of alcohol keeping in mind the culture and sentiments of its population.
- ✓ **Moral and social reasons:** It introduced total prohibition for the greater good of its citizens. Prohibition affects family members and kids and lowers violence.

SAFER Initiative

The objective of the initiative is to provide support for Member States in reducing the levels of alcohol use. This is being done by enhancing the ongoing implementation of the global alcohol strategy and other WHO and United Nations instruments.

SAFER stands for:

- ❖ **S**trengthen restrictions on alcohol availability
- ❖ **A**dvance and enforce drink-driving countermeasures
- ❖ **F**acilitate access to screening, brief interventions and treatment
- ❖ **E**nforce bans or comprehensive restrictions on alcohol advertising, sponsorship and promotion
- ❖ **R**aise prices on alcohol through excise taxes and pricing policies.

Lithuania, Russia and Scotland have been successful in balancing alcohol using this comprehensive policy.

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Way forward

- The past experiences of India had time and again served only one lesson that is regulation is better than a blanket ban. There are several ways in which the consumption of alcohol can be regulated these include:
 - Increase taxes on the alcohol
 - Limiting the number of alcohol outlets in an area and their opening and closing hours.
 - Introducing liability laws for retail shops. This will make them liable for injuries or harms caused by illegal sales or services, especially in case of road accidents.
 - Strict laws to stop underage drinking.
 - Managing the drinking environment through the enforcement of on-premise regulations and ensuring that such places fulfill the legal requirements.
- Along with awareness, there is also a need to promote women-led community approaches for example anti-arack movement in Andhra Pradesh against the production and sale of country liquor
- **States can also adopt WHO's three alcohol policies** to prevent and reduce alcohol harm which are:
 - Increase excise taxes on alcoholic beverages;
 - Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising
 - Enact and enforce restrictions on the physical availability of retailed alcohol.

PEPPER IT WITH

Drug abuse in India Narcotic Drugs and Psychotropic Substances Act, 1985. Rehabilitation of Addicts in India.

FREE FOODGRAIN SCHEME

News Excerpt

Recently, The Government of India has decided to discontinue the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKY). Alternatively, it has decided to introduce the Free Foodgrain Scheme for the beneficiaries of the National Food Security Act (NFSA).

Pre-Connect

Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)

- It was launched during the first nationwide lockdown due to Covid-19 in 2020 by the Ministry of Consumer Affairs, Food and Public Distribution under NFSA.
- The scheme provides 5kg of free food grains per month to the poor along with 5 kg of subsidized (Rs 2-3 per kg) ration provided to families covered under the Public Distribution System (PDS).
- The scheme covers around 80 crore beneficiaries who are ration card holders.
- The scheme was availed to beneficiaries through the **One Nation One Ration Card**.

Recent Changes

- Ration card holders can avail of 5 kg of wheat or rice per month for free, unlike earlier food grains at subsidized rates for one year.

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National Food Security Act (NFSA)

- ❖ Public Distribution System (PDS) is governed by provisions of NFSA and covers 2/3rd of the country's total population based on Census 2011 population estimates.
- ❖ Two categories of beneficiaries - Antodaya Anna Yojana households (35 kg of foodgrains per family per month) and Priority Households (5 Kg of foodgrain per family per month) out of which 75% of rural and 50% of Urban population are entitled to receive foodgrains at highly subsidised prices of Re 1, Rs 2 and Rs 3 per kg for coarse cereals, wheat and rice, respectively.
- ❖ Food Coverage is looked after by NITI Aayog and identification of beneficiaries is done by respective State/UT Government as per their own criteria.
- ❖ For women empowerment eldest woman of the beneficiary family is considered as 'Head of Family' for the purpose of issuing ration cards and grievance redressal mechanism at different levels are provisioned.

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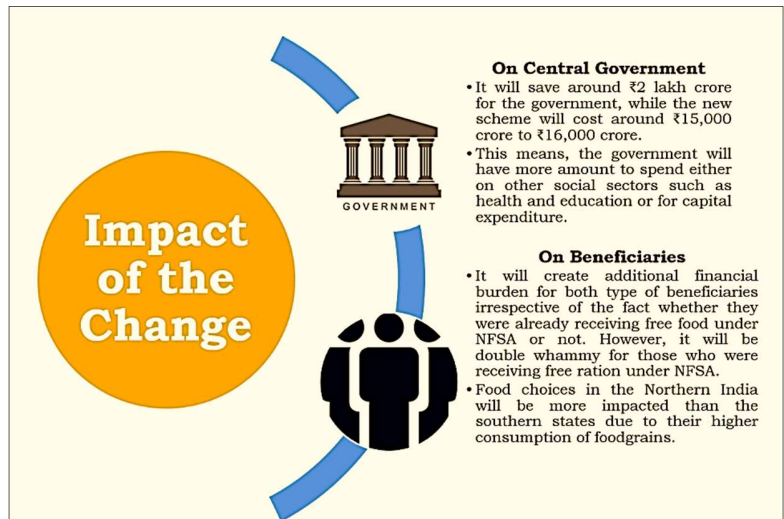
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- Antyodaya Anna Yojana cardholders will receive 35 kg (21 kg rice and 14 kg wheat) of free foodgrains and will continue to get it for free as decided by NFSA.
- The categories and number of beneficiaries are based on Census 2011 numbers and Public Distribution System entitlements **have been limited to ration card holders and quotas framed by the Union Government.**

Reasons for discontinuation of the scheme

- **High maintenance of policy:**
 - As per estimates, if the food scheme is continued for another 6 months it would drain 700 billion rupees from the budget.
- **Reducing fiscal Deficit:**
 - The fiscal deficit will be narrowing to 6.4% of GDP in the fiscal year ending 2023 from 6.9% previously.
 - The cost of making NFSA supplies free of cost to the beneficiaries for a year is about Rs 20,000 crore as compared to scheme expenditure of Rs 1.6-1.7 trillion.
- **Concerns over Lower production of Rice and Wheat** till the production of the crop in the next season and also wastage of crops piled in stocks is another concern.
- **Russia-Ukraine War:** In the future, there may not be adequate food grains due to the global environment of tightening food stocks in the wake of the war in Ukraine.
- **The success of universalization of the PDS in some states:** The universalization of the PDS has worked well in a few States such as Tamil Nadu. It obstructs the flawed implementation system and makes food available to everyone in need.
- **Served its purpose:** The scheme was launched to give a safety cushion to vulnerable populations in the wake of the pandemic. However, as the situation is improving, the government felt that the time is right for the discontinuation of the scheme.
- **Addressing Food Inflation:** With the discontinuation of the scheme, the government would be able to liquidate wheat stock in the market to tame inflation and reduce the pressure on industries dependent on wheat as a raw material.



Millets in NFSA

The focus of the Government is on addressing the problem of hunger among poor households. However, the excessive reliance on Wheat and Paddy might resolve the issue of hunger but create a new issue of Hidden Hunger. For comprehensive development, it is important that NFSA also includes millets for public distribution. Such inclusion is not without several challenges such as production, cost, and availability of the crops. However, 2023 is marked as the International Year of Millets by the United Nations at the behest of India. Therefore, India should try to introduce millets under its PDS for NFSA beneficiaries even if it's once a month. Adoption of millets under NFSA will also promote their cultivation and helps in lowering the prices of the crops and helps in better adoption of millets.

Challenge

- **Dealing with inflation:** Rice and wheat make up about 10% of India's retail inflation and are seeing high price rises due to lower production amid a heatwave and patchy monsoon.
- **Increasing crop production:** There has been a keen reduction in Kharif and Rabi crop production and adverse effects in the market. Thus, regaining a surplus of crops in the market is a challenge.
- **Balancing price gaps:** As the gap between the economic cost and issue prices has widened (from Rs 2,305 in FY13 to Rs 3,670/quintal in FY23 for wheat) over the year, it has resulted in a high spike in

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food subsidy. It will be much more difficult now to reduce the gap between the economic cost of grains and the “issue prices” or prices to the consumer.

- **Climatic conditions:** Climatic conditions especially heat waves have been a major cause of the fall in wheat production. Dealing with such adverse climatic conditions is a historical challenge.
- **Centre and State work distribution:** It is also unclear whether the States or the Centre will now bear the cost of transportation of foodgrains and similarly there is confusion over food distribution.
- **Maintaining crop exports in the global market:** India has had to restrict exports of wheat and rice after erratic weather hurt harvest, adding to pressure on food prices, and rattling global agricultural markets.
- **High Buffer Stock:** High buffer of stocks is inflating the cost and unavoidable waste and distribution infrastructure development is another issue to tackle with.

Way Forward

- ✚ NITI Aayog has suggested revising the coverage area under India’s National Food Security Act, 2013. It suggests reducing the rural population coverage from 75 percent to 60 percent. For the urban population, the suggested cut is from 50 percent to 40 percent.
- ✚ There should be a revision of Central Issue Prices (CIP) of food grains released from the Central Pool as the food subsidy is becoming “unmanageably large”, and has been the same for several years as recommended by Economic Survey- 2020-21.

High-Level Committee recommendations on PDS and NFSA-related issues:

- ✚ Government should relook at the commitments and implementation of NFSA as the leakages in PDS range from 40-50 % and in some states go as high as 60-70%. States who have not done end-to-end computerization; have not put the list of beneficiaries online for anyone to verify, and have not set up vigilance committees to check pilferage from PDS need different implementation.
- ✚ It recommends greater investments in agriculture in stabilizing production and building efficient value chains to help the poor as well as farmers.
- ✚ It recommends that targeted beneficiaries under NFSA or TPDS should be given 6 monthly rations immediately after the procurement season ends to save the consumers from various hassles of monthly arrivals at FPS and also save on the storage costs of agencies. Consumers can be given well-designed bins at highly subsidized rates to keep the rations safely in their homes.
- ✚ It recommends the gradual introduction of cash transfers in PDS, starting with large cities with more than 1 million population; extending it to grain surplus states, and then giving an option to deficit states to opt for cash or physical grain distribution through Prime Minister’s Jan-Dhan Yojana (PMJDY) and dovetailing Aadhaar and Unique Identification (UID) number. This will empower the consumers, plug high leakages in PDS and save resources.

PEPPER IT WITH

Rastriya Krishi Vikas Yojana, National Food Security Mission, e-NAM Portal, PM Kirshi Sinchayee Yojna, PM Fasal Bima Yojana, Climate Resilient Crops

WOMEN'S REPRESENTATION IN INDIA

News Excerpt

Women’s representation in India as legislators is an important metric to evaluate progress in bridging gender inequities in India. In recent times, both participation of women as a voter and as a candidate has increased, however participation of women in electoral politics has been a slow process as a result of deep-rooted structural constraints.

Pre-Connect

Women’s Political Participation in India

- India has a history of marginalization and exploitation of women framed by patriarchal social structures and mindsets.

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- In the 19th century, social reforms started addressing the plight of women, and as a result swadeshi movement in Bengal in 1905 saw the active participation of women. Ever since then, India's national movement saw women organizing political demonstrations and mobilizing resources, as well as occupying leadership positions in those movements.
- Post-independence, the Constitution of India guaranteed equal status for men and women in all political, social, and economic spheres. These includes:
 - Fundamental Rights of Men and Women
 - DPSP ensures economic empowerment by providing- equal pay for equal work for both men and women, humane conditions of work, and maternity relief.
 - Articles 325 and 326 of the Constitution guarantee political equality and the right to vote.
- Other Initiatives includes
 - The 73rd and 74th amendments to the Constitution provided for the reservation of one-third of the total number of seats for women in Panchayati Raj Institutions (PRIs) and municipal bodies.
 - Repeated efforts in the Parliament, since 1996, to give 33 percent representation to women in Parliament and the state assemblies.
- India ranks 148 out of 193 countries in the number of elected female representatives in parliament according to the UN.

Need for Political representation

- **Gender Equality:** It ensures that issues that specifically affect women, such as reproductive rights, and equal pay are given proper consideration and representation.
- **Inclusivity:** It ensures that a diverse range of voices and perspectives are heard and taken into account when decisions are made. This leads to more inclusive and equitable politics.
- **Role Models:** Having more women in politics can serve as role models for young girls and women, encouraging them to participate in politics and pursue leadership positions.
- **Improved Governance:** Research has shown that countries with higher levels of women's representation in parliament tend to have better outcomes in areas such as healthcare, education, and poverty education.

Parliamentary Committee on empowerment of women (1997)

The mandate of the Committee is to review and monitor the measures taken by the Union Government in the direction of securing for women equality, status and dignity in all matters. The functions of the Committee include, inter-alia, considering the reports submitted by the National Commission for Women (NCW) and to report on the measures taken by the Union Government for improving the status/condition of women.

New Zealand- A Case Study

New Zealand was the first country which gave women "Right to Vote" in 1893. Since then it consistently followed the path of promoting positive women's rights. Currently, almost 49% of parliamentarians are Women in New Zealand. Further, the parliament also has an active cross-party group of women parliamentarians, which works on initiatives to increase women's representation and voice in politics, and there is a dedicated Women's Suffrage Room in Parliament.

Global Efforts for Women Representation in Politics

- ❖ The charter of the United Nations Organization supports women's right.
- ❖ In 1979, UN General Assembly adopted the **Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)**. It is also known as an International Bill of Rights for women. Under Article 7 of the convention gives women right to hold political and public office.
- ❖ **Goal 5** of the United Nations Sustainable Development Goals (SDGs) calls for the achievement of gender equality and empowering all women and girls. It also calls for ensuring full and effective participation of women and providing them with equal opportunities for leadership at all levels of decision-making in political, economic and public life.

Participation of Women in Politics



As a Voter- During 2019 Lok Sabha Elections the number of female and male voters were almost same. It is the watershed movement for gender equity in India.

As a Candidate- Participation of Women as a candidate is quite dismal. As per the data from last Lok Sabha election in 2019, less than 9 percent out of total candidates were women. Majority of women candidates contested from reserved seats of Scheduled caste and Scheduled Tribes.



As a Legislator- Data from the parliaments shows that near about 15% of legislators in Lok Sabha after 2019 general elections are Women, this is the highest ever representation of women since first general elections. In Rajya Sabha women representation is around 13%. In Vidhan Sabha's the average representation is even lower, mostly below 10 percent.

As a Political Worker- As per the study conducted by the Centre for Study of Developing Societies. Participation of women as in political activities such as joining election rallies, conducting door-to-door campaigns etc. have increased in the last three decades



➤ **Democratization:** It can contribute to the democratization of a country and strengthen the democratic process by providing an opportunity for all citizens to participate in political decision-making.

- Preconceived notions about the role a women plays in a society, restricts their participation in active politics.
- Societal expectations and stereotypes about gender roles often determine voters' bias towards the male gender.

Gender Biasness/Stereotypes



- Politics is an arena of intense competition and as a result any attempt for reservation of seats for women faces strong backlash from their male counterparts as reservation is rotational and no one like a situation in which they are unable to compete, at the first place.

Intense Competition



- There is general lack of awareness in the society when it comes to basic political rights, this is particularly worrisome for the women.
- Further, Education in India doesn't impart leadership skills and therefore its become difficult to convert the opportunities for such roles especially for women.

Lack of Political Awareness



- Functioning and internal dynamics of a political party are opaque further, their internal process is also often undemocratic in nature. Therefore, it hampers access to knowledge which can help create a political network.

Lack of Political Networking



Reasons for Low Participation of Women in Indian Politics

- Elections in India are costly affair and in absence of their lower representation in the inner political structure of a political party, women often find it difficult to gather such kind of resources for the development of their political constituencies.

Resource constraints



- Increased criminalisation of politics along with the use of muscle power in the elections makes overall election environment in India unfriendly for the women.
- Further, a continuous rise of political violence is driving women out of the political arena.

Hostile Political Environment



- Women in Indian society bears burden of the societal expectations. Many a time, they are judged more harshly than their male counterpart.
- Public attitude towards women in general also shape the decision of the political parties when it comes to distribution of tickets for elections.

Social Constraints



- In Indian society, the responsibility of family care is not evenly distributed, as a result women spend far more time and energy in home and child care than men.
- Politics is a full time responsibility and therefore its become difficult for women to find a correct balance between work and family.

Family Responsibility



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- **The lack** of women's representation not only **undermines the spirit and idea of representative democracy** but also denies women equal status and opportunity, as guaranteed by our Constitution.

Way Forward

Indian politics needs the active participation of women as it will pave the way for addressing socio-economic and gender issues they face. Equality guaranteed under the constitution needs an overground realization. More women are needed on these platforms to transform the discourse on governance and policy-making and bring India closer to becoming a truly inclusive and representative democracy. Several steps can be taken to improve women's participation these include:

- ✓ There is a need to develop a political consensus on the **women's reservation bill** in the parliament. It will act as a pedestal that will promote the active participation of women in politics and larger public life.
- ✓ There is a need to improve Inner-Party democracy in political parties in India. For this to happen, the Election Commission of India should implement the Gill formula that makes it mandatory for the recognized political parties to ensure the putting of a minimum agreed percentage of women in assembly and general elections. Or it can also be made legally obligatory for every registered political party to give one-third of the total number of party tickets it distributes at every election to women.
- ✓ There are a large number of Women Sarpanchs in India who spent their lives in one position, political parties must nurture them for a larger role by leveraging their ground experience.
- ✓ Political commitment and adequate legal and policy frameworks together can provide a level playing field for both women and men.
- ✓ Society should move beyond its stereotypes and learn to embrace the leadership of women. It should judge their work on merit rather than on their gender.

Success of Local Reservation

- ❖ 73rd and 74th amendments have led to a phenomenal rise in the political participation of women at the local level.
- ❖ 20 of India's 28 states have raised the reservation to 50 percent.
- ❖ The challenge of 'proxy representation' has also declined.
- ❖ Skill development programmes and leadership training sessions for women at the grassroots, conducted by both government and non-government organisations (NGOs), have helped improve the performance of elected women political leaders.

PEPPER IT WITH

Digital Gender Divide, Gender Pay Gap, Scheduled Caste and Scheduled Tribe seat reservation

Conclusion

The organic shift to opening up spaces for women in Indian parliamentary politics has been slow. Given the deep structural constraints that impede progress in women's political participation. Institutional transformation can usher in inclusive politics, albeit only to a certain degree. Another imperative is the social transformation which needs women's organizations and networks within political parties and civil society to assert their presence within the larger political and social landscape.

News Excerpt

The European Union, under the guidance of the Organisation for Economic Cooperation and Development (OECD), adopted a plan for a global minimum 15 percent tax on multinational businesses. The landmark agreement between nearly 140 countries is intended to stop governments racing to cut taxes to lure the world's richest firms to their territory.

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Pre-Connect

Base Erosion and Profit Shifting

- Firms make profits in one jurisdiction, and shift them across borders by exploiting gaps and mismatches in tax rules, to take advantage of lower tax rates and, thus, not paying taxes to the country where the profit is made.
- Example, Company A made \$19.2 billion in revenues. However, it showed the profits in Bermuda, a small island in the Atlantic where it doesn't own any tangible assets, hardly employs any workers, and where the corporate tax rate is zero.

Some terms related to "Tax Avoidance"

- **Transfer Pricing:** Transfer pricing is an accounting and taxation practice that allows for pricing transactions internally within businesses and between subsidiaries that operate under common control or ownership. The transfer pricing practice extends to cross-border transactions as well as domestic ones.
- **Royalty Payments:** Royalties are fees paid to the owners of legally-protected IP by those who exploit such IP in their businesses. So, for example, radio stations are legally required to pay songwriters copyright royalties when they play their music on the radio. Royalties are especially pertinent to the taxation of tech companies because they are at the heart of the tax avoidance. The profits of the subsidiaries that sell the multinational's products and services in, for example, the UK are reduced (often too little or nothing) by internal royalty payments.
- **Intra Corporate Loans:** Debt can be used to exploit the tax deductibility of interest payments which enables both base erosion and profit shifting. Multinational corporations use internal debt to shift profits to tax havens.
- **Round Tripping:** Round Tripping is a practise where funds are transferred from one country to another and transferred back to the origin country for purposes like black money laundering or to get the benefit of tax concession/ evasion/ avoidance from countries like Mauritius which enjoy low taxes, etc.

Global Minimum Tax

What is it

- ✓ EU members have agreed to implement a minimum tax rate of 15% on big businesses in accordance with **Pillar 2 of the global tax agreement** framed by the Organisation for Economic Cooperation and Development (OECD) last year.

Tax Havens

- ❖ A tax haven is a country that offers foreign businesses and individuals minimal or no tax liability for their bank deposits in a politically and economically stable environment.
- ❖ They have tax advantages for corporations and for the very wealthy, with obvious potential for misuse in illegal tax avoidance schemes.
- ❖ Such countries include - Belgium, Ireland, Luxembourg, Malta, Netherlands, Caribbean, Bermuda, Singapore, Puerto Rico, Hong Kong, and Switzerland, etc.

Minimum Alternative Tax

- ❖ Minimum Alternate Tax is applied when the taxable income calculated according to the IT Act provisions is found to be less than 15.5 per cent (plus surcharge and cess as applicable) of the book profit under the Companies Act, 2013.
- ❖ For example, a company with Rs 100 crore book profit is required to pay a minimum tax of Rs 15 crore (assuming 15 per cent MAT rate). If its normal tax liability after claiming deductions is Rs 10 crore (less than MAT), it is required to pay the remainder Rs 5 crore as MAT.

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- ✓ Under the OECD's plan, governments will be equipped **to impose additional taxes in case companies are found to be paying taxes that are considered too low**. This is to ensure that big businesses with global operations do not benefit by domiciling themselves in tax havens in order to save on taxes.

Challenges in Implementation

- Some governments, particularly those of traditional tax havens, are likely to disagree and stall the implementation of the OECD's tax plan unless they are compensated sufficiently in other ways.
- High tax jurisdictions like the EU are more likely to fully adopt the minimum tax plan as it saves them from having to compete against low tax jurisdictions.
- However, even within the EU, countries such as Poland have already tried to stall the adoption of the global minimum tax proposal citing various non-economic reasons.

What is the need for a global minimum tax on multinationals

✚ **Corporate tax rates dropping across the world-**

This is happening over the last few decades as a result of competition between governments to spur economic growth through greater private investments. Global corporate tax rates have fallen from over 40% in the 1980s to under 25% in 2020.

✚ **Poor fiscal state of governments-** The minimum tax proposal is particularly relevant at a time when the fiscal state of governments across the world has deteriorated as seen in the worsening of public debt metrics.

✚ **Global corporate profits rising as share of global income-** The share of corporate profits in global GDP was 20% in 2019, up from 16.2% in 2000 and 14.5% in 1975. There is attention on taxing this profit appropriately because the tax revenues from corporate profits have not increased proportionately. The effective global corporate income tax rate has in fact decreased from 23% in 1975 to 17% in 2019.

✚ **Structure of multinationals allows them to avoid taxes on profits-** As the name suggests, such companies can have business operations in multiple countries. This allows them to avoid taxes by shifting their profits to low-tax jurisdictions. The share of multinational profits booked in tax havens has grown from less than 2% in 1970s to 37.4% in 2019. (United Nations University World Institute for Development Economics Research (UNU-WIDER))

✚ **Global tax revenue-** It is estimated that the minimum tax rate would boost global tax revenues by \$150 billion annually. Shore up revenues can be used to fund their rising spending budgets.

Impact on the global economy

- > **More social spending:** End to the global "race to the bottom" will help governments collect the revenues required for social spending.
- > **Counter rising global inequality:** By making it tougher for large businesses to pay low taxes by availing the services of tax havens.

Tax evasion reforms in the past

- ❖ In 2015, the Organisation of Economic Co-operation and Development (OECD) enacted the Base Erosion and Profit Shifting (BEPS) process to reduce the possibility of tax evasion due to a mismatch between different countries' tax systems.
- ❖ In 2017, the US implemented its Tax Cuts and Jobs Act, reducing corporate tax rate from 35% to 21%, along with new measures to reduce profit shifting by US multinationals.
- ❖ However, there was no discernible decline in global profit shifting or in profit shifting by US multinationals (which accounted for about half of global profit shifting) relative to 2015.

Ethics of Tax Avoidance

- ❖ **Deontological perspective:** An individual who adopts the deontological perspective is likely to evaluate a public figure's tax avoidance strategies and that of others with less scrutiny. As long as an individual follows the tax code, and acts legally, the tax avoidance strategies are likely to be viewed by that individual as ethical.
- ❖ **Consequentialism:** In contrast, a consequentialist is likely to evaluate tax avoidance strategies by also looking at how those taxes could have been used to benefit society by paying for schools and hospitals. For example, When one individual avoids taxes, it increases the costs experienced by everyone else while also decreasing the benefits experienced by society as a whole. Thus, consequentialist individuals may well conclude that tax avoidance strategies are unethical.

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- **Global minimum tax as a threat.** Critics argue that without tax competition between governments, the world would be taxed a lot more than it is today, thus adversely affecting global economic growth.

Way Forward

- ⇒ Given that the OECD's plan essentially tries to form a global tax cartel, it will always face the risk of losing out to low-tax jurisdictions outside the cartel and cheating by members within the cartel as countries both within and outside the cartel will have the incentive to boost investments and economic growth within their respective jurisdictions by offering lower tax rates to businesses. This is a structural problem that will persist as long as the global tax cartel continues to exist.
- ⇒ However, the European Union has taken a crucial step towards tax fairness and social justice.

PEPPER IT WITH
GAFA, DTAA, Withholding
Tax

RECESSION AND BOND YIELD

News Excerpt

There are fears of a recession in many of the world's top economies, including the United States. The US looks headed for a recession, a key point is the inversion of US treasury yields.

Pre- Connect

Recession- A "technical recession" involves the overall output in an economy contracting for at least two consecutive quarters, along with job losses and a reduction in overall demand.

Understanding the yield of a bond

- Bond yield is the return an investor realizes on a bond. For example, the US government may "float" a 10-year bond with a face value of \$100 and coupon payment of \$5. This means, if you lend \$100 to the US government by buying this bond, you would get \$5 each year for the next 10 years plus the whole sum of \$100 at the end of 10 years. This would imply a yield of 5%.
- The yield is related to the price of the bond: as the price rises, the yield falls (inverse relation). Example: in the above case, if one sold this bond to another investor, the yield will change depending on the price at which the bond is sold. If the price increases say, the bond is sold for \$102 the yield will fall because the annual return (\$5) remains the same. And if the price falls, the yield will rise.

US Treasury and its yield

Yield inversion has long been a reliable predictor of recession in the US and US treasuries have been witnessing yield inversion for a while now. The spread between the yields of 10-year and 3-month treasuries has turned negative.

What is the yield curve?

- A yield curve is a line that plots yields (interest rates) of bonds having equal credit quality but differing maturity dates. The slope of the yield curve gives an idea of future interest rate changes and economic activity.
- There are three main shapes of yield curve shapes: normal (upward sloping curve), inverted (downward sloping curve), and flat or steep.
- **Normal yield curve:** Typically, yields are higher for longer tenures because one is lending money for longer. If the yields for different tenures of bonds are mapped, it will give an upward-sloping curve.

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What are US treasuries?

- ❖ In any economy, the safest loans are those that are given to government entities that will always be there, and which typically do not default on their debt.
- ❖ Governments need to borrow money because their tax revenues are not enough to finance all their spending.
- ❖ The instrument by which the government borrows from the market is called a government bond. In India they are called G-secs, in the UK they are called gilts, and in the US, they are called treasuries.

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- **Flat or steep yield curve:** When investors feel buoyant about the economy, they pull money out of long-term bonds and put it into short-term riskier assets such as stock markets. As prices of long-term bonds fall, their yields rise and the yield curve steepens.

Understanding yield inversion

- ✓ Yield inversion happens when yields for shorter duration bonds are higher than the yields on longer duration bonds.
- ✓ If investors suspect that the economy is heading for trouble, they will pull out money from short-term risky assets (such as stock markets) and put it in long-term bonds. This causes the prices of the long-term bonds to rise and their yields to fall. This process first leads to flattening and eventually the inversion of the yield curve.

Understanding the economic scenario in the US

To contain historically high inflation levels, the US Federal Reserve has been raising short-term interest rates to curb overall demand and economic activity. Historically, every time the Fed has tried to bring down inflation by more than two percentage points, the US has witnessed a recession.

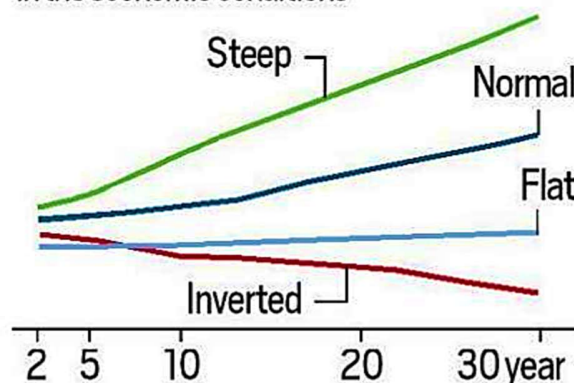
The more the Fed tightens its monetary stance, the more likely it is for the US economy to fall into a recession. That is what the yield inversion is showing.

Significance for India

- **Depreciation of the Indian rupee:** Rising interest rates are likely to make the US dollar even more strongly against the rupee. Indian imports will become costlier as a result and could fuel domestic inflation.
- **Capital outflows from India:** Higher returns in the US may also lead to some rebalancing of the investments coming to India.
- **Lower demand from the global economy:** Indian exports may benefit due to a weaker rupee but a recession will dampen the demand for Indian exports.
- **Crude oil prices:** A slowdown or recession may, however, lower crude oil prices for India because of reduced global demand.

DIFFERENT TYPES OF YIELD CURVES

The yield curve evolves in line with changes in the economic conditions



Economic policies to counter recession

Monetary policy

- ❖ The central bank, the RBI, can use its powers over the banking system to engage in countercyclical or "against the business cycle" actions.
- ❖ If recession threatens, the central bank uses an expansionary monetary policy to increase the supply of money, increase the quantity of loans, reduce interest rates, and shift aggregate demand to the right.
- ❖ RBI can undertake such monetary policy through repo rate, bank rate, marginal standing facility, liquidity adjustment facility, changes in cash reserve ratio and statutory liquidity ratio, and open market operations.

Fiscal Policy

- ❖ Expansionary fiscal policy increases the level of aggregate demand.
- ❖ Expansionary policy can do this by
 - ❖ Increasing consumption by raising disposable income through cuts in personal income taxes or payroll taxes.
 - ❖ Increasing investments by raising after-tax profits through cuts in business taxes.
 - ❖ Increasing government purchases through increased spending by the government on final goods and services, e.g., infra development.
- ❖ Undertaking counter- cyclical fiscal policy

PEPPER IT WITH

Yield to maturity, Current yield, yield curve

News Excerpt

The COP27 meeting brought to the fore a circular economy's relevance in mitigating carbon emissions for India by ensuring responsible consumption and sustainable resource management.

Pre- connect

Circular Economy

A circular economy focuses on minimizing waste while maximizing utilization, and calls for a production model aiming to retain the most value to create a system that promotes sustainability, longevity, reuse, and recycling.

Why a circular economy is a future

- The transition to a circular economy is likely to move faster than previous transformations. It has political support, for example, the EU aims to transition to a circular economy to make Europe cleaner and more competitive.
- Also, there is growing societal pressure for companies to become climate neutral.

Business models of circular economy

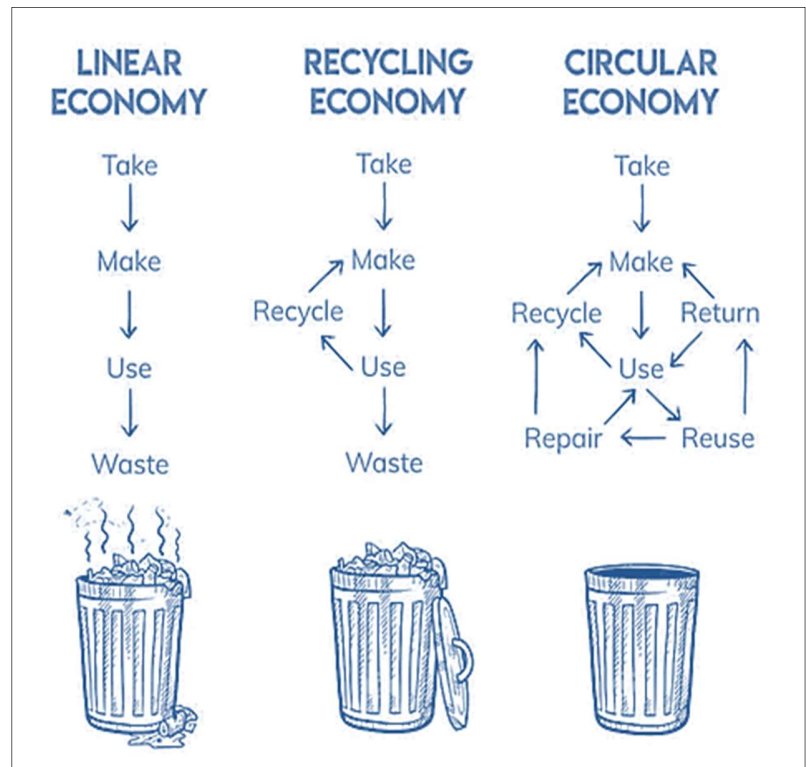
➤ Circular inputs

- The "born-circular" are companies designed for circular economy business models and have brought circularity into all the steps of product life and usage.
- Born-circular manufacturers can expect lower costs for their production input as it does not have to be mined from scarce resources, it comes from excess materials and recycled materials.
- Born-circular designed products do not become end-of-life instead they become the end-of-current-usage loop.
- They also benefit from the high recovery rates of the material and components in original quality and increased control of material flow.
- For example, it is significantly better to recycle used tires into rubber floor tiles, ink, carpets or car parts, than to export them to India increasing one of the world's worst pollution crises. But in both cases, we see a loss of value, as the high-strength steel, kevlar and fiber are gone forever. Instead, the 2030s born-circular's business model will benefit from the tyre throughout its usage cycle. When a tyre reaches its recycling phase, they extract all its original materials and use them to produce new tyres.

➤ Sharing economy concept

- Born-circulars maximise how idle assets are used across a community while providing customers with affordable and convenient access to products and services. This also includes sharing industrial assets like a conveyor belt, forklift, machinery and warehouses.
- Access to an asset no longer requires buying or renting from traditional suppliers but is instead provided by individuals and companies.
- Born-circulars, therefore, have a higher utilization percentage of their expensive assets.

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➤ Product as a service

- The customer purchases a service for a limited time while the provider maintains ownership of the product and remains incentivised for the product's ongoing maintenance, durability, upgrade, and treatment at the end of its use.
- The born-circular increase resilience by retaining control of products and materials, thereby saving material costs, protecting against material price shocks, and can hedge against material scarcity issues.
- The born-circular benefits from continued customer contact and gets insights into how their products are being used.
- The born-circular gains access to potential untapped opportunities for businesses, for example, a new remanufacturing/refurbishment market.
- The provider now has a responsibility and an economic incentive for safer disposal mechanisms, a responsibility previously on the end-user, often without a financial incentive.

➤ Product use extension

- The born-circular designs their products for repairability, upgradability, reusability, ease of disassembly, reconditioning, and recyclability of all components.
- In the linear economy, you sell your product to the next in line and the primary interest is selling as many new products as possible. Whereas, the born-circular designs their business models, so they have a continuing income stream throughout the product's usage cycles.

➤ Resource recovery

- Resource recovery focuses on the end stages of the usage cycle, namely the recovery of embedded materials, energy, and resources from products at the end of use that is no longer functional in their current application.
- The born-circular has a direct economic interest in the extraction of all their products recoverable value. Their design focuses on making value recovery easy and effective.
- Their business model ensures that users are incentivized to return the products. For example, contractually, through deposits, or in the product-as-a-service model.
- For example, Vodafone's trade-in service encourages customers to return their old mobile and tablet devices in exchange for a discount on a new gadget or store credit. The returned items are refurbished and resold or the components are stripped and recycled.

Right to Repair

The government is planning a framework for 'Right to Repair':

- ❖ The rationale behind the right is that when customers buy a product, they must own it completely for which the consumers should be able to repair and modify the product with ease and at reasonable cost, without being captive to the whims of manufacturers for repairs.
- ❖ Generally, manufacturers retain proprietary control over spare parts, including their design, and this kind of monopoly on repair processes infringes the customer's "right to choose"
- ❖ Further, the parts and tools to service devices, including diagnostic tools should be made available to third parties, including individuals so that the product can be repaired in case of minor glitches.
- ❖ The right to repair has been recognised in many countries across the globe, including the US, UK and European Union.
- ❖ The right is in consonance with India's concept of LiFE movement (Lifestyle for Environment) which includes the concept of reuse and recycling various consumer products.
- ❖ However, Right to Repair is getting severely restricted due to considerable delay in repair and products being repaired at an exorbitantly high price.

India's initiatives

- ✓ The 2022-23 Budget recognized the importance of sustainable growth. The Budget also recognizes, the action plans formulated across 10 sectors including electronic waste, lithium-ion batteries, end-of-life vehicles, scrap metal, municipal solid waste, etc. These plans emphasize the importance of reusing secondary materials recovered from waste, implementing an extended producer responsibility framework, and tax rebates.

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- ✓ The government formulated the Battery Waste Management Rules 2022, Plastic Waste Management Rules as amended in 2022, and e-Waste Management Rules 2022: These rules promote the utilization of waste generated in line with the circular model by setting out target waste disposal standards for stakeholders such as manufacturers, producers, importers, and bulk consumers, along with enabling transactions among stakeholders for extended producer responsibility certificates.

Challenges

- **Lack of a clear vision** toward the end goal of India's circular economy mission.
- **Gaps in the actual implementation** of the policies.
- **Reluctance from the industry** in adopting the circular economy model due to supply chain limitations, complex recycling processes, lack of incentives to invest, etc.
- **Lack of information** to support participation in reusing/ recycling/re-manufacturing processes.
- Another glaring concern here is that efforts are made at the very end of value chains, resulting in **sub-optimal economic and environmental outcomes**.

What more needs to be done

- ✚ **Legislative mandates** for the procurement of recycled/ secondary raw materials in the initial stages of the production cycle,
- ✚ Developing a **unified legislation** addressing the circular economy from a regulatory perspective.
- ✚ **Streamlined framework** on circular economy reporting, clarifying the mechanism surrounding trading of extended producer responsibility certificates.
- ✚ Providing **fiscal incentives** to businesses to complete the supply chain will also help.
- ✚ The government's initiatives need to be in conjunction with implementable actions with **industry collaboration** to reap the benefits of the circular economy.

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LiFE Movement, Net zero
Emissions, Close Economy

Conclusion

Much like born-digital companies disrupted traditional business models, we will see born-circular companies disrupting born-linear models. Traditional models will lose out to born-circulars who offer: lower costs, recurrent income sources throughout the usage cycles, more climate-friendly and therefore attractive products, higher customer intimacy, and increased resilience due to better control of material flow.

RE-ALIGNMENT OF THE FTAS

News Excerpt

With the operationalisation of India-Australia Economic Cooperation and Trade Agreement, India is expecting more free trade agreements to be signed up in 2023.

Pre- connect

Types of Trade Agreements

- **Preferential Trade Agreement (PTA):** Two or more partners agree to reduce tariffs on agreed number of tariff lines. Such list of products is called positive list. e.g., India MERCOSUR PTA.
- **Free Trade Agreement (FTA):** Covers a substantial list of items between two countries. However, each maintains an individual tariff structure for non-members. Unlike PTA, FTA contains a negative list on which duty is not reduced or eliminated. e.g., India Sri-Lanka FTA
- **Comprehensive Economic Cooperation Agreement (CECA) and Comprehensive Economic Partnership Agreement (CEPA):** Such agreements contain an integrated package consisting of goods, services, and investment along with other areas including IPR, competition, etc. e.g., India-Korea CEPA.
- **Custom Union:** Partner countries have zero duty among themselves while common tariff against non-members e.g., Southern African Customs Union (SACU).
- **Common Market:** It's a more deeper integration than custom union. It includes provisions to facilitate free movements of labor and capital, harmonize technical standards across members, etc. e.g., European Common Market

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- **Economic Union:** It's one step forward from the common market and includes harmonization of fiscal/monetary policies and shared executive, judicial & legislative institutions. E.g., European Union.

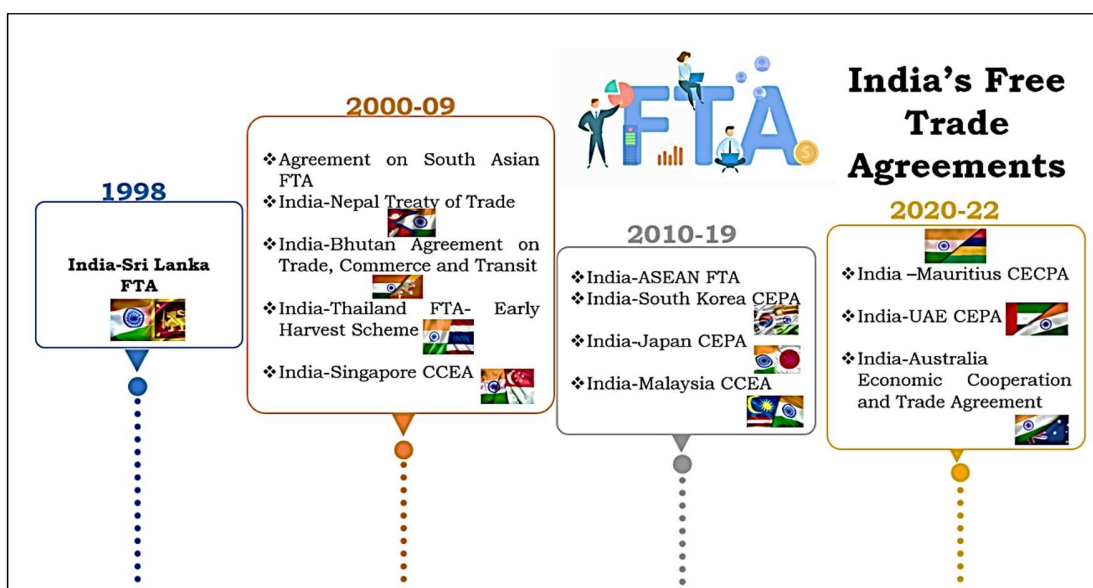
Benefits of FTAs

- **Global value chain:** They aid integration with the global value chain as a reliable supply hub, which is important in the post-pandemic world where businesses look for safe and cost-efficient trading routes.
- **Market access:** They also provide deeper market access for Indian value-added exports to the consuming markets of the West.
- **Non-tariff exports:** They ensure the removal of existing non-tariff barriers to goods and services exports with fair and reciprocal trade terms.

For example, the India-Australia Enhanced Cooperation and Trade Agreement (ECTA) is the first FTA for India where the partner country has provided duty-free access to all commodities across tariff lines.

- **Competitive against neighbors:** They are important to leverage better opportunities vis-à-vis regional competitors who already have preferential access.

For example, the duty elimination for Indian exports (currently subjected to import duty of 4-5%), coupled with regulatory facilitation like fast-track approvals of medicines, should help Indian exporters of value-added products to expand their market base in Australia.



- **Cheaper raw materials,** in turn, may result in cascading benefits like strengthening the cost-effective value addition in India for domestic consumption and further competitive exports.

For example, under India- Australia agreement, Indian manufacturers will also be able to source cheaper raw materials—such as coal, copper, cobalt, alumina, and wool—duty-free.

- **Benefits in other sectors:** FTAs enable India's service providers to compete with their global peers under agreements in the fields of technology, education, healthcare, financial services, and taxation.

India and its new approach towards FTAs

- ❖ India is course-correcting its approach towards FTAs according to the changing needs of its economy, domestic policy initiatives and dynamics of global trade.
- ❖ It is specifically seeking to enhance its role in global value chains and expand the market for value added goods and modern services.
- ❖ While the earlier FTAs focused on eastern countries under the 'Look East' policy, the recent FTAs are more focused on Western geographies such as the US, the UK, the EU, and Eurasia. The bulwark of this shift is India's need to look for supply chain partners that are credible and resilient, while offering investment and access to technology. Given the strong political will and diplomatic ties with these regions, such a change may be win-win.
- ❖ Another difference is that traditionally, FTAs focused on goods trade and related measures. The new FTAs, however, seek deeper economic integration, reflecting the changing paradigm of international trade agreements.

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- **Reasoned liberalization:** For example, India was conscious that the market access in real terms for certain items might be greater in the country due to its higher MFN and large consumer base, and thus many critical sectors such as dairy, wheat, rice, bajra, sugar, jewelry items, and toys have been kept in the exclusion list.

What more to do: Way forward

- ✓ **Enhance the role of businesses:** However, negotiators may strive hard, and the government can strategize the efforts along with policy directions, but it is only the businesses that can have a 360° view of their barriers in various geographies.
 - Businesses must make themselves aware of the changes in international trade whether at the multilateral fora, i.e., decisions at WTO or through the newly inked FTAs in other geographies, especially those affecting the trading avenues of India (e.g., the EU's FTA with Vietnam)
 - Businesses need to actively participate in this most significant trade policy effort by the government to help create jobs, transform value chains, and increase India's economic base.
- ✓ **Export opportunities** through FTAs need to be exploited more to have a bigger role in exports.
 - India must improve the efficiency of ports, shipping, customs, etc. via automation.
 - Improved efficiency, along with low or nil duties, can also be a big boost for participation of Micro, Small, and Medium Enterprises (MSMEs).
 - The existing value chains are being disrupted as many organizations and countries feel the need to develop alternate sources of supply in which all the components are available in the domestic vicinity or within the country's own economy. Therefore, India has to look at a hybrid model to source from the most efficient suppliers, including domestic suppliers.
- ✓ **Reduce the protectionist tendencies in the economy:** India needs to first address the domestic tension between protecting its industry versus the aspiration of expanding its role in global trade. For example, the deals with the U.S. and the EU are nowhere near completion. The reason is that India's average tariff rate is in double digits for most of these, compared to the U.S. which has tariffs between 0-4%; the EU at 4%.
- ✓ **Domestic Reforms:** Improving trade and participation in global production networks will require several domestic improvements like
 - Improvements in domestic transport: The quality and coverage of Indian roads lag far behind countries like China, as do India's port facilities. Currently, logistics cost is 16-18 percent of the GDP, which should be below 10 percent.
 - Land acquisition for projects is a major hurdle. The regulatory framework, e.g., getting the necessary permits from the various ministries is highly challenging.
 - Taxes relating to domestic and foreign investors have been variable, generating unnecessary uncertainty for investors.
 - Energy supply, a necessary input for production, remains inadequate and unreliable.
 - The need for infrastructural investments to support economic activity is absolute.
 - A further impediment to the growth of the manufacturing sector is the restrictive set of labor laws that govern employment in India. Though to a degree new labor code has addressed this issue but it is yet to be implemented.
- ✓ **Check the misuse of FTAs:** Undue claims of FTA benefits have posed threat to the domestic industry.
 - Though measures have been taken up to prevent the misuse of FTAs, through changes brought about in the Finance Act, 2020 and Customs (Administration of Rules of Origin under Trade Agreements) Rules, 2020 (CAROTAR 2020), traders have attempted to misuse the FTA provisions.

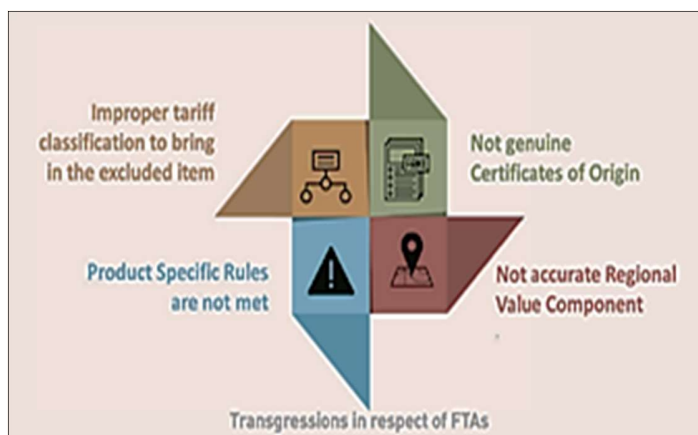
Specific opportunities for India

India's FTAs with various countries offer distinct trade opportunities:

- ❖ The existing agreements with the UAE, for example, will boost sectors such as gems and jewelry, plastics, engineering goods, textiles and agro-processed foods. There is also huge potential for financial, audio-visual and entertainment services.
- ❖ The UAE could become an important intra-port destination where warehousing value-add can be done for exports to Africa and Europe.
- ❖ The FTA with Australia is beneficial for various sectors including textiles and engineering. Australia could also become a centre for exports to East Asian countries where India does not have market access.

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- A very common transgression is misdeclaring the country of origin by routing goods through the countries with which India has Free Trade Agreement. For example, Chinese Origin Steel products were routed through Malaysia for avail benefits.
- Such imports require stringent checks e.g., reviewing Rules of Origin requirements, particularly for certain sensitive items.
- ✓ India needs to expand its approach to a **wider country base** e.g., in the African countries, Central Asia, lesser developed countries of Latin America, etc. as these countries have sizable manufacturing.



Conclusion:

FTAs strengthens the faith in the tenacity of India, working in tandem to participate in global value chains on fair and equal terms. However, while negotiating, India must adopt a balanced position considering domestic imperatives such as Production-linked Incentive (PLI) schemes that seek to provide impetus to Indian manufacturing.

DECRIMINALISATION OF OFFENCES UNDER GST

News Excerpt

The GST Council chaired by Union Finance Minister recommended to decriminalise certain offences under Section 132 of the Central Goods and Services Tax (CGST) Act, 2017.

Pre-Connect

Goods and Services Tax (GST)

- The GST is a unified indirect tax across the country on products and services. Under the GST system, the tax will be levied only on the value added at each stage. It is a single tax (collected at multiple points) with a full set-off for taxes paid earlier in the value chain.
- For transactions within a state, there will be two components of GST - Central GST (CGST) and State GST (SGST) - levied on the value of goods and services. Both the Centre and the States will simultaneously levy GST across the value chain. In the case of inter-state transactions, the Centre would levy and collect the Integrated Goods and Services Tax (IGST).
- The GST was established to subsume various indirect taxes levied at different levels, with the idea of reducing red tape, plugging leakages, and paving the way for a transparent indirect tax regime.

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Previously criminalized under GST

Since the implementation of GST, there has been a significant increase in tax evasion.

- The GST Law provides for two different types of penalties.
- The department authorities have the authority to impose monetary fines and the seizure of goods as penalties for violating statutory provisions.
- Criminal penalties include imprisonment and fines, which are also provided by GST Law but can only be awarded in a criminal court following a prosecution.
- The amount of tax evaded, the amount of Input Tax Credit (ITC) improperly claimed or used, or the amount of refund improperly claimed determines the length of the prison sentence.

Recommendations to decriminalize the GST offences

- ✓ The 48th GST Council meeting has recommended various measures to decriminalise the GST offences such as
 - Raising the minimum threshold of tax amount for launching prosecution under GST from one crore to two crore.

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- The only exception for the said offence is issuance of invoices without supply of goods or services or both,
- ✓ Reducing the compounding amount from the present range of 50 to 150% of the tax amount to the range of 25 to 100%,
- ✓ Decriminalising certain offences specified under Section 132 of the CGST Act, 2017, such as obstructing or preventing any officer from doing his duties, deliberate tempering of material evidence, and failure to supply information.

Impact of decriminalization

- Imposing penal provisions in an ambiguous ecosystem significantly alter how businesses perceive risk and uncertainty, directly impacting their ability to conduct business. Investors may be discouraged by the fear of criminal sanctions in small, trivial, and petty matters, even before their engagement in any business activity or investment.
- The law already contains sufficient penalties that serve as a deterrent against tax evasion.

Other recommended measures to facilitate trade

- ✚ Refunding unregistered persons and facilitating e-commerce for micro-enterprises: For example, there was no procedure for a claim of refund of tax borne by unregistered buyers in cases where the contract/agreement for the supply of services, like construction of flat/house and long-term insurance policy, is canceled. The Council recommended an amendment to CGST Rules, 2017, prescribing the procedure for applying for a refund by unregistered buyers in such cases.
- ✚ Allowing unregistered suppliers and composition taxpayers to make an intra-state supply of goods through E-Commerce Operators (ECOs), subject to certain conditions: The Council approved the amendments in the GST Act and GST Rules, along with the issuance of relevant notifications, to enable the same.

Conclusion

- > If the decriminalization of GST offenses is implemented with adequate checks, then prosecution, arrest, and imprisonment in GST cases would only be in the rarest of rare cases of hard, habitual, deliberate defaulters and blatant specific fraudulent practices.
- > Other minor grievances may be dealt with in other resolution mechanisms such as Alternate Dispute Resolution (ADR) mechanisms, private ruling, mediation, faceless adjudication, and appeals, etc.

INDIAN ECONOMY IN 2023

News Excerpt

Given the situation with the war, and worsening financial conditions in key economies, the prospect of a central bank-engineered downturn — a global recession seems imminent.

Present scenario of the Indian Economy

Despite the global economic scenario, the Indian economy showed resilience.

- Equity markets touched new highs, buoyed by a rebound in portfolio flows to India.
- Headline consumer-level inflation moderated by nearly a percentage point to 5.9% in November, driven by a fall in vegetable prices.
- The corporate debt-to-GDP ratio is at its lowest in nearly a decade and a half, and bank books have shed much of the bad loans.
- Reducing input cost pressures, surging corporate sales, and an increase in investments in fixed assets indicate the beginning of an upturn in the CAPEX cycle, which could potentially contribute to a reboot of India's growth momentum.
- The Centre had recorded robust collections in both direct taxes and GST, reflecting sustained recovery of the corporate sector; states to have shown some decline in their consolidated deficits and net market borrowings.
- According to the RBI, agriculture has been a sustained driver for overall GDP growth, with higher support prices, adequate reservoir levels, and climatic factors supporting higher acreage.

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Challenges for the Indian Economy

- The Ukraine war threatens an energy-linked downturn in the European Union, India's biggest export market.
- The US continues to face inflationary pressures.
- With the world's second-largest economy, China, in a slump, the global economy may slow down.
- 2023 will see higher protectionism worldwide, greater de-globalization, and more economic balkanization: a challenge for countries such as India that are keen to tap exports as a driver for growth.
- In India, manufacturing continues to be weak. Factory output, as measured by the Index of Industrial Production (IIP), slumped to a 26-month low in the festive month of October.
- There is continuing distress among the Micro, Small, and Medium Enterprises (MSME) firms, reflecting the deep cleavages in industrial recovery where the bigger companies are doing far better than the smaller firms.
- India's significant dependence on imported energy, at 4% of the country's GDP, is a challenge for the balance of payments. A current account deficit of over 3% is projected for FY23.
- Rural wages contracted for the ninth consecutive month in September, pointing to continuing distress in the hinterland. This points to a continued labor oversupply in rural areas and depressed aggregate household consumption.

Opportunities for the Indian Economy

- ✓ The China-plus-one strategy being adopted by most multinational companies could be an opportunity, given that Beijing is vacating large amounts of space in low-skilled, unskilled labor-intensive manufacturing such as textiles, shoes, leather, and ceramics, and India has a chance to fill part of this vacuum.
- ✓ **World's Information Technology and Services Hub:** With strong services exports at \$254.5 billion in 2021-22, India enjoys a strong foothold especially in the IT and BPO services exports. There is now an opportunity for the country to seize a higher share of transformational and more complex, expertise-based services to grow faster in the IT services sector.
- ✓ **Digitalization: A Force Multiplier:** The furious pace of digitalization in the country, including by the government, would result in multiple benefits including improved governance, and financial inclusion and providing a framework for private players to reach new markets and create new products and services.
- ✓ **Reaping the demographic dividend:** 25% of the incremental global workforce over the next decade will come from India. India also has the largest pool of English-speaking STEM graduates with an annual addition of 2.14 million (47% women) and 6.2 million healthcare professionals, which includes doctors and nursing staff.

Global Economy 2023

The year witnessed the highest global inflation in 50 years, the most aggressive monetary tightening cycle in nearly 40 years, the strongest US dollar in 20 years, and the weakest Chinese growth in over 45 years.

- ❖ RBI in the 'State of the Economy' report noted the balance of risks increasingly tilting towards "a darkening global outlook", and emerging market economies (EMEs) appear to be "more vulnerable".
- ❖ IMF forecasts suggest that global growth is projected to slow from 6% in 2021 to 2.7% in 2023 — the weakest growth profile since 2001, except for the global financial crisis and the acute phase of the pandemic.
- ❖ Global inflation, according to the IMF, is forecast to decline from 8.8% in 2022 to 6.5% in 2023 and to 4.1% by 2024 — still high by most yardsticks.
- ❖ In the U.S., a high wage growth of over 6% is not compatible with the Fed's 2% inflation target — this means that the Fed is going to have to continue raising policy rates. It could have a three-pronged impact:
 - The difference between interest rates in the US and countries such as India widens, making the latter less attractive for the currency carry trade;
 - Higher returns in US debt markets could trigger a churn in emerging market equities, tempering foreign investor enthusiasm;
 - Sustained rate hikes by the Fed would also mean a lower impetus to growth in the US, which could be bad news for global growth, especially when China is facing a new Covid outbreak.

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- ✓ **Making domestic manufacturing competitive:** As global supply chains continue to diversify post pandemic, the government's 'Aatmanirbhar Bharat' (self-reliant India) initiative in manufacturing has found further impetus through path-breaking policies such as the Production-Linked Incentives (PLI). Fresh investments are expected in renewables, electric vehicles, and battery tech
- ✓ **Building the infrastructure of the future:** In addition to massive upgrades in roadways, investments in physical infrastructure are being supplemented by IT-based ease-of-doing-business initiatives under the National Logistics Policy, with an aim to increase efficiency and lower the cost of movement.
- ✓ **Transition to sustainable energy:** The government has set a target to be net zero by 2070 and reduce carbon intensity by 45% by 2030 vis-à-vis 2005 levels.

Conclusion

Enhancing ease of doing business, accelerating power sector reforms and energy independence, and enabling quality healthcare and education will not only increase business confidence but also ensure socio-economic development on a sustained basis.

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News Excerpt

In the 36th India-France strategic dialogue, the first major diplomatic visit of the year, both nations shared views on security and defense cooperation. The two sides also held deliberations on wide-ranging bilateral and global issues.

Pre Connect

India-France Relations

- India and France have traditionally close and friendly relations.
- In 1998, the two countries entered into Strategic Partnership which is a symbol of their convergence of views on a range of international issues apart from a close and growing bilateral relationship.
- The 3 pillars of the India-France Strategic Partnership lie in the areas of defense, space, and civil nuclear cooperation. The defense exercises between the two include the Shakti exercise (Army), Varuna exercise (Navy), and Garuda exercise (Air Force).
- Apart from these, India and France are increasingly engaged in new areas of cooperation like climate change, sustainable growth, and development, the International Solar Alliance, etc.
- Both countries support a multi-polar world order.
- France also support India's claim for permanent membership of the Security Council and the reforms of the United Nations.
- France has provided consistent support to India's candidature for membership in all four Multilateral Export Control regimes, viz. Nuclear Suppliers Group (NSG), the Missile Technology Control Regime (MTCR), the Wassenaar Arrangement (WA), and the Australia Group (AG).

India-France Strategic Dialogue

The two sides discussed a variety of issues in the backdrop of a new security alliance by Australia, the UK, and the USA (AUKUS)-

- Ukraine Conflict- Both countries have called for an immediate cessation of hostilities and to bring parties together to promote dialogue and diplomacy for finding an immediate end to the suffering of the people.
- Regional Security- Both emphasize 'zero tolerance against the use of Afghan territory for spreading terrorism across the world.
- Counter Terrorism- Emphasised the need for collective efforts in countering the menace of terrorism and transnational crimes through enhanced cooperation in the fields of capacity building, information exchange, extradition, and legal assistance.
- Cyber Security- Reaffirmed their commitment to open, reliable, secure, stable and peaceful cyberspace and recalled in particular the applicability in cyberspace of existing principles of international law, including the United Nations Charter in its entirety.
- Defense Cooperation in Indo-Pacific- Ensure peace, stability, and security in the Indo-Pacific based on common beliefs in the rules-based international order and strategic autonomy.

Significance of India-France Relations

✓ Political

- The creation of the Strategic Partnership in 1998 demonstrates the ties of friendship and trust between the two countries.

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France-All Weather Friend

France had emerged as "all-weather" friend of India not only in Europe but on the larger international scenario. There are two reasons for the same- Firstly, the ability of France to maintain strategic autonomy in its foreign policy which resonates with India. Secondly, France follows the policy of singularities despite being part of the Western alliance. India and France have a common identical position on issues that range from stability in Afghanistan, Iranian Nuclear Deal and Freedom of navigation in the Indo-Pacific. India and France can construct a new coalition that can provide some strategic stability in the unstable world.

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- This partnership focuses on several areas of cooperation like civil nuclear energy, defense, counter-terrorism, space cooperation, cyber security and digital technologies.
- The signing of an agreement for the supply of 36 Rafale aircraft and an industrial agreement to build six European pressurized water reactors (EPR) on the Jaitapur site is directly linked to this partnership.

✓ **Economic**

- Franco-Indian trade had been growing steadily which was slowed considerably in 2020 in the context of the COVID-19 crisis to €9 billion.
- France ranks 24th among countries supplying India and is its 17th-largest customer.
- France is among India's leading foreign investors, with foreign direct investment stock of €9.8 billion at the end of 2020.
- France is cooperating with India as part of its "Smart Cities" program where its companies are already working in more than 20 cities.

✓ **Military**

- French President Hollande visited India as the chief guest of the Republic Day celebration of 2016. A French military contingent also marched on Rajpath on the Republic Day making France the first ever foreign country to do so.
- Indo-Pacific Oceans Initiative (IPOI)- France endorsed its launch while offering to take the role of the lead partner of the Marine Resources pillar.
- Defense purchases- India is close to deciding on a fighter jet to fly off the Navy's aircraft carriers for which Dassault Aviation's Rafael-M has an edge.
- Safran of France is competing with other global engine manufacturers to co-develop a fighter jet engine with the Defence Research and Development Organisation (DRDO).

✓ **Cultural**

- Solidarity between France and India could be seen at the height of the COVID-19 public health crisis when India authorized an exemption for the export of many medicines to France.
- In return, France released assistance of €200 million and conducted an exceptional solidarity operation in support of the Indian people.
- The Indian students studying in France are supported by scholarship programs and partnerships between Indian and French institutions.

✓ **Terrorism**

- India and France have consistently condemned terrorism and have resolved to work together for the adoption of the Comprehensive Convention on International Terrorism (CCIT) in the UN.
- India and France reaffirmed their strong determination to eliminate terrorism and condemned terrorism in all its forms and manifestations including cross-border terrorism and terror-related incidents in France and India.

✓ **Clean Energy**

- International Solar Alliance- It was launched by India and co-founded by France. It is aimed at promoting solar energy and mobilizing over a trillion dollars of investment for the same.
- A 100 MW solar power park is built by the French firm Engie in Mirzapur.

India and France in Indo-Pacific

For both India and France, Indo-Pacific is a three-fold reality:

- ❖ Geographical Reality- Civilisational and Commercial ties have linked Africa and Asia through the Indian Ocean for centuries. The whole region is united by "culture of shorelines".
- ❖ National Reality- Both countries are Indo-Pacific rim nations and are key actors in the region.
- ❖ Strategic Reality- Both countries are aware of the threats the region faces such as threats of piracy and illegal maritime trafficking, terrorism and security consequences of climate change.

Further French Indo-Pacific policy is based on three pillars:

- ❖ Security
- ❖ Environment and Blue Economy
- ❖ Connectivity

The Indo-French strategic vision on Indo-Pacific was adopted in 2018. It focuses on information exchange with French Participation in IFC-IOR, Joint military exercises and capacity building.

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✓ Climate Change

- The Paris Climate Accord- India declared its commitment to the accord and the effort to save the environment which is engrained in its heritage and ancient philosophical thought
- India-France Roadmap on the Blue Economy and Ocean Governance intended to make the blue economy a driver of progress.
- a call in favor of an Indo-Pacific partnership on natural parks.
- Brest Commitments for the Oceans- To protect biodiversity and ocean resources to which India is a signatory.

PEPPER IT WITH

International Solar Alliance, India-France Nuclear Diplomacy

Conclusion

There is a lot that India and France can achieve together. This strategic partnership is more crucial than ever and will be more and more crucial for the stability and the future of the Indo-Pacific. India-France partnership is an “all-weather” partnership, one which should move at the speed of Rafale.

INDIA- ARMENIA RELATIONS

News Excerpt

Recently Armenia and a leading private Indian defense equipment manufacturer signed a deal for the supply of 155 mm artillery systems worth more than \$150 million over the next three years. This marks a continuation of India’s stated policy of deepening defense cooperation with Armenia.

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Pre Connect

- India and Armenia celebrated 30 years of bilateral diplomatic relations in the year 2022.
- Both countries are ancient civilizations that have known each other closely for over thousand of years. Thus the familiarity and depth of mutual affection between the two nations are significant given the vast geography that separates them.
- India has a very high-level of position in Armenia. It is the land where generations of Armenian diaspora communities have thrived. The dream of reviving the Armenian state has its roots in India.
- The Armenian republic was reborn in 1991 and it was recognized by India a day after the demise of the Soviet Union.
- Former President of Armenia Armen Sarkissian sees Mahatma Gandhi as a role model who set the highest standard for personal conduct in politics.

Significance

- The order closely follows a government-to-government deal with Armenia to supply \$ 250 million worth of defense equipment which includes PINAKA multi-barrel rocket launchers, anti-tank munitions, etc. It also made Armenia India’s first international customer of the indigenously developed PINAKA system.
- It can benefit India’s contest over global supply chains since Armenia provides a potential outpost for India in the Eurasian corridor.
- Armenia can also prove a worthy developmental partner to India in domains such as agriculture, pharmaceuticals, manufacturing, and technology.
- The collaboration can provide an outstanding substitute for the debt-ridden Chinese Belt and Road Initiative (BRI) model.
- Armenia’s growing purchases of Indian defense hardware would provide an impetus to both public and private sector defence manufacturing in India.
- Defense supply can help Armenia to counter the “three brothers” involving Pakistan, Turkey, and Azerbaijan by leveraging its military capabilities.

CURRENT CONNECT- JANUARY- 23

Implications on Turkey

- ✓ In 2020, it was in Turkey's direction that Azerbaijan attacked Armenia to connect Turkey with Azerbaijan through Armenia's Zangezur region.
- ✓ Turkey has also denounced the abrogation of Article 370 in Jammu and Kashmir and backed Pakistan at different open platforms and United Nations on various occasions.



- ✓ Armenia's stance on Kashmir favors India viewing the complete territory as an inseparable part of India.

Implications

- ✚ With recent exports of military hardware to Armenia, India has openly positioned itself on Armenia's side in the Nagorno-Karabakh conflict and has chosen to counter Azerbaijan and its supporters including Turkey and Pakistan.
- ✚ Thus, India's defence exports to Armenia constitute a powerful signal to Turkey to change its course on India's internal policy issues including Kashmir.
- ✚ It also shows India's new-found readiness to take sides rather than following the non-aligned approach while furthering its interests globally.

PEPPER IT WITH
Nagorno-Karabakh Conflict,
THAAD, India's Defence Export

Conclusion

India does not usually intervene in matters of other countries or faraway hostilities. Non-alignment in this conflict will not keep Armenia's rivals from meddling in India's internal matters. Armenia's destruction will also impact India's progress. Armenia cherishes its excellent relations with India, they respect India's solidarity with Armenia in this time of crisis. Thus India's much-needed increasing role in Eurasia can significantly damage the three brothers' plans and may lead to stability in South Asia.

INDIA'S SOFT POWER

News Excerpt

The Standing Committee on External Affairs submitted its report on 'India's Soft Power and Cultural Diplomacy: Prospects and Limitations' recently.

Pre connect

Soft Power

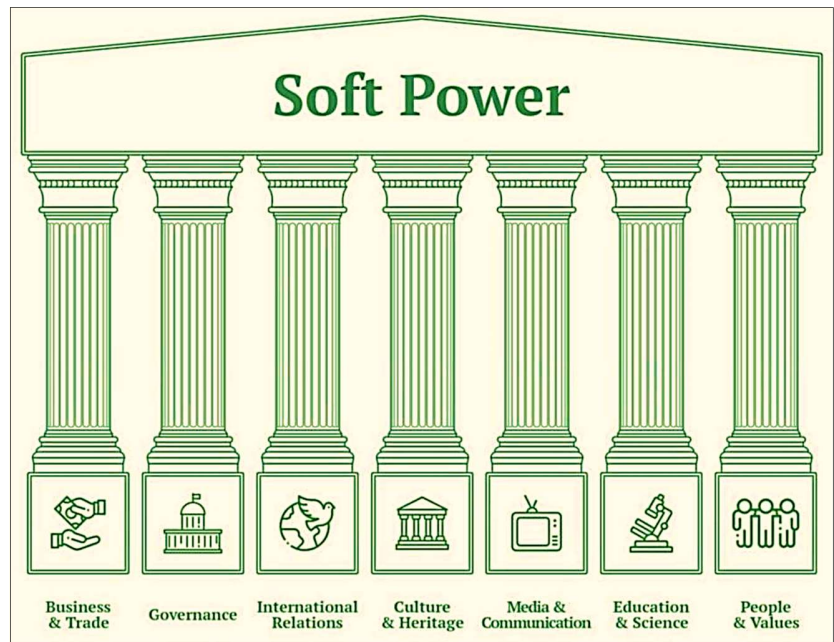
- Soft power is the ability to influence others through appeal and attraction, using non-coercive means. The American political theorist Joseph Nye defines it as 'the ability to get what you want through attraction rather than coercion.'
- In contrast to economic and military power, which is dependent on payoffs and coercion, soft power works through attraction and co-adaptation.

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India's Soft Power

- India's soft power has historically been characterized by pluralism, non-violence, and liberalism with a non-threatening global leadership.
- The idea of 'unity in diversity' which is accommodative of other cultures and civilizations is rooted in Indian culture.
- Indian civilization is one of the oldest with environmentally friendly cultures where people worship trees, animals, nature, etc. signifying our belief in coexistence.
- Over thousand of years, India has granted shelter along with religious and cultural freedom to Jews, Christians, Muslims, etc. India's history displays how harmoniously it assimilated different religions.
- Distinguished personalities like Mahatma Gandhi, Rabindranath Tagore, Ashoka, Buddha, etc. stand as principal representatives of the above.
- Ayurveda has also become popular in many other civilizations and Yoga is now practiced in more than 150 countries.
- The Bollywood film industry significantly represents Indian cultural heritage.
- Mythological epics such as Mahabharata and Ramayana are compared with the great Greek writings like Odyssey and Iliad.



Significance

- ✓ Augments the positive perceptions of a country- A strong nation brand and positive soft power perceptions allow a nation to promote itself as a place for people to visit, invest in, and build a reputation for the quality of goods and services.
- ✓ It is a persuasive approach to international relations- It provides the ability to shape the preferences of others to do what you want.
- ✓ Revives national pride in the country's ancient values- It has positive effects on citizens and diaspora towards their country and revives their pride in their national identity.

Challenges

- Inadequate financing- India spends around \$50 million on its soft power and most of it goes into establishment and administration whereas China spends about \$ 10 billion a year.
- Lack of coordination and synergy among various institutions like the External Affairs Ministry and other ministries. There is also an overlapping of mandate between different ministries. This acts as a limiting factor in the pursuit of India's soft power and cultural diplomacy.
- Shortage of skilled manpower and less number of Indian tourism offices abroad.
- Lack of clarity on the mandate of the Indian Council for Cultural Relations (ICCR).
- The Indian government in the past was not aggressive and proactive in promoting our soft power.

Committee Recommendations

✚ Restructuring ICCR

- There is a need for a complete remodeling of the structure, mandate, and functioning of the ICCR to better project Indian culture. The restructuring was delayed due to the COVID-19 pandemic according to MEA.
- The central government should increase ICCR's budgetary allocation by Rs 500 crore

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✚ Working group on cultural diplomacy

- A working group between the MEA and the Ministry of Culture to coordinate and plan cultural diplomatic activities.
- Further, the Committee recommended creating a consolidated database of information on cultural resources.

✚ Constituting Yoga Certification Board

- The global popularity of Yoga can be effectively used as a soft power tool.
- Collaboration between the Ministry of AYUSH and the MEA to constitute a Yoga Certification Board. It would certify Indian yogic practices and therapies.
- Collaboration with the Indian diaspora to disseminate yoga training abroad, in regions where it is not yet popular.

✚ Mechanism to interact with Indian Diaspora

- To proactively interact with the Indian diaspora in the Indian Missions abroad.
- It also recommended holding designated events to take their feedback and suggestions for better regular engagement with the host country.

✚ Tourism promotion

- It is a key indicator of a country's soft power capital.
- There is a need to increase tourism offices abroad and the adoption of a country-specific approach to tourism promotion.
- It recommended the government suggest proposals incorporating feedback from different categories of tourists for a comprehensive country-specific approach.
- It suggested revising the differential pricing of tickets to monuments for foreigners and Indians and building a system of common tourist entry passes to multiple heritage sites to streamline the process.

✚ Coordination committee- Its creation under the monitoring of the MEA will ensure better coordination between ministries and departments responsible for India's soft power.

✚ Getting recognition abroad for Ayurveda as a system of medicine so its products can be exported as medicine and also facilitate the opening of more AYUSH centers overseas.

Way Forward

- > The Indian government should be more aggressive, proactive, and innovative to promote India's soft power globally.
- > Soft power comes under different ministries so there should be greater synergy among the External Affairs Ministry and other ministries.
- > The Indian Diaspora is spread far and wide now so their involvement with the country should be encouraged.
- > MEA has determined to promote a "soft power matrix" to measure the effectiveness of the country's soft power outreach and initiatives such as 'Destination India' and 'Know India' have likewise been launched.
- > 'Namaste diplomacy' and 'Medical diplomacy' of India today have become the talk post-COVID-19.
- > India's supremacy in space technology-induced soft power means endless prospects. For example, India launched GSAT-9 which aimed at providing South Asian countries with space-enabled services.
- > As an ancient civilization and a throbbing democracy with a secular spirit and an increasingly developing marketplace India grew to become the 5th most booming economy in 2019.
- > India's boost to its communication, tourism, culture and soft power would require multilateral and bilateral collaborations with different nations by enhancing its foreign policy and diplomacy.

PEPPER IT WITH

Indian Council for Cultural Relations,
Tracks of Diplomacy

CURRENT CONNECT- JANUARY- 23

UKRAINE 10-POINT PEACE PLAN

News Excerpt

Ukraine's presented a 10-point peace plan to end its ongoing conflict with Russia. The conflict has led to a humanitarian and economic crisis.

Pre-Connect

Russia- Ukraine conflict

Genesis

- At the heart of the current crisis between Russia and Ukraine is NATO (North Atlantic Treaty Organization) – a group of 30 countries including the US, UK, France, and Germany.
- Ukraine wants to join this group of which the United States, the arch-rival of Russia, is a part. NATO, too, is open to making Ukraine its member, it has irked Russia.
- Russia doesn't want NATO to allow Ukraine to become its member as it will expand the grouping's footprint to its border. The other big reason is that a member country of NATO will be eligible for collective support by all members in case of any external attack.
- As per the principle of collective defense, NATO considers an attack against one or several of its members as an attack against all. This is the principle of collective defense, which is enshrined in Article 5 of the Washington Treaty.
- Russia believes that if Ukraine becomes a member of NATO, it might try to take back Crimea by military action.
- Russia, therefore, demanded the West pull NATO forces out of eastern Europe and never expand into Ukraine. In absence of any commitment from the West, Russia Invaded Ukraine.

Impact Of The War On The World

- **Growth and Inflation:** The entire global economy will feel the effects of slower growth and faster inflation.
- **Impact on other countries:** Countries with direct trade, tourism, and financial exposures will feel additional pressure.
- **Impact on oil-reliant countries:** Economies reliant on oil imports will see wider fiscal and trade deficits and more inflation pressure, though some exporters such as those in the Middle East and Africa may benefit from higher prices.
- **Unrest, conflict, and food insecurity:** Steeper price increases for food and fuel may spur a greater risk of unrest in some regions, from Sub-Saharan Africa and Latin America to the Caucasus and Central Asia, while food insecurity is likely to further increase in parts of Africa and the Middle East.
- **Refugee crisis:** neighboring economies in particular will grapple with disrupted trade, supply chains, and remittances as well as a historic surge in refugee flows.
- Prevalent suffering and **humanitarian crisis**
- **New geopolitical order:** Longer term, the war may fundamentally alter the global economy and geopolitical order should energy trade shift, supply chains reconfigure, payment networks fragment, and countries rethink reserve currency holdings and form newer relations.

Increased geopolitical tension further raises risks of economic fragmentation, especially for trade and technology.

IMPACT ON INDIA

- ✓ **Higher import bill:** the war pushed up our import bill for both energy and fertilizers.
- ✓ **Impact on growth and inflation:** Both energy and fertilizers (and the rising price of wheat globally) have also contributed to rising inflation globally, promoting Indian policymakers to raise interest rates in tandem with the rise in global rates. The net result: Higher inflation and lower growth for India.
- ✓ **Exports:** Slower growth in Europe and the global economy will take a heavy toll on major exporters.
- ✓ **Fiscal constraints:** While the government hiked petrol and diesel prices, it shied away from raising fertilizer prices and instead raised the subsidy, leading to tighter fiscal costs.
- ✓ **Geopolitical aspect:** Despite the strained economic prospects, the war has also resulted in the West looking to India as a potential partner against China.

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- ✓ **A potential alternative to China:** Global multinationals are putting the building blocks in place for a China +1 strategy and this is most pronounced in pharma and specialty chemicals. Industries like semiconductors and low-end manufacturing may also benefit if India can take advantage.
- ✓ **Changing world order:** the new global order will require India to balance its relations with Russia and the West.

10- POINT PEACE PLAN

What is the plan?

First announced at the summit of the Group of 20 major economies, the plan calls for:

1. Radiation and nuclear safety, focusing on restoring safety around Europe's largest nuclear power plant, Zaporizhzhia in Ukraine, which is now Russian-occupied.
2. Food security, including protecting and ensuring Ukraine's grain exports to the world's poorest nations.
3. Energy security, with a focus on price restrictions on Russian energy resources, as well as aiding Ukraine with restoring its power infrastructure, half of which has been damaged by Russian attacks.
4. Release of all prisoners and deportees, including war prisoners and children deported to Russia.
5. Restoring Ukraine's territorial integrity and Russia reaffirming it according to the U.N. Charter, which Zelensky said is "not up to negotiations".
6. Withdrawal of Russian troops and cessation of hostilities, restoration of Ukraine's state borders with Russia.
7. Justice, including the establishment of a special tribunal to prosecute Russian war crimes.
8. Ecocide, protection of the environment, with a focus on demining and restoring water treatment facilities.
9. Prevention of escalation of conflict, and building security architecture in the Euro-Atlantic space, including guarantees for Ukraine.
10. Confirmation of the war's end, including a document signed by the involved parties.

Challenges in the implementation

- **Russia's reluctance to the peace process:** Russia rejected the peace proposal and reiterated that it would not give up any territory it has taken by force, around a fifth of Ukraine, which it says it has annexed.
- **Cautious response of the West:** The US only stated that the two share the same vision for peace and that the US is committed to ensuring that Ukraine can defend itself. The G7 leaders stated their commitment to bringing peace to Ukraine "in line with its rights enshrined in the U.N. Charter."
- **India's balanced response:** India declared its support for any peace efforts but stopped short of explicitly endorsing the proposal.

Way Forward

India as a Peace Maker

- ✚ Though India can't be the principal peacemaker in Ukraine, however, there might be many modest and practical ways in which Indian diplomacy could contribute to the peace efforts.
- ✚ India's stand on the issue has been clear since the beginning of the war in Ukraine. India has reiterated the fact that the present era is not the era of war. India has repeatedly called for the ending of the war and a resolution of the issues in contention through dialogue.
- ✚ India has good relations with both the USA and Russia. India has also asserted that it was willing to do whatever was needed to facilitate talks.
- ✚ Under its G-20 presidency, India can create ground conditions that can help in providing a formula that would cut through the maximalist demands of either side and diplomacy and persuasion, set up conditions that could lead to a ceasefire.

News Excerpt

A bomb cyclone in large parts of the US and Canada has resulted in very low temperature causing dozens of deaths, flight delays, power outages, etc.

Pre-Connect

Bomb Cyclone and Bombogenesis

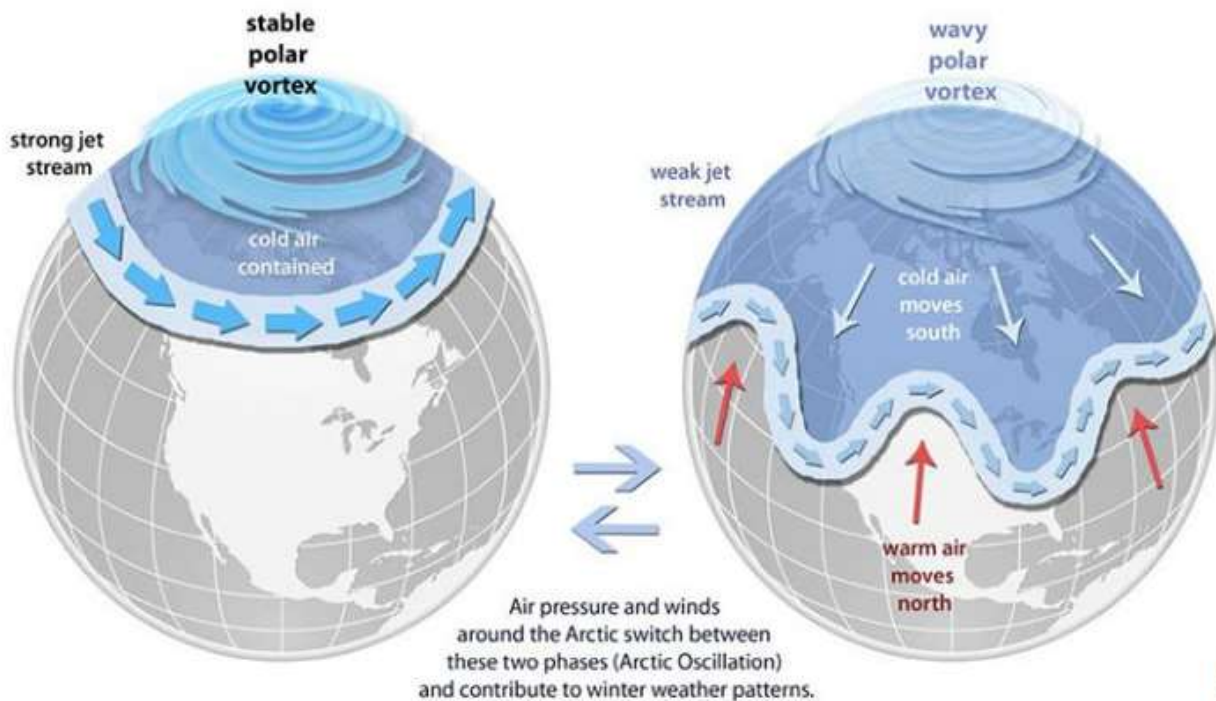
- A cyclone refers to a weather system in which winds rotate inwardly to an area of low atmospheric pressure.
- In case of a bomb cyclone, the process is very quick, it forms when air near the Earth's surface rises quickly in the atmosphere, triggering a sudden drop in pressure of at least 24 millibars within 24 hours.
- Bombogenesis is the name given to the process of fast intensification.
- This usually happens when a warm air mass collides with a cold airmass.
- In this particular case, air from the Arctic ploughed into tropical air from the Gulf of Mexico, forming a depression bringing rain and snow.
- In the US and Canada, very cold Arctic air was pulled by this cyclone, causing drop in temperature.

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The Science Behind the Polar Vortex

The polar vortex is a large area of low pressure and cold air surrounding the Earth's North and South poles. The term vortex refers to the counter-clockwise flow of air that helps keep the colder air close to the poles (left globe). Often during winter in the Northern Hemisphere, the polar vortex will become less stable and expand, sending cold Arctic air southward over the United States with the jet stream (right globe).

The polar vortex is nothing new — in fact, it's thought that the term first appeared in an 1853 issue of E. Littell's *Living Age*.



Formation

- The Eastern Seaboard of the US is the most common for the formation of Bomb Cyclone.

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- It's because storms in the mid-latitudes (temperate zone), which cover almost the entire US, draw their energy from large temperature contrasts.
- Along the U.S. East Coast during winter, there's a naturally potent thermal contrast between the cool land and the warm Gulf Stream current.
- Over the warmer ocean, heat and moisture are abundant.
- But as cool continental air moves above and creates a large difference in temperature, the lower atmosphere becomes unstable and buoyant.
- The air rises, cools and condenses, forming clouds and precipitation.
- Intense cyclones require favourable upper atmospheric conditions like 'Jet Streaks'.
- When a strong jet streak overlies a developing low-pressure system, it creates a feedback pattern that makes warm air rise at an increasing rate. This allows the pressure to drop rapidly at the centre of the system.
- As the pressure drops, winds strengthen around the storm.
- In this particular case, eventually, the Arctic air will get warm which will lead to lower pressure difference and the storm will lose its strength.

Effects of Bomb Cyclones

- ✓ Temperatures fall drastically.
- ✓ Snow in affected regions,
- ✓ Worsens weather conditions, e.g., when combined with blizzards and snow in the Great plains.
- ✓ According to U.S. National Weather Service, such cold conditions can lead to frostbites on exposed skin, hypothermia and even death if exposed to these conditions for too long.
- ✓ It has also led to deaths due to power outages, poor visibility and accidents.
- ✓ Affects work due to flights and travel disruptions.

Analytica

Climate Change and Bomb Cyclones

- Atmospheric warming due to GHG effect will worsen the impact of Bomb Cyclone. Warmer sea surface temperatures strengthen tropical storm wind speeds, giving them the potential to deliver more harm in case of landfall.
- Sea level rise is already making coastal storms more destructive and is likely to endure. Sea level rise increases the risk of coastal flooding and has intensified the impact of several recent storms.
- The warming of mid-latitudes may be changing the pattern of tropical storms, leading to more storms occurring at higher latitudes.

PEPPER IT WITH

Local winds across the globe, Continental and Oceanic air masses, Jet Streams, Polar vortex

Adaptation: Bomb Cyclone

Making immediate reductions in greenhouse gas emissions, to halt global warming, is essential to reduce the risk of the strongest storms in the future.

- Preserving coastal wetlands, dunes, and reefs to absorb storm surge
- Ensuring new building and development do not occur in flood-prone areas
- Improving infrastructure that affords coastal protection for instance-seawalls
- Elevating vulnerable buildings to reduce the potential for flood damage
- Encouraging residents in areas

Conclusion

In the near future, due to the climate change phenomenon, the frequency of bomb cyclones will increase. Therefore, need better disaster management and rehabilitation in place.

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GLOBAL WARMING & TERMITE BEHAVIOUR

News Excerpt

A recent study revealed that as the Earth gets warmer, the termites will rapidly spread across the world. This could, in turn, lead to a further rise in global temperatures.

Pre-Connect

Termites

- They are a group of around species of insects that are estimated to have first evolved from cockroaches.
- They live together in colonies with sterile workers performing a variety of roles to support reproductive individuals such as queens.
- These colonies have spread to many areas of the world, with hotspots in the tropics and subtropics. Over a third of the world's species of termites live in Africa.
- While many species of termites eat other plant material and even soil, wood-eating termites are generally the most well-known.
- Termites are among a few organisms that can degrade cellulose, a compound found in wood that provides strength and is very resistant to degradation.
- They form part of the carbon cycle as they release stored carbon in deadwood back into the atmosphere as carbon dioxide.
- If their activity increases, then more carbon dioxide could be released from these stores, exacerbating climate change.

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Termites as bio-indicator

- Termites are detritivores that eat dead and decaying organic matter like logs of wood in a forest.
- They form an important link in the cycling of nutrients in the forests by breaking down wood and organic residues on the ground.
- In the tropics, litter degradation and soil mixing are mainly performed by termites, especially in dry environments.
- Some termites like fungus-growing termites, Macrotermitinae have developed an obligate mutualistic symbiosis with fungi, Termitomyces.
- In African landscapes, termite mounds are called 'hotspots of fertility' or 'nutrient patches' and they increase plant and animal diversity in the ecosystem.
- Studies shows termites are sensitive to destruction of habitats.

Termites in India

- ❖ Termite mounds are commonly found in the forests of **southern India**.
- ❖ There are two types of mounds based on their shapes **lenticular and cathedral**.
- ❖ Lenticular mounds are largely underground with a large dome-like shape, while cathedral mounds are tower-like structures.
- ❖ Lenticular mounds help in **soil bioturbation** (restructuring of sedimentary deposits).
- ❖ In India, instead of nutrient hotspots, the termite mounds play an important role in soil erosion.

Global warming and termite behaviour

- ✓ The rate at which termites consume wood varies with temperature changes. In relatively high temperatures termites consume more wood.
- ✓ For example, the termites in a region with temperatures of 30 degrees Celsius ate wood seven times faster than in a place with a temperature of 20 degrees Celsius.
- ✓ The researchers also observed that these wood-eating termites were able to survive in warm and dry conditions, unlike microbes that need water to grow.
- ✓ Hence with tropicalization (i.e., warming shifts to tropical climates), termite wood decay will likely increase as termite access more of the Earth's surface.
- ✓ Termites are also found in colder areas but they have limited role due to low temperature.
- ✓ As Earth's temperature will increase day by day, by 2050, out of 13 invasive termite species, 12 could increase significantly across the world.

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- ✓ Some studies also show that increasing temperature led to the inter-breeding of two Floridian varieties of termites creating hybridised new highly destructive super-termites.
- ✓ They consume dead wood and release two important greenhouse gases like carbon dioxide and methane.
- ✓ So, an increase in termite population and their faster decomposing activity can cause more greenhouse emissions, resulting in a hotter planet.

Way Forward

- Climate change is not only affecting the termites but other organisms also.
- An increase in temperature has changed the behaviour of many animals resulting in the deterioration of the health of ecosystems. For example, polar bears aren't able to kill seals because of the shrinking Arctic Sea ice; they might quickly move on to eat other creatures like Arctic foxes and Walrus.
- By limiting the global warming problem to certain species, we are massively miscalculating our mitigation measures.
- We should monitor and study the termite population to understand them.
- Protect and restore the natural habitat.
- Develop sustainable land management practices.
- International frameworks like UNFCCC should work towards these new problems also.

PEPPER IT WITH

Symbiosis, Detritus ecosystem, Hybridisation, Greenhouse gases, Methane cycle, Carbon Cycle

WORLD BANK REPORT ON AIR POLLUTION

News Excerpt

World Bank has released a **report titled with 'Striving for Clean Air: Air Pollution and Public Health in South Asia'**. The report shows that there are economically feasible, cost-effective solutions to achieve clean air in the region, but this requires countries to coordinate policies and investments.

Pre-Connect

Airsheds

A geographical area within which the air frequently is confined or channeled, with all parts of the area, thus being subject to similar conditions of air pollution.

- There are six large airsheds in South Asia, where the air quality in one can affect the air quality in another. They are-
 - West/Central Indo-Gangetic Plain (IGP) that included Pakistan, Punjab (India), Haryana, part of Rajasthan, Chandigarh, Delhi, Uttar Pradesh.
 - Northern/Central Indus River Plain: Pakistan, part of Afghanistan;
 - Southern Indus Plain and further west: South Pakistan, Western Afghanistan extending into Eastern Iran.
 - Central/Eastern IGP: Bihar, West Bengal, Jharkhand, Bangladesh
 - Middle India: Odisha/Chhattisgarh and
 - Middle India: Eastern Gujarat/Western Maharashtra
- When the wind direction was predominantly northwest to the southeast, 30% of the air pollution in Indian Punjab came from the Punjab Province in Pakistan and, on average, 30% of the air pollution in the largest cities of Bangladesh (Dhaka, Chittagong, and Khulna) originated in India.

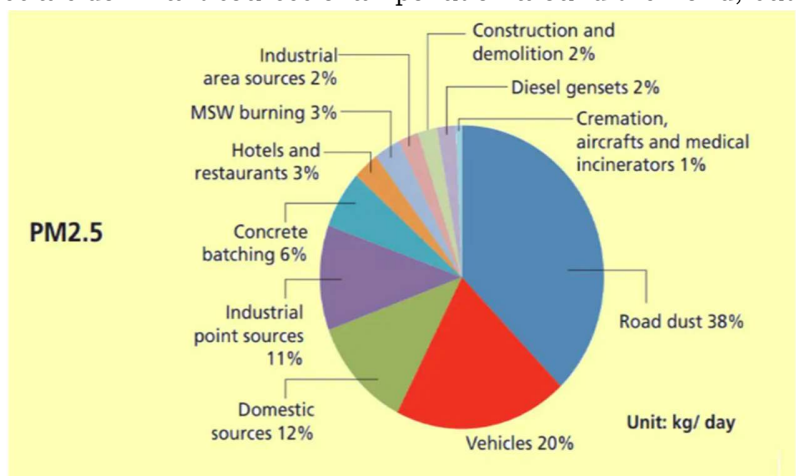
Key Points of the Report

- Concentrations of fine particulate matter such as soot and small dust (PM_{2.5}) in some of the region's most densely populated and poor areas are up to 20 times higher than what WHO considers healthy (5 µg/m³).
- Exposure to such extreme air pollution has impacts ranging from stunting and reduced cognitive development in children, to respiratory infections and chronic and debilitating diseases. This drives up healthcare costs, lowers a country's productive capacity, and leads to lost days worked.

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- Large industries, powerplants and vehicles are dominant sources of air pollution around the world, but in South Asia, other sources make substantial additional contributions. These include combustion of solid fuels for cooking and heating, emissions from small industries such as brick kilns, burning of municipal and agricultural waste, and cremation.
- Air pollution travels long distances—crossing municipal, state, and national boundaries—and gets trapped in large “airsheds” that are shaped by climatology and geography. The report identifies six major airsheds in South Asia where spatial interdependence in air quality is high.
- Currently, over 60% of South Asians are exposed to an average 35 $\mu\text{g}/\text{m}^3$ of PM_{2.5} annually. In some parts of the Indo-Gangetic Plain (IGP) it spiked to as much as 100 $\mu\text{g}/\text{m}^3$ – nearly 20 times the upper limit of 5 $\mu\text{g}/\text{m}^3$ recommended by the World Health Organisation.
- The report shows that current policy measures will only be partially successful in reducing PM_{2.5} concentrations across South Asia even if fully implemented.



National Clean Air Programme

- ❖ It was launched by the Ministry of Environment, Forest and Climate Change in January 2019.
- ❖ It is the first-ever effort in the country to frame a national framework for air quality management with a time-bound reduction target.
- ❖ It seeks to cut the concentration of coarse (particulate matter of diameter 10 micrometer or less, or PM₁₀) and fine particles (particulate matter of diameter 2.5 micrometer or less, or PM_{2.5}) by at least 20% in the next five years, with 2017 as the base year for comparison.

Measures

- ✓ To achieve greater progress, the focus of policymakers should expand into other sectors, particularly small manufacturing, agriculture, residential cooking, and waste management.
- ✓ The report analyzes four scenarios to reduce air pollution with varying degrees of policy implementation and cooperation among countries. The most cost-effective scenario, which calls for full coordination between airsheds, would cut the average exposure of PM_{2.5} in South Asia to 30 $\mu\text{g}/\text{m}^3$ at a cost of \$278 million per $\mu\text{g}/\text{m}^3$ of reduced exposure, and save more than 750,000 lives annually.
- ✓ World bank suggests three-phase road map for pollution reduction:
 - **Phase 1:** Sets the condition for airshed-wide coordination by expanding the monitoring of air pollution beyond the big cities, sharing data with the public, creating or strengthening credible scientific institutes that analyze airsheds, and taking a whole-of-government approach.
 - **Phase 2:** Abatement interventions are broadened beyond the traditional targets of powerplants, large factories and transportation. During this phase major progress can be made in reducing air pollution from agriculture, solid waste management,



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cookstoves, brick kilns, and other small firms. At the same time, airshed-wide standards can be introduced.

- **Phase 3:** Economic incentives are finetuned to enable private-sector solutions, to address distributional impacts, and to exploit synergies with climate change policies. In this phase trading of emission permits can also be introduced to optimize abatement across jurisdictions and firms.

Govt. Initiatives

- The Centre in 2019 launched a programme called the National Clean Air Programme (NCAP) that aims to reduce air pollution in 131 of India's most polluted cities. The target was initially to cut pollution by 20%-30% by 2024 over 2017 levels but has now been revised to cutting it by 40% by 2025-26.
- System of Air Quality and Weather Forecasting and Research (SAFAR) has been developed to track air quality.
- AQI (Air Quality Index) has been developed for eight pollutants viz. PM2.5, PM10, Ammonia, Lead, nitrogen oxides, sulphur dioxide, ozone, and carbon monoxide.
- Graded Response Action Plan has been launched for Delhi.
- For Reducing Vehicular Pollution:
 - BS-VI vehicles
 - Push for Electric vehicles in the country,
 - Odd-even policy (for Delhi)
- Govt. provides a subsidy to farmers for buying Turbo Happy Seeder (THS) Machine for reducing stubble burning.
- Under National Air Quality Monitoring Programme (NAMP) four air pollutants viz. SO₂, NO₂, PM10, and PM2.5 have been identified for regular monitoring at all locations.
- United Nation's Clean Air Initiative: It calls on national and subnational governments to commit to achieving air quality that is safe for citizens, and to align climate change and air pollution policies by 2030.
- World Health Organization's 4 Pillar Strategy: WHO adopted a resolution (2015) to address the adverse health effects of air pollution.
- **Climate and Clean Air Coalition, 2019:** It is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society organizations committed to protecting the climate and improving air quality through actions to reduce short-lived climate pollutants. India is a member of the coalition.

Way forward

🚧 Scientists and activists of India, Pakistan, Nepal, Bangladesh and other South Asian countries must establish a dialogue on air pollution to tackle it with an 'airshed approach'. This is how the problem has been tackled in other regions, like ASEAN, Nordic regions, and across China.

🚧 States need to go for a collaborative approach if they wish to reduce air pollution for their citizens.

🚧 Better implementation of government policies should be ensured.

PEPPER IT WITH

Stubble burning, Air Pollution Act, World Air Quality Index

METHANE EMISSIONS

News Excerpt

According to a new study published by Nature Journal "Low nitrogen oxide pollution and warming wetlands likely drove global methane emissions to record high levels in 2020". Global methane emissions reached roughly 15 parts per billion (ppb) in 2020 from 9.9 ppb in 2019.

Pre-Connect

Methane

- Methane (CH₄) is the main component of natural gas and it is a powerful GHG.

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- Methane is the primary contributor to the formation of ground-level ozone, a hazardous air pollutant and greenhouse gas, exposure to which causes 1 million premature deaths every year.
- Methane has accounted for roughly 30 per cent of global warming since pre-industrial times and is proliferating faster than at any other time since record keeping began in the 1980s.
- In fact, according to data from the United States National Oceanic and Atmospheric Administration, even as carbon dioxide emissions decelerated during the pandemic-related lockdowns of 2020, atmospheric methane shot up.
- Methane has more than 80 times the warming power of carbon dioxide over the first 20 years of its lifetime in the atmosphere.

Source of Methane Emission:

- ❖ Agriculture is the predominant source. Livestock emissions and paddy cultivation are the sources of methane.
- ❖ Coal, Oil, Bioenergy, Wetlands
- ❖ Water-logged soils make conditions ripe for soil microorganisms, allowing them to produce more methane.

Key Points of Study

- The study helps unravel a puzzle concerning why globally methane increased when many other greenhouse gases like carbon dioxide decreased during 2020.
- Methane emissions from oil and natural gas decreased by 3.1 Tg (Tera-grams) per year compared to 2019. Contributions from coal mining decreased by 1.3 Tg per year.
- Fire emissions, too, dropped by 6.5 Tg per year. Globally, fire emissions appear to have fallen in 2020 compared to 2019.
- Contributions from the agricultural sector went up by 1.6 Tg per year. Wetland emissions rose by 6.0 Tg per year.
- Northern Eurasia experienced warmer-than-usual conditions from early spring to late summer.
- Without mitigation, global methane emissions would rise by 30% by 2050.

Means to detect Methane Emissions

- ✓ The use of technology like Gas Mapping LiDAR can scan oil and natural gas infrastructure from production sites, all the way to delivery in homes to detect methane emissions.
- ✓ Studies show that the detection sensitivity that Gas Mapping LiDAR operates at can detect more than 90% of methane emissions in a typical production basin.
- ✓ Meaning the technology exists today to find, quantify, and reduce a majority of these emissions.

Initiatives to Reduce Emission

- Global Methane Initiative (GMI) is a voluntary Government and an informal international partnership having members from 45 countries including the United States and Canada.
 - The forum has been created to achieve global reduction in anthropogenic methane emission through partnership among developed and developing countries having economies in transition.
- Indian Council of Agricultural Research (ICAR) institute has developed an anti-methanogenic feed supplement 'Harit Dhara'.
- At COP26 in Glasgow, over 100 countries signed an agreement to cut methane emissions by 30% by 2030 as methane might be easier to deal with than carbon dioxide (which is more deeply embedded in the global economy).
- Central Salt & Marine Chemical Research Institute (CSMCRI) in collaboration with the country's three leading institutes developed a seaweed-based animal feed additive formulation that aims to reduce methane emissions from cattle and also boost immunity of cattle and poultry.

Effects of Methane Emissions

Methane emission can affect by-

- ❖ Contributing to the forming of the ozone.
- ❖ Decreasing air quality.
- ❖ Leading to various health issues in animals.
- ❖ Premature human deaths.
- ❖ Reduced crop yields.
- ❖ Methane emissions are driving climate change.

Measures

- ✚ The assessment found that the mitigation potential varied between countries and regions. Europe had the greatest potential to curb methane emissions from farming, fossil fuel operations and waste management.

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- India had the greatest potential to reduce methane emissions in the waste sector. China's mitigation potential was best in coal production and livestock, while Africa's was in livestock, followed by oil and gas.
- The report said the fossil fuel industry had the greatest potential for low-cost methane cuts. According to the report, up to 80 per cent of measures in the oil and gas industry could be implemented at a negative or low cost.
- Three behavioural changes — reducing food waste and loss, improving livestock management and adopting healthy diets (vegetarian or with a lower meat and dairy content) — could reduce methane emissions by 65–80 million tonnes per year over the next few decades.

Way forward

- ⇒ The government should develop a comprehensive policy that leads farmers to sustainable methods of plant-based food production.
- ⇒ Rather than allowing the continuous flooding of fields, paddies could be irrigated and **drained two to three times throughout the growing season**, limiting methane production without impacting yield.
- ⇒ Renewable energy should be promoted which will reduce the use of coal and petroleum products and it will reduce methane emissions.

STATE OF FINANCE FOR NATURE REPORT

News Excerpt

Recently the second edition of the State of Finance for Nature report is published by the United Nation Environment Programme (UNEP) and the Economics of Land Degradation (ELD).

Pre-Connect

About the report

- The State of Finance of Nature tracks global trends in public and private investment in nature-based solutions, aiming to improve data quality and identify opportunities for governments, businesses and financiers.
- The first "State of Finance for Nature" report was published in 2021. Its theme was "Tripling investments in nature-based solutions by 2030." It is published by UNEP, WEF and ELD.
- The State of Finance for Nature report analyzes the investment flow in nature-based solutions (NbS) and identifies the future investment needed to meet the climate change, biodiversity and land degradation targets.
- The first edition of the report indicated that annual investments in nature-based solutions will have to triple by 2030 and increase four-fold by 2050 from the current investments into nature-based solutions of USD 133 billion (using 2020 as the base year).

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Nature-based Solutions (NbS)

- ❖ Nature-based Solutions are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature.
- ❖ Nature-based Solutions address societal challenges through the protection, sustainable management and restoration of both natural and modified ecosystems, benefiting both biodiversity and human well-being.
- ❖ Nature-based Solutions are underpinned by benefits that flow from healthy ecosystems.
- ❖ They target major challenges like climate change, disaster risk reduction, food and water security, biodiversity loss and human health, and are critical to sustainable economic development.

Important points of the report

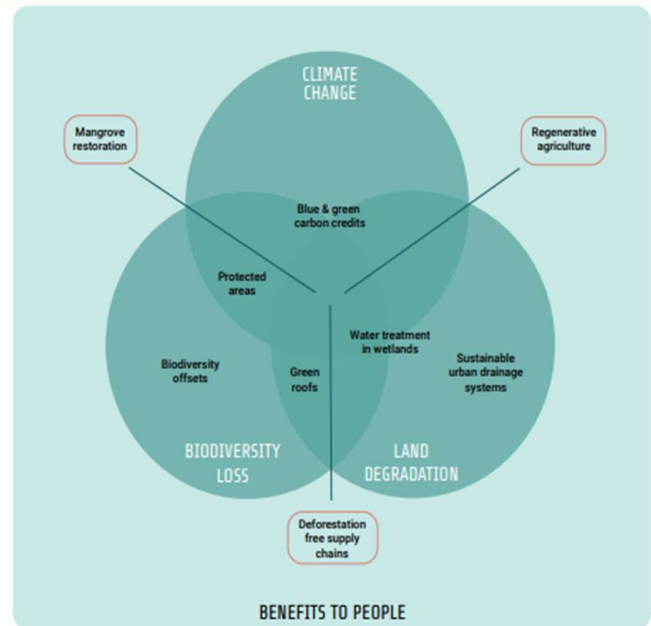
- If the world wants to halt biodiversity loss, limit climate change to below 1.5 degree celcius and achieve land degradation neutrality by 2030, current finance flows to NbS must urgently double by 2025 and triple by 2030.
- The current global investments in NbS are around \$154 billion (Rs 12,49.44 crore) per year, which needs to be increased to \$384 billion by 2025.

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- Investments in economic activities that release GHGs into the atmosphere are currently three to seven times larger than investments in NbS.
- Harmful subsidies are highest in the energy sector, estimated to range from \$340 billion/ year to \$530 billion/year and in the agriculture sector, estimated around \$500 billion/year.
- The other highlight of the report was the need for private investments in nature-based solutions, which currently stands at only 17 per cent. Private actors can combine Net Zero with nature positive solutions.
- Tackling climate change, biodiversity loss and land degradation with immediate action requires that current global investments need to increase by USD 230 billion each year to 2025.
- Limiting global warming to 1.5°C, rather than 2°C, is achievable only if action is immediate and with additional cumulative investments of USD 1.5 trillion to a total of USD 11 trillion between 2022 – 2050.



United Nations Environment Programme (UNEP)

- ❖ UNEP was established in 1972 in Nairobi, Kenya.
- ❖ The United Nations Environment Programme (UNEP) is the leading environmental authority in the United Nations system.
- ❖ UNEP's mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.
- ❖ UNEP concentrates in six areas like climate change, post-conflict and disaster management, ecosystem management, environmental governance, harmful substances and Resource efficiency/sustainable consumption and production.

UNEP Reports: Emissions Gap Report, Adaptation Gap Report, An Eye on Methane: International Methane Emissions Observatory Report, etc.

- This additional investment will focus on sustainable agriculture and peatland restoration.

Way Forward

- ✓ Private companies must create a sustainable supply chain, reduce activities that negatively impact climate and biodiversity, offset any unavoidable activities through high-integrity nature markets, pay for ecosystem services and invest in nature-positive activities.
- ✓ There are still concerns around carbon markets, such as the avoidance of double counting and general integrity that needs to be ensured.
- ✓ A centralised carbon market is required for private financing to come into play.

COALITION FOR NATURE

News Excerpt

Recently, at the 15th Conference of Parties (COP15) to the Convention on Biological Diversity, several Small Island Developing States (SIDS) agreed to form a 'Coalition for Nature' for the implementation and adoption of the Global Biodiversity Framework (GBF).

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Pre-Connect

Coalition for Nature:

- It has been launched by Small Island Developing States to implement the Global Biodiversity Framework which is expected to be adopted in Montreal by COP 15 of the Convention of Biological Diversity.
- It will advocate for enhanced means of implementing ambitious objectives for nature in SIDS.
- It is being led by Cabo Verde, Samoa and Seychelles.
- The goal of the coalition is to advocate for agreed common SIDS priorities and needs such as greater means of implementing biodiversity objectives in these places by putting up a unified front.

Small Island Developing States (SIDS)

- Small Island Developing States (SIDS) are a distinct group of 38 UN Member States and 20 Non-UN Members/Associate Members of United Nations regional commissions that face unique social, economic and environmental vulnerabilities.
- The three geographical regions in which SIDS is located are- the Caribbean, the Pacific, and the Atlantic, Indian Ocean and the South China Sea (AIS).
- The aggregate population of all the SIDS is 65 million, slightly less than 1% of the world's population, yet this group faces unique social, economic, and environmental challenges.

Challenges faced by Small Island Developing States (SIDS):

The SIDSs face various challenges leading to constraining their development processes, such as:

- ✓ They typically do not have a wide base of resources available to them, and thus do not benefit from cost advantages that this could potentially generate.
- ✓ Coupled with small domestic markets, they experience difficulties in profiting from globalization and trade liberalization.
- ✓ They mainly rely on external and remote markets with limited opportunities for the private sector.
- ✓ The cost of energy, infrastructure, transport and communication is high, and along with high population densities, it creates increased pressure on these already limited markets.
- ✓ These developing countries generally have a heavy reliance on tourism and services; however, as a consequence of their low resilience and location, they are also heavily affected by disasters due to frequent natural hazards.

Convention on Biological Diversity

- ❖ It is a multilateral UN treaty that is responsible for the conservation of biological diversity around the world.
- ❖ It was opened for signature at the Earth Summit in Rio De Janeiro in 1992.
- ❖ India is a party to the Convention.
- ❖ It is legally binding on its signatories.
- ❖ Only two member states of the United Nations i.e., the USA and the Vatican are not parties to the CBD.
- ❖ Goal: The Convention has three main goals.
 - The conservation of biological diversity (or biodiversity)
 - The sustainable use of its components
 - The fair and equitable sharing of benefits

Global Biodiversity Framework

A new post-2020 global biodiversity framework (GBF) is being negotiated under the United Nations Convention on Biological Diversity (CBD). This framework will define targets and pathways for the conservation and sustainable use of biodiversity for the next decade and beyond.

Examples of adaptation measures identified by some Small Island Developing States: A Way Forward

- **Agriculture** – management and infrastructure development (Mauritius)
- **Water resources** – more efficient management of both demand and supply; improved monitoring and forecasting systems for floods and droughts (Seychelles); desalination of sea water (Federated States of Micronesia, Malta)
- **Human settlement and infrastructure** – hazard mapping; improved forecasting and early warning systems; insurance provision (Antigua and Barbuda)
- **Public health** – development of a health surveillance and forecast system; strengthening of data collection and reporting systems; vaccination campaigns and health education (Saint Kitts and Nevis)
- **Tourism** – protection of essential facilities and infrastructure as part of the Integrated Coastal Zone Management strategy (Barbados, Grenada, Jamaica, Saint Lucia and Singapore)
- **Coastal zone** – integrated, sustainable coastal zone resource management (Dominica)

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- ✓ Rising sea level poses an existential threat to small island communities.

Conclusion:

Coalition for nature can help the SIDS to fight the emerging issues that are faced by them coupled with other measures.

PEPPER IT WITH

1992 Earth Summit, Barbados Program of Action

COMBATING FUTURE PANDEMICS

News Excerpt

Recently, a parliamentary committee report tabled in the Lok Sabha talked about needing a national policy to combat viral and other such diseases which have pandemic potential.

Pre-Connect

About the Report

- The Report titled Covid-19 Pandemic: Global Response, India's Contributions and the Way Forward.
- It stressed the need for mechanisms other than the Crisis Management Plan put in place by the Union health ministry and the Guidelines on Management of Biological Disasters disseminated by the National Disaster Management Authority of India.
- This would ensure that health issues are accorded the desired priority with a whole of government approach towards prevention, containment and management of viral and other diseases.

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Diseases having Pandemic Potential

Covid-19, SARS, Ebola Lassa Fever, Swine flu, Zika Virus, Nipah Virus, etc.

What's the difference between an endemic, epidemic and pandemic disease?



ENDEMIC DISEASE

is constantly present in a certain population or region, with relatively low spread (or there may be periods when it doesn't affect people at all, if it is only present in the environment).



EPIDEMIC DISEASE

is when there is a sudden increase in cases spreading through a large population like a country (an outbreak is similar, but usually covers a smaller geographic area).



PANDEMIC DISEASE

is when there is a sudden increase in cases spreading through several countries, continents, or the whole world.

Pandemics

- Pandemics are large-scale outbreaks of infectious disease that can greatly increase morbidity and mortality over a wide geographic area and cause significant economic, social, and political disruption.
- Evidence suggests that the likelihood of pandemics has increased over the past century because of increased global travel and integration, urbanization, changes in land use, and greater exploitation of the natural environment. These trends likely will continue and will intensify.

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- Significant policy attention has focused on the need to identify and limit emerging outbreaks that might lead to pandemics and to expand and sustain investment to build preparedness and health capacity.

Challenges in combatting Pandemics

- ✓ Pandemics have occurred throughout history and appear to be increasing in frequency, particularly because of the increasing emergence of viral disease from animals.
- ✓ Pandemic risk is driven by the combined effects of spark risk (where a pandemic is likely to arise) and spread risk (how likely it is to diffuse broadly through human populations).
- ✓ Some geographic regions with high spark risk, including Central and West Africa, lag behind the rest of the globe in pandemic preparedness.
- ✓ Influenza is the most likely pathogen to cause a severe pandemic. According to a study, in any given year, a 1 percent probability exists of an influenza pandemic that causes nearly 6 million pneumonia and influenza deaths or more globally.

Global Impacts of Pandemics

- Pandemics can cause significant, widespread increases in morbidity and mortality and have disproportionately higher mortality impacts on Low Middle-Income Countries (LMICs) and developing countries like India.
- Pandemics can cause economic damage through multiple channels, including short-term fiscal shocks and longer-term negative shocks to economic growth.
- Individual behavioural changes, such as fear-induced aversion to workplaces and other public gathering places, are a primary cause of negative shocks to economic growth during pandemics.
- Some pandemic mitigation measures can cause significant social and economic disruption.
- In countries with weak institutions and legacies of political instability, pandemics can increase political stresses and tensions.
- E.g., outbreak response measures such as quarantines have sparked violence and tension between states and citizens.

Mitigation Measures: A Way Forward

Pathogens with pandemic potential vary widely in the resources, capacities, and strategies required for mitigation. However, there are also common prerequisites for effective preparedness and response.

The most cost-effective strategies for increasing pandemic preparedness, especially in resource-constrained settings, consist of

- Investing to strengthen core public health infrastructure, including water and sanitation systems;
- Increasing situational awareness;
- rapidly extinguishing sparks that could lead to pandemics.

Once a pandemic has started, a coordinated response should be implemented focusing on

- Maintenance of situational awareness,
- Public health messaging,
- Reduction of transmission, and care for and treatment of the ill.
- Successful contingency planning and response require surge capacity—the ability to scale up the delivery of health interventions proportionately for the severity of the event, the pathogen, and the population at risk.

PEPPER IT WITH

Zoonotic diseases, m-RNA vaccine

PURSE SEINE FISHING

News Excerpt

The Supreme Court is hearing a case regarding a ban imposed by certain coastal States on purse seine fishing.

Pre-Connect

Purse Seine Fishing

- The mode of fishing which uses a wide net to draw in not only the targeted fish but also at-risk varieties, including turtles.

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- It is mainly deployed on the western coasts of India.
- It is prohibited by several States and Union Territories, including Tamil Nadu, Kerala, Puducherry, Odisha, Dadra and Nagar Haveli, Daman and Diu and Andaman and Nicobar Islands in their respective territorial waters of up to 12 nautical miles.

Issues associated with Purse Seine Fishing

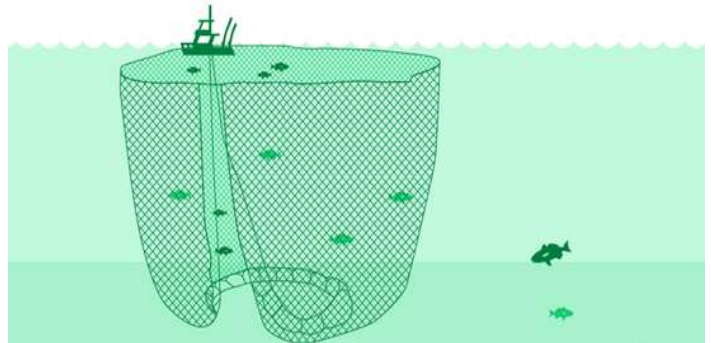
- It is linked to concerns about the decreasing stock of small, pelagic shoaling fish such as sardines, mackerel, anchovies and trevally on the western coasts.
- The scientific experts argues that climatic conditions such as the El Nino phenomenon, are responsible for the declining catch of such fishes in the last ten years.
- A major concern is the dwindling availability of oil sardines, a favorite of Kerala fish eaters. As seen in 2021, Kerala recorded a catch of just 3,297 tons of sardine, which is a sharp decrease from the haul of 3.9 lakh tons in 2012.
- It is believed to be detrimental to the marine resources as it catches all sorts of fishes which come in the way of the net, including juveniles.

India and Purse Seine Fishing

- ✓ Union government has recommended the lifting of the ban on purse seine fishing.
- ✓ The expert panel reasoned that this mode of fishing has not resulted in any serious resource depletion so far.
- ✓ It recommended purse seiners to fish in territorial waters and the Indian Exclusive Economic Zone (EEZ) subject to certain conditions.
- ✓ The committee has also suggested the framing of a National Management Plan on purse seine fisheries.

Way forward

Fishing is an important source of livelihood for the coastal communities, and a complete ban is not sustainable. Thus, fishing may be allowed subject to certain conditions.



SDG Goal 14: Life Below Water

- ❖ It is about conserving and sustainably using the oceans, seas and marine resources. Healthy oceans and seas are essential to human existence and life on Earth. They cover 70 per cent of the planet and provide food, energy and water. The ocean absorbs around one quarter of the world's annual carbon dioxide (CO₂) emissions, thereby mitigating climate change and alleviating its impacts.
- ❖ It is essential to conserve and sustainably use them. Yet, human activity is endangering the oceans and seas – the planet's largest ecosystem – and affecting the livelihoods of billions of people.

PEPPER IT WITH

Exclusive Economic Zones, Coastal Regulation Zones, Endangered Marine Species, State List, Central List Subjects, etc.

WATER SAFETY IN INDIA

News Excerpt

India's is going through water and sanitation crisis with more than 6% of this population lack access to safe water whereas many villages still don't have access to clean water for drinking.

Pre Connect

Is drinking water in India safe

- Water in India is extremely polluted and unsafe. Access to treated piped water continues to be inadequate for the majority of the population in India.

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- Water from major sources like tube wells and hand pumps is also found to be unsafe as they are known to be carriers of waterborne diseases.
- Even where piped water is available, its quality continues to be questionable. A large proportion of people do not have access to water within the house, increasing the chances of infections.
- Poor access to safe water sources, toilets and open defecation and poor WASH practices lead to high instances of waterborne diseases in the country.
- Release of untreated industrial and pharmaceutical wastes into the surface water sources has led to dangerous levels of organic and inorganic pollutants into the surface water bodies in India, making it unfit for consumption.
- Groundwater resources in the country have also been found to be highly polluted due to presence of fluoride, arsenic, nitrates, iron, heavy metals as well as due to leaching of harmful pesticide and fertiliser residues.
- Some cases-
 - Ardana, a Haryana village is facing acute water crisis due to cultivation of water intensive crops.
 - In Marathwada, alternating flood and drought events have destroyed crops and given rise to shortage of water.

Contamination of Water

- Inorganic contaminants include metals such as fluoride, arsenic, lead, etc. that can get into drinking water from natural sources and industrial processes.
- Organic contaminants include pesticides, untreated domestic and industrial wastes etc. that can get into rivers, lakes, ponds and even groundwater which can cause serious health problems like cancers, hormonal disruptions, and nervous system disorders.
- Biological contaminants include the presence of living organisms, such as algae, bacteria, protozoa or viruses in the water. Each of these can lead to a range of health problems among humans.
- Radiological contaminants include radioactive materials that are found naturally in the soil or rocks or generated through industrial wastes that can get mixed with drinking water at the source.

Challenges

- ✓ **Health impacts**- Inorganic pollutants in water can be extremely harmful and lead to a range of chronic and fatal health problems. For example, high levels of fluoride in water can lead to problems like dental and skeletal fluorosis.
- ✓ **Economic impact**- It is estimated that waterborne diseases have an economic burden of approximately USD 600 million a year in India. This is especially true for drought- and flood-prone areas, which affected a third of India's population in the past couple of years.
- ✓ **Groundwater depletion**- The fast rate of groundwater depletion in India due to the rise of drilling over the past few decades. Groundwater from over 30 million access points supplies 85 per cent of drinking water in rural areas and 48 per cent of water requirements in urban areas.
- ✓ **Social impact**- When families do not have a safe and reliable water source then it is often women and children that are responsible for collecting water. School attendance in India decreases, a 22 per cent

Drinking Water Treatment

- ❖ The suitability of technology for treating drinking water depends on the nature and extent of contamination, infrastructure, availability of chemicals etc. and further affordability and acceptability among the populations using them.
- ❖ Common water purification methods include-
 - **Sedimentation**- the process by which suspended particles are removed from the water by means of gravity.
 - **Distillation**- the process involve the conversion of a liquid into vapour that is then condensed back to liquid form.
 - **Chemical** treatment- Water treatment plants may add one or more chemical disinfectants (such as chlorine, chloramine, or chlorine dioxide) to kill any remaining parasites, bacteria, or viruses.
 - **Disinfection** and filtration- the process in which solid particles in a liquid or gaseous fluid are removed by the use of a filter medium that permits the fluid to pass through but retains the solid particles.

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increase in school dropout rates has been reported in drought-affected states. Close to 54 per cent of rural women spend an estimated 35 minutes getting water every day.

- ✓ **Shifting monitoring parameters-** In 2015, India achieved 93 per cent coverage of access to improved water supply in rural areas. However, with the shift from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) the new baseline estimates that less than 49 per cent of the rural population is using safely managed drinking water.

THE WILD LIFE (PROTECTION) AMENDMENT ACT, 2022

News Excerpt

Recently The Wild Life (Protection) Amendment Bill, 2022 was passed in the parliament. India is a signatory to the CITES that required certain legislative actions.

Pre-Connect

- India is the first country in the world to make provisions for the protection and conservation of environment in its constitution.
- The provisions for environmental protection in the constitution were made through the 42nd amendment act which introduced-
 - Article 48A- The state shall endeavour to protect and improve the environment and to safeguard forest and wildlife of the country.
 - Article 51A(g)- It shall be duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.

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Wild Life (Protection) Act of 1972

- The WLPA provided the basic framework for ensuring the protection and management of wildlife.
- The passing of the act was an important landmark since forest (including wildlife) was then a State subject under Seventh Schedule and Parliament had no power to make law on the same except as provided in Articles 249, 250 and 252 of the constitution.
- The Act was amended several times (in 1982, 1986, 1991 and 1993) to provide new provision for its effective implementation
- The rating of the Schedules I to V is in accordance with the risk of survival and animals included in them are protected from hunting and their trade being strictly regulated.

Features of New Amendments

- ✓ Act seeks to strengthen the protection of endangered species and enhance punishment for illegal wildlife trade while increasing the species protected under the law and implementing the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) more effectively.
- ✓ Implement CITES provisions- Under CITES plant and animal specimens are classified into three categories based on the threat to their extinction and it seeks to regulate the trade of all listed specimens and possession of live animal specimens.

Vermin

- ❖ Since 1972, the WLPA has identified a few species like fruit bats, common crows and rats etc. as vermin or nuisance animals that spread diseases or destroy crops and are not protected under the act and they may be hunted freely.
- ❖ **Vermin** are placed in **Schedule V** and animals which are placed in the **Schedule I and II** can not be declared as **Vermin**.
- ❖ Killing animals outside this list was allowed under two circumstances:
 - ❖ Under Section 62 of WLPA- given sufficient reasons any species (other than listed schedule I and II) can be declared vermin at a certain place for a certain time.
 - ❖ Under Section 11 of WLPA- the chief wildlife warden can allow the killing of an animal irrespective of its status in the Schedules if it becomes dangerous to human life.
- ❖ In recent years the Centre has started using its powers under Section 62 declaring species as vermin at even state levels often without any credible scientific assessment.
- ❖ For example, Nilgais were declared as vermin across 20 districts in Bihar for a year in 2015.

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- ✓ Rationalising schedules- The earlier act had six schedules and the amendment reduces the number to four by reducing schedules for specially protected animals and vermin species. It inserted a new schedule for specimens listed in the Appendices under CITES.
- ✓ Obligations under CITES- The act provides for the central government to designate a
 - Management Authority- It will grant export or import permits for trade of specimens.
 - Scientific Authority- It will give advice on aspects related to impact on the survival of the specimens being traded.
- ✓ Invasive alien species (IAS)- IAS refers to plant or animal species which are not native to India and whose introduction may adversely impact wild life or its habitat. The act empowers the central government to regulate the trade, possession or reproduction etc. of IAS.
- ✓ Control of sanctuaries- The Act entrusts the chief wild life warden who is appointed by the state government to control, manage and maintain all sanctuaries in a state. For sanctuaries falling under special areas (scheduled area) the management plan must be prepared after due consultation with the concerned Gram Sabha.
- ✓ Conservation reserves- Central and State governments and may declare areas next to national parks and sanctuaries as a conservation reserve.
- ✓ Surrender of captive animals- Any person can voluntarily surrender any captive animals or animal products to the Chief Wild Life Warden for which no compensation will be paid.
- ✓ Penalties- Act increases the fines-

Elephants

- ❖ The legal dilemma over the elephant's status which is an endangered species and a domestic animal has persisted for long.
- ❖ In 1897, the Elephants' Preservation Act prohibited the killing or capture of wild elephants, in 1927, the Indian Forest Act listed the elephant as cattle. The WLPA identified the elephant as a vehicle.
- ❖ The elephant is the only animal in WLPA Schedule-I that can still be owned legally by means of inheritance or gift.
- ❖ In 2003, Section 43 of the WLPA prohibited trade in all captive wildlife and the WLPA (Amendment) Bill 2021 proposed an exception to Section 43 making it inapplicable to the transfer of any live elephant when permission is granted from the State Government.
- ❖ However, the government modified the exemption to allow the transfer of a captive elephant for a religious or any other purpose.
- ❖ Critics point out that scope of "any other purpose" will empower elephant traders and increase the risk of their capture.
- ❖ Allowing owners to transfer their elephants legally to those willing to and capable of looking after the animals is a welcome step.

Type of Violation	1972 Act	2022 Act
General violation	Up to Rs 25,000	Up to Rs 1,00,000
Specially protected animals	At least Rs 10,000	At least Rs 25,000

Significance

- The Act seeks to increase the species protected under the law and implement the CITES.
- Many captive elephants suffer when their owners fail to bear the expenses of their upkeep which increased in the post-Covid scenario. Thus allowing such owners to transfer their elephants legally to those willing to and capable of looking after the animals is a welcome step.
- **The Act regulates** the protection of wild animals, birds and plants while **increase the species protected under the law.**
- The recent amendment has taken a progressive step to improve the participation of forest dwellers within national parks while determining the management plan.
- **It has mandated the need to consult the Gram Sabha** in protected areas falling under scheduled areas.

CURRENT CONNECT- JANUARY- 23

Criticism

- ✚ The blanket exemption to elephant trade could be limited to temple elephants kept for religious purposes.
- ✚ **The Van Gujjars are a semi-nomadic pastoral community** has raised issue regarding this provision that restrict the grazing across pastoral spaces.
- ✚ Amendment allows projects for development within protected areas for local communities which has high potential for being misused.
- ✚ There are concerns with the classification as vermin. Many experts suggests that many species fulfil an ecosystem function even if they cause inconvenience to humans.

PEPPER IT WITH
CITES, Protected Areas,
Project Elephant

Way Forward

- ⇒ A wildlife standing committee for evolving effective site-specific plans and for taking critical decisions at short notice is necessary.
- ⇒ The well-planned and integrated approaches to managing human-wildlife conflict can reduce conflicts and lead to a form of coexistence between people and animals.
- ⇒ There is a need to expand the **definition of IAS to include invasive native species and an expert advisory committee** to assist the government in their identification.
- ⇒ Ensuring a balance is maintained between the central and state government while ensuring role of gram sabha in decision making thus furthering cooperative federalism.



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News Excerpt

Researchers have announced that they have created a “baby” wormhole. This is hailed as a theoretical achievement, though physical wormhole remains in the realm of science fiction.

Pre Connect

Theory of Relativity

- The theory of relativity encompasses two interrelated theories by Albert Einstein: special relativity and general relativity, proposed and published in 1905 and 1915, respectively.

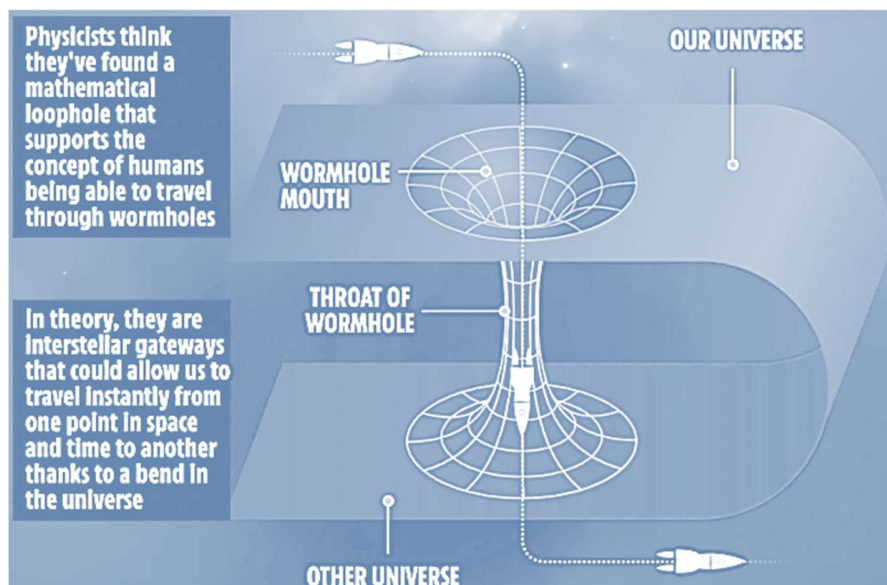
Special Relativity ($E = mc^2$)

- The theory of special relativity explains how speed affects mass, time, and space. The theory includes a way for the speed of light to define the relationship between energy and matter.
- Special relativity is mostly used when discussing huge energies, ultra-fast speeds, and astronomical distances, all without the complications of gravity.
- The theory suggests that- As an object approaches the speed of light, the object's mass becomes infinite and so does the energy required to move it. That means it is impossible for any matter to go faster than light travels.
- An implication of the theory of Special Relativity is time dilation. In simpler terms, time dilation means that time moves relative to the observer. So, when an object is experiencing time dilation it means if it is moving very fast, it will experience time more slowly than when it is at rest. This explains the slower ageing of astronauts than people on earth.
- Time dilation also plays a crucial role in the effective functioning of the Global Position System (GPS).

General Relativity

- The theory of General Relativity adds the gravity factor to the space-time continuum. It asserts that massive objects caused a distortion in space-time.
- For Example, Imagine setting a large object in the center of a trampoline. The object would press down into the fabric, causing it to dimple. If we then attempt to roll a marble around the edge of the trampoline, the marble would spiral inward toward the body, pulled in much the same way that the gravity of a planet pulls at rocks in space.
- Scientists have observed countless phenomena matching the predictions of relativity-
 - Gravitational Lensing- Light bends around a massive object, such as a black hole, causing it to act as a lens for the things that lie behind it. Astronomers routinely use this method to study stars and galaxies behind massive objects.
 - Gravitational Redshift- The electromagnetic radiation of an object is stretched out slightly inside a gravitational field. It is the occurrence of the Doppler Effect with waves of light at all frequencies.

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- Gravitational Waves- Einstein predicted that violent events, such as the collision of two black holes, create ripples in space-time known as gravitational waves. And in 2016, the Laser Interferometer Gravitational-Wave Observatory (LIGO) announced that it had detected such a signal for the first time.

Understanding Wormhole

- A wormhole is a hypothetical tunnel-like structure connecting two different points through space-time.
- Einstein's theory of general relativity predicted the existence of wormholes.
- The wormhole theory says that a passage through space-time could create shortcuts for long journeys across the universe.

Wormhole and Space Transverse

- ✓ Wormholes are often shown in sci-fi movies serving as portals to transverse long distances.
- ✓ In this recent research, Scientists created two baby black holes in a quantum computer and transmitted a message between them. In doing so, no rupture of space and time was physically created.
- ✓ Thus no physical wormhole was created. The passage of the wormhole is known as the Einstein-Rosen bridge.

Significance

- Technical achievement- opens gates for simulating more interesting quantum gravity theories.
- Provides a way to explore a very powerful idea in the laboratory.
- Future possibilities of creating a physical wormhole

Challenges

- ✚ It does not teach anything new about quantum gravity.
- ✚ Still a distant way from using such portals.
- ✚ Although exciting as a technical achievement, creating a physical wormhole remains a distant dream.

Conclusion

This experiment is a beginning of a new really exciting journey that will provide a way to explore experimental science ideas in laboratory settings.

Wormhole vs Black hole

- ❖ A wormhole is a tunnel-like structure whereas a black hole is a cosmic body with extreme gravity.
- ❖ Nothing can escape black holes whereas things would be traveling both into and out of wormholes.
- ❖ Many cosmic objects are under the influence of black holes in contrast wormholes link two universes.

PEPPER WITH IT

Quantum Computing,
Singularity

IKNIFE

News Excerpt

Intelligent surgical knife a.k.a iKnife can **s**nell tumors thus detecting womb Cancer within seconds. With 89% accuracy, it can reliably diagnose endometrial cancer.

Pre Connect

- Cancer is a group of diseases in which abnormal cell growth occurs with the ability to spread to parts of the body.
- It is a disease of the genes in the cells of the human body. Genes control the way human cells work. But, changes to these genes can cause cells to malfunction.
- There are two main categories of cancer:
 - Hematologic (blood) cancers are cancers of the blood cells, including leukemia, lymphoma, and multiple myeloma.
 - Solid tumor cancers are cancers of any of the other body organs or tissues. The most common solid tumors are breast, prostate, lung, and colorectal cancers.

Angiogenesis

- ❖ It is a process through which new blood vessels are formed from existing blood vessels.
- ❖ The process involve migration, growth, and differentiation of blood vessels.
- ❖ In cancer growth, angiogenesis play crucial role in supplying blood to cancer tumors.
- ❖ Blocking the growth of blood vessels that support tumor growth is a popular anti cancer strategy after chemotherapy.

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- According to World Health Organisation, cancer is the second leading cause of death globally.
- Cancer causing viruses are called **oncovirus**.

Working of iKnife

- iKnife uses electro surgery method.
- It uses an electrical current to rapidly heat tissue cutting through it while minimizing blood loss.
- It vapourises the tissue thus creating smoke.
- The smoke is sucked away by extraction systems
- It uses electrical currents to analyze this smoke to differentiate between cancerous and healthy tissue.

Significance

- ✓ It minimizes damage to healthy tissue while ensuring the removal of all the Cancer cells.
- ✓ Womb cancer tests require almost two-week wait for the results. The ability to provide a diagnostic test that provides results immediately benefits early detection, diagnosis and treatment.
- ✓ iKnife is already being used to treat breast and brain cancers and now it can also accurately detect the presence of endometrial cancer.

Conclusion

The iKnife has the potential to completely revolutionize the diagnosis of endometrial cancer. The development of mRNA vaccines, CAR-T therapy, Cyberknife, etc. provide hope to millions battling cancer and pave the way towards ensuring SDG 3 i.e. good health and well-being.

mRNA Vaccines for Cancer

- ❖ The idea of cancer vaccines has been around for a long time which is now taking a form of reality.
- ❖ It uses the same messenger-RNA technology that was used to produce the COVID vaccine.
- ❖ It allows the body's immune system to seek and destroy cancerous cells.
- ❖ It offers strong safety advantages as it uses the elements directly required for expression of the encoded protein.
- ❖ It works to disable a protein called programmed death 1, or PD-1.
- ❖ Working: They are bispecific antibodies which attach to immune system cells with one arm and cancer cells with the other.

Government Programme

- ❖ **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS):** For cancer, the tertiary care cancer centers scheme aims at setting up cancer institutes for providing comprehensive cancer care in the country.
- ❖ **Rashtriya Arogya Nidhi:** The Scheme provides financial assistance to patients, living below the poverty line and who are suffering from major life-threatening diseases, to receive medical treatment at any of the super specialty Government hospitals or institutes.
- ❖ **National Cancer Grid:** It is a network of major cancer centers across India with the mandate of establishing uniform standards of patient care for prevention, diagnosis, and treatment of cancer.

PEPPER IT WITH
Cyberknife, CAR-T
cells gene therapy

ANTI MICROBIAL RESISTANCE (AMR)

News Excerpt

The health and well-being of animals, people, and the planet are interdependent. Intensive factory farming of animals utilizes wide use of antibiotics which results in antibiotic residue in animal-derived products, even leading to antibiotic resistance.

Pre-Connect

What is AMR?

AMR is the resistance acquired by any microorganism against antimicrobial drugs. It occurs when microorganisms adapt to drugs over time and no longer respond to the treatment thus increasing the risk of spreading the diseases, severe illness, and even death.

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AMR Status in India-

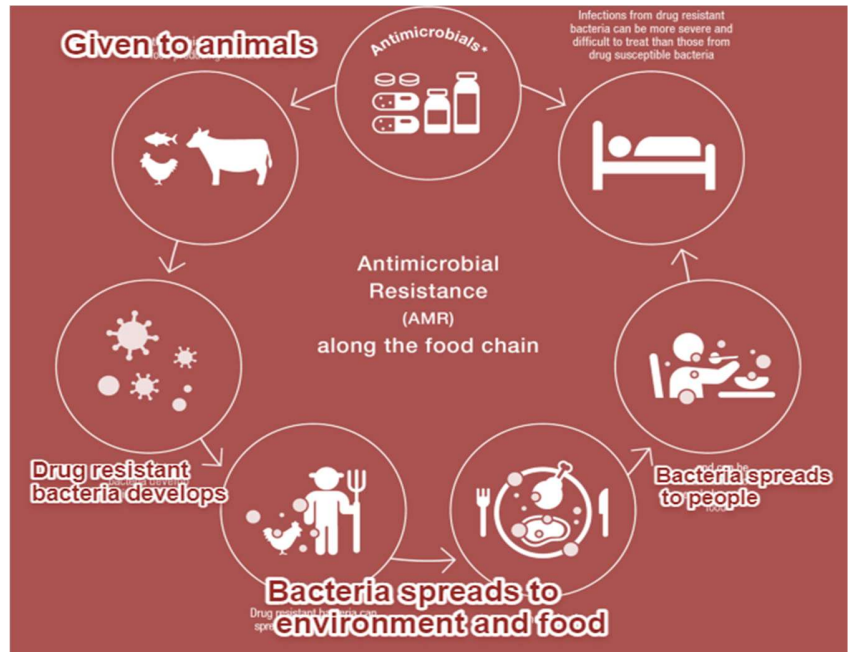
- India has a high burden of infectious diseases with one of the highest burdens of bacterial infections due to its humongous populations, favorable climate, and low healthcare spending.
- The Ministry of Health and Family Welfare (MoHFW) identified AMR as one of the top 10 priorities for its collaborative work with the World Health Organisation (WHO).
- The National Health Policy 2017 called for effective action to address AMR.

Factory Farming and AMR:-

- In factory farming, large numbers of animals are raised in confined conditions with the aim of maximizing production at minimum cost.
- The suffering of animals is often overlooked in satisfying the high demand for cheap meat.
- For this purpose, genetically uniform animals are confined together which creates an ideal breeding ground for zoonotic diseases.
- To catalyze growth and prevent diseases antibiotics are widely used and overused leading to the creation of superbugs.
- Thus, on one hand, antibiotics diminish animal health and on the other creates pathogens leading to human health crisis like bird flu, swine flu, etc. contributing to an ecological crisis.

Effect of Factory Farming on the Planet

- ✓ Zoonotic diseases and AMR- The viruses can easily spread through thousands of genetically identical animals. Farm and slaughterhouse workers are among the riskiest groups vulnerable to zoonotic diseases.
- ✓ Habitat destruction- Factory farming is destroying habitat and endangering wildlife. Eg- Many forest fires in Brazil were set deliberately by the factory farming industry to clear the land.
- ✓ Public health crisis- Factory farms are also known as the "ticking time bombs" due to the superbugs which can trigger epidemics and even covid like pandemics.



Initiatives to Counter AMR

- ❖ Research & Collaborations- Indian Council of Medical Research (ICMR) and Research Council of Norway (RCN) collaborated in 2017 to research in AMR and to develop new drugs.
- ❖ Surveillance- National Programme on AMR containment, AMR Surveillance and Research Network (AMRSN), and Global Antimicrobial Resistance and Use Surveillance System (GLASS) by WHO etc. to strengthen lab infrastructure, to capture patterns of drug resistance infections, to fill knowledge gaps and strengthen strategies at all levels respectively.
- ❖ One Health Approach- It helps to design, implement and monitor programmes, policies, research and surveillance to provide inter sectoral collaboration between public health, animal and environment health sectors to achieve better public health outcomes.
- ❖ Awareness Generation- Antibiotic Stewardship Program (AMSP) and World Antimicrobial Awareness Week (WAAW) are generating awareness to control misuse and overuse of antibiotics, raise awareness about AMR and encourage best practices to slow the spread of drug resistant infections.

PEPPER IT WITH

National Action Plan on AMR, One Health Approach, New Delhi Metallo-beta-lactamase-1

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- ✓ High pollution levels- It produces large amounts of toxic animal waste and releases roughly 400 different air pollutants and greenhouse gases which further leads to climate change.

Conclusion

Developing a sustainable food system by increasing demand for plant-based foods and reducing reliance on farmed animals. Make high-welfare production systems with sufficient space and fewer antibiotics in the natural environment leading to healthier growth.

FUTURE OF AI AND METAVERSE

News Excerpt

There was an increased dependence on technology in the year 2022. The rise of new innovative technologies and advancement in Artificial intelligence and Metaverse presents both challenges and opportunities.

Pre-Connect

Metaverse

- Metaverse is a combination of the words 'meta' means 'beyond' and 'verse' means 'universe'.
- It is an extension of our real world into the digital realm providing an immersive experience for anyone accessing it.
- It is a virtual world where people interact via their digital avatars.
- This is enabled by the internet, digital devices, and technologies like Virtual Reality (VR) and Augmented Reality (AR).

Responsible AI Principles

- **Principle of Safety and Reliability:** AI should be deployed reliably as intended and sufficient safeguards must be placed to ensure the safety of relevant stakeholders. The AI system needs to be monitored through its lifecycle so it performs in an acceptable manner, reliably, and according to the desired goals.
- **Principle of Equality:** AI systems must treat individuals under the same circumstances relevant to the decision equally.
- **Principle of Inclusivity and Non-discrimination:** AI systems should not deny opportunity to a qualified person based on their identity. It should ensure, that unfair exclusion of services or benefits does not happen. In case of an adverse decision, an appropriate grievance redressal mechanism should be designed.
- **Principle of Privacy and Security:** AI should maintain the privacy and security of the data of individuals or entities that are used for training the system. Access should be provided only to those authorized with sufficient safeguards.
- **Principle of Transparency:** The design and functioning of the AI system should be recorded and made available for external scrutiny and audit to the extent possible to ensure the deployment is fair, honest, impartial and guarantees accountability
- **Principle of Accountability:** All stakeholders involved in the design, development, and deployment of the AI system must be responsible for their actions. There is a need to set up an auditing process (internal and if required external) to oversee adherence to principles and create mechanisms for grievance redressal in case of any adverse impact.

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Ethical Concerns in AI

- ❖ Unemployment
- ❖ Artificial stupidity
- ❖ AI bias
- ❖ Unintended consequences
- ❖ Robot rights
- ❖ Safety and security

ChatGPT Chatbot

- ❖ Introduced by Open AI, it is a long form question answering AI that answers complex questions conversationally with ability to provide quality responses.
- ❖ It is revolutionary because it learns what humans mean when they ask a question.
- ❖ Based on large language model, it can predict the next word in series of words.
- ❖ Learning from human feedback helps it generate responses that are satisfactory to people.
- ❖ For training, it uses massive data and information, human feedback etc.
- ❖ However it has several limitations like its output quality depends on quality of input, it avoid answering to toxic questions and its answers are not always correct.

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- **Principle of protection and reinforcement of Positive human values:** AI should promote positive human values and not disturb in any way social harmony in community relationships.

Future Challenges

- ✓ Time for post-Social media platforms is losing relevance. Eg- Twitter in a storm.
- ✓ Young users- prefer new platforms. Eg- Discord over Facebook
- ✓ Monetizing social media engagement- the evolving platforms, changing user preferences, etc. pose a challenge to forming a monetizing policy for respective platforms.
- ✓ The rise of the micro-blogging platform's role poses issues like privacy, security, and integration.
- ✓ Short videos- although popular now, this phase will pass soon with changing user preferences.

Future Opportunities

- Metaverse- to suit the demand for hybrid workforces to collaborate virtually, gaming, immersive shopping, etc. Eg-Facebook Meta
- Artificial Intelligence- is wide-ranging applications in healthcare, automobiles, education, governance, etc. eg- ChatGPT
- AR filters and lenses- Already become a popular feature for online experiences. Eg- Lenskart, Snapchat, etc.
- Virtual reality social media platforms create new customer experiences providing immersive customer experiences at all stages of buying. Eg- Facebook's Horizon
- Local Bubbles formation- one size does not fit all approach and the rise in more localized and multi-lingual social media provides an opportunity to serve smaller regions.

PEPPER IT WITH
5G, Social Media
regulation rules, Self
driving cars

Conclusion

As new tools and platforms develop and expand the possibilities of new social media The opportunities to expand AR and VR in social media are endless. Social presence is now appreciated even above real individuality. As user behavior changes we could witness the evolution of innovative technology.

ROCKET AND UNGUIDED RE-ENTRIES

News Excerpt

Recently, parts of the Chinese rocket Long March fell into the Pacific and Indian Oceans. The Outer Space Institute is calling for restricting uncontrolled rockets re-entry.

Pre-Connect

What is Space Debris?

- These are space junk that orbits the earth at very high speed.
- It consists of parts of spacecraft and launches vehicles debris and includes smaller fragments such as screws.
- These junks exist in various sizes, however, even minuscule debris can cause huge damage. E.g., a 100g object could create an impact comparable to a 30-kg stone traveling at 100kmph.
- These are produced when:
 - There is a collision of satellites in such a situation generally an inactive satellite collides with active satellites.
 - There is an explosion in space due to Anti-Satellite weapon testing.
- Too much space junk can create a domino effect in which a chain reaction can occur wherein more and more objects will collide and create new space junk in the process until it renders Earth's orbit completely useless.

Space Situational Awareness (SSA)

- ❖ It monitors and track all space objects whether man made or natural in a space weather.
- ❖ It helps in monitoring objects that can pose as a potential threat to satellites and launches. This allows for preventing disruptions to any crucial satellite-based communication.

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Rocket Stages

Generally, rockets have 3 stages:

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- **Primary Stage:-** It provides the initial thrust to launch the rocket from the ground. After achieving desired altitude and velocity it separates from the rocket and falls toward the ground.
- **Secondary Stage:-** Since the rocket is already at a high speed with reduced weight, this acts as a sustainer and booster stage. As it separates, the debris falls to the ground.
- **Final Stage:-** This stage works till the payload is placed in orbit. After this, it also separates and falls toward the earth.

Uncontrolled Re-entry

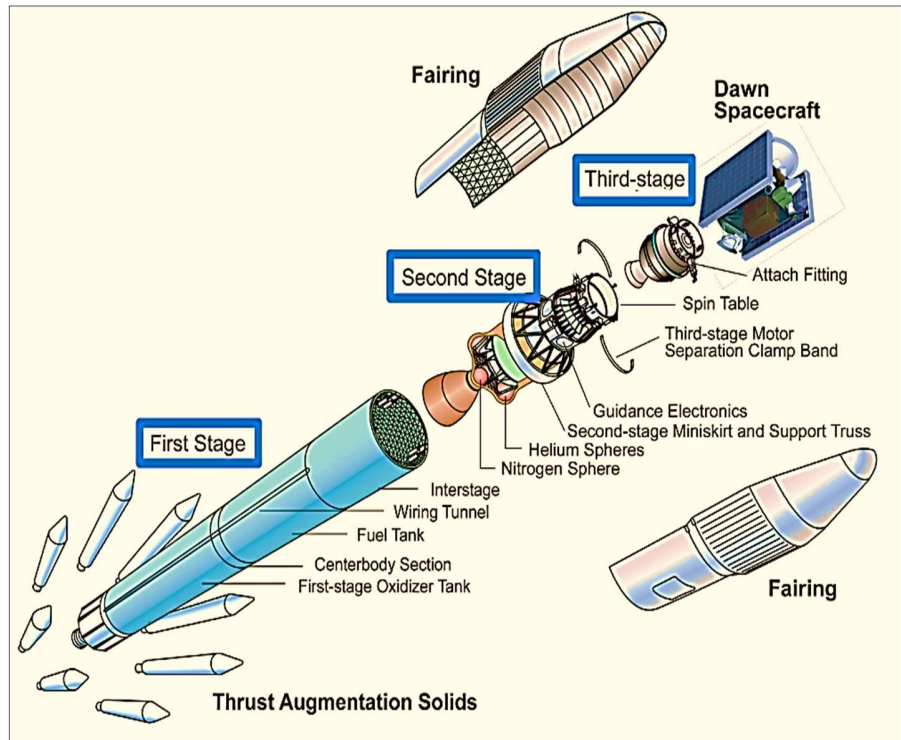
- ✓ After every stage, the rocket debris simply falls toward the earth. Its path is determined by its shape, air currents, etc. This phenomenon is known as uncontrolled rockets re-entry.
- ✓ Rockets disintegrate while falling into smaller pieces which increases the radius of their impact. Some pieces burn up while others don't.
- ✓ This unburnt debris can be deadly due to the speed at which they fall. Eg- 300 grams of debris has the potential to crash an airplane.

Challenges

- **Casualty Risk:-** It is directly proportional to the increasing number of players in the space sector.
- Absence of international binding agreement to ensure controlled re-entries of rocket debris.
- The Liability Convention 1972 requires countries to pay for damages but no convention to prevent them.

Way Forward

- ✚ Minimise damage by aiming the re-entries towards an ocean.
- ✚ Using technologies like de-orbiting brakes, wing attachments, design changes, etc. which minimize debris formation.
- ✚ Research and development should be extended to satellite re-entry as well.



Network for Space Objects Tracking and Analysis (NETRA)

- ❖ It is an early warning system to detect debris and other hazards to Indian Satellites. Therefore, providing India with its own SSA capabilities.
- ❖ It consists of connected radars, telescopes, data processing units and a control centre, which can track objects as small as 10 cm, up to a range of 3,400 km and equal to a space orbit of around 2,000 km.
- ❖ It will help in developing commercial potential for ISRO as it eases launch of multiple satellite, further for India its own SSA capabilities mean a clear protection for its national security against attack on crucial commercial satellite.

PEPPER IT WITH

Graveyard orbit, Kessler syndrome

CURRENT CONNECT- JANUARY- 23

WHOLE GENOME SEQUENCING

News Excerpt

Recently, researchers have carried out Whole Genome Sequencing of Banyan and Peepal tree in IISER Bhopal. The research identified multiple signs of adaptive evolution that ensured the survival of these Ficus species.

Pre Connect

Genome

- The genome is the entire set of genetic instructions found in a cell.
- In humans, the genome consists of 23 pairs of chromosomes located in the cell's nucleus as well as in mitochondria.
- The genome contains all the information needed for an individual to develop and function.

Whole Genome Sequencing

- Every organism has a unique genetic code a.k.a genome.
- It is composed of nucleotide bases AT-GC or Adenine-Thymine, Cytosine-Guanine.
- Genome Sequencing means identifying this sequence of bases a genome.

Process

- ✓ DNA Shearing- Scientists use molecular scissors to cut DNA into small pieces.
- ✓ DNA Bar Coding- Scientists tag (bar code) these DNA pieces for identification purposes.
- ✓ DNA Sequencing- Barcoded DNA is put into a sequencer that identifies the sequence of DNA bases.
- ✓ Data Analysis- This process compares these multiple sequences and identifies differences.

Significance of Genome Sequencing

- The information can facilitate future human genetics research in the country with greater precision.
- Usher in a new era of personalized medicine which can improve public health. Eg- personalized cancer treatment.
- Make future sequencing efficient to facilitate the assembly of new genomes.
- Provides the ability to learn about the effectiveness of medications and their negative effects.

Conclusion

The availability of data on genomic sequences of trees can aid ecologically important studies in finding out the secrets of a longer lifespan, medicinal properties, etc.

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Gene vs Genome

- ❖ Gene is a part of a DNA molecule whereas genome is the total DNA in a cell.
- ❖ Gene is the hereditary element of genetic information whereas genomic is all set of nuclear DNA.
- ❖ Gene encodes protein synthesis whereas genome encode both proteins and regulatory elements.
- ❖ A gene is about a few hundreds of bases whereas genomic is about billion base pairs for a higher organism.
- ❖ There are about thousands of gene in higher organisms whereas there is only one genome in each organism.

Genome Sequencing Projects

- ❖ Human Genome Project- Started in 1990 and completed in 2003, this international scientific research project generated first sequence of human genome.
- ❖ Genome India Project- The whole genome sequencing of 10,000 individuals representing the country's diverse population.
- ❖ IndiGen Genome Project- Under this project CSIR has conducted whole genome sequencing of 1,008 Indians from different populations across the country.
- ❖ Genome Asia 100K project- **a mission to sequence and analyze 1,00,000 Asian individuals genomes** from India, Malaysia, South Korea and Pakistan etc.

PEPPER IT WITH

DNA fingerprint, Corona virus sequencing, Genetic Mutations

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NUCLEAR FUSION AND CLEAN ENERGY

News Excerpt

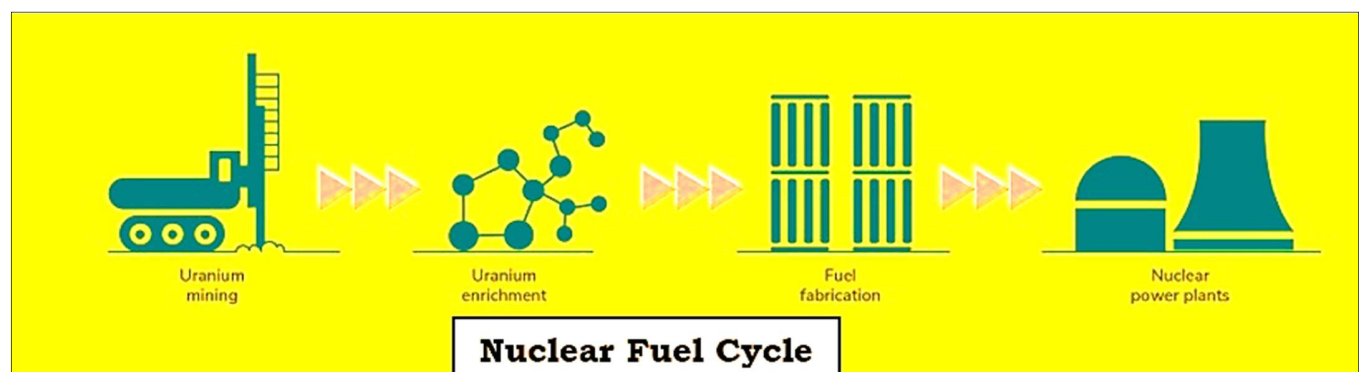
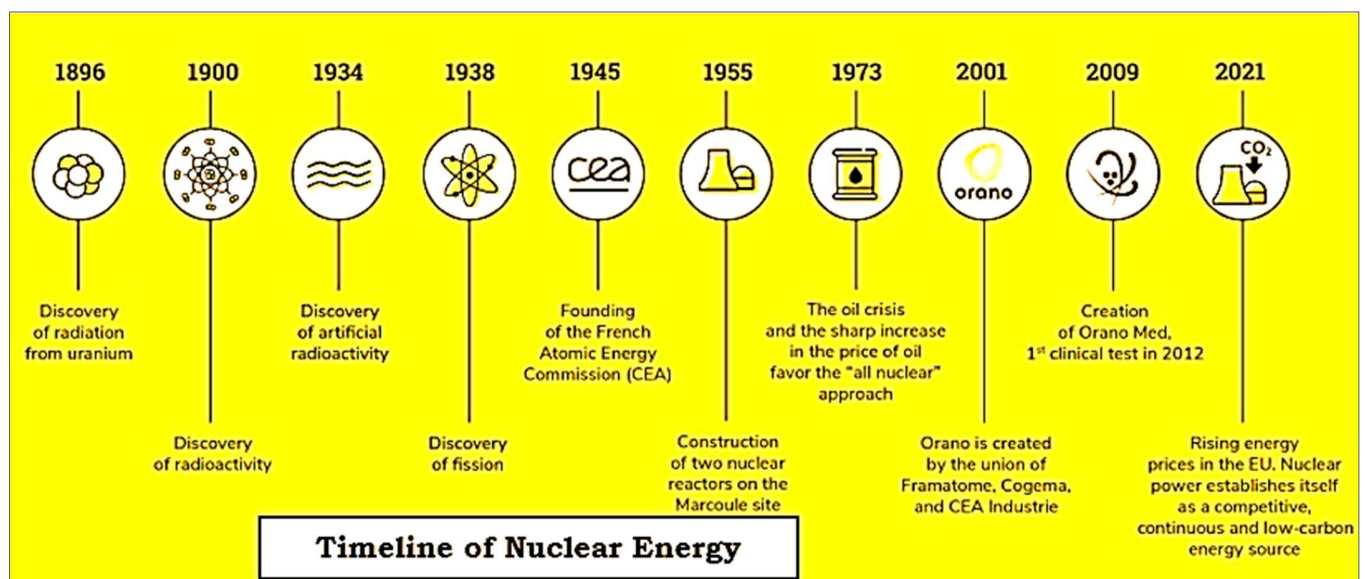
Recently, scientists for the first time performed a reaction that produced more power than it was used generate. They used powerful lasers to focus energy that produced 1.5 times more energy.

Pre-Connect

Nuclear Energy

- Nuclear energy is a form of energy released from the nucleus, the core of atoms, made up of protons and neutrons.
- This source of energy can be produced in two ways: fission – when nuclei of atoms split into several parts – or fusion – when nuclei fuse together.

Nuclear Chain Reactions



- When a uranium-235 nucleus is bombarded with a neutron, it absorbs it and splits it into two parts. this is nuclear fission.
- By splitting, this nuclear produces new neutrons that then bombard other uranium-235 atoms and this cascade of fissions is called a nuclear chain reaction.

Power Estimation of Nuclear Energy

- ❖ 1 fuel assembly = 264 rods
- ❖ Each assembly can power a city of 100,000 inhabitants
- ❖ only one kilo of enriched uranium, as much energy is produced as from 170 metric tons of coal

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- It is controlled and maintained at a constant level using control rods that measure and regulate the number of neutrons.
- This phenomenon generates a large amount of energy and heat. The nuclear reactor then reuses this energy to heat water which produces steam and activates the turbine.
- The turbine, combined with an alternator, transforms the energy into electricity.
- In 2021, about 3.2 percent of the domestic production of electricity in India was derived from nuclear energy.
- The present installed nuclear power capacity in the country is 6780 MW comprising 22 operational nuclear power reactors.

About Experiment

- ✓ The experiment involved a high-power 192 beam laser and a small capsule filled with deuterium and tritium as fuel.
- ✓ Scientists shot the laser on the capsule thus powering a fusion reaction to begin.
- ✓ The energy created in this reaction was 1.5 times more than the energy contained in the laser.

Nuclear Fusion

Working

- When two light nuclei merge to form a single heavier nucleus, a fusion reaction takes place.
- The mass of a single nucleus formed during the reaction is less than the mass of two nuclei.
- The leftover mass is the energy that is released in the process.

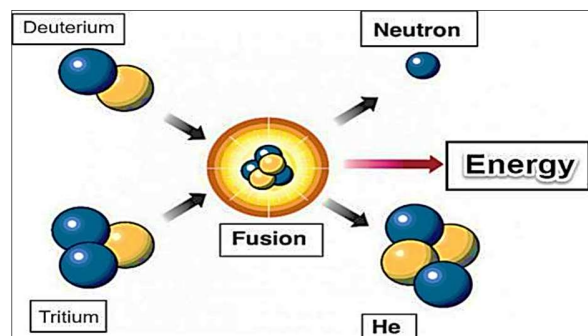
Methods Used

- ✚ Laser beam is used in this experiment. A 192-beam laser is fired at a small capsule filled with deuterium-tritium fuel.
- ✚ Tokmak- a doughnut-shaped vacuum chamber that uses powerful magnets. This turns fuel into superheated plasma where fusion may occur.

Advantages of Nuclear Fusion

- > Abundant energy- It has the potential to provide the kind of minimum energy needed to provide energy electricity to our city and industries.
- > Sustainability- Most fusion reactions use two elements i.e. deuterium and tritium and not fossil fuel thus ensuring long-term sustainability.
- > No carbon dioxide- The by-product of the fusion reaction is helium which is an inert, non-toxic gas.
- > Limited risk of proliferation- It doesn't use fissile materials like uranium that can be used to make nuclear weapons.
- > No risk of meltdown- In a tokamak fusion device a Fukushima or Chernobyl-type nuclear accident is not possible.

NUCLEAR FISSION VERSUS NUCLEAR FUSION	
Nuclear fission is the splitting of a nucleus into smaller particles, releasing a high amount of energy	Nuclear fusion is the combination of two smaller atoms to create a large atom releasing energy
Not common in nature	Common in stars such as sun
May require high-speed neutrons	Require high temperature and high pressure conditions
Produce a high energy	Reactions of light nuclei produce a very high energy; reactions of heavy nuclei may not release energy
Examples: neutron bombardment of Uranium-235 and radioactive decay in unstable isotopes	Examples: fusion between Deuterium and Tritium



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Significance of Fusion Energy

- ⇒ Fusion does not need fossil fuels, resources needed are available in seawater. Eg- Hydrogen.
- ⇒ This opens up the possibility of unlimited fuel if technology is made viable since hydrogen is abundant in nature.
- ⇒ The process generates less radioactive waste and it decays much more quickly.
- ⇒ Produce carbon-free energy.

Challenges in Producing Fusion Energy

- ⇒ It requires a lot of precision that must be applied by laser on fusion fuel.
- ⇒ Experiments just proved that net gain of energy is possible. However, creating a nuclear fusion Power plant remains a distant possibility.
- ⇒ Ensuring efficiency- The laser used in the reaction requires a lot of energy thus there is a need to develop a more efficient and cost-effective way.
- ⇒ It takes more than extreme heat and pressure for a fusion reaction to take place, making it very difficult to perform such experiments.

Conclusion

The possibility of limitless, carbon-free energy which can cater to the needs of humanity without raising global temperatures and worsening climate change is very exciting and at the same time promising.

China's Artificial Sun

- ❖ It is a nuclear fusion reactor known as Tokamak reactor which replicate the fusion process that occurs naturally in the sun.
- ❖ It is China's largest and most advanced nuclear fusion experiment.
- ❖ It uses powerful magnetic field to fuse hot plasma and can reach temperatures which can be 10 times hotter than the core of the sun.

PEPPER IT WITH

ITER project, Tokamak, Nuclear Energy



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SECURITY

PEACE IN NORTH EAST INDIA

News Excerpt

The government recently announced that there is a decline in insurgency-related violence in the Northeast by 80% and a drop in civilian deaths by 89% from 2014. It was also specified that around 6,000 militants have surrendered since 2014.

Pre-Connect

North-East Insurgency

- North East India has been witnessing insurgency since the 1950s it comprises eight states: Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim, and borders four countries namely China, Bhutan, Myanmar, and Bangladesh.
- Present-day Nagaland, Meghalaya, and Mizoram were part of Assam. Assam therefore was a melting pot of various tribes, languages, cultures, histories, and ethnicity. As a result, there emerged multiple demands for more autonomy and power by various factions.
- Some reasons for the insurgencies include the **multi-ethnic regions, underdevelopment, a sense of isolation, deprivation, and exploitation.**
- **Demographic changes** due to the influx of refugees from Bangladesh and **internal displacement lead to an increase in tension in the region.**
- **Further, it is also believed that external support by countries like China, Myanmar, etc. ensured the sustenance of insurgents.**

Efforts for Peace in the Northeast

- **Assam- Meghalaya Inter State Boundary Agreement 2022-** It partially resolved the 50-year-old boundary dispute in 6 of 12 sectors. The six disputed sectors are Tarabari, Gizang, Hahim, Boklapara, Khanapara-Pillangkata, and Ratacherra. According to the government, disputes in nearly 70% of the areas will be resolved with this agreement.
- **Karbi Anglong Agreement 2021-** It ends the decades-old crisis while ensuring Assam's territorial integrity. The agreement ensures greater devolution of autonomy to the Karbi Anglong Autonomous Council and protection of their identity, language, culture, etc. The government will also give a Special Development Package of around Rs. 1000 crore to undertake specific projects for the development of Karbi areas.
- **Bodo Accord 2020-** It increases the scope and power of the Bodoland Territorial Council and resolves the issues related to Bodo people residing outside Bodoland Territorial Area Districts (BTAD). It provides for the promotion and protection of Bodo's social, cultural, linguistic, and ethnic identities while providing legislative protection for the land rights of tribals to ensure their quick development. It also provides for establishing a Bodo-Kachari Welfare Council, notifying the Bodo language as an associate official language in the State, and setting up a separate directorate for Bodo medium schools.
- **Bru-Reang Agreement 2020-** It gives around 37000 Bru persons the choice of living in Tripura. The Centre will implement a special development project for resettled Bru. Each resettled family will get land of more than a thousand square feet for building a home, Rs 1.5 lakh as housing assistance, and

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- ❖ **Insurgency** can simply be defined as “an organized armed struggle by a section of the population against the state, usually with foreign support. The causes of insurgency can be ideological, ethnic or linguistic differences; or politico-socio-economic reasons and/or fundamentalism and extremism.
- ❖ **Militancy** is a condition which experiences the use of violence, being combative or predisposed to fight.
- ❖ **Extremism** is a state wherein a person or an Organisation holds extreme political or religious views.

If we compare these terms, an extremist may not necessarily be committing a crime under law. Militants can include any individual or group which takes to violence. The difference between insurgency, militancy and extremism often tends to take the shape of the context in which it has been used and therefore, its implied meaning becomes more relevant than the actual one.

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a one-time cash benefit of Rs 4 lakh. For two years they will receive free rations along with a monthly allowance of Rs 5,000.

- **NLFT- Tripura Agreement 2019-** NLFT agreed to leave the path of violence and abide by the Constitution of India. It agreed to the surrender of its 88 cadres with their weapons who will receive surrender benefits as per the Surrender-cum-Rehabilitation Scheme. The government will help them with housing, recruitment, education, etc.
- **Armed Forces Special Powers Act (AFSPA) Partially Withdrawn-** Centre recently decided to partially withdraw AFSPA in the states of Nagaland, Assam, and Manipur. It is the result of the improved security situation and fast-tracked development in these areas due to the consistent efforts and several agreements to end insurgency which will bring lasting peace in the Northeast.

Peace-Sine Qua Non for Northeast India

- ✓ **Making Northeast the Economic Hub of India-** By ensuring the all-round development of the Northeast region and connecting Southeast Asia under the Act East Policy to promote economic cooperation, and cultural ties and develop strategic relationships with countries in the Asia-Pacific region thereby providing enhanced connectivity.
- ✓ **Improved infrastructure and connectivity-** Creating a transport system that is common, connected, convenient, congestion-free, and clean. The Prime Minister's Development Initiative for the North-East (PM-DevINE) is aimed at the rapid and holistic development of infrastructure and social development projects in the region.
- ✓ **Resources-** The region is rich in natural resources like Tea, Oil, and Timber. It is a powerhouse with a potential of 50000 MW of hydroelectric power and an abundant reserve of fossil fuels.
- ✓ **People's welfare-** The area will flourish and the locals will develop confidence in the system. The government has also launched a range of programs for financial aid for various purposes to allow people to cope with the transition stress.

Sixth schedule of the constitution

- ❖ It deals with provisions as to the Administration of Tribal Areas in the States of Assam, Meghalaya, Tripura and Mizoram which is provided under Article 244(2) and Article 275(1) of the Constitution.
- ❖ It seeks to safeguard the rights of the tribal population through the formation of Autonomous District Councils (ADC) and Regional Councils which have certain legislative as well as judicial powers along with having the power to levy taxes, tolls and fees.

Initiatives to ensure peace in the Northeast have resulted in restricting the presence of insurgent groups to very few places thus ensuring peace and security in the region.

Challenges still exist

- Issues of cross-border infiltration are still present.
- When the geographical boundaries between the two states are involved, reconciliation becomes challenging. For example- various sectors remain disputed in Assam and Meghalaya.
- The existence of insurgent groups whose demands are not practical further creates delays in the peace process.
- The assimilation of the wide diversity of people of North East into mainstream India remains a big issue.

PEPPER IT WITH

Role of state actors in Northeast insurgency, various development initiative in Northeast, Internal security and military operations in region, Look East Policy, Act East Policy

Conclusion

From being on the margins of the India story, Northeast is quickly becoming one of the country's growth engines.

With the older generation passing away and the new generation having little interest in insurgencies, the time is ripe to bring a long-term strategy for the elimination of remaining insurgencies.

Winning hearts and minds should be the cornerstone for achieving conflict resolution.

Thus, committing to go beyond armed action to counter terrorism and create an atmosphere of lasting peace while ensuring the all-round development of peace and prosperity in the northeast is, therefore, a step in the right direction for India to emerge as one of the global powers in a multipolar world of the 21st century.

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CYBER DEFENSE

News Excerpt

Recently, the All-India Institute of Medical Sciences (AIIMS) information technology network witnessed a ransomware attack by unknown actors. AIIMS servers were compromised which caused operational disruption due to non-functionality.

Pre-Connect

Cyber Security

- Cyber security is the protection of internet-connected systems such as hardware, software, and data from cyber threats.
- It aims to reduce the risk of cyber-attacks and protect against the unauthorized exploitation of systems, networks, and technologies.
- According to the National Crime Records Bureau (NCRB), India reported more than fifty thousand cases of cybercrime in 2021, an increase of over 5 percent from 2020.
- According to IBM, the average cost of a data breach in 2022 was more than \$ 4 million.

India's Cyber Ecosystem

- **National Cyber Security Strategy:** To focus on security in the early stages of design in all digitization initiatives.
- **Computer Emergency Response Team (CERT-In):** For alerts regarding cyber security breaches and issues.
- **Indian Cyber Crime Coordination Centre (I4C):** To handle several issues regarding cybercrime in a comprehensive and coordinated manner.
- **Cyber Swachhta Kendra:** To create a secure cyberspace by detecting botnet infections in India

Cyber Attacks

- ✓ **Malware-** Using malicious software to breach a network through vulnerability typically when a user clicks a dangerous link.
- ✓ **Phishing-** It is the practice of sending fraudulent emails that appear to come from a reputable source to steal sensitive data like credit card and login information.
- ✓ **DDoS (Distributed Denial of Service)-** It floods servers and networks and **makes them unusable**
- ✓ **Digital Data Threat:** Growing online transactions generate bigger incentives for cybercriminals. Eg- intellectual property is an attractive target.
- ✓ **Supply Chain Inter-connection:** The supply chains are increasingly interconnected which makes the security wall thin and increase their vulnerability to cyber-attack.
- ✓ **Hacking-** Penetrating into someone's system without permission to steal or destroy a user's data is called hacking. The availability of information online makes it easier for even non-technical people to perform hacking.

Way Forward

- Keep systems and software up to date and install a reputable anti-virus program.
- Be careful when connecting to a public Wi-Fi network and do not conduct any sensitive transactions when on a public network.
- Create a strong and unique password for each online account and change them regularly.
- Don't click on anything in unknown emails or text messages.

Conclusion

Internet-enabled crimes are becoming increasingly sophisticated and preventing them requires a synergy between governments, private players, and aware users to be on guard.

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Cyber Sovereignty

- ❖ Cyber Sovereignty is the effort of state to create boundaries in cyber domain in order to control enforce laws in these boundaries.
- ❖ This implies that the citizens of a state is involved in cyber attack, the state from under whose sovereignty the attacker is, take necessary corrective steps.
- ❖ The major implication of cyber sovereignty is the fragmentation of the internet (Access to internet is a fundamental right)

PEPPER IT WITH

Cyber warfare, Cyber terrorism, Critical Information Infrastructure

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ELECTROMAGNETIC PULSE

News Excerpt

Fearing Chinese Electromagnetic Pulse (EMP) attacks Japan is relocating its headquarters of the Defense Force underground. Japan also intends to have countermeasures against EMP.

Pre-Connect

EMP

- It is a burst of electromagnetic energy caused by the rapid acceleration of charged particles.
- A high-intensity EMP can destroy infrastructure such as communication systems, electrical infrastructure, radio, and so on.

Types of EMP

- **Natural-** Lightning pulse, electrostatic discharge, meteoric EMP, coronal mass ejection, etc.
- **Man-made-** EMP formed from electric motors, ignition systems of a petrol engine, etc.
- Further, under man-made, the military EPM includes- Nuclear EMP (NEMP) and Non-Nuclear EMP (NNEMP) weapons.

NNEMP Weapons and Related Concerns

- NNEMP weapons generate a less powerful EMP and have a smaller radius.
- They can be either aircraft or missile-delivered or mounted systems on aircraft, drones, or missiles. Eg- Boeing claims to have successfully tested an EMP missile
- Small-sized ground-based NNEMP weapons with short ranges are also possible.

The Concerns of an NNEMP attack include

- The biggest issue is that they are easy to develop and relatively inexpensive. Due to this not only major powers but even smaller countries could develop them.
- There is a possibility that India's neighbors already possess aircraft or missile-delivered e-bombs.
- Short-range briefcase-sized EMP devices could even get into the hands of non-state actors and terrorists that could be used against military and civil targets alike.
- Their impact is more on systems and devices with electronic components like smartphones, laptops, etc.

PEPPER IT WITH

Electromagnetic Interference (EMI), Space weaponization, Hypersonic Cruise Missile, KAALI-5000

Counter Measures

- ✓ Faraday's caging and metal encasing of systems and components is considered to be the most effective protection against EMP which are designed to divert and soak up the EMP.
- ✓ Electrical surge protection circuits protect electrical equipment by redirecting current in case of a power surge, short circuit, etc.
- ✓ Terrain masking where devices are simply hidden behind terrain can be used. Eg- under grounding components.
- ✓ Building EMP-protected military systems.
- ✓ EMP hardening of current systems may also be possible for a few critical systems.

However, at present, no infallible solution seems to be available against NNEMP.

Conclusion

Major Western powers have confirmed the existence of NNEMP weapons. India should conduct a formal evaluation of the regional EMP threat and work towards building EMP-resilient data and communication structures, both for civil and military requirements. There may also be a need to devise contingency plans and procedures for EMP attacks. India should also provide impetus to developing and inducting an offensive NNEMP capability.

News Excerpt

Innovations for Defence Excellence (iDEX), the flagship initiative of the Department of Defence Production has reached a milestone with the signing of its 150th contract. The contract relates to the project of the Defence India Start-up Challenge (DISC 7).

Pre-Connect

About iDEX

- It was launched in 2018 to modernize Defense Technology.
- It aims at the creation of an ecosystem to improve innovation and technology development in Defence by including MSMEs, start-ups, individual innovators, etc.
- iDEX will provide grants, funding, and other support to carry out research & development.
- The iDEX is being implemented by the Defence Innovation Organisation (DIO), established under the Department of Defence Production.

Present Status

- iDEX has been awarded the Prime Minister Award for Public Policy in Innovation in 2021.
- It has emerged as a game changer in the defense ecosystem through its flagship program like DISC, prime and open challenges.

- It has also been able to generate thousands of jobs and attract India's talent back to the country.

DISC Challenge

- Defense India Startup Challenges are launched by Defense Ministry in partnership with Atal Innovation Mission.
- It is aimed at supporting startups to create a prototype and commercialize their products.
- Along with startups, MSMEs, individual innovators, etc. are also encouraged.

Objectives of iDEX

- Facilitate rapid development of new, indigenized, and innovative technologies so that the needs of defense sectors are met quickly.
- To create a culture of engagement and technology co-creation with innovative startups.
- To frame Corporate Venture Capital models thereby identifying emerging technologies, connecting innovators with military units, facilitating co-creation of new and appropriate technologies, etc.
- To deliver military-grade products by developing advanced technologies thus solving the critical needs of the sector.
- To empower a culture of technology co-creation and co-invention.

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India's Defense Export

- ❖ It touched the highest mark in 2021-22, estimated at around Rs13,000 crore which was around 900 crores in 2014.
- ❖ Major defense items exported include personal protective items, offshore petrol vessels, ALH Helicopter etc.
- ❖ Major buyers include USA, Southeast Asia, West Asia and Africa.
- ❖ The share of private sector accounts for 70% and rest is from public sector.
- ❖ The vision is "Make in India, Make for the World".
- ❖ India signed its single biggest defense export order with Philippines at around \$375 million for supply of Brahms missile batteries.

Defense Modernization Initiatives

- ❖ **Integrated Theatre Commands (ITC)**- It was proposed by DB Shekatkar committee. Under ITC specific number of personnel from the three services (army, navy and air force) will be under a common commander.
- ❖ **Agnipath scheme**- It is a recruitment scheme for Armed Forces for a short term of 4 years. Selected candidates will be known as Agniveers and 25% of them would be enrolled in regular cadre upon completion of term.
- ❖ **Self Reliant and Make in India**- It encourages indigenous design, development and manufacture of defense equipment.
- ❖ Defense ministry has decided to allot more than 60% of its modernization fund for purchases from domestic sector.

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Functions of iDEX

- ✓ Piloting candidate technologies in important platforms, with quick feedback to the innovators.
- ✓ Indigenization of various defense and aerospace-related platforms being manufactured in the country.
- ✓ Setting up and managing the iDEX network in the form of Independent Defence Innovation Hubs.
- ✓ Communicate with innovators and startups through the Defence Innovation Hubs regarding defense and aerospace needs.
- ✓ Organizing various challenges and hackathons to shortlist potential technologies.
- ✓ Evaluate technologies and products coming from innovators and startups in terms of their utility and impact.
- ✓ Enable and fund pilot projects using innovation funds dedicated to the purpose.
- ✓ Encourage the adoption of key innovative technologies into the defense establishment with suitable assistance.
- ✓ Facilitate scale-up, indigenization, and integration in manufacturing facilities for successfully piloted technologies.

Srijan Portal

- ❖ It is a 'one stop shop' online portal that provides access to the vendors to take up items that can be taken up for indigenisation.
- ❖ It will help industry partners to play active role in the goal of self-reliance in defence sector.
- ❖ It will give information on items that can be taken up for indigenisation by the private sector.
- ❖ Public entities can display their items which they have been importing which the Indian Industry can design, develop and manufacture as per their capability.
- ❖ There are over 3000 unique items with a value of over Rs10,000 Crore that are available through the portal.

Conclusion

iDEX is striving to develop cutting-edge technology products in association with startups and others to make India 'Atamanirbhar' and achieve the export target of USD 5 billion. The objective is to transform India into a global defense manufacturing hub in the next 25 years.

ART AND CULTURE

DOKRA CRAFTSMANSHIP

News Excerpt

Lalbazar part of city of Kolkata in the state of West Bengal has emerged as a centre for Dokra metalcraft. West Bengal was presented with the Geographical Indication (GI) tag for Dokra Art in 2018.

Dokra Metalcraft

- Dokra art is an ancient tradition (practiced by the Ojha metalsmiths), with a documented history of about 5,000 years, practised in the states of West Bengal, Jharkhand, Odisha, Madhya Pradesh, etc.
- Two places are famous in West Bengal for dokra work — Bikna in Bankura and Dariyapur in Bardhaman.
- Dokra is derived from the Dhokra Damar tribes of West Bengal who were traditional metal smiths. Dhokra Damar Tribes are found in the states of Jharkhand, Orissa, Chhattisgarh, Rajasthan and Kerala.
- Dokra is basically a brass-work (metal craft) using the traditional “Lost Wax Technique”.
- Making Dokra art is a difficult process with each figurine taking about a month to complete.
- There are many processes involved, for which seven to eight varieties of clay is required, apart from other raw material.

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The ‘Lost Wax’ technique

- In this process, first, the craftsman has to create a sample of the item in wax form, with a hole for the metal to be poured in.
- The wax mold is covered with a mold of clay.
- Then, melt the metal needed for making the item.
- The molten metal is poured into the hole in the wax mold.
- After the metal hardens, the clay is broken away and the metal object is taken out of the shell. It is then finished to perfection.

PEPPER IT WITH

Marori and Tarkashi (Rajasthan), Bidri Craft (Karnataka), Pahaldar Lamps, Pembarthi craft (Karnataka)

RATNAGIRI'S ROCK ART (GEOGLYPHS)

News Excerpt

Experts and conservationists have raised concerns over the proposed location for a mega oil refinery in Barsu village of Maharashtra's Ratnagiri district. They claim that the refinery might damage prehistoric geoglyphs found in the area.

Geoglyphs

- Geoglyphs are a form of prehistoric rock art, created on the surface of laterite plateaus (Sada in Marathi).
- They are made by removing a part of the rock surface through an incision, picking, carving or abrading. They can be in the form of rock paintings, etchings, cup marks and ring marks.
- The term petroglyph (literally, “rock symbol/character”) is also used at places. Petroglyphs and geoglyphs share similarities as both require the skills of removing parts or engraving a symbol on the rock surface.

Ratnagiri Rock Art

- These sites in the Konkan region are among three Indian attractions that may soon become World Heritage Sites. The other two include Jingkieng Jri, the living root bridge in Meghalaya, and Sri Veerabhadra Temple in Andhra Pradesh's Lepakshi.
- The list mentions seven sites with petroglyphs in Ratnagiri district — Ukshi, Jambharun, Kasheli, Rundhe Tali, Devihsol, Barsu and Devache Gothane, one in Sindhudurg district — Kudopi village, and nine sites at Phansamal in Goa.

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- Such pieces of art are called “Katal shilpa”.
- While the UNESCO dates these sites to be over 12,000 years old, some experts have claimed that these sites might go as far back as 20,000 years.
- Ratnagiri’s rock art is evidence of the continued existence of human settlements from the Mesolithic (middle stone age) to the early historic era.
- The largest rock engraving or geoglyph in India is at Kasheli in the Ratnagiri district, which has a large figure of an elephant with dimensions of 18X13 metres.
- The figures depicted in the geoglyphs include humans and animals such as deer, elephant, tiger, monkey, wild boar, rhinoceros, hippopotamus, cattle, pig, rabbit, and monkey. Moreover, they also include a high number of reptilian and amphibian creatures such as tortoises and alligators, aquatic animals such as sharks and sting rays, and birds like peacocks.

Significance of the sites

- ✓ Imagery from these sites shows how people adapted to ephemeral wetlands in a dry-arid plateau having shallow rock pools, streams and watercourses.
- ✓ Experts say that the discovery of geoglyphs has added to ongoing research on human resilience and adaptation to extreme fluctuations in climates.
- ✓ The geoglyph clusters also are examples of advanced artistic skills, showing the evolution of techniques of etching and scooping in rock art.
- ✓ The geoglyphs also show the existence of certain types of fauna that are no longer present in the region today.
- ✓ As per the UNESCO, rock art in India is one of oldest material evidence of the country’s early human creativity.

PEPPER IT WITH

Cave Paintings, Pre-historic Rock Art,

SAMMED SHIKHAR & SHETRUNJAY HILL

News Excerpt

Jain community protests are being held in two holy sites — Sammed Shikhar on Parasnath hill in Jharkhand, over the hill being declared a tourist spot and an eco-sensitive zone; and in Shetrunjay hills, Gujarat, over the vandalising of a shrine and related security concerns.

Pre-Connect

Parasnath Hills

- Parasnath Hills are a range of hills in Giridih district of Jharkhand.
- It is one of the most important pilgrimage centres for Jains, called Sammed Sikhar by them.
- The hill is named after Parasnath, the 23rd Tirthankara.
- Twenty of Jain Tirthankaras attained salvation on this hill.
- Parasnath Hill is revered as “Marang Buru” (supreme deity or literally the great mountain), specially for the people of Santhal community.

Tenets of Jainism

It calls for the attainment of liberation without any ritual. Instead of rituals liberation can be attained through three principles called Three Jewels or Triratna

- Right Faith (Samyakdarshana)
- Right Knowledge (Samyakjnana)
- Right Action (Samyakcharita)

Five Doctrines of Jainism

- ✓ Ahimsa: Non-injury to living being
- ✓ Satya: Do not speak a lie
- ✓ Asteya: Do not steal
- ✓ Aparigraha: Do not acquire property
- ✓ Brahmacharya: Observe continence

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Shatrunjaya Hills

- Shatrunjaya ('an abode of peace') which translates to Place of Victory, is located in Gujarat.
- The temples atop this hill are said to have been built more than 900 years ago, and the design is such that there is a central temple with minor ones situated around it.
- The temple is particularly crowded on the holy day of Kartik Purnima, which falls around November-December. The importance of this day lies in the fact that it is the last day of a four-month long spiritual retreat, and material self-denial. This is known as Chaturmas.
- Jains believe that Adinath, who is the founder of Jainism, had meditated beneath the tree at the summit of this place. The images of Adinath here face the four cardinal directions.
- Ram Pole is the main entrance here towards the left. On the right, there is a stunning view of the Gulf of Cambay.
- The temple complex here also has a shrine of a Muslim saint, Angar Pir. History has it that this saint protected the temples from Mughal attack.
- On the right is the Chaumukhji Tonk that contains the four-faced shrine dating back to 1618.
- The most important temple of all here is the Adinath Temple, located on the highest point of the place, on the far south side.

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CONTEMPORARY ETHICS CASE STUDIES

Q. You are newly appointed as the Superintendent of the Police of an important city of the state in India. Soon after your appointment, elections were held in your state, and your school senior who was known for his upright and secular values becomes the Chief Minister of the State. He floated a new political party and became the youngest Chief Minister of the state.

Your city has witnessed the peaceful coexistence of all castes and communities for decades. However, One day a communal riot started in a small part of the city and it threatened to engulf the whole city, if not controlled quickly. You decided to take quick action and accordingly you arrested all the key rioters and ringleaders belonging to both communities. As a result, the communal riots stop.

The arrest of the culprit soon became a political issue since among the arrested people were many high-profile leaders of the political party in opposition. They decided to use this opportunity to further their political agenda and blamed the Chief Minister for vendetta politics. They started carrying out huge rallies all over the state against the arrest of their political leaders and religious figures showing the act of the government as an assault on the majority community. The popularity of the rally shook the party in power and the Chief Minister asked you to dilute the case against the political leaders and the religious preachers who were found to be involved in the riots.

You are well aware that selective benefit to the rioters of the majority community can anger the minority community which can start the riot again and the state administration would lose the trust of all communities.

(a) What are the various options available to You? What are the merit and demerit of each option? What option you must choose?

Q. You are the Chief Executive Officer (CEO) of a Public Sector Bank. You have come across some anomalies in loan proceedings in one of your branches. There is an internal report, that the bank Manager there has colluded with some local businessman and provided him with huge loans on pretence. After further investigation, it is found that the businessman was provided a reference to the manager by your son. There is a monthly audit scheduled for your bank in the coming days by RBI officers.

(a) What are the options available to you? Evaluate each of the options and choose the option you would adopt, giving reasons.

Q. You are a welfare officer in charge of implementing a social service scheme to provide support to old and destitute women. An old and illiterate woman comes to you to avail the benefits of the scheme. However, she has no documents to show that she fulfills the eligibility criteria. But after meeting her and listening to her you feel that she certainly needs support.

Your inquiries also show that she is destitute and living in a pitiable condition.

You are in a dilemma as to what to do. Putting her under the scheme without the necessary documents would be a violation of the rules. But denying her the support would be inhuman.

(a) What according to you is the rational way to resolve this dilemma? Give your reasons for it.



PHILOSOPHY OF THE MONTH

Finding Your True Self

- Problem of our times? One of the real sources of stress in our life is the insecurity of not being enough. The subconscious feeling that we are incomplete, that there is always something out there that would somehow complete us. Further, we have an image of a perfect self, and falling short of that reinforces this feeling. Besides, we constantly compare ourselves with others. As there is always someone more successful, more interesting, healthier, better connected, or seemingly happier, we feel less about ourselves.
- But what if you already are enough? Each of us is a microcosm of the universe. Our essence is the same as the rest of our existence. Our essence is our soul. You can break the glass into as many pieces as you like, each of them would still be glass. Likewise, our soul is the same as the soul of the universe. And it is complete, whole, and enough.
- Why are we unable to experience this truth? Because of an ignorant and conditioned mind. Societal expectations condition our minds with the idea that we are incomplete unless we make significant progress on expected goals. The ignorant mind gives birth to an ego that drives us toward the futile goal of constantly getting ahead of others.
- Connecting with the idea of being enough can dramatically change how we experience life, we then pursue goals that are meaningful to our inner self, not the ones that merely satisfy our ego.
- But how to cultivate the feeling of being enough? Meditation can help us calm our restless mind, be aware when the feelings of insecurity arise; practice positive affirmations, such as 'I am complete, whole, and enough' which serve as constant reminder to our psyche; make a gratitude list, and regularly referring to it, strengthens our relationship with what is working well in our life; practicing self-love and self-compassion help heal our emotional wounds and neutralize our tendency to be self-critical; pursuing inner goals, not comparing ourselves with others; and being happy in others' progress affirms our essential self.

"Knowing yourself
is the beginning
of all wisdom"

- ARISTOTLE

THE BENEFITS OF FINDING YOURSELF

- The power of knowledge about your true self instills confidence
- People who have found their true selves are attuned to opportunities presented to them
- It calms your fears because self-assurance won't let failure define you
- Knowing what you need in life to feel complete will also help you in your career

QUESTIONS TO ASK YOURSELF

- What are you passionate about?
- What are the patterns of behaviors and consequences of your past?
- What is the positive feedback you have heard from people over the years?
- What causes do you care about? What sparks your sense of compassion?

Shunyata for Well-Being, and Positivity in the Modern Times

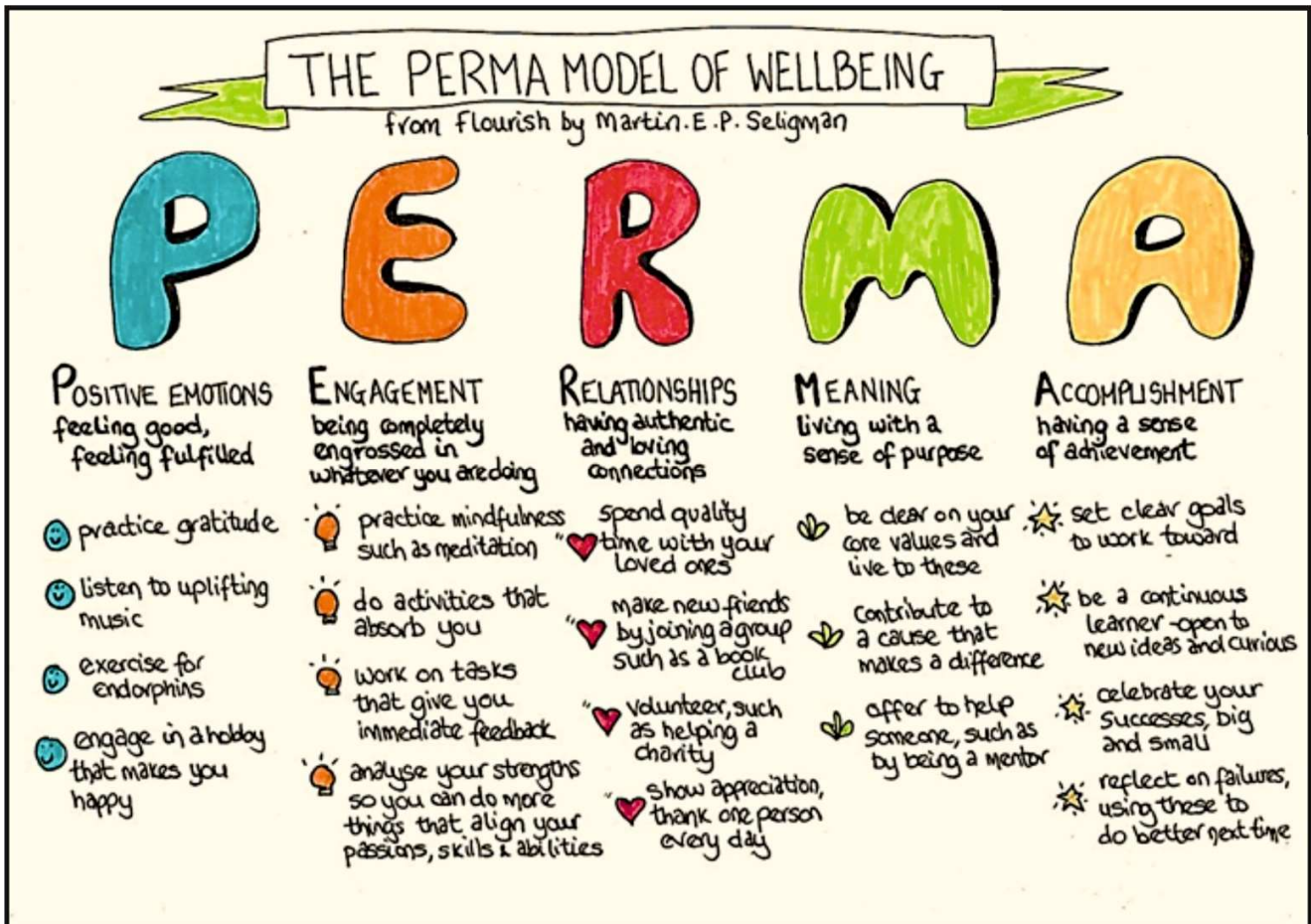
- Centuries ago, Aryabhata propounded the concept of shunya, zero, the base of the present numerical system. Significantly, esoteric wisdom in ancient India placed shunyata on a unique pedestal with deep spiritual resonance in Hinduism, Jainism, and as a central concept of Buddhism.

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- While Buddhism regards it as nothingness or void that constitutes ultimate reality, some Shaiva texts perceive absolute void as Bhairav, who is beyond the senses and the mind. In contrast, different strains of Vaishnavism like Mahima Dharma regard shunya as closer to the Hindu concept of metaphysical Brahman.
- An individual needs to cull out 'me-time' for meditative introspection to retreat to the 'void' of shunyata, particularly in this age when burnout, stress, and depression loom large on the mental horizon and are antithetical to well-being. The retreat represents a journey into nothingness, with the inner eye open. It signifies a transition into the shaswat, eternal, packed in a moment surcharged with infinite potential energy waiting to be harnessed from a soundless void of darkness and stillness.



- In the shunyata moment, characterized by the total absence of the unreal, the mind becomes a receptacle of truth and beauty, a Satchitananda moment filled with bliss, silence, and nothingness of non-material infinity. This moment lends an opportunity to savor all that is priceless, odorless, colorless, and soundless, as a total package of beauty and bliss to which Maya has no access. When we consciously experience shunyata, we are cleansed of negative emotions and irrational fears, including that of death, and develop a sense of healthy positivity.
- In a metaphysical sense, all numbers above zero have a material connotation, thereby falling within the purview of Maya. Synonymous with greed and desire, the cluster of these rising numbers are antonyms of shunya and the real. Wealth and age symbolize unreal numbers breeding fear and insecurities antithetical to the power and bliss of non-material shunya.
- In this context, dipping into shunyata from time to time is akin to visiting a gym, to revitalize one's perception of reality and toning the mind, cleansing it of toxicity arising from an obsession with the temporal and unreal.

PT CONCATENATION

Polity

Good Governance Day

About- 25th December- Birthday of former Prime Minister Atal Bihari Vajpayee is marked as Good Governance Day

- To mark the occasion government launched revamped e-HRMS portal also known as Manav Sampada.
- E-hrms was launched by the Ministry of Personnel, Public Grievances and Pensions on 25th December 2017 and it had 25 applications of 5 modules of the system.
- The new module will provide several services such as Transfers (Rotation/Mutual), Deputation, iGOT Training, Vigilance Status, Deputation Opportunities, Service Book, and other basic HR Services like Leave, tours, Reimbursements, etc.
- It will act as the first digital system in the Government of India to provide end-to-end HR Services. Through this DoP&T will be moving towards total digitization of HR Services.
- Mobile Application of the Portal of iGoTKarmayogi was also launched. It is a democratized, competency-driven solution space that all government employees can access to enhance their execution capabilities. The app and the platform will allow all government servants, at multiple levels, to undergo continuous training, depending on their domain areas

LINK IT WITH: Good Governance Index, Probity in Governance, Prashsan Gaon Ki Aur, Mission Karmayogi

Inter-State Border Dispute

About- The border dispute between Maharashtra and Karnataka is intensifying, with both states hardening their stance.

- Border Issues can be resolved in the following ways:
 - Political Route- States in dispute decide among themselves and later Parliament can bring a law to alter state boundaries e.g., the Haryana-Uttar Pradesh (Alteration of Boundaries) Act of 1979.
 - Judicial redressal- The Supreme Court in its original jurisdiction decides disputes between states under Article 131 of the constitution.
 - Inter-state Council: Article 263 of the Constitution gives powers to the President to set up an Inter-state Council for the resolution of disputes between states. The Council is envisaged as a forum for discussion between the states and the Centre.
- There are border disputes mostly arising out of claims and counter-claims over territories between Assam-Meghalaya; Assam-Nagaland; Assam-Mizoram; Assam-Arunachal Pradesh and Maharashtra-Karnataka.

LINK IT WITH: Cooperative federalism, Inter-State River Water Dispute, Sarkaria Commission, Punchhi Commission, Mahajan Commission.

Review Petition

About: The Supreme Court has dismissed a petition filed by a 2002 Gujarat riots victim seeking a review of its May 2022 order.

- Under Article 137- the Supreme Court has the power to review its judgments or orders. This provision forms the legal basis for the filing of a “review petition”.
- A review petition must be filed within 30 days of the pronouncement of the judgment, except in cases of the death penalty.
- These are heard through “circulation” by judges in their chambers. They are usually not heard in open court.
- Lawyers in review petitions usually make their case through written submissions, and not oral arguments. The same judges who passed the original verdict usually also hear the review petition.
- As per the Civil Procedure Code and the Supreme Court Rules, any person aggrieved by a ruling can seek a review (not only parties). However, the court does not entertain every review petition filed.

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- In a 2013 ruling, the Supreme Court laid down three grounds for seeking a review of a verdict it has delivered:
 - the discovery of new and important matter or evidence which, after the exercise of due diligence, was not within the knowledge of the petitioner or could not be produced by him;
 - a mistake or error apparent on the face of the record; or
 - any other sufficient reason; in subsequent rulings, the court specified that “any sufficient reason” means a reason that is analogous to the other two grounds.

LINK IT WITH: Curative Petition, Contempt of Court, Key Features of Judges Inquiry Act.

Appropriation Bill

About: Recently, the Union Finance Minister moved the Appropriation (No.5) Bill, 2022, and Appropriation (No.4) Bill, 2022, in the Rajya Sabha which created a ruckus in the house.

- The Appropriation Bill empowers the government to withdraw funds from the Consolidated Fund of India for meeting its expenditure for a financial year.
- Under, Article 114 any money can be withdrawn from the Consolidated Fund of India only after prior approval from the Parliament.
- The appropriation bill is introduced only in Lok Sabha (as it carries “Power of the Purse”) after discussions on Budget proposals and Voting on Demand for Grants. The government cannot withdraw money from the Consolidated Fund of India till the enactment of the appropriation bill
- Once it is passed by the Lok Sabha it is sent to the Rajya Sabha. Rajya Sabha has the power to recommend any amendments to this Bill. However, it is the prerogative of the Lok Sabha to either accept or reject the recommendations made by the Rajya Sabha. After the bill receives assent from the president it becomes an Appropriation act.
- Unique features of the Appropriation bill include an automatic repeal clause, whereby the Act gets repealed by itself after it meets its statutory purpose.
- No amendment can be proposed to an Appropriation Bill which will have the effect of varying the amount or altering the destination of any grant so made or of varying the amount of any expenditure charged on the Consolidated Fund of India, and the decision of the Lok Sabha Speaker as to whether such an amendment is admissible is final.

LINK IT WITH: Finance bill, Consolidated Fund of India, Sessions of Parliament, Stages of Bill

Protection of Farmers against Protection of Plant Varieties and Farmers’ Rights (PPVFR) Act, 2001

About: An application has been filed to revoke the registration granted to PepsiCo India Holdings Pvt. Ltd., in respect of FL-2027 Potato Variety.

Background:

- **TRIPS (Trade-Related Aspects of Intellectual property Rights) and the UPOV (Union for the Protection of Plant Varieties)** are the two dominant frameworks of international intellectual property (IP) law.
- These give plant breeders exclusive rights over the varieties they develop, and mostly disregard customary rights of indigenous and farming communities to their genetic resources and associated knowledge.
- They facilitate the growth of the seed industry, ensured the availability of high-quality seeds, as well as secure the livelihood and plant varieties of the farmers.

PPVFR Act, 2001:

- It provides rights to the farmer in conserving, improving, and making Plant Genetic Resources available for breeding and developing new varieties on an equal footing.
- **Rights of farmers include** access to seed, benefit sharing, compensation, reasonable seed price, recognition and reward for contributing to conservation, registration, prior authorization for the commercialization of essentially derived varieties, exemption from registration fees, and protection from innocent infringement.

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- It granted recognition of the proprietary claims of both the farmers and breeders, more accurately, of farmers as breeders (Section 2(c)).
- It gives the farmer the right to “**save, use, sow, re-sow, exchange, share or sell**” produce/seeds (S. 39 (1)(iv)).
- It has permitted Indian farmers to “brown bag seeds” to sell any variety of seeds on the condition that they are sold in an unbranded form.

LINK IT WITH: Contract farming, Doubling farmer's Income, and Oil Palm Mission.

'Prashasan Gaon Ki Aur' 2022

About: Under Sushasan Saptah 'Prashasan Gaon Ki Aur' 2022" campaign was inaugurated for one week in December.

About 'Prashasan Gaon Ki Aur' campaign :

- It is launched by the Ministry of Personnel, Public Grievances & Pensions
- It will be a Nationwide campaign for the Redressal of Public Grievances and Improving Service Delivery.
- It will be held in all Districts, States, and Union Territories of India where district Collectors will **organize special camps/events at Tehsil/ Panchayat Samitis Headquarters, etc.**
- Redressal of pending public grievances in the Centralized Public Grievances Redress and Monitoring System, the State portals, online service delivery, disposal of Service Delivery applications, collation of good governance practices and their dissemination and sharing of one success story per district on the resolution will be important issues.

LINK IT WITH: Right to Information, Legal Reforms, Decentralization, PRAGATI, MCA21, and One Nation One Portal.

AYURSWASTHYA Yojana

About: The government is running AYURSWASTHYA Yojana by merging two erstwhile schemes for upgradation to the Centre of Excellence (CoE).

About AYURSWASTHYA Yojana:

- It is a **central sector scheme** (100% funded by the Union government) that runs under the Ministry of Ayush.
- It has two components first AYUSH and Public Health (PHI) and second Centre of Excellence (CoE).
- It is formed by merging two Central Sector Scheme schemes for the Promotion of AYUSH Intervention in PHI and assistance to AYUSH organizations for both Government and Non-Government sectors.
- It supports creative and innovative proposals for the establishment and upgradation of both functions and facilities of reputed institutions at the national as well as international levels.
- It also supports proposals for well-established buildings and infrastructure to the level of the Centre of Excellence.
- It supports the establishment of advanced/ specialized AYUSH medical health units in reputed AYUSH and Allopathic institutions.

LINK IT WITH: Integrated Disease Surveillance Programme, National AIDS Control Programme, AB-Pradhan Mantri Jan Arogya Yojana, Rashtriya Arogya Nidhi

National Digital Literacy Mission (NDLM)

About: Various steps taken by the government under NDLM

About National Digital Literacy Mission:

- It was launched in 2015 to create a participative, transparent, and responsive government to transform the country into a digitally empowered knowledge economy.
- It includes program schemes like Digital Locker, e-education, e-health, e-sign, and national scholarship portal, etc. so that citizens get the benefit of the latest information and communication technology.

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- It aims to make at least one person digitally literate in a family. Gram panchayats will be connected with WiFi, Hotspot enabled broadband connection.

LINK IT WITH: Digital Saksharta Abhiyan, Digital India Mission, and The Rotary India Literacy Mission (RILM).

The Urban Learning Internship Programme (TULIP)

About: TULIP has been developed to provide internships to students and graduates.

About TULIP :

- It has been developed by the Ministry of Housing & Urban Affairs (MoHUA) in collaboration with the Ministry of Education (MoE) and the All India Council of Technical Education (AICTE).
- It is a platform to provide internships to students and graduates in ULBs, Smart Cities, and Parastatals of States/UTs.
- More than 25,000 internship opportunities have been advertised under the program so far
- An e-course on 'Vulnerability Atlas of India' has been provided by MoHUA.

LINK IT WITH: HRIDAY, Lumpsum Provision Scheme, Smart cities, Sarva Shiksha Abhiyan

Social Issues

Shakti Sadan

About: Swadhar Greh for women and Ujjawala have been merged and renamed Shakti Sadan.

Mission Shakti:

- Ministry of Women and Child Development has launched 'Mission Shakti' - an integrated women empowerment program for the safety, security, and empowerment of women till 2026.
- It has two sub-schemes - '**Sambal**' and '**Samarthya**'.
- Sambal Sub Scheme:** It is for the safety and security of women. It consists of schemes like One Stop Centre (OSC), Women Helpline (WHL), and Beti Bachao Beti Padhao (BBBP) with a new component of Nari Adalats.
- Samarthya Sub Scheme:** Its components are schemes like Ujjwala, Swadhar Greh, and Working Women Hostel. Also, schemes like the National Creche Scheme for children of working mothers and Pradhan Mantri Matru Vandana Yojana (PMMVY) and a component of Gap Funding for Economic Empowerment are included.

Shakti Sadan :

- It is a Centrally Sponsored Scheme under Mission Shakti, which aims at creating a safe and enabling environment for women in distressed situations and difficult circumstances.
- The Shakti Sadan has provisions for shelter, food, clothing, and primary health care among others.

LINK IT WITH: Mahila E-haat, Woman Helpline, Rajiv Gandhi Scheme for Empowerment of Adolescent Girls – SABLA.

Manosphere

About: Former professional kickboxer was detained along with his brother as part of a human trafficking and rape investigation.

About Manosphere

- It started in the mid-2000s and was started by two men pseudonyms Solaris (an Australian) and Ragnar (a Scandinavian) with the propping up of the men's rights movement (MRM).
- It consists of men's rights activists(MRAs) who denounce progressive sexual and cultural revolutions.
- Apart from MRA, there are other groups, **the three most prominent ones are men going their way (MGTOW), pick-up artists (PUAs), and involuntary celibates (incels).**
- It is associated with online harassment, violence against women, and, in some instances, mass shootings, especially among feminists.

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- It opposed the second wave of feminism which focused on equal rights and the daily discrimination faced by them in their personal and professional lives.
- They believed that the blurring of gender lines leads to men's emasculation and makes them feminized as they consider feminism as a threat to fatherhood and family values.

Terminology of the manosphere

- **The red pill** means you accept that women oppress men, **Blue pill** translates to remaining in the clutches of feminism.
- **The black pill** is an extension of the red pill and blue pill analogy. It refers to a defeatist and fatalistic worldview that if you're physically unattractive, you're unworthy of love.
- **Gynocentrism** is the belief that the world is female-centric and that women are uniquely privileged because society favors their interests.

Doxxing

About: Twitter has suspended the account of several journalists in the United States stating it as an anti-doxing policy.

About Doxxing

- It is the revealing of someone's intimate information, with the intent of harassment.
- The tactic is used against those with opposing political views and sometimes on celebrities and influencers.
- Harassers have used private information misappropriated to cause personal harm.

Twitter's New Policy

- **Information that could be considered doxxing as per Twitter's New Policy is**
 - Home address or physical location information
 - Live location information
 - identity documents
 - contact information
 - financial account information
 - Other private information like media of private individuals without the permission of the person(s) depicted.
- It bans even threatening to expose private information or sharing information that could help hack a user's account.
- Violation of guidelines will result in a permanent suspension of the account. Also, sharing anyone's live location without express permission will lead to an automatic suspension.

LINK IT WITH: Cyber Crime Portal, Interpol, CERT-In, National Critical Information Infrastructure Protection Centre

Economy

Cabinet approves Minimum Support prices for copra for the 2023 season

About: The Cabinet Committee on Economic Affairs has approved Minimum Support Prices (MSPs) for copra for the 2023 season.

About Minimum Support price:

- These are guaranteed prices for farmers by the government with a major objective to support the farmers from distress sales and to procure food grains for public distribution
- It is announced by the government at the beginning of the sowing season for certain crops based on the **recommendations of the Commission for Agricultural Costs and Prices (CACP).**
- Prices are fixed to protect the producer - farmers - against excessive falls in price during bumper production years.
- The government has announced MSP for 22 mandated crops and fair and remunerative price (FRP) for sugarcane.

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- The mandated crops are 14 crops of the Kharif season, 6 rabi crops, and two other commercial crops.
- The MSPs of toria and de-husked coconut are fixed based on the MSPs of rapeseed/mustard and copra, respectively.

The crops which are included in MSP are :

Kharif season crops: Paddy, Jowar, Bajra, Ragi, Maize, Tur (Arhar), Moong, Urad, Groundnut, Sunflower Seed, Soyabean (yellow), Sesamum, Nigerseed, Raw Cotton.

Rabi season crops: Wheat, Barley, Gram, Lentil (Masur), Rapeseed & Mustard, Safflower, Toria

Others: Copra, Raw Jute, Sugarcane (Fair and remunerative price), de-husked coconut, and Virginia flured (VFC) Tobacco

LINK IT WITH: Soil Health Card Scheme, Neem Coated Urea, Paramparagat Krishi Vikas Yojana (PKVY), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), National Agriculture Market (e-NAM), Pradhan Mantri Fasal Bima Yojana (PMFBY), Interest Subvention Scheme.

Share Buyback

About: The Securities and Exchange Board of India (Sebi) has decided to phase out the buyback of shares of listed companies through the exchange route.

- When a listed company buys its own shares from the existing shareholders, it is known as a share buyback, which is also called share repurchase.
- The process reduces the number of outstanding shares in the open market over a period which can lead to better valuation and earnings per share (EPS).
- The maximum limit of any buyback is 25 percent or less of the aggregate of paid-up capital and free reserves of a company.

Stock Exchange Route

- Under the stock exchange route, a company can buy back shares only on the stock exchanges having nationwide trading terminals.
- The buyback of shares is made only through the order-matching mechanism.
- In this method, the promoters, or persons in control of a company are not allowed to participate.
- The problem with this route as highlighted by Keki Mistry Committee is that there is a possibility of one shareholder's entire trade getting matched with the purchase order placed by the company, thus depriving other shareholders of availing the benefit of buyback.
- Sebi will phase out buyback through the stock exchange route with effect from April 1, 2025

Buyback via a tender offer

- It means an offer by a company to buy back its shares or other specified securities through a letter of offer from the holders of the shares or other specified securities of the company
- The buyback is done on a proportionate basis as per the buyback ratio, and the additional shares tendered over and above the prescribed buyback ratio get accepted if there are any unaccepted shares.

LINK IT WITH: Initial Public Offering, Follow-Up Public Offering, SENSEX, National Stock Exchange.

Deposit Interest Rate

About: Indian banks have started hiking retail deposit rates by up to 65 basis points, following the Reserve Bank of India's move to increase the repo rate by 35 basis points last week.

- The deposit interest rate is paid by financial institutions to deposit account holders.
- Whenever RBI raises the repo rate, the bank's loanable funds shrink as a result they rely on public deposits, to expand their business.
- Accordingly, the bank also adjusts its lending rates to maintain its spread earnings.
- Spread in banking is known as the difference between the interest rate that bank charges from a borrower and the interest rate a bank pays to the depositor.

LINK IT WITH: Monetary Policy Tools, Real Interest Rate, External Benchmark Rate

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Drone Insurance

About: The nascent drone insurance market in India is seeing a flurry of activity after the launch of unmanned aircraft system insurance.

About the Drone Insurance policy

- The framework is set by the Insurance Regulatory and Development Authority of India (IRDAI).
- The 'New India Unmanned Aircraft System (UAS/ UAV/ RPAS/ Drone) Insurance' will cover all drones and the coverage will be offered to drone owners, operators, and manufacturers.
- It is designed to cover fixed wing, rotor wing, and hybrid UAS that can be controlled remotely (with pilot intervention) or autonomous drones (without pilot intervention).
- The aircraft included in the policy are generally deployed for military and non-military applications, including surveillance, geography and infrastructure inspections, and aerial photography.
- Insurance protection is offered for the:
 - Damage to the drone and payload it carries will provide coverage for the replacement or repair.
 - Accidental loss of or damage to the UAS, disappearance, or if UAS is unreported after the commencement of Flight.
 - Third-party liability coverage will cover legal liabilities like bodily damage or property damage claims to third parties arising out of the usage and operation of drones.

LINK IT WITH: The PLI scheme, Drone Rules, 2021, Fixed-Wing Hybrid VTOL, Drone Market in India

Environment

Polar Bears

About: Polar bears in Hudson Bay are dying at a fast rate and females and younger polar bears are the worst affected, according to a new government survey.

- Polar bears are the largest carnivorous land mammals on Earth.
- Polar bears are one of the most significant predators in the Arctic region and they keep biological populations in balance.
- The big kills made by them serve as a food resource for scavengers like Arctic foxes and Arctic birds.
- Most polar bears occur north of the Arctic Circle to the North Pole. There are some populations south of the Arctic Circle in the Hudson Bay of Manitoba, Canada. Polar bears live in Alaska, Canada, Russia, Greenland, and some northern islands owned by Norway, such as Svalbard.
- Western Hudson Bay has witnessed a drop of around 50% in the population of polar bears since the 1980s.
- Conservation Status-
 - IUCN: Vulnerable
 - CITES: Appendix II
- Polar bears get less time to hunt due to the breaking of sea ice in summer and refreezing later in winter with rising global temperatures.

LINK IT WITH: IUCN, World Wildlife Fund, CITES

Fog

About: Fog is formed by the condensation of water vapor on condensation nuclei that are always present in natural air.

- The presence of moisture and a fall in the temperature are key factors for the formation of fog.
- The most stable fogs occur in presence of temperature inversion when the surface is colder than the air above.
- Once the temperature increases during the day, the fog dissipates.
- Advection fog forms when warm, moist air passes over a cool surface, causing water vapor to condense. Advection fog mostly occurs where warm, tropical air meets cooler ocean water.

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- Radiation fog forms over land on calm, clear nights when loss of heat by radiation cools the ground and chills the air in the lowest few meters to below the dew-point temperature.
- **Freezing fog** is the result of liquid droplets freezing on solid surfaces.

LINK IT WITH: SAFAR, AQI, Other types of Fog – Frontal, Inversion, Valley Fog, Formation of Clouds, Temperature Inversion

Rhino Poaching

About: There has been no rhino poaching in Assam in the Year 2022.

- The Indian rhinoceros is found only in the Brahmaputra valley, parts of North Bengal, and parts of southern Nepal.
- Within India, rhinos are mainly found in the seven Protected Areas viz. - Kaziranga NP, Pobitara WLS, Orang NP, Manas NP in Assam, Jaldapara NP, and Gorumara NP in West Bengal, and Dudhwa NP in Uttar Pradesh. In addition, a transient population is also observed in Katarniaghat WLS in Uttar Pradesh and Valmiki TR in Bihar, which experience visits of rhinos from adjoining Nepal.
- Conservation Status:
 - IUCN Red List: Vulnerable
 - CITES Appendix I
 - Wildlife Protection Act, 1972: Schedule I
- Rhino horn is used in traditional Chinese medicine
- Assam government constituted a Special Rhino Protection Force to keep a check on rhino poaching
- Indian Rhino Vision 2020 was launched in 2005.
- Five Rhino Range Countries signed a declaration 'The New Delhi Declaration on Asian Rhinos 2019' for the conservation and protection of the species.

LINK IT WITH: National Parks, Biosphere Reserves, CITES, IUCN, Indian Rhino Vision 2020

Penguins Extinction

About: The emperor penguins are at risk of extinction by 2100.

- Penguins live primarily in Southern Hemisphere. They include the tiny blue penguins of Australia and New Zealand, the majestic emperor penguins of Antarctica and king penguins found on many sub-Antarctic islands, the endangered African penguin, and the Galápagos penguin—the only penguin to be found north of the equator.
- Emperor penguins rely on sea ice to form their breeding colonies, avoid predators in the ocean, and forage for food.
- Sea ice is at risk of disappearing as the Earth's temperature rises in relation to greenhouse gas and carbon dioxide emissions which endangers the survival of Penguins.
- Conservation Status of Emperor Penguins:
 - IUCN: Near Threatened
- Emperor penguins are listed as endangered by the US because of the climate crisis.

LINK IT WITH: Humboldt Penguins, African Penguins, India's research Stations in Antarctica, Indian Antarctic Programme, National Centre for Polar and Ocean Research

Buccal Fat

About: Buccal fat is fat between cheekbones and jawbones in a person's face.

- There are superficial facial compartments and deep facial compartments that define the shape of the face.
- Buccal fat is one of the **deep facial fat compartments** that kind of give structure to the cheek area.
- Surgical removal of buccal fat makes the face more sculpted immediately.

LINK IT WITH: Buccal cavity, Alimentary canal, Oesophagus, Digestive glands

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Carbon Market

About: Carbon markets establish trading systems where carbon credits or allowances can be bought and sold.

- A **carbon credit** is a kind of tradable permit that, per United Nations standards, equals one tonne of carbon dioxide removed, reduced, or sequestered from the atmosphere.
- There are broadly two types of carbon markets:
 - **Voluntary markets** are those in which emitters— corporations, private individuals, and others— buy carbon credits to offset the emission from an entity engaged in projects that reduce, remove, capture, or avoid emissions.
 - **Compliance markets**— set up by policies at the national, regional, and/or international level— are officially regulated. They mostly operate under a principle called ‘cap-and-trade’.

LINK IT WITH: Paris climate Deal, Nationally determined contributions (NDCs), Clean Development Mechanism, Kyoto Protocol, UNDP, carbon footprint, Carbon Tax, Initiatives are taken by India to curb carbon emission, Energy Conservation Amendment Bill, 2022

Regenerative agriculture

About: Regenerative farming methods used in Madhya Pradesh can reduce the need for frequent irrigation.

- Regenerative agricultural practices include the use of natural inputs, minimum-till, mulching, multi-cropping, and sowing of diverse and native varieties.
- Natural inputs help improve soil structure and its organic carbon content and water-efficient crops reduce the frequency and intensity of irrigation.
- Zero-budget natural farming, now known as Subhash Palekar Natural Farming, emphasizes preparing and using inputs made from crop residue, cow dung, and urine, fruits, among other things.

LINK IT WITH: Integrated farming system, Soil degradation, Organic Farming, Major crops, and cropping patterns in India

Asian Giant Tortoises

About: The Asian Giant Tortoise is the largest land tortoise in mainland Asia

- They comprised two subspecies: *Manouria emys phayrei* and *Manouria emys emys*.
- The former is generally darker in color with a dark brown, olive, or black domed upper shell, in contrast to the latter, which is characterized by a flattened, lighter yellowish-brown upper shell.
- The Asian Giant Tortoise is native to South Asia, in particular, the countries Bangladesh, India, Indonesia, Malaysia, Myanmar, and Thailand
- Conservation Status:
 - IUCN: Critically endangered
 - CITES: Appendix II
 - WPA, 1972: Schedule I
- They inhabit the evergreen forest, including bamboo forest, dry evergreen forest mixed with bamboo, dry evergreen forest, stream courses, and swampy stream edges.
- The Asian Giant Tortoise is a highly social species that exhibit complex social behavior.
- The threat of over-exploitation is due to the increasing demand for consumption in East Asia for meat, for use in traditional Chinese medicine and the global pet trade.

LINK IT WITH: In-situ and Ex-situ Conservation, Protected Area Network, IUCN Red List, CITES, WPA, 1972, National Parks

Fossil lizards and snakes indicate the climate of Late Miocene hominid

About: Remains of fossil lizards (*Varanus*) and snakes (*Python*) have been discovered recently from a late Miocene hominid locality of India in Haritalyangar, Himachal Pradesh.

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Miocene period:

- It is the earliest major worldwide division of the Neogene Period (23 million years to 2.6 million years ago) that extended from 23 million to 5.3 million years ago.
- It can be divided into six ages and their corresponding rock stages: from oldest to youngest these ages or stages are **the Aquitanian, Burdigalian, Langhian, Serravallian, Tortonian, and Messinian**.
- It followed the Oligocene Epoch of the Paleogene Period and was succeeded by the Pliocene Epoch.

Why Lizards and snakes are good indicators?

- They are cold-blooded squamates whose distribution, richness, and diversity are highly dependent on temperature and climatic conditions.
- Squamates are widely regarded as excellent indicators of past climates, particularly ambient temperatures.

Significance of the fossils :

- It indicates a seasonal wet sub-humid to semi-arid climate in the area with a mean annual temperature of around 15–18.6°C during that period which is similar to the condition in the area at present.
- The occurrence of taxa *Varanus* in Haritalyangar is important because *varanids* have a limited fossil record in Asia.
- The fossil *Python* from South Asia remains poor except for the earliest record from Pakistan and Kutch, Gujarat.
- It revealed a wider distribution of the clade in this southern Asian territory.

LINK IT WITH: Natural selection, Adaptive radiation, Faunal succession, and the Relationship of fossils with rock strata.

Black Carbon

About: ISRO's Geosphere-Biosphere Programme has observed a network of aerosols out of which one is black carbon mass concentration.

About Black Carbon:

- It is produced both naturally and by human activities as a result of the incomplete combustion of fossil fuels, biofuels, and biomass.
- It is a major contributor to global climate change after carbon.
- Its particles strongly absorb sunlight and give soot its black color.
- Primary sources include emissions from diesel engines, cook stoves, wood burning, and forest fires.
- Cutting its emissions would immediately reduce the rate of warming as it remains in the atmosphere for only a few weeks.

Government efforts to reduce Black Carbon emissions are:

- **Pradhan Mantri Ujjwala Yojana** for promoting the use of cleaner household cooking fuels.
- Leapfrogging from **BS-IV to BS-VI norms** for fuel and vehicles
- Introduction of cleaner and alternate fuels like gaseous fuel (CNG, LPG, etc.), and ethanol blending.
- Sustainable Alternative Towards Affordable Transportation has set up **Compressed Bio-Gas (CBG) production plants**.
- Promotion of Agricultural Mechanization for in-situ management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh, and NCT of Delhi with the establishment of Custom Hiring Centres.
- **National Clean Air Programme** with targets to achieve a 40% reduction in particulate matter concentrations by 2025-26.
- **Central Pollution Control Board (CPCB)** has planned City specific Clean Air Action Plans which provide time-bound targets to control city-specific air polluting sources.
- Annual plans with micro detailing like Faster Adoption and Manufacturing of Electric Vehicles (FAME) phase-2 scheme and Shifting of brick kilns to zig-zag technology.
- Use of piped natural gas in industries and introduction of more public transport.

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LINK IT WITH: Scope 1, scope 2, and scope 3 of Green House Gases, Carbon sinks, green hydrogen, and hydrogen fuel cells.

Science & Technology

'SMART' program

About: Ministry of Ayush has launched 'SMART' (Scope for Mainstreaming Ayurveda Research in Teaching Professionals).

About 'SMART' program:

- It is launched by the National Commission for Indian System of Medicine and the Central Council for Research in Ayurvedic Sciences under the Ministry of Ayush to open new avenues with the 'SMART' initiative for quality research in Ayurveda
- It aims to boost scientific research in priority healthcare research areas through Ayurveda colleges and hospitals.
- It aims to identify, support, and promote innovative research ideas in healthcare research areas including Osteoarthritis, Iron Deficiency Anaemia, Chronic Bronchitis, Dyslipidemia, Rheumatoid Arthritis, Obesity, Diabetes Mellitus, Psoriasis, Generalised Anxiety Disorder, Non-alcoholic fatty liver disease.
- It will motivate teachers for taking up projects in designated areas of healthcare research and create a large database.

LINK IT WITH: Ayurgyan Scheme, CME (Continuing Medical Education) scheme, AYUSH RESEARCH PORTAL

Naegleria fowleri infection

About: It is a brain-eating amoeba that destroys brain tissues and causes a dangerous infection called primary amebic meningoencephalitis.

- Naegleria is an amoeba, a single-celled organism, and only one of its species, called Naegleria fowleri, can infect humans.
- The infection spreads rapidly and on average causes death within about five days.
- It is commonly found in warm freshwater bodies, such as hot springs, rivers, and lakes.
- It best grows in high temperatures up to 46°C and sometimes can survive at even higher temperatures and with the rising global temperatures, the chances of getting Naegleria fowleri infection will go up.
- Excess atmospheric carbon dioxide has led to an increase in the temperature of lakes and rivers.

LINK IT WITH: Japanese encephalitis, Acute encephalitis syndrome, MARBURG Disease

SWOT

About: Surface Water and Ocean Topography (SWOT) is NASA's advanced radar satellite to conduct a global water survey.

- It is designed to give an unprecedented view of water resources (70% of the planet).
- The objective of this three-year mission is to explore how oceans absorb atmospheric heat and carbon dioxide in a natural process that moderates global temperatures and climate change.
- SWOT's ability to discern smaller surface features also be used to study the impact of rising ocean levels on coastlines.
- To better trace fluctuations in the planet's rivers and lakes during seasonal changes and major weather events.
- It operates at the Ka-band frequency of the microwave spectrum which will allow scans to penetrate cloud cover and darkness over wide swaths of the Earth.

LINK IT WITH: Satellite frequency bands and general application, Satellite communications, Launch Vehicle technology,

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Bose-Einstein statistics

About: Bose-Einstein statistics determine the statistical distribution of identical indistinguishable boson particles over the energy states in thermal equilibrium.

- It is named after Satyendra Nath Bose and Albert Einstein.
- Bose-Einstein statistics describes one of the two possible ways in which a collection of indistinguishable particles may occupy a set of available discrete energy states.
- At low temperatures, boson particles of an unlimited number can "condense" into the same energy state.
- This unusual property gives rise to the special state of matter – Bose-Einstein Condensate [considered as 5th state of matter]
- Bosons, unlike fermions, are not subject to the Pauli exclusion principle: an unlimited number of particles may occupy the same state at the same time.

LINK IT WITH: States of matter, Nobel Prize in Physics, Dark Matter

DNA Fingerprinting

About: DNA fingerprinting is a technique used to determine the identity of a person based on the nucleotide sequences of certain regions of human DNA that are unique to individuals.

- DNA, or deoxyribonucleic acid, is the hereditary material in humans and almost all other organisms. Nearly every cell in a person's body has the same DNA.
- DNA is located in the cell nucleus but a small amount of DNA can also be found in the mitochondria.
- DNA fingerprinting can be used in criminal investigations, forensic purposes, and paternity testing.
- Molecular 'scissors', called restriction enzymes are used to cut the DNA.
- Issues that are involved with DNA fingerprinting are degradation of samples, privacy issues, negligence, un-experienced person, default with database, intermixing and fragmentation of samples, incorrect data entry, storage issues, and DNA evidence easily planted at a crime scene.

LINK IT WITH: Genetic engineering techniques, Genome sequencing, DNA profiling, Genome India Project, DNA Technology Bill, DNA sequencing, Transcription, Reverse-transcription, RNA

Sand Battery

About: A sand battery is a high-temperature thermal energy storage that uses sand or sand-like materials as its storage medium. It stores energy in the sand as heat.

- The reservoir is well-insulated and can retain temperatures up to 600 degrees Celsius and prevent heat losses over time.
- The battery receives electricity from the grid through excess solar and wind power.
- The sand battery has three major interconnected components:
 - A steel silo containing 100 tonnes of sand where the heat is stored
 - An electric air heater with resistors used in regular ovens and
 - An air-to-water heat exchanger
- This may aid clean energy solutions
- The first commercial sand battery in the world is in a town called Kankaanpää, Western Finland.

LINK IT WITH: Renewable energy, Photovoltaics, Green Hydrogen Mission, Paris agreement, Net zero Emissions, PLI Scheme, Climate financing

India's Scientific Developments

About: The biggest discoveries and findings that took place in India in 2022:

- The first privately-built Indian rocket, Vikram-S was launched from Sriharikota.
 - The Vikram Rocket series is an affordable, upgradeable carrier for small satellites.
 - They are named after Vikram Sarabhai – the Father of India's Space Programme.

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- ISRO started the commercial launch service market with the launch of 36 OneWeb Satellites on GSLV Mk-3.
- India's first interplanetary mission, Mangalyaan, concluded its journey.
 - The spacecraft functioned for almost eight years, beyond its designed capacity of six months.
- ISRO mapped out the distribution of sodium on the Moon's surface with help of Chandrayaan-2's large area soft X-ray spectrometer.
- Bharat Biotech developed the first intranasal vaccine -iNCOVACC, for Covid-19.
 - The vaccine is a replication-deficient recombinant adenovirus vector vaccine with a pre-fusion stabilized spike protein.

LINK IT WITH: Launch Vehicles, ISRO's Interplanetary missions, Types of Satellite,

Virus Snack

About: Scientists have identified an organism that dines entirely on viruses.

About the Halteria

- It is a microscopic ciliate (a single-celled organism with minuscule hairs) that is commonly found in freshwater and thrives wholly on a virus-only diet or 'virology'.
- Virology is sufficient to support organisms' physiological development and population increase as they were built on carbon, nucleic acid, phosphorous, and other basic cornerstones of life.
- It was found that Halteria swallowed the chloroviruses and showed growth by just feeding on the virus, on the other hand, chlorovirus showed no signs of growth.

LINK IT WITH: Ebola, Genital herpes, Chikungunya virus

Jumping Genes

About: Multiple copies of the same "jumping genes" have been found in a salamander-infecting fungus called *Batrachochytrium salamandrivorans*.

About Jumping Genes or transposons

- The mobile segments of DNA can move around to different positions in the genome of a single cell.
- They may cause mutations and increase (or decrease) the amount of DNA in the genome of the cell.
- There are two different types of Jumping DNA :
 - Class II transposons consist of DNA that moves directly from place to place.
 - Class I transposons are **retrotransposons** that first transcribe the DNA into RNA and then use reverse transcriptase to make a DNA copy of the RNA to insert in a new location.
- It can "copy and paste" itself and affect the organism. The majority of them have some repetitive DNA.
- Transposon-jumping genes can interfere with regular gene function and cause problems for the organism.
- In humans, they typically make up less than 1 percent of the genome, and we have control mechanisms to prevent this from rising.

About *Batrachochytrium salamandrivorans* (Bsal)

- Bsal and related fungal species infect amphibians worldwide and have been responsible for more than 90 extinctions.
- Bsal infects the skin of salamanders and newts and causes severe wounds.
- Bsal emerged in Asia and spread to Europe causing European salamander populations to decline.
- The ability to jump gene transposons to copy and paste has led to the expansion of Bsal which make up about 19 percent of the genome.

LINK IT WITH: CRISPR technology, Lung Cancer Genomic Testing, and genome sequencing.

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Glass Frogs

About: Glass Frogs hide red blood cells and are characterized by transparent muscles and undersides.

About Transparency of organs:

- It is a common form of camouflage among animals that live in water, but it's rare on land.
- In vertebrates, attaining transparency is difficult because their circulatory system is full of red blood cells that interact with light.
- Ice fish and larval eels achieve transparency by not producing hemoglobin and red blood cells.

About Glass Frog:

- These are found in American tropics areas.
- These are nocturnal amphibians and sleep on translucent leaves which is a common camouflage tactic to hide from predators.
- They have translucent skin and muscle that allows their bones and organs to be visible from where they derive their name.
- They hide their red blood cells in their distinctively reflective livers (which contain reflective guanine crystals) by pausing their respiratory system during the day, even at high temperatures.

Triple immunotherapy

About: As per research triple immunotherapy combination can be used as a cure for pancreatic cancer.

About Pancreatic cancer

- It is a leading cause of death in the US, partially because 80 percent of cases are diagnosed at an advanced stage
- It is 'non-immunogenic' which means it is unresponsive to commonly used anti-PD-1 and anti-CTLA-4 immune checkpoint inhibitors.

About Triple immunotherapy combination

- It is a combination targeting 41BB, LAG3, and CXCR2.
- It targets both targeting checkpoints in both T cells and myeloid suppressor cells.
- It identifies specific immune checkpoint proteins, 41BB and LAG, that were highly expressed in exhausted T cells.
- It reprogrammed the tumor immune microenvironment (TIME) and significantly improved anti-tumor responses in preclinical models of pancreatic cancer.
- It resulted in complete tumor regression and improved overall survival in 90 percent of preclinical models.

LINK IT WITH: Regenerative Medicine Therapies, Immunosuppressant therapy, and Biologics.

Key Neurons

About: The study identifies new neurons that maintain body temperature.

About the EP3 Neurons

- It is present in the brain's preoptic area and expresses EP3 receptors of PGE2.
- Its function is to regulate body temperature.
- The nerve fibers of EP3 neurons in the preoptic area identify where the signals from EP3 neurons are transmitted.
- As per observation, the nerve fibers are distributed to various brain regions, particularly to the dorsomedial hypothalamus (DMH), which activates the sympathetic nervous system.
- They use the dorsomedial hypothalamus (DMH) to regulate body temperature.
- DMH activates the sympathetic nervous system through gamma-aminobutyric acid (GABA), a major inhibitor of neuronal excitation for signal transmission to send inhibitory signals to DMH neurons to control sympathetic responses.

Link it with: Sensory neurons, Motor neurons, Interneurons, Huntington's disease

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6G Technology

About: The Department of Telecommunications has constituted a Technology Innovation Group and is planning to develop a roadmap and action plans for 6G in India.

About 6G (sixth-generation wireless) :

- It is the successor to 5G cellular technology with higher frequencies and substantially higher capacity and much lower latency.
- Its goal is to support one-microsecond latency communications which will be 1,000 times faster or 1/1000th the latency than one-millisecond throughput.
- It will help in improving the areas of imaging, presence technology, and location awareness.
- Along with artificial intelligence (AI), it will help in decisions about data storage, processing, and sharing.
- It can be extremely helpful in emerging technologies such as smart cities, autonomous vehicles, virtual reality, and augmented reality.

LINK IT WITH: Robotic Process Automation (RPA), Edge Computing, Quantum Computing, Virtual Reality (VR) and Augmented Reality, and Blockchain.

Digital Security of Citizens

About: The Ministry of Electronics and Information Technology is implementing the Information Security Education and Awareness (ISEA) Phase-II project I

About the Information Security Education and Awareness (ISEA) Phase-II project I:

- It is under the Ministry of Electronics and Information Technology.
- It will build capacities in the area of information security, train government personnel, and create mass information security awareness for various users.
- It will conduct awareness workshops, school teachers training as master trainers through Cyber Safety and Cyber Security Awareness Weeks, mass awareness programs broadcasted through different modes, and multilingual awareness content in the form of handbooks, multimedia short videos, posters, etc.
- An exclusive handbook titled Information Security Awareness handbook and booklets will be made available for women on cybersecurity issues.

Other provisions for digital security:

- The Information Technology Act, 2000 ("IT Act") rules safeguarding users in cyberspace from cybercrimes relating to computer resources, dishonestly or fraudulently, hacking, identity theft, cheating by impersonation, etc.
- These cybercrimes are punishable under the Indian Penal Code, 1860.
- States are primarily responsible for the prevention, investigation, etc. of such cybercrimes through the State police departments.
- Amendment in Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 ("IT Rules, 2021") cast a specific obligation on intermediaries vis-à-vis what kind of information is to be hosted, displayed, uploaded, published, transmitted, stored or shared.
- Grievance Appellate Committee(s) has been set up to allow users to appeal against decisions taken by Grievance Officers on such complaints.
- The Ministry of Home Affairs operates a National Cyber Crime Reporting Portal for complaints against cybercrime.

LINK IT WITH: Cyber Surakshit Bharat, CERT-In, National Critical Information Infrastructure Protection Centre.

Kavach

About: Indian Railways has indigenously developed an automatic train protection system rechristened as 'Kavach' (Train Collision Avoidance System).

About 'Kavach' developed by railways:

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- It is an indigenously developed ATP system by Research Design and Standards Organisation in collaboration with the Indian industry to achieve the corporate objective of safety in train operations across Indian Railways under Aatmanirbhar Bharat.
- It is a state-of-the-art electronic system of Safety Integrity Level - 4 standards.
- It is meant to protect by preventing trains from avoiding a collision.
- It works by activating the train braking system automatically, Auto Whistling, SoS Messages during emergencies, and Centralized live monitoring of Train movements through the Network Monitor System

LINK IT WITH: Electronic hand hygiene monitoring systems (EHHMSs), Antimicrobial textiles, ultraviolet C (UV-C)

Inactivated low pathogenic avian influenza (H9N2) vaccine for chickens

About: ICAR-NIHSAD, Bhopal has developed an 'Inactivated low pathogenic avian influenza (H9N2) vaccine for chickens'.

About Avian Influenza:

- It is a highly contagious viral disease that affects both domestic and wild birds.
- It is a complex disease with multiple subtypes i.e H5N1, H5N3, H5N8, etc. whose genetic characteristics rapidly evolve.
- Its strain can generally be classified into two categories :
 - low pathogenicity avian influenza (LPAI) that typically causes little or no clinical signs;
 - high pathogenicity avian influenza (HPAI) that can cause severe clinical signs and possible high mortality rates.
- It exists in the feces and respiratory secretions of birds and can be spread through direct contact with secretions from infected birds, especially through feces or contaminated feed and water.
- The virus is resistant and can survive for long periods when the temperature is low, so it can spread easily.

LINK IT WITH: Lumpy disease, Anthrax, Plague, Brucellosis, swine flu, and Q fever

Use of Drones in Agriculture

About: Remote sensing technology including satellite data and drone-based images in agriculture has been conducted through Mahalanobis National Crop Forecasting Centre (MCFC).

Applications of drones in Agriculture:

- It will help farmers detect small insects, monitor crop status, and predict harvests.
- It will have high field capacity and efficiency.
- It will result in less turnaround time and other field operational delays.
- It will help in the wastage reduction of pesticides and fertilizers due to the high degree of atomization
- It is water-saving due to ultra-low volume spraying technology in comparison to traditional spraying methods.
- It will lead to a reduction in the cost of spraying and fertilizer application in comparison to conventional methods etc. besides a reduction of human exposure to hazardous chemicals.

Challenge:

- The biggest challenge in introducing 5G-enabled drones to agriculture is network coverage.
- High-quality coverage for drones, which routinely fly at heights of up to 50 meters above the ground, still needs to be established.
- Using drones in combination with AI and 5G can address several resource-intensive operations such as maintenance or area monitoring.

LINK IT WITH: Draft Aircraft (Security) Rules, 2022, Drones in Aerial Photography & Videography, National Digital Communications Policy, drones in bird control, Kamikaze Drone.

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108th Indian Science Congress

About: The 108th annual session of ISC will be held at Rashtrasant Tukadoji Maharaj Nagpur University.

About Science Congress:

- It is organized by The Indian Science Congress Association under the Department of Science & Technology, Ministry of Science & Technology, Government of India.
- The theme for this year is “Science and Technology for Sustainable Development with Women Empowerment”.
- The important issues were sustainable development, women's empowerment, and the role of science & technology in achieving this.
- Focus areas will be to increase the number of women in higher echelons of teaching, research, and industry and equal access to STEM (Science, Technology, Engineering, Mathematics) education, research opportunities, and economic participation.
- Children Science Congress, Farmer's Science Congress, and Tribal Science Congress will also be held.

LINK IT WITH: Young Scientist's Award Programme, Best Poster presentation awards, and International Conference on Basic and Applied Sciences (ICBAS).

Security

Cessation of Operation Agreement

About: The Government of India and the Government of Manipur entered into a Cessation of Operation Agreement.

About the Cessation of Operation Agreement:

- It is signed between the Government of India and the Government of Manipur along with representatives of the Zeliangrong United Front.
- It aims for an 'Insurgency free and prosperous North East' and gives a boost to the peace process in Manipur by providing for rehabilitation and resettlement of the armed cadres.
- A Joint Monitoring Group will be constituted to oversee the enforcement of the agreed ground rules.

LINK IT WITH: AFSPA, The Naga Peace Accord, the Mizo Accord of 1986, Bodo Peace Accord, 2020

Pralay

About: Pralay — India's first tactical quasi-ballistic missile

- It is a short-range surface-to-surface (SRBM) ballistic missile.
- Pralay, along with the BrahMos supersonic cruise missile, will form the crux of India's planned Rocket Force.
- The Pralay missile project was sanctioned in 2015 and is a derivative of the Prahaar missile programme, which was first tested in 2011.
- Pralay was formed through elements from multiple missile programmes that include the K-series of submarine-launched ballistic missiles and the ballistic defence shield programme.
- It is a quasi-ballistic weapon, which means that while it has a low trajectory and is largely ballistic, it can maneuver in flight. It has been designed to evade interceptor missiles.
- Pralay is powered by a solid propellant rocket motor and is capable of carrying a conventional warhead of about 350 kg to 700 kg, which gives it a deadly punitive capability.
- It can carry a high explosive preformed fragmentation warhead, penetration-cum-blast (PCB) and runaway denial penetration submunition (RDPS).

LINK IT WITH: Integrated Guided Missile Development Programme, Nuclear Triad.

INS Mormugao

About: The second of the Project 15B stealth-guided missile destroyers built by Mazagon Dock Shipbuilders Limited (MDSL), INS Mormugao (Pennant D67), was commissioned into the Indian Navy.

- Destroyers are a category of warships that have high speed, manoeuvrability, and longer endurance. This makes them key assets in various types of naval operations, mainly offensive.

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- Project 15B is the project to develop four guided missile destroyers. the four ships of Project 15B were to be named after four major cities around the country — Visakhapatnam, Mormugao, Imphal, and Surat.
- It is a Visakhapatnam class destroyer (As a ship class is identified by its lead ship) and has multiple fire zones, battle damage control systems, and distributional power systems for improved survivability and reliability in extreme operational and conflict scenarios.
- It has a Total Atmospheric Control System (TACS) that offers protection to the crew from chemical, biological, and nuclear threats, as well as a state-of-the-art combat management system that can evaluate threats using analytical tools and create a tactical picture that includes available resources on board.
- Its firepower consists of vertically launched Barak-8 surface-to-air missiles and BrahMos surface-to-surface cruise missiles for long-range engagement of shore- and sea-based targets.
- It is also armed with indigenously developed 533 mm torpedo launchers and RBU-6000 anti-submarine rocket launchers. It can operate two multi-role helicopters — Sea King or HAL Dhruv. The ship also has rail-less helicopter traversing and a hangar facility.

Siyom bridge

About: A strategically important bridge over the Siyom river in Arunachal Pradesh was recently inaugurated.

- The Siyom bridge is a 100-meter 'Class-70' steel arch superstructure constructed on the Along-Yingkiong road in the state that shares an over 3,000 km long border with China.
- The bridge can withstand the movement of vehicles weighing 70 tonnes. This means that armoured columns along with artillery can easily move through the bridge.
- The bridge is strategically significant since it will enable faster movement of troops, heavy machinery, and weapons to forward areas of the Upper Siang district – Tuting and Yinkiong regions.

LINK IT WITH: Key BRO projects in the Border areas with China.

Village Defence Guards (VDG)

About: Creation of VDGs in Jammu & Kashmir after an increase in terror attacks on civilians in the valley.

- The Village Defence Committees were first formed in the erstwhile Doda district (now Kishtwar, Doda, and Ramban districts) in the mid-1990s as a force multiplier against militant attacks.
- It was decided to provide residents of remote hilly villages with weapons and give them arms training to defend themselves.
- The VDCs have now been renamed Village Defence Guards (VDG). Each VDG will be provided a gun and 100 rounds of ammunition.
- They will function under the direction of the SP/SSP of the district concerned.
- The genesis of arming civilians came from the 1965 and 1971 Indo-Pak wars when the government armed ex-servicemen and abled-bodied youth in the villages along the border to guard against the infiltration of Pakistani spies.

Art & Culture

Mandala Art

About: A spectacular 'Mandala' art installation, bigger than the size of a football field, covering a public park in Liverpool in the United Kingdom.

- Mandala patterns are motifs that are centuries old and are used to depict the cosmos.
- Mandala means the "circle" or the "center" in Sanskrit.
- It is defined by a geometric configuration that usually incorporates a circular shape in some form. It may also contain square shapes, however, interconnection is a must.
- Mandala is rooted in Hinduism and Buddhism. Mandala imagery first appeared in the Vedas (c. 1500-500 BC), and Buddhist missionaries traveling along the Silk Road are believed to have taken it to regions outside India.

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- It is believed that by entering the mandala and moving towards its center, one experiences a cosmic process of transforming the universe and of moving from emotions of suffering to the feeling of joy.
- In Hindu philosophical systems, a mandala or yantra is usually in the shape of a square with a circle at its center. A traditional Buddhist mandala is a circular painting that is meant to help its creator discover their true self.
- It also appears in Buddhist Thangka paintings and the work of mainstream artists associated with tantric and neo-tantric spiritual movements.

Dhanu Yatra

About: Dhanu Yatra begins in Odisha.

About Dhanu Yatra:

- It is an open-air festival enacted in 14 different places in Odisha.
- It marks the victory of good over evil, came into existence in Bargarh in 1947-48 as part of the celebration of the country's Independence, and is held annually.
- It depicts the story of Krishna and Kansa.
- The Jeera river (a tributary of the Mahanadi river) which flows between the Bargarh and Gopapura is pretended as the Yamuna river and the places are taken as Mathura and Amrapali to enact Krishna's childhood.
- It mocks the politicians and government officers as the rule of King Kansa holds sway.

LINK IT WITH: Umang and Udaan festival, Nadi Utsav, Kashi Utsav, Jan Jati Gaurav Diwas

UNESCO World Heritage sites

About: Two sites in Gujarat have made it to the tentative list of UNESCO World Heritage sites: Vadnagar and the Sun Temple of Modhera, both in the Mehsana district of northern Gujarat.

- A World Heritage Site is a location with an "outstanding universal value". This signifies "cultural and/or natural significance which is so exceptional as to transcend national boundaries and be of common importance for present and future generations of all humanity".
- According to the World Heritage Convention's operational guidelines, a tentative list is an "inventory" of properties a country believes deserve to be a World Heritage Site.
- After UNESCO includes a place in the Tentative List, that country has to prepare a nomination document that will be considered by the UNESCO World Heritage Committee. This will be followed by a UNESCO evaluation and an inspection by their representative.
- Vadnagar is also known as Vridhanagar, Anandapur, Anantapur, and Nagar. It was inhabited uninterruptedly for over 2,700 years. Archaeological Excavations show the city as a center of Buddhism.
- Chinese traveler Xuanzang or Hieun Tsang is said to have visited Vadnagar around 641 AD, referring to it as 'Anandpur' in his writings, which also record how more than 1,000 monks of the Sammitiya School or Little Vehicle lived in 10 monasteries at Vadnagar.
- Vadnagar has a "Roman connection" which was visible from an intaglio (a printing technique) in clay, in a coin mold of Greco-Indian king Apollodotus II (80-65 BC), and the sealing of a Roman coin.

Ashtadhyayi

About: Cambridge scholar claims to have solved Sanskrit's grammar biggest puzzle found in the 'Ashtadhyayi'.

About Panini:

- He was called the 'father of linguistics'.
- He lived in the 4th century BC, during Maurian Empire and he has also been dated to the age of The Buddha and Mahavira.
- He belonged to Salatura (Gandhara) and was associated with Taksasila.
- The Indologist A L Basham in his textbook 'The Wonder That Was India' mentions that Sanskrit virtually reached its classical form in Ashtadhyayi.

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About Ashtadhyayi

- It was written by Panini, called the 'father of linguistics'.
- It is a linguistic text that has set the standard for how Sanskrit was meant to be written and spoken.
- It delves deep into the language's phonetics, syntax and grammar, and also offers a 'language machine'.
- The puzzle feeds in the root and suffix of any Sanskrit word and gets grammatically correct words and sentences in return.
- Panini wrote a set of 4000 rules to ensure that the machine was accurate. He also provided a 'meta-rule'(a rule governing rules) to solve the confusion.



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PERSON IN NEWS

<p>Atal Bihari Vajpayee</p> 	<p>The birth anniversary of the Former Prime Minister of India Atal Bihari Vajpayee is celebrated as “Good Governance Day”. Shri Vajpayee was a veteran Parliamentarian whose career stretches over four decades, he was elected to the Lok Sabha (House of the People) nine times and to the Rajya Sabha (House of the States) twice, a record by itself. He believes in a forward-looking, forward-moving India, a strong and prosperous nation confident of its rightful place in the comity of nations. Under his leadership, India made significant strides in several arenas, such as, Pokhran Nuclear Test, Pradhan Mantri Gram Sadak Yojana, Sarva Siksha Abhiyan, New Telecom Policy, Strategic disinvestment, and Fiscal Responsibility and Budget Management Act. He was awarded Padma Vibhushan and Bharat Ratna. Over the decades, he has emerged as a leader who commands respect for his liberal worldview and commitment to democratic ideals.</p>
<p>Pandit Madan Mohan Malviya</p> 	<p>Bharat Ratan Pandit Malviya was also known as Mahamana or great soul, a title given by Mahatma Gandhi. He was also known as “Karamyogi” a status bestowed upon him by S.Radhakrishnan. He was an educationist and an eloquent rhetorician. During the freedom struggle, he represented a middle path between liberals and nationalists or moderates and extremists. During his presidency of the Indian National Congress in 1918, he popularised the slogan “Stayamev Jayate”. He also reasoned with the British to introduce Devnagari to the British Court. He played a crucial role in ending the Indian Indenture System. He formed Ganga Mahasabha in 1905, helped establish the Hindu Mahasabha in 1915, and established Banaras Hindu University in 1916. He started a Hindi weekly Abhyudaya (1907) which became a daily in 1915. He started Hindi Monthly Maryada (1910). He also started English daily Leader (1909). He was the editor of Hindi weekly, the Hindustan and Indian Union. He also served as a board of directors on the board of Hindustan times.</p>
<p>Swami Vivekanand</p> 	<p>Narendra Nath Dutt or Swami Vivekanand (adopted on the request of Maharaja Ajit Singh of the Khetri State) birth anniversary is marked as National Youth Day. He was called the “maker of modern India” by Netaji Subhash Chandra Bose. He was an ardent follower and chief disciple of Ramkrishna Paramhansa. He popularised Indian philosophies of Vedanta and Yoga. He was a firm believer in combining spirituality with material progress which he preached as neo-Vedanta. He was the ardent supporter of an education that builds the character of a man. His speech at the World Parliament of Religion in Chicago in 1893 is the most remembered. He defined four pathways of attaining moksha from worldly pleasure and attachment in his works - Raja-yoga, Karma-yoga, Jnana-yoga, and Bhakti-yoga. In 1897 he established, the Ramakrishna Mission which works in the area of value-based education, culture, health, women's empowerment, youth, and tribal welfare and relief and rehabilitation. In 1899, he established Belur Math.</p>
<p>Savitri Bai Phule</p> 	<p>Savitribai Phule India's first female teacher and was a pioneer who challenged oppressive social norms in her quest for women's education, equality, and justice. She was supported by her husband Mahatma Jyotirao Phule in attaining education and later teacher training. Together they opened a school for girls in Bhidewada, Pune, in 1848. This became the country's first girls' school. Her penchant for girl education brought her into conflict with the prevailing social norms of that time, she faced great animosity from the upper castes, including instances of physical violence. In the 1850s Phule couple initiated two educational trusts viz. the Native Female School, Pune, and The Society for Promoting the Education of Mahars, Mangs, and Etceteras. The couple also started the Balhatya Pratibandhak Griha (‘Home for the Prevention of Infanticide’) for pregnant widows facing discrimination. She also founded Mahila Seva Mandal (1852) to raise awareness about women's rights. They founded Satyashodhak Samaj with the sole aim of bringing social equity. They also started ‘Satyashodhak Marriage’ – a rejection of Brahmanical rituals where the marrying couple takes a pledge to promote education and equality. In 1890, Jyotirao passed away. Defying all social norms, she lit his funeral pyre. Savitribai became involved in relief work during the 1896 famine in Maharashtra and the 1897 Bubonic plague. She contracted the disease while taking a sick child to the hospital. Her literary work includes Kavya Phule and Bavan Kashi Subodh Ratnakar. Go, Get Education is one of the famous poems she wrote.</p>
<p>Fatima Sheikh</p> 	<p>Fatima Sheikh was the first Muslim women teacher. She was a pioneering teacher, anti-caste activist, a proponent of girls' education, and a social reformer in 19th-century Maharashtra. Fatima Sheikh befriended Savitribai when the two were enrolled in a teachers' training program by American missionary Cynthia Farrar. In 1848, Savitribai, Fatima, and Jyotirao opened the first school for girls inside the premises of Fatima's home in Pune.</p>

Joshimath (Chaamoli District-Uttarakhand): The Town is witnessing land subsidence, the problem first started in 2021 and has now emerged as an unmitigable disaster. place of strategic importance. It leads to villages along the India-China border and is also en route to Barahoti, a disputed territory along the border. The town is also a gateway to noted sites of pilgrimage – Badrinath for Hindus and Hemkund Sahib for Sikhs; the international skiing site of Auli; and the Valley of Flowers, a UNESCO World Heritage site

Birbhum (West Bengal): Nature enthusiasts have voiced concern as the number of migratory birds flocking to the Ballavpur Wildlife Sanctuary in West Bengal's Birbhum district has declined sharply in 2023. Experts have pointed out that a drop in the water level of Deer Park Lake, which is the feeding area for the birds, could be a major factor.

Guwahati (Assam): Deepor Beel, the only Ramsar site of Assam, recorded over 26,000 birds of 97 different species during a recent bird count against 10,289 birds of 66 species recorded in 2021. The bird count in Deepor Beel was a significant initiative undertaken by the Guwahati Wildlife Division.

Varanasi (Uttar Pradesh): The PM of India, flagged off the first cruise vessel to be made in India known as MV Ganga Villas. Its journey will start from Kashi in Uttar Pradesh and ends at Dibrugarh in Assam, via Bangladesh, covering a distance of 3,200 km, in 51 days. will cruise through various prominent destinations along the Ganges, including world heritage sites. national parks. river

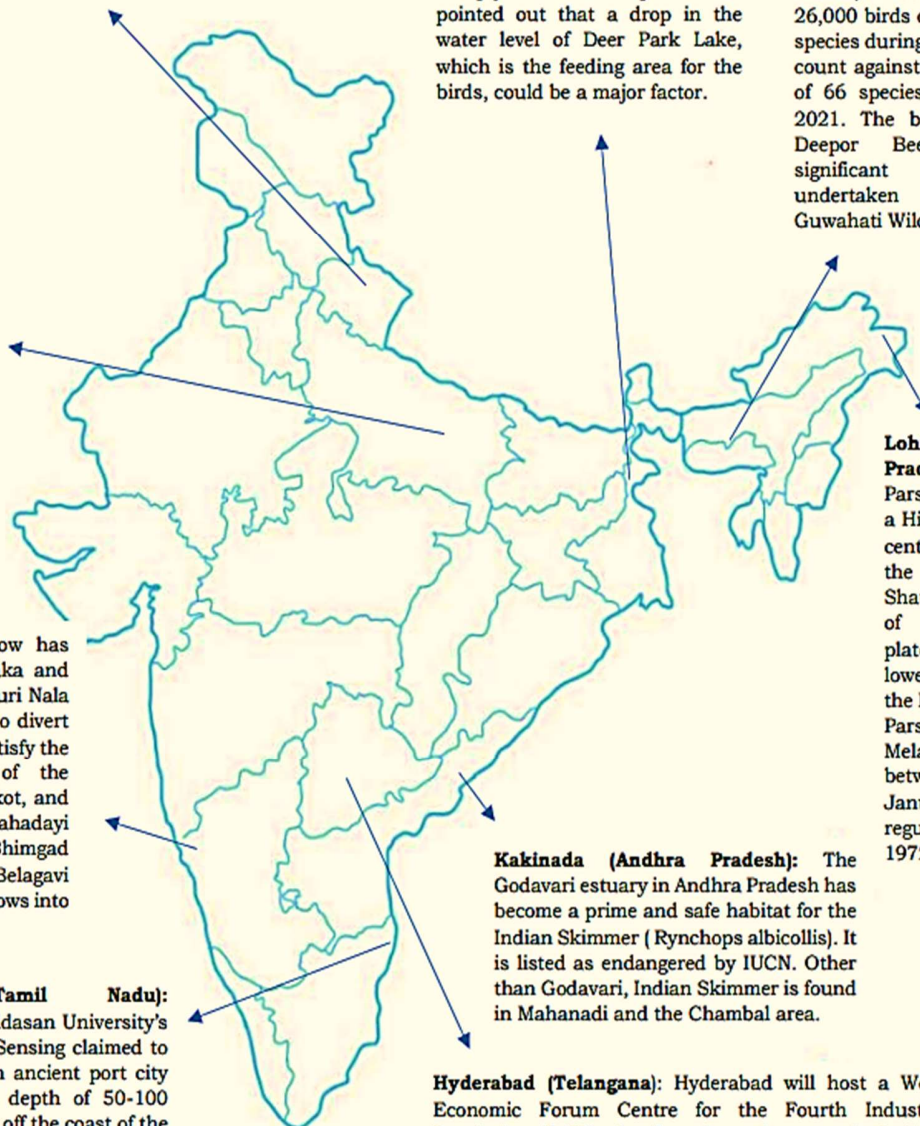
Karnataka: A political row has emerged between Karnataka and Goa over the Kalasa-Banduri Nala project. The project aims to divert water from Mahadayi to satisfy the drinking water needs of the Belagavi, Dharwad, Bagalkot, and Gadag districts. Mahadayi originates inside the Bhimgad Wildlife Sanctuary in the Belagavi district of Karnataka and flows into the Arabian Sea in Goa.

Mayiladuthurai (Tamil Nadu): Researchers of Bharathidasan University's Department of Remote Sensing claimed to have found traces of an ancient port city buried undersea, at a depth of 50-100 meters, about 30-40 km off the coast of the Mayiladuthurai district. The city of Poompuhar, also known as Kaveripoompattinam, was submerged by the sea, and there are references to this in the Tamil epic Manimekalai.

Kakinada (Andhra Pradesh): The Godavari estuary in Andhra Pradesh has become a prime and safe habitat for the Indian Skimmer (Rynchops albicollis). It is listed as endangered by IUCN. Other than Godavari, Indian Skimmer is found in Mahanadi and the Chambal area.

Hyderabad (Telangana): Hyderabad will host a World Economic Forum Centre for the Fourth Industrial Revolution (C4IR), the first thematic center in India to focus on life sciences and healthcare. It will be the 18th center to join the WEF Fourth Industrial Revolution Network, which spans four continents.

Lohit (Arunachal Pradesh): Parshuram kund is a Hindu pilgrimage center situated at the Telu Shati/Tailung area of the Mishmi plateau in the lower reaches of the Lohit River. The Parshuram kund Mela is organized between 14-15th January as a regular event since 1972.



CASPIAN SEA

- It is a **landlocked water body** located on the border of two large parts of the continent of Eurasia. It is the **world's largest landlocked reservoir (by surface area)**.
- The **water area** of the Caspian Sea is **commensurate with the area of the Baltic Sea and exceeds the area of the Adriatic Sea**.
- It is bordered (littoral states) by **Russia (northwest), Azerbaijan (west), Iran (south), Turkmenistan (southeast), and Kazakhstan (northeast)**.
- It lies at the junction **of Europe and Asia**, with **the Caucasus Mountains to the west and the steppes of Central Asia to the east**.
- It is conventionally divided into three parts: **the Northern Sea (25 percent of the area), the Middle (36 percent of the area), and the Southern Caspian (39 percent of the area)**.



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- It is rich in biological resources and serves as the **world's largest spawning ground of sturgeon**. There are also **more than 100 species of bird wetland habitats** that **serve as nesting and migration grounds**.
- It is also home to **the only marine mammal that lives in the Sea - the endemic Caspian Seal**.
- Oil production, as well as fishing and shipping, **are the most common economic activities in the water area of the Caspian Sea**.
- Industry and agriculture **are well-developed in the Caspian Sea basin**. The **western coast of the Caspian Sea is more developed than the eastern one**.
- The Caspian littoral states in 2003, signed **the Framework Convention for the Protection of the Marine Environment of the Caspian Sea**. Known as **Tehran Convention**.
- Tehran Convention is a framework treaty based on several underlying principles including the **precautionary principle, the polluter pays principle, and the principle of access to and exchange of information**.
- The two major areas of concern are (i) **prevention, reduction, and control of pollution**, and (ii) **protection, preservation, and restoration of the marine environment**.

PLACES IN NEWS-WORLD



Sweden- Sweden announced that it has discovered more than one million tonnes of rare earth oxides in the northern area of the country. This is the largest known deposit in Europe. Currently, no rare earth mineral is mined in Europe and it mostly imports them from other regions. Presently, 98 percent of rare earth minerals used by the European Union were sent by China.



Chris Hipkins will replace Jacinda Ardern as prime minister of New Zealand. Earlier, He served as Covid-19 response minister.



Soledar: A UN humanitarian convoy has reached an area close to the town of Soledar in east Ukraine, where some of the fiercest fighting in the country has taken place in recent times. Recent fighting in and around Soledar has caused widespread destruction, leaving people there in dire need of humanitarian assistance



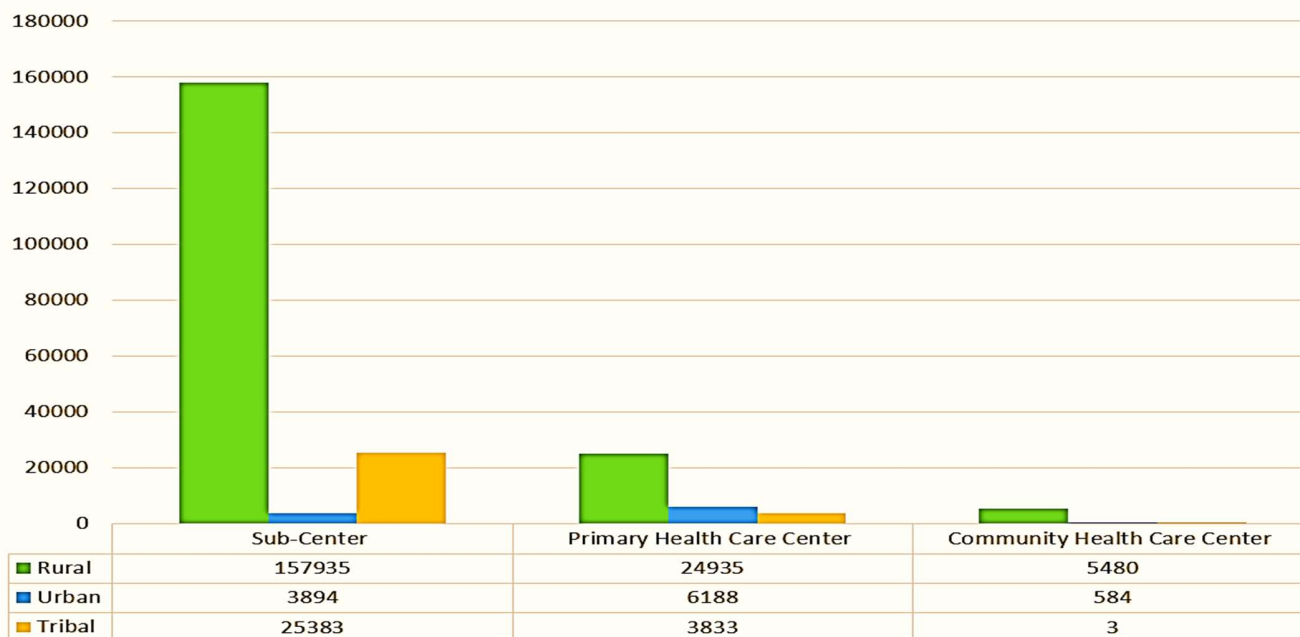
The Great Green Wall Initiative- It is the initiative to increase the amount of the arable land in the Sahel region of Africa. The region borders Africa's Sahara Desert. There are 11 nations who are investing the project which includes initiatives ranging from agroforestry to sustainable development. These include-Djibouti, Eritrea, Ethiopia, Sudan, Chad, Niger, Nigeria, Mali, Burkina Faso, Mauritania, and Senegal. The initiative is supported by Global Environment Facility, World Bank and United Nations Framework to combat climate change & desertification. UNEP has declared it to be one of the pioneering initiatives that are restoring the natural world.



China is building a new dam in Tibet on a tributary of the Ganga, close to the tri-junction of its borders with India and Nepal, that could be used to control the flow of water downstream. The development comes in the wake of China unveiling plans to build a "super" dam close to the Line of Actual Control (LAC) in Tibet on the lower reaches of the Yarlung Zangbo river, which flows into Arunachal Pradesh as the Siang and then to Assam as the Brahmaputra.

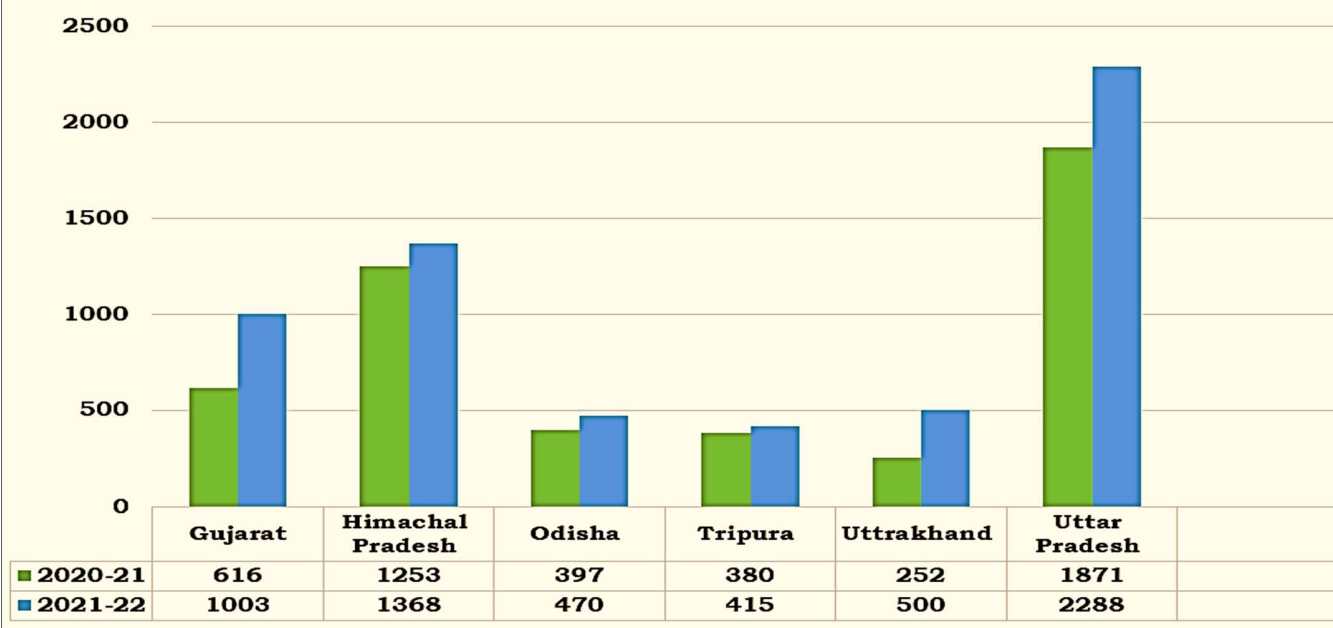
Rural Health Statistics 2021-22

Health Centres in India



Shortfall of auxiliary nurse midwives at health sub centers and primary health center's across India

In the following states, the shortfall has increased from 2020-21 to 2021-22

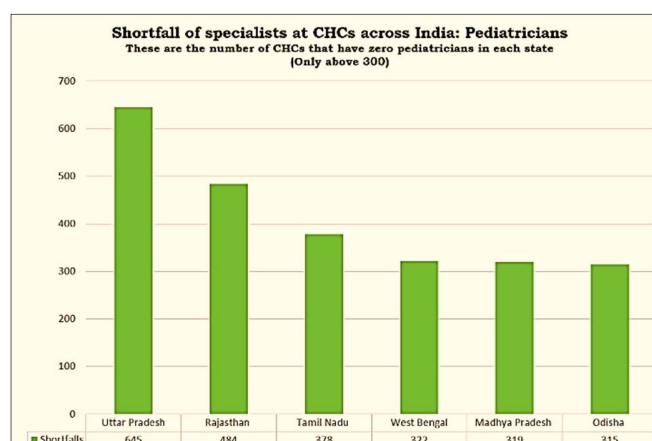
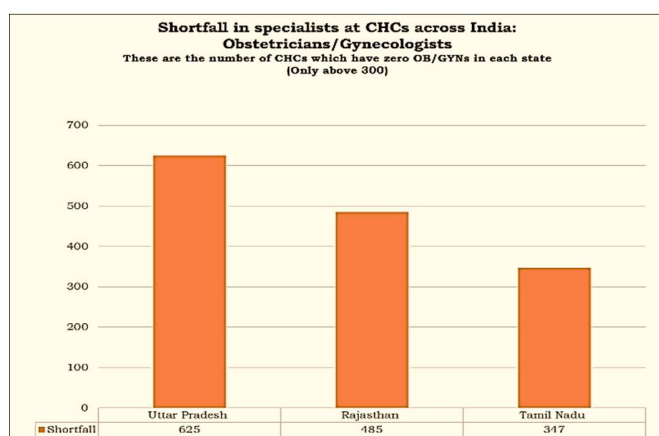
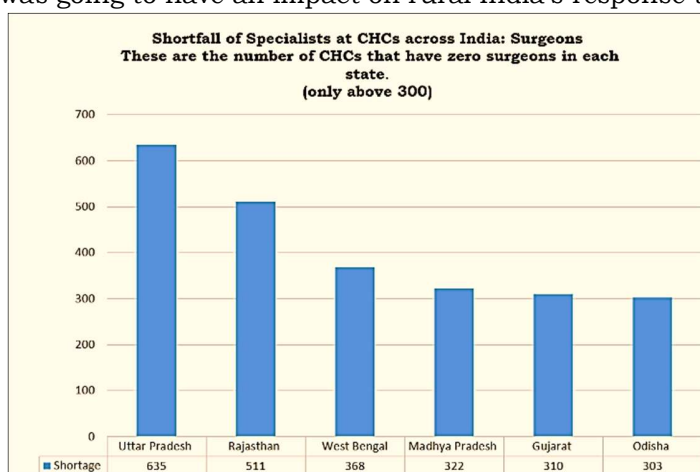
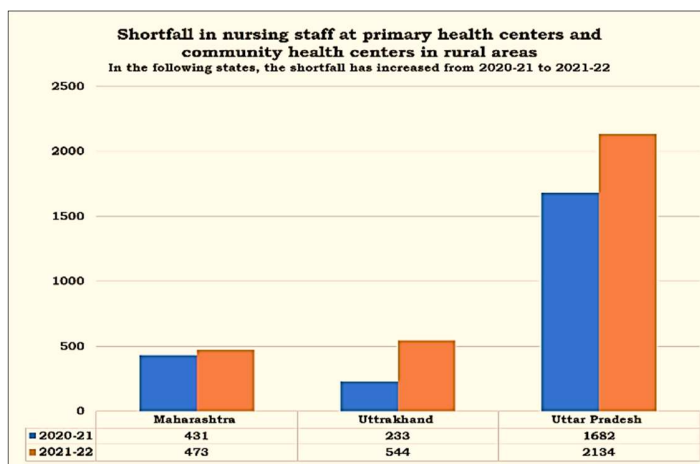


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- The Government of India released Rural Health Statistics 2021-22.
- Data suggests that there has been an over 50% rise in the number of allopathy doctors in primary health centers since the launch of the National Rural Health Mission in 2005 but the critical shortage of specialist doctors at the community health centers persists.
- It reports a shortfall of nearly 80% of the required specialists at Community Health Centres (CHCs)
- It shows that health sub-centers (SCs), primary health centers (PHCs), and CHCs functioned with a staff strength that was less than in the preceding year, 2020-21.
- The number of doctors working at PHCs decreased to 30,640 in 2021-22 as against 31,716 in the previous year. This is important because the shortfall in rural health resources was going to have an impact on rural India's response to the everchanging Covid virus.
- CHCs, across many states, continue to report a shortage of all these specialists. At least two of these four specialty service providers – obstetricians/gynecologists and pediatricians – have a direct impact on infant mortality and maternal mortality rates. Absence of these two and the remaining leads to a situation where an attendant is forced to rush with a patient to a far-off district hospital or a medical college. Not only does this mean stress on patients' resources but also loss of crucial time when emergency care might be needed.
- There are some worrisome grounds realities that the statistics missed, for instance, it does not take into account absenteeism among the health workers that was officially reported in the Economic Survey 2018-19.



THEMATIC ESSAYS

- Don't limit a child to your own learning, for he was born in another time
- Access to technology has become a "new source of social fracture"
- Expansion is Life, Contraction is Death



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CONCEPT CLEARING ASSIGNMENT

1. Give a brief account of the organ donation process and its type. Why is deceased organ donation more required than living organ donation?
2. Discuss the reasons for road accidents in India and various steps that can be taken to address the issue of increasing road accidents in India.
3. What are the consequences of illegal hoonch? Critically analyze the success of alcohol ban in India.
4. How is nuclear fission different from nuclear fusion? What are the benefits and challenges associated with fusion energy?
5. Success in creating AI and metaverse can be the biggest event in human history but it might be the last, unless we learn how to avoid the risks. Discuss.
6. What is the role and significance of iknife? What are the government initiatives to deal with cancer in India?
7. Critically analyse the challenges associated with the lone wolf attacks in India. Why they have not been very successful in India?
8. How have recent interstate border agreement and lineancy in Armed forces Special Power Act (AFSPA) impacted north east states disruption?
9. Water is life but it can be life threatening if the consumed water is contaminated. Discuss the phenomenon in Indian context with solutions and challenges.
10. What was the need to introduce the Energy Conservation (Amendment) Act, 2022 and what advancements it can bring in energy sectors?
11. Why is Purse Seine Fishing does not get along with SDG Goal 14? Discuss in Indian context.
12. Critically analyze the present scenario of Indian economy and what are the scope and obstacles associated with its growth?
13. Discuss the different business models of circular economy. Why is right to repair important for circular economy?
14. What are the different types of trade agreements? Why Free Trade Agreements (FTA) are beneficial and what is India's new approach towards FTA?
15. Discuss its impact of prolonged Russia-Ukraine conflict on world and India. What role India can play as peacemaker between the two warring nations?

1. Consider the following pairs:
Type of Whip - Function
 1. One-line whip - Directs the member to be present in the House at the time of Voting.
 2. Two-Line whip - Informs the members about a vote and allows them to abstain.
 3. Three-line whip - Issued to members directing them to vote as per the party line.

Which of the above given pair/s is/are incorrect?

(a) One Pair only (b) Two Pairs only
(c) All the Three Pairs (d) None of the above
2. Consider the following statement regarding Appropriation bill:
 1. It empowers the government to withdraw funds from the Consolidated Fund of India.
 2. It can be introduced in both Lok Sabha and Rajya Sabha.
 3. The Act gets repealed by itself after it meets its statutory purpose.

Which of the above given statement is/are correct?

(a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3
3. With reference to Manosphere, the term black pill refers to:
 - (a) It is a new zone of a biosphere reserve which is exclusively reserved for tourism purpose.
 - (b) Defeatist and fatalistic worldview that if you're physically unattractive, you're unworthy of love.
 - (c) It is a new man-made layer created in the atmosphere for the purpose of artificial rain.
 - (d) The belief that the world is female-centric and that women are uniquely privileged.
4. Which of the given information is considered as doxing as per Twitter's New anti-doxing Policy?
 1. Live location
 2. Home address
 3. Media of private individuals
 4. Contact Information

Select the correct answer using the codes below:

(a) 1 and 2 only (b) 2 and 3 only
(c) 3 and 4 only (d) 1, 2, 3 and 4
5. Which of the following crops are included in the Minimum Support Price for rabi crop category?
 1. Sesamum
 2. Nigerseed
 3. Rapeseed
 4. Copra
 5. Tobacco

Select the correct answer using the codes below:

(a) 1 and 2 only (b) 2 and 3 only
(c) 3 only (d) 3, 4 and 5 only
6. Which of the following are the characteristics of Glass Frog?
 1. They can pause their respiration process.
 2. Their bones and organs are visible.
 3. They are characterized by presence of White blood cells only.

Select the correct answer using the codes below:

(a) 1 only (b) 1 and 2 only
(c) 3 only (d) 1 and 3 only
7. Consider the following statements regarding Microplastics:
 1. These are small pieces of plastic less than 1mm.
 2. These are biodegradable.
 3. These dissociate from plastics by sun's radiation and ocean waves.

Which of the above given statement is/are correct?

(a) 1 only (b) 3 only
(c) 1 and 3 only (d) 1, 2 and 3
8. With reference to Buccal Fat, consider the following statements:
 1. It is responsible for the movement of jawbones.
 2. It is present between cheekbones and jawbones in a person's face.

Which of the above given statement is/are correct?

(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
9. Consider the following statements regarding Black Carbon:
 1. It is only produced by human activities.
 2. It is a major contributor to global climate change after carbon.
 3. Its black color is due to the absorbing of sunlight.

Which of the above given statement is/are correct?

(a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3
10. Consider the following statements regarding Naegleria fowleri:
 1. It is a virus.
 2. Their infection is fatal.
 3. These are usually found in air contaminated with methane emissions.

Which of the above given statement is/are correct?

(a) 1 only (b) 2 only
(c) 1 and 3 only (d) 1, 2 and 3
11. With reference to sand battery, consider the following statements:
 1. These can be charged by only the solar energy.
 2. It uses sand or sand like material as an energy storage medium.
 3. The first commercial sand battery in the world is in a town of Sweden.

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- Which of the above given statement is/are correct?
 (a) 1 only (b) 2 only
 (c) 1 and 3 only (d) 1, 2 and 3
12. H5N1, H5N3, H5N8 are the sub types of which of the following diseases?
 (a) Swine flu
 (b) Crimean Congo Haemorrhagic fever
 (c) Avian Influenza
 (d) Rabies
13. With reference to SAFER initiative, consider the following statements:
 1. It is the initiative of World Health Organisation (WHO).
 2. It is basically concerned with road safety.
 3. It emerged from the best practices adopted by Russia on the theme of this initiative.
 Which of the above given statement is/are correct?
 (a) 1 only (b) 1 and 3 only
 (c) 2 and 3 only (d) 1, 2 and 3
14. Consider the following statements regarding Aspirational District Programme (ADP):
 1. It was launched to improve India's rank in Human Development Index.
 2. 27 districts under ADP have scored above national average on Social Progress Index.
 3. Districts of Mizoram and Manipur are in the bottom 20 districts.
 Which of the above given statement is/are incorrect?
 (a) 1 only (b) 3 only
 (c) 2 and 3 only (d) 1, 2 and 3
15. Consider the following statements regarding National Food Security Act:
 1. Identification of beneficiaries is done by NITI Aayog.
 2. Its provisions govern Public Distribution System.
 3. The ration cards are issued in the name of eldest woman of the family.
 Which of the above given statement is/are correct?
 (a) 1 only (b) 3 only
 (c) 2 and 3 only (d) 1, 2 and 3
16. Which of the given theories predicted the presence of wormholes?
 (a) The Steady State Theory
 (b) Theory of general relativity
 (c) The Big Bang theory
 (d) The Pulsating Theory
17. Consider the following statements regarding genome:
 1. It is a part of a DNA molecule.
 2. It consists of 23 pairs of chromosomes located specifically in the cell's nucleus.
 3. It encodes proteins and regulatory elements.
- Which of the above given statement is/are correct?
 (a) 1 only (b) 3 only
 (c) 2 and 3 only (d) 1, 2 and 3
18. Consider the following statements regarding Nuclear Fission:
 1. It is the splitting of nucleus into smaller particles.
 2. It is common in stars like sun.
 Which of the above given statement is/are incorrect?
 (a) 1 only (b) 2 only
 (c) Both 1 and 2 (d) Neither 1 nor 2
19. With reference to iDex, consider the following statements:
 1. It will provide grants to carry out war related preparation.
 2. It includes MSMEs to improve innovation and technology development in Defense.
 3. It will be funded and managed by DRDO.
 Which of the above given statement is/are correct?
 (a) 1 only (b) 2 only
 (c) 1 and 3 only (d) 2 and 3 only
20. Which of the given Committees is associated with the formation of Integrated Theatre Commands (ITC) in India?
 (a) Naresh Chandra Committee
 (b) Joshi Committee
 (c) DB Shekatkar committee
 (d) Raksha Mantri's Committee
21. Which of the following activities constitute real sector in the economy?
 1. Farmers harvesting their crops
 2. Textile mills converting raw cotton into fabrics
 3. A commercial bank lending money to a trading company
 4. A corporate body issuing Rupee Denominated Bonds overseas
 Select the correct answer using the code given below:
 (a) 1 and 2 only (b) 2, 3 and 4 only
 (c) 1, 3 and 4 only (d) 1, 2, 3 and 4
22. Which of the following is/are exclusive power(s) of Lok Sabha?
 1. To ratify the declaration of Emergency
 2. To pass a motion of no-confidence against the Council of Ministers
 3. To impeach the President of India
 Select the correct answer using the code given below:
 (a) 1 and 2 only (b) 2 only
 (c) 1 and 3 only (d) 3 only
23. Gandikota canyon of South India was created by which one of the following rivers?

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- (a) Manjira
(b) Pennar
(c) Cauvery
(d) Tungabhadra
24. Consider the following technologies:
1. Closed-circuit Television
2. Radio Frequency Identification
3. Wireless Local Area Network
Which of the above are considered communication Short-Range devices/technologies?
(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3
25. Which of the following are nitrogen-fixing plants?
1. Alfalfa 2. Amaranth
3. Chickpea 4. Clover
5. Purslane (Kulfa) 6. Spinach
Select the correct answer using the code given below:
(a) 1, 3 and 4 only
(b) 1, 3, 5 and 6 only
(c) 2, 4, 5 and 6 only
(d) 1, 2, 4, 5 and 6
26. Which of the given diseases have the potential for pandemic?
1. Ebola Lassa Fever
2. Polio
3. Swine Flu
4. Hepatitis B
5. Zika Virus
Select the correct answer using the codes below:
(a) 1, 4, and 5 only
(b) 2 and 4 only
(c) 1, 3, and 5 only
(d) 1, 2, 3 and 4
27. Consider the following statement regarding Carbon Credit trading Scheme:
1. A tradeable permit is required to produce a specified amount of carbon dioxide.
2. Only central government can issue carbon credit certificates.
3. Any person can purchase a carbon credit certificate on a voluntary basis.
Which of the above given statements is/are correct?
(a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2, and 3
28. Consider the following statements regarding Vermin:
1. These are nuisance animals that spread diseases or destroy crops.
2. These are placed in Schedule I and II of Wildlife Protection Act.
3. Wild swine is an example of Vermin.
Which of the above given statements is/are correct?
(a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2, and 3
29. Consider the following statement regarding Tax Haven:
1. It has potential for misuse in illegal tax avoidance schemes.
2. China is among tax haven countries.
Which of the above given statements is/are correct?
(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
30. Consider the following statements regarding yield curve:
1. It is a line that plots interest rates of bonds having equal credit quality and same maturity dates.
2. Flat yield curve occurs when yields for different tenures of bonds are mapped.
Which of the above given statements is/are correct?
(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

ANSWER KEY

1 B	11 B	21 A
2 C	12 C	22 B
3 D	13 B	23 C
4 D	14 B	24 D
5 C	15 C	25 A
6 B	16 B	26 C
7 B	17 B	27 C
8 B	18 B	28 A
9 B	19 B	29 A
10 B	20 C	30 D



FEEDBACK FORUM