

GS ANALYST

MONTHLY CURRENT AFFAIRS MAGAZINE

- ✓ Coverage of Monthly topics for GS Paper 1,2 , 3 & 4
- ✓ Key Concepts & Prelims Specific Topics
- ✓ Questions for Answer Writing Practice

PRELIMS

- ▣ West Seti power project
- ▣ Balika Panchayat
- ▣ LiFE Movement
- ▣ Fishing cat census
- ▣ Chelonoidis phantasticus
- ▣ Agni 4 Ballistic Missile
- ▣ Dark Sky Reserve
- ▣ White Dwarf
- and many more

MAINS

- ▣ SC wants dignity for sex workers
- ▣ Indian EV makers to follow BIS standards
- ▣ State Food Safety Index
- ▣ Agnipath Scheme
- ▣ Demolition drives and Rule of Law
- ▣ Greece's first climate law
- ▣ Rural economy needs a new deal
- and many more

KEY CONCEPTS

- ▣ Critical Information Infrastructure
- ▣ Super cyclone
- ▣ Cosmic Cannibalism
- ▣ Diversify crops
- ▣ Soft robotics
- ▣ Stagflation
- ▣ Miniprotein
- ▣ Tokenization
- ▣ Ever greening of patents
- ▣ Habitus
- and many more

CONTEMPORARY ISSUE BASED ESSAY



**DID WE OVERLOOK
RECYCLING FOR PROFIT?**

— **Disclaimer** —

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

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

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(JUNE, 2022)

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SECTION: A
(MAINS)

CURRENT AFFAIRS

SC WANTS DIGNITY FOR SEX WORKERS

CONTEXT

Exercising powers under Article 142 of the Constitution, the Supreme Court asked states and Union Territories to “implement” and “to act in strict compliance of” certain recommendations made by a panel appointed by the court in 2011 on the rehabilitation of sex workers.

◎ BACKGROUND

- Prostitution is known as the oldest profession in the world. But for a long time, it did not find dignity in Indian society.
- Now, however, the Supreme Court’s new order has brought some light to the dark world of more than eight lakh sex workers in India.
- The apex court not only recognised prostitution as a profession but also instructed the police to neither interfere nor take criminal action against adult, consenting sex workers.

◎ ANALYSIS

What does the court’s order say?

- The sex workers are entitled to **equal protection of the law**.
- Limiting the criminal proceedings against consensual adult sex workers.
- The sex workers should not be harassed, arrested, penalised or victimised by the police.
- Children of sex workers should avail with proper rights and proper care.

Legal provisions related to Sex workers

- The **Immoral Traffic (Prevention) Act, 1956**, deals with sex work in India.
- Although voluntary sex work isn’t illegal under the law, certain activities related to prostitution, such as owning a brothel and inducing into prostitution, are illegal.
- Therefore, the law penalises those who facilitate “prostitution”.
- Besides ITPA, the following contain provisions dealing with prostitution and trafficking in India:
 - The Constitution of India (1950)
 - Indian Penal Code (1860)
 - Juvenile Justice Act (2015)

What is Prostitution?

The **Immoral Traffic (Prevention) Act, 1956** defines

prostitution as “sexual exploitation or abuse of persons for commercial purposes or for consideration in money or in any other kind”.

Distribution of female sex workers in India

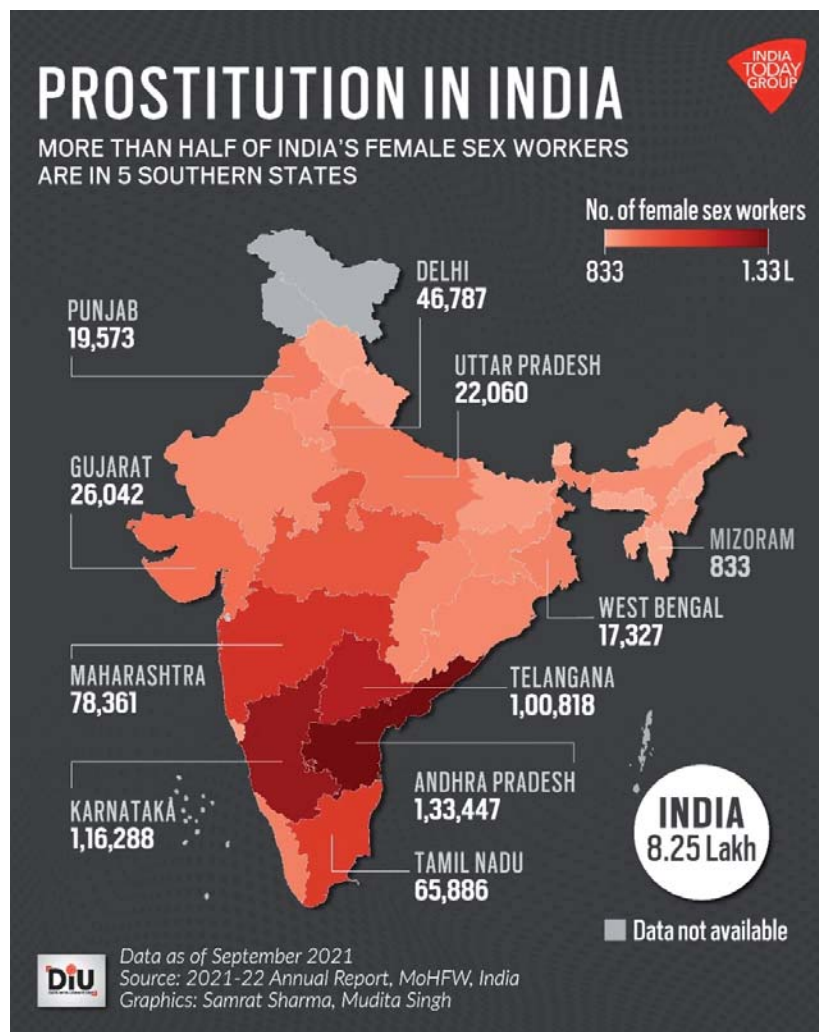
- More than half of the 8.25 lakh identified female sex workers (FSW) in India are from the five southern states — Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, and Telangana.
 - Andhra Pradesh has 1.33 lakh sex workers while Karnataka has 1.2 lakh.
 - There are 22,060 FSWs in Uttar Pradesh and 46,787 in New Delhi.
- Even in the absence of any legal recognition for sex workers, red-light areas are popular in almost all the major cities, including GB Road in New Delhi, Kamathipura in Mumbai, and Sonagachi in Kolkata.

Understanding the issues faced by sex workers

- Stigmatising:** They are easily stigmatised by society.
- Prone to Harassment:** ‘Born into Brothels’, they are subject to harassment by the brothel owners.
- Higher risk of getting infected by sexually transmitted diseases (STDs)
- Prone to exploitation by the law enforcement agencies
- Discrimination against their children

What are the pros & cons of decriminalising?

- Benefits**
 - Better living and earning:** Decriminalisation can help them to form organisations and cooperatives, providing better income sources.
 - Confidence to raise the voice:** Legal protective measures can provide a political base to raise their voice.
 - Reducing the stigmatisation from the society**
 - Legalise and manage the brothels.



- ▶ Issuance of guidelines regarding age and health care facilities etc.
 - ▶ Securing various basic rights of the sex workers; Right to health, right to education etc.
 - ▶ Eradication of uncovered and illegal sexual rackets.
 - ▶ Establishing effective rehabilitation process.
- **The other side of the coin**
 - ▶ **Indecency and immorality** in the society
 - ▶ **Increase in human trafficking:** Legalisation measure can boost up the incidents of human trafficking.
- ▶ On the other hand, legalizing prostitution can be **mistaken for spreading prostitution**.
 - ▶ This could pave the way for easy money for prostitutes and **encourage more women** to engage in prostitution.
 - ▶ This is likely to be a **revenue-generating** industry for the government.

Wrapping Up

- Though the debate around this profession is never-ending, it is important to start giving the needed respect to sex workers, so that, they can live their life with dignity.

PRACTICE QUESTION

- Q1:** Discrimination against sex workers in India is as much an issue as the discrimination faced by other marginalised groups along lines of class, caste, race or religion. In the light of this statement, highlight the major issues and concerns faced by these people in the society.
- Q2:** Legal measures are dominated by the social norms in delivery of justice. Elucidate the statement in the context of judgement on the condition of sex workers.

REMAINS OF THE BUDDHA TO MONGOLIA

CONTEXT

- ☐ for display for 11 days to coincide with the Mongolian Buddhist festivals of Purnima.
- ☐ The four relics come from among 22 Buddha relics, known as the Kapilavastu relics.
- ☐ In Mongolia, the Holy Relics are on display at the Batsagaan Temple within the Gandan Monastery building

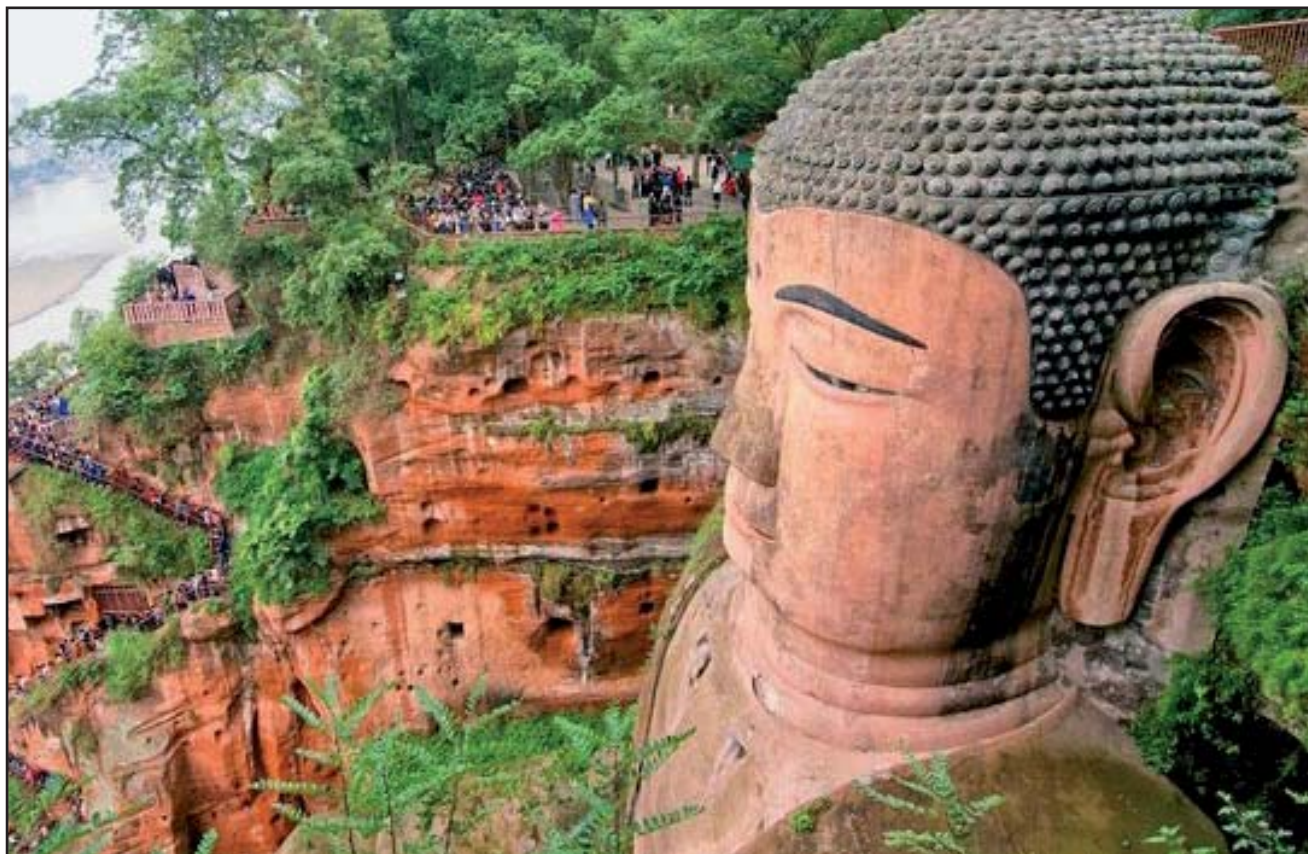
◎ BACKGROUND

- The Holy Buddha Relics is known as the '**Kapilavastu Relics**', first discovered in 1898.
- It was originated in the area of Bihar, which is believed to be the ancient city of **Kapilavastu**.
- Located at the stupa site in **Piprahwa** (near Siddharthnagar in Uttar Pradesh), an inscribed casket was found.
 - ▶ This helped in identifying the ancient city of Kapilavastu.
 - ▶ The inscribed casket contained relics of Buddha and Sakya, his community.
- The relics are currently housed at **Delhi's National Museum**.



India-Mongolia relationship

- Mongolia regards India as its "third" and a "spiritual neighbour". The year 2022 marks the 67th anniversary of diplomatic ties between India and Mongolia.
 - The spiritual connect between India and Mongolia continues to bind the people of our two nations.
 - Since then, bilateral cooperation with Mongolia has expanded and has seen significant growth.
- **Historical Relations:** India and Mongolia have interacted throughout history through Buddhism.
 - **Diplomatic Relations:** India, the first non-Soviet country to establish diplomatic relations with Mongolia in 1955, has upgraded its relations with Mongolia to a strategic partnership.
 - **International Cooperation:**
 - ▶ Mongolia has publicly reaffirmed India's support at **United Nations Security Council (UNSC)**.
 - ▶ India has played an important role in ensuring Mongolia's membership in major international forums, including the United Nations (UN), despite strong opposition from China and Taiwan.
 - ▶ India has also urged the inclusion of Mongolia in the Non-Aligned Movement.
 - **Other forums** to which both countries belong: Asia-Europe Meeting (ASEM), World Trade Organization (WTO) and Shanghai Cooperation Organisation (SCO)
 - **Economic Cooperation:** Bilateral trade between India and Mongolia was \$ 38.3 million in 2019, up from \$ 52.6 million in 2018.



- **Defense Cooperation:** Joint defense exercise codenamed "Nomadic Elephant". India is also actively participating in an annual week-long joint training exercise called Khan Quest hosted by Mongolia.
- **Environmental Cooperation:** Part of the Bishkek Declaration (Snow Leopard)

Buddhism in India:

Origin:

- Siddhartha Gautam, born in 563 BC, was part of the Sakya royal family that ruled from Kapilvastu, Lumbini. At the age of 29, Gautama left home and led a life of self-denial.
- After 49 days of meditation, Gautama received enlightenment under a pipal tree at Bodhgaya in Bihar.
- Buddha made his first sermon in the village of Sarnath, near the town of Benares in the UP. The event is known as the Dharma-Chakra-Pravartana (legal wheel revolution).
- He died at the age of 80 in Kushinagara, a city in the UP. The event is known as 'Mahaparinirvana'.

The rules of Buddhism:

- **Middle Path:** Avoid both extremes of worldly pleasure and the practice of extreme self-control.

The Buddha instead called the '**Madhyam Marg**' or the intermediate method to be followed.

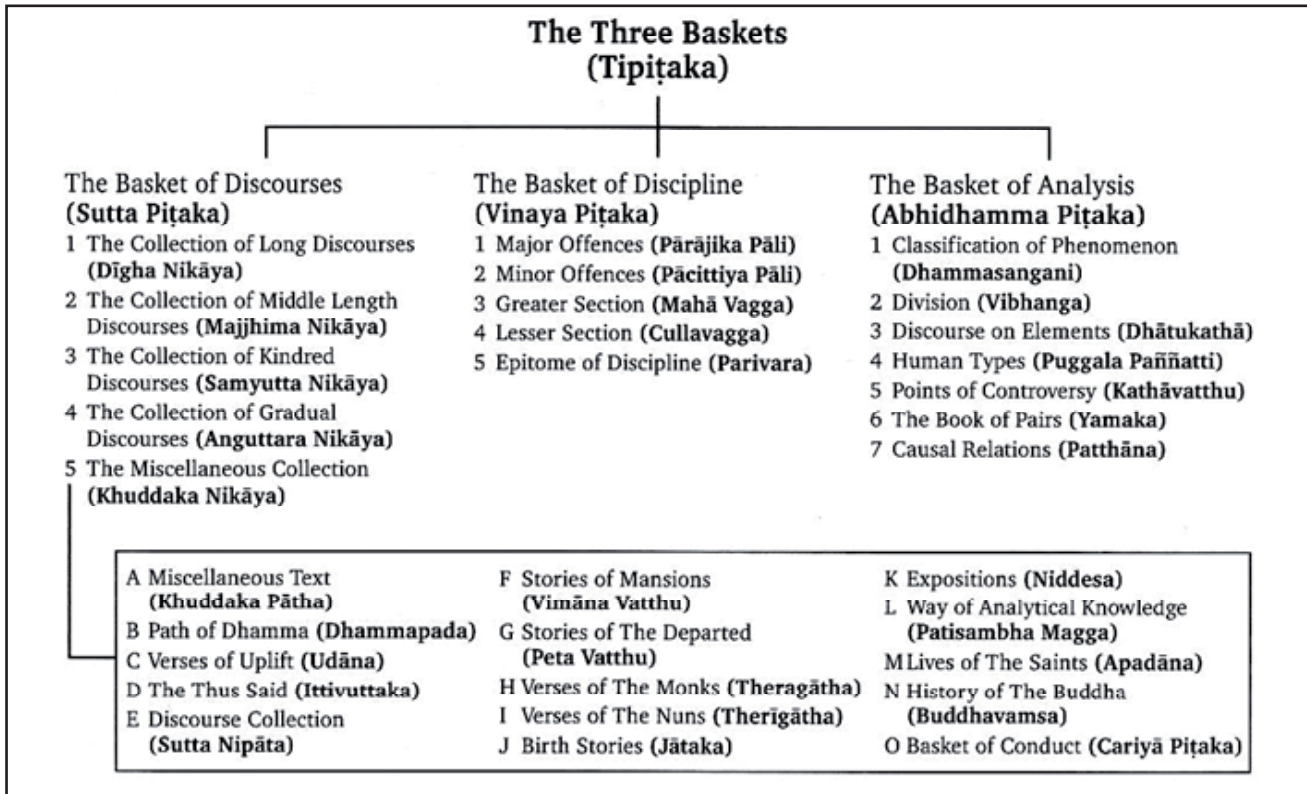
- **Four good truths:** Suffering (dukkha) is the backbone of the world, All suffering has a reason - Samudya, Suffering can end - Nirodha, Can be gained by following Atthanga Marga.
- **Eight-Way Ways:** Positive Views, Proper Objective, Proper Speech, Proper Action, Proper Health, Positive Thinking, Positive Effort, Positive Concentration
- **Five Principles or Panchaseel** - Violence, theft, sexual misconduct, lying or gossip, drunkenness

Major Buddhist texts:

- **Three pitakas:** Vinaya Pitaka (moral code), Sutta Pitaka (Dhamma Buddha) and Abhidamma Pitaka (philosophical analysis)

Buddhist councils:

Councils	Patronage	Venue	Chairman	Year
1 st Council	Ajatashatru	Rajgriha	Mahakashyapa	483 BC
2 nd Council	Kalashoka	Vaishali	Sabbakami	383 BC
3 rd Council	Ashoka	Patliputra	Mogaliputra	250 BC
4 th Council	Kanishka	kundalban	Vasumitra	72 AD



- **Buddhist Schools:**

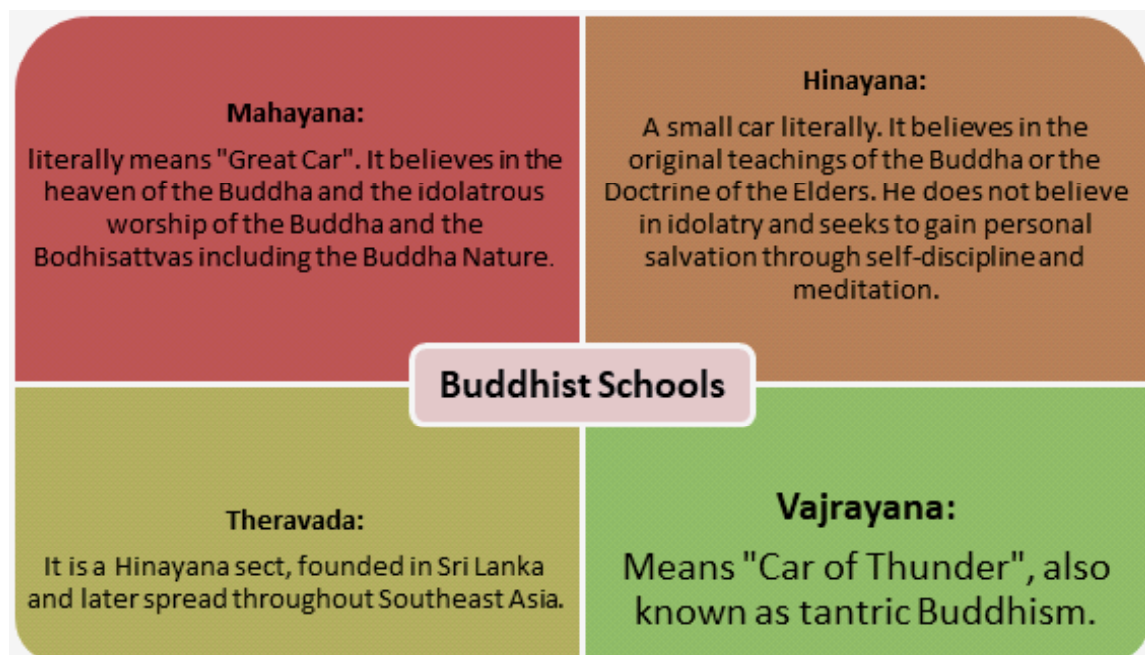
(SEE FIGURE BELOW)

How does Buddhism still operate in recent times?

- **Non-Violence:** Buddhism preached a non-violent approach, gaining significant significance in the aftermath of the Middle East crisis.

- **Middle path:** At the diplomatic front non-alignment policy is the unique example of middle path, which fosters the ideas to collaborate with every nation.

- **Mutual co-existence:** Buddhism had preached for mutual co-existence and tolerant policy for all religions, one should not disrespect others belief and faith to protect one's own religion, promoting fraternity among the citizens.



© CONCLUSION:

The recent cultural exchange and soft power diplomacy will provide a stronger base to strengthen

up the diplomatic relations between India and Mongolia. The urgency of Buddhist's ideology is increasing in the recent events of Middle-east crisis and societal clashes.

PRACTICE QUESTION

- Q1: Spread of Buddhism has helped to strengthened traditional ties between and various other nations. Discuss the role of Buddhist ideology in framing the India's foreign policy.**
- Q2: Gandhara sculpture was influenced by Romans as well as Greeks. Elucidate.**

INDIA'S UNADDRESSED CONCERNS FROM THE SCO-RATS SUMMIT

CONTEXT:

- India had hosted a critical meet of the Shanghai Cooperation Organisation's anti-terrorism body, Regional Anti-Terrorist Structure (RATS).

ANALYSIS:

What is SCO?

- The SCO is an economic and security grouping and has emerged as one of the largest trans-regional international organisations to ensure security and maintain stability across the vast Eurasian region.
- The member-states of SCO:
 - Russia, China, India, Pakistan, Kyrgyz Republic, Kazakhstan, Tajikistan and Uzbekistan

Afghanistan having an observer status

The main objectives of the SCO are to:

- Strengthen relations among member states
- Promote cooperation in political affairs, economics and trade, scientific-technical, cultural, and educational spheres as well as in energy, transportation, tourism, and environmental protection;
- Safeguard regional peace, security, and stability
- Create a democratic, equitable international political and economic order

What is RATS?

- SCO- Regional Anti-Terrorist Structure (RATS) is a permanent body of SCO.
- Responsible for promoting coordination and interaction between the SCO member states to fight against terrorism, extremism and separatism.

India and SCO:

- India got the status of permanent member status from SCO in the year 2017 (along with Pakistan).
- Inclusion of India along with Pakistan, enhanced the capability and capacity of the grouping to combat terrorism and extremism.
- India has chaired the recent RATS-SCO summit.

Major Highlights of the meeting:

Objectives:

- Strengthening** mutual trust, **friendship** and cooperation among young people **in** SCO member **countries**.
- Recognize** the importance of ensuring the development of youth cooperation as **a factor in** deepening friendly relations **between** SCO **member countries**.
- Based on international experience, we strive** to further improve the conditions for youth **cooperation**.

Areas of cooperation:

- Strengthen partnerships in the field of youth work with community-based youth organizations (organizations) that implement the country's youth policy,
- Support programs aimed at promoting international youth cooperation,
- Training of professional staff in the field of youth work,
- Exchange of scientific, reference and methodological material, work experience of government agencies, youth civil society organizations, other organizations and organizations involved in the implementation of state youth policy and support for youth programs,
- Conducting joint research and activities on various issues of youth policy and youth co-operation,
- In exchange for scientific publications, research works on current issues to prevent youth involvement in harmful structures,
- Encourage joint economic and social programs aimed at engaging young people in entrepreneurship and redesigned projects to increase employment opportunities and livelihoods,
- Support the activities of the SCO Youth Council: The SCO Youth Council was established in 2009

through a program of the Youth League of the SCO member states.

What are the major concerns of India?

- Ensuring desertification of terrorism from Afghan soil
- Protecting sovereignty and territorial integrity
- Ensuring peace and stability
- Condemning all forms of terrorism and terror financing
- Better defence cooperation among the member states to fight extremism and terrorism
- Terrorism, terror infrastructure, and now narcotics emanating from Afghanistan and Pakistan to fund these activities

PRACTICE QUESTION

- Q1: Sanghai Cooperation Organisation (SCO) has been formed with the objective to maintain peace and stability among the member state and in the Central Asian Region. Highlight the contemporary challenges arising due to the recent geo-political dynamics.**
- Q2: Terrorism is a threat to humanity irrespective of region, country and religion. In this context highlight the significance of SCO in securing peace and stability in the Central Asian Region.**

INDIAN EV MAKERS TO FOLLOW BIS STANDARDS:

CONTEXT

As fires and explosions in electric two-wheelers continue unabated, the government is all set to introduce EV battery standards (BIS standards) for EV two-wheelers that will be expanded to four-wheelers at a later stage.

- NITI Aayog, too, in a discussion paper, had asked for BIS standards as the first step towards a battery swapping policy.

◎ BACKGROUND

- Following multiple e-scooter fire incidents, the Centre for Fire, Explosive and Environment Safety (CFEES), the fire science and engineering arm of the Defence Research & Development Organisation (DRDO) investigated the incidents.
- The expert panel found defects in batteries, including the designs of the battery packs and modules, which led to the e-scooter fire incidents in the past few months.

◎ ANALYSIS

What are the major concerns of EV vehicle?

- Risk of inflammation
- Standardisation of design and module
- Interoperability
- Recycling process
- Waste management system
- **Environmental concern:**
 - ▶ Water contamination
 - ▶ Ground water contamination
 - ▶ Soil degradation
- Inadequate **policy** measures
- Technological and infrastructural constraints
- Disequilibrium in skilled labour market

Issued guidelines for the e-vehicle batteries:

- This standard incorporates the test procedure for basic characteristic of performance, reliability and electrical functionality for the battery packs and system for either high power or high energy application.
- This standard is formulated considering real life scenarios for an electric vehicle such as vehicle is in parking (battery is not used for extended period of time), battery system is being shipped (stored),

operating battery at low and high temperature etc., accordingly various tests are incorporated in this standard.

- Safety and performance are two critical aspects of electronic devices. Requirement of Battery system for use as a power source for propulsion of vehicles are significantly different from battery used for consumer electronics or stationary use.
- Electric vehicles are vehicles that operate on electric motor and rechargeable batteries. Over the past decade, Electric vehicles have grown in terms of visibility and availability in the market. For safety of consumer, reliability and safety, Energy storage systems become critical part of any EV. Most of the EVs use Lithium-ion batteries because of its high power to weight ratio.
- Further, keeping view on safety aspect of batteries for EV, Bureau of Indian Standard is in the process of publishing 2 more standard related to batteries for various passenger and goods carrying vehicles (L, M and N category)

How BIS standardisation will improve the situation?

- Technological standardisation, minimising the risk of inflammation
- Increases the scope of interoperability
- Better implementation of batter swap policy
- Quality standardisation

What needs to be done?

- Impetus on waste management system and recycling process, reducing the environmental cost
- Bridging the infrastructural and technological gap
- Skill development and knowledge enhancement through research and development initiatives

PRACTICE QUESTION

- Q1:** Shanghai Cooperation Organisation (SCO) has been formed with the objective to maintain peace and stability among the member state and in the Central Asian Region. Highlight the contemporary challenges arising due to the recent geo-political dynamics.
- Q2:** Terrorism is a threat to humanity irrespective of region, country and religion. In this context highlight the significance of SCO in securing peace and stability in the Central Asian Region.

FSSAI RELEASES STATE FOOD SAFETY INDEX

CONTEXT:

- The Food Safety and Standards Authority of India (FSSAI) has released the State Food Safety Index (SFSI) for the year 2021-22.

BACKGROUND:

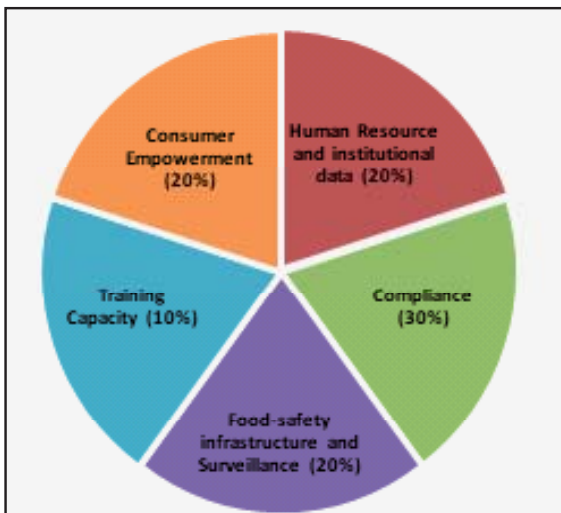
- Food Security is important for the healthy growth of the demography irrespective of the development and income status of a nation.
- Green Revolution, use of new variety seeds and use of fertilisers, has narrowed down the scope of food insecurity for India
- The climate change, land use pattern soil degradation and global warming possess a potential threat to the food security in various ways.
- Socio-economic factor and accessibility of sea food are correlated to each other.

ANALYSIS:

What is Food Safety Index?

- Food Security Index developed by Food Security and Standards Authority of India (FSSAI).
- The index aims to measure the performance of states and Union Territories on selected "parameters" of food safety.
- The major objective of the index is to encourage states and UTs to improve their performance and work towards establishing a proper food safety ecosystem.

What are the parameters measured in the food safety index?



How are the states assessed?

The states and UTs are classified into three categories and are assessed separately:

- Large state
- Small state
- Union Territories

TOP & BOTTOM IN EACH GROUP		
RANK	STATE/UT	SCORE
LARGE STATES		
1	Tamil Nadu	82
2	Gujarat	77.5
3	Maharashtra	70
15	Telangana	34.5
16	Bihar	30
17	Andhra	26
SMALL STATES		
1	Goa	56
2	Manipur	44
7	Mizoram	22.5
8	Arunachal	21
UNION TERRITORIES		
1	J&K	68.5
2	Delhi	66
7	Dadra & NH& Daman & Diu	27.5
8	Lakshadweep	16

Key Findings of the Index:

- Large state category:
 - Tamil Nadu: 1st rank with a score, 82 out of 100
 - Andhra Pradesh: 17th rank with a score of 26
- Small state:
 - Goa: 1st rank; 56 score

- ▶ Arunachal: 8th rank with 21 score
- UTs:
 - ▶ J&K: 1st rank; 68.5 score
 - ▶ Lakshadweep: 8th rank; 16 score

Significance of the Food Security and Safety:

- Access to sufficient amounts of safe food is key to sustaining life and promoting good health, reducing the events of non-communicable diseases.
- Food safety has a critical role in assuring that food stays safe at every stage of the food chain - from production to harvest, processing, storage, distribution, all the way to preparation and consumption.

What are the major challenges behind ensuring food safety and security?

- **Socio-economic diversity** posing a potential threat to accessibility of safe food
- **Land degradation and desertification:** negatively impacting the crop and farm yields, disturbing the food security.
- **Climate change:** Climate change and global warming has also impact the local seasonal climate which further contributes to crop failure.
- Unemployment and poverty

- Unplanned rural to urban migration
- Gender inequality and lack of education
- Lack of safe storage facility
- Lack of logistics support and connectivity
- Rapidly growing population and resource constraints

Initiatives taken by the government:

- Eat Right India Movement; aligned with National Health Policy
- Eat Right Research awards and grants
- Targeted Public Distribution System
- Ayushman Bharat
- Poshan Abhiyan 2.0
- Swachh Bharat Abhiyan
- Plastic Waste Neutral

Conclusion:

Food security and food safety remains the prime objective of any nation for the health growth of the demography. India with the high demographic dividend and diversified income level needs to focus on narrowing down the socio-economic gap and make food available to every citizen irrespective of their economic and geographical position.

PRACTICE QUESTION

Q1: Food Safety Index provides a comprehensive picturesque of the status of food security in India. In this context examine the several challenges regarding India's food security. Also highlight the measures taken by government to mitigate the issue.

Q2: Green Revolution was successful in ensuring food security for India, but remained unanswered regarding nutritional food and sustainable agricultural practices. Critically analyse.

WHY ARE INDIA'S ECONOMIC STAKES HIGH IN WEST ASIA?

CONTEXT

In the wake of recent allegedly derogatory remarks made against Prophet Mohammad, that triggered a diplomatic offensive from the Muslim world, it is important to analyse India's stakes in West Asia.

◎ THE GEOGRAPHIC BOUNDARY

- Western Asia is bounded in the
 - ▶ west by the Mediterranean Sea and the Red Sea
 - ▶ north by the Black Sea, the Caucasus, and the Caspian Sea
 - ▶ east by the fringing mountains of Iran
 - ▶ south by the Arabian Sea and the Indian Ocean

Assessing India's dependence on West Asian countries

- **Oil dependency and energy security:** Domestic crude oil production meets less than a fifth of the country's oil requirement, forcing India to rely on imports to fill the gap of over 80%.
- The share of Gulf countries of India's total crude oil imports has remained fairly stable over the past 15 years at around 60%.
 - ▶ In 2020-21, India's top oil exporter was Iraq with a share of over 22%, followed by Saudi Arabia – at around 18%.
- **Bilateral trade:** Countries in the West Asian region collectively account for one-sixth of India's total bilateral trade and contribute about three-fifths of India's crude oil supply.
- **Economic opportunity:** The region is a major provider of jobs and economic opportunities for Indian workers, professionals and entrepreneurs and is home to approximately 8.9 million Indians.
- **Source of remittances:** The Reserve Bank of India (RBI) documents reveal that 82 percent of the total remittances received by India originated from seven countries: the United Arab Emirates (UAE),

the United States (US), Saudi Arabia, Qatar, Kuwait, the United Kingdom, and Oman.

- **International Treaties:** India has signed a Comprehensive Economic Partnership Agreement (CEPA) with the United Arab Emirates earlier this year, has become one of the biggest contributors to the region.
- **Easy access:** With the region acting as a major hub for markets in Africa, India is keen to have tariff-free access to its exports not only in the Gulf region but also in countries in Africa.

Challenges for India in West Asia

- **Islam:** On issues of Islam, particularly with reference to the Quran and Prophet Mohammed, most if not all 57 members of the Organisation of Islamic Countries (OIC) stay together.
- For them, it is also a common 'identity issue', in these times of perceived and propagated strife.
- **Lack of direct investment:** India lacks direct investment in the energy sector of this oil and gas-rich region.
- **Growing divide:** The region is quickly turning into a highly polarised part of the world. The growing divide between Riyadh and Tehran and Washington's hypocritical ignorance could put New Delhi in a spot of bother.
- Emergence of non-state actors, increases the scope of instability and threat of terrorism.
- **India-Israel close ties:** India's close ties with the Israel widen the scope of divergence between India and West Asia.
- **Prism of Rivalry:** Rivalry between Saudi Arabia, Iran and Israel possesses a threat to India while balancing the relation between three of these nations without antagonising any one.

PRACTICE QUESTION

- Q1:** 'Secularism' a fundamental nature of the Indian Constitution, not only drives the internal political setup but also plays an important role in deciding India's foreign policy. Critically examine.
- Q2:** The recent geo-political power dynamics has urged the importance of West Asian nations for India. Critically examine how India is relying upon West Asian nations and highlight the potential challenges in the diplomatic channels.

NATIONAL FINANCIAL REPORTING AUTHORITY (NFRA): FUNCTIONS AND SIGNIFICANCE

CONTEXT

With an aim of improving the powers of the National Financial Reporting Authority (NFRA), the government has committed to strengthen the mandates of defending the general public interests.

◎ ABOUT

- NFRA was constituted in 2018 by the Government of India under section 132 (1) of the Companies Act, 2013.
- It functions as an audit regulator.
- Its account is monitored by the Comptroller and Auditor-General of India.
- It is headquartered in New Delhi.

Important roles played by NFRA

- **As an Advisor to the government:** It recommends accounting and auditing policies and standards to be adopted by companies for approval by the Central Government.
- **As Enforcing Agency:** Monitor and enforce compliance with accounting standards and auditing standards.
- **Eligible to issue penalty:** Oversee the quality of service of the professions associated with ensuring compliance with such standards and suggest measures for improvement in the quality of service.
- **Guardian of Public Interest:** Protect the public interest.
- Monitor and enforce compliance with accounting standards and audit standards;

- To oversee the quality of service services associated with ensuring compliance with such standards and to promote measures to improve service quality;
- Perform any other duties and activities that may be necessary or consistent with the above.

What is the need to strengthen NFRA?

- To enable it to discharge its duties effectively as well as strengthen the mandates of protecting the public interests.
- To bring in efficiency at the independent regulatory body.

Benefits

- India gains the legitimacy of IFIAR (International Independent Accounting Forum), previously banned, which has led to improved confidence in foreign / domestic investors and India's global position.
- Increase in foreign / domestic investors.
- Economic growth
- IFIAR eligibility validates our international business standards, and supports global trade.
- Ongoing development of audit work.
- The establishment of NFRA will free up resources for ICAI to work on developing new and sophisticated skills needed in the uncertain world of technology.

PRACTICE QUESTION

- Q1: Transparency and accountability requires standardisation of accounting and auditing mechanism. In this context examine the role of National Financing Report Authority (NFRA) to ensure standardisation of accounting and auditing system.**
- Q2: Ambitious institutions with great goals sometimes fail to achieve the targets and objective due to various factors. Examine the challenges lying ahead of NFRA to meet its objectives and highlight the measures strengthen the functioning of the NFRA.**

INDIA'S PATENT REGIME

CONTEXT:

The U.S. Trade Representative (USTR) said in a report that India was one of the most challenging major economies as far as IP protection and enforcement is concerned.

- It has decided to retain India on its Priority Watch List along with six other countries —Argentina, Chile, China, Indonesia, Russia and Venezuela.

◎ BACKGROUND

- The USTR report highlighted a range of issues in domains ranging from copyright and piracy to trademark counterfeiting and trade secrets, saying that India "remained one of the world's most challenging major economies with respect to protection and enforcement of IP."

◎ ANALYSIS:

What is India's Patent regime?

India's Patent regime is governed by **India's Patent Act 1970**, with the provision:

- It should be novel
- It should have inventive steps or it must be non-obvious
- It should be capable of Industrial application
- It should not attract the provisions of **sections 3 and 4 of the Patents Act of 1970**

The original Indian Patents Act did not grant patent protection to pharmaceutical products to ensure that medicines were available at a low price. Patent protection of pharmaceuticals were re-introduced after the 2005 amendment to comply with TRIPS.

A patent is an exclusive set of rights granted for an invention, which may be a product or process that provides a new way of doing something or offers a new technical solution to a problem.

What are the major issues related to the Indian patent act?

- Concerns over process:** Among the issues raised are concerns about what could be a patent, waiting times to obtain patents, reporting requirements, and data security.
- Protection issues:** Copyright issues highlight the threat of copyright infringement, lack of copyright infringement and narrow patent conditions as problems affecting companies in various sectors.
- One of the key points in the conflict between India and the U.S. be **Article 3 (d) of the Copyright Act of India.**
 - Section 3 deals with non-compliance as established under the Act.
 - Section 3 (d) in particular does not exclude the discovery of a new type of known object that fails to develop the known success of that object.
 - Section 3 (d) prohibits what is known as "ever-greening" of patents.
- Matters relating to legal delays:** The Commercial Courts Act of 2015 provided an opportunity to reduce these delays and increase technology but only a limited number of courts have benefited under the Act.
- Question on efficiency:** Challenges from the authorities reduce the efficiency of the courts and the courts also suffer because of inadequate resources and training.
- Disbandment of the Intellectual Property Appellate Board (IPAB):** The total dissolution of the IPAB, which had successfully dealt with measures involving IPR issues, may create a gap in resolving grievances leading to their transfer to the Commercial Court or the High Courts.

PRACTICE QUESTION

- Q1:** India's Patent regime is possessing a potential barrier in relation between India with other western nations. Analyse the major issues that are persistent with the India's patent laws.
- Q2:** Strict patent laws are incentives to the new development and research, while on other hand patent strict patent laws hampers the equity in the society. Critically analyse.

AGNIPATH SCHEME, RADICAL SCHEME TO RECRUIT SOLDIERS

CONTEXT

The government unveiled its new Agnipath scheme for recruiting soldiers across the three services.

● ANALYSIS

What is the Agnipath scheme?

- Under the new scheme, **around 45,000 to 50,000 soldiers** (called as 'Agniveers') will be recruited annually for a short period, and most will leave the service in just four years.
- Of the total annual recruits, only **25 per cent** will be allowed to continue for another **15 years under permanent commission**.
- Eligibility Criteria:** The new system is only for personnel below officer ranks (those who do not join the forces as commissioned officers).
- Age limit:** Aspirants between the ages of **17.5 years and 23 years** will be eligible to apply. The recruitment standards will remain the same, and recruitment will be done **twice a year** through rallies.
- Training:** Once selected, the aspirants will go through training for **six months** and then will be deployed for three and a half years.
- Salary allocation:** During this period, they will get a starting salary of INR 30,000, along with additional benefits which will go up to INR 40,000 by the end of the four-year service.
- Employee benefits:** 30% of their salary will be set aside under a **Seva Nidhi programme**, and the Government will contribute an equal amount every month, and it will also accrue interest.
 - At the end of the four-year period, each soldier will get **INR 11.71 lakh** as a lump sum amount, which will be **tax-free**.
 - They will also get a **INR 48 lakh life insurance cover** for the four years. In case of death, the pay-out will be over INR 1 crore, including pay for the unserved tenure.
- Pension:** There shall be **no entitlement to gratuity and pensionary** benefits.

How is this scheme beneficial?

- Cost-saving:** The move will lead to a significant drop in the country's 13-lakh-strong military base. As a result, the cost of defense protection will be

greatly reduced, which has been a major problem for governments for many years.

- Maintained youth profile:** It will contribute to the youth profile of the three armies.
 - The average military age is 32 today, but the plan predicts it will drop to 26 in six to seven years.
- Adoption of newer technologies:** A small military unit will help learn new technologies. Additionally, the selection process based on the acquisition of 25% of permanent Agniveers will enhance the quality of the permanent soldiers.

What are the challenges associated with the Agnipath Scheme?

- Insecurity over tenure:** Soldiers in Agnipath's system may be reluctant to take chances as they know they will only be called for a short time. They may fear danger or physical harm while on the job.
- Impact on bilateral relations:** The process of accepting the 'All India All Class' and the option of contracting a short-term four-year contract is causing concern among retired Army officers. They believe the new policy will be detrimental to Nepal's relations with India because it will reduce their food supply.

What lies ahead?

- After 4 years, the Agniveers need to be included in the community where they can contribute significantly to the nation-building process.
- The return of disciplined 'Agniveers', motivated and competent in the community after military service, could be of great help to the nation as it would be a "proposal for victory".
- This program will increase job opportunities with new skills in various fields.
- This program will provide a better opportunity for young people who choose to serve the nation.
- It will have a positive impact on the management of human resources in the military.

© CONCLUSION

No reform can be fool-proof and without teething troubles. But as Agnipath Scheme concerns national defense and security, the Government will need to have a plan to anticipate and address the problems that lie beyond the bold step forward.

PRACTICE QUESTION

- Q1: Do you think the Agnipath Scheme is a radical departure from the previous recruitment policy and in the interest of the country's defence preparedness.**
- Q2: Critically analyse the benefits and challenges of the new 'Agnipath Scheme'.**

DEMOLITION DRIVES MAY CHALLENGE THE RULE OF LAW

CONTEXT

Recent demolition drives in the aftermath of the Prophet Remarks row has challenged the certain basic tenets of law, including right of a person to be heard first, and the non-arbitrary power of the state to deprive a person from his/her property.

◎ BACKGROUND

- The founder of the modern 'legal profession', **A. V. Dicey** believed that there were two principles in the British unconstitutional constitution:
 - ▶ The sovereignty or supremacy of Parliament.
 - ▶ The rule of law.
- For Dicey the law had **three key elements**:
 - ▶ No one shall be held guilty of any penal offense on account of any act or omission which did not constitute a penal offense, under national or international law, at the time when it was committed. The power of choice can lead to thinking.
 - ▶ No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence or to attacks upon his honor and reputation.
 - ▶ The rule of law should not be based on any written constitution but on "common law".

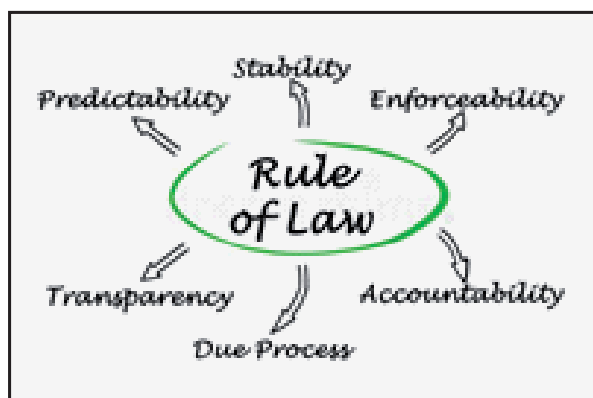


◎ ANALYSIS

What is 'Rule of Law'?

- The rule of law is the legal principle that the law should govern the state and not by the arbitrary decisions of individual government officials.
- This is primarily related to the influence and authority of law in society, especially as a constraint on the actions of government officials.
- The rule of law doctrine begins in **England; A.V. Dicey** has three basic principles.
 - ▶ Absence of arbitrary power
 - ▶ Equality before the law and equal protection of the Act

- ▶ The rule of the spirit of Law or no Supreme Law other than human rights as determined by the Courts



Highlights of the issue

- **Principles of Law include:**
 - ▶ The right of a person to be heard first, once
 - ▶ That the state may deprive a person of his or her property only after due process and under the authority of applicable law as authorized under Section 300A of the Constitution.
- **Status of the Supreme Court:**
 - ▶ Property rights under Article 300A are a human right.
 - ▶ Article 300A is a powerful right. The demolition of houses was the result of political incitement by officials. Actions such as demolition were a nuclear holocaust held by problem makers.
- **Jamiat Ulama-i Hind's** application to the Supreme Court ruled that the retaliation by the Uttar Pradesh government for revenge was in violation of laws enacted by the state legislature itself.
 - ▶ Section 10 of the **Uttar Pradesh Act (Building Performance Management Act) 1958** stipulates that a building should not be demolished without giving the parties a "sound" opportunity.
 - ▶ Section 27 of the Uttar Pradesh Urban Planning and Development Act, 1973 requires that the affected person be heard and given 15 days' notice before proceeding with the demolition.

- ▶ Apart from this, the Act allows a person who is dissatisfied with a severance order to lodge an appeal within 30 days.

How they are violating several Rights of the People?

- **Right to housing:** The right to housing is a fundamental right recognised under Article 21 of the Indian Constitution.
- Further, it is also a well-documented right under the international human rights law framework, which is binding on India.
- As per UDHR; **Article 25** of the **Universal Declaration of Human Rights (UDHR)** states that “everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care”.
- **Article 12 of UDHR** prohibits arbitrary interference in an individual’s right to property.
- It also stipulates that “everyone has the **right to the protection of the law** against such interference or attacks”.
- **Supreme Court’s stand:**
 - ▶ The apex court in cases like **Bachan Singh vs State of Punjab, Vishaka vs State of Rajasthan, and in the Puttaswamy vs Union of India** has stated that the fundamental rights

must be read and interpreted in a manner which would enhance their conformity with international human rights law.

- **International Human Rights Violation:** It is also a well-documented right under the international human rights law framework, which is binding on India.
- **Article 12** of the UDHR states that “no one shall be subjected to arbitrary interference with his privacy, family, home or correspondence or to attacks upon his honour and reputation”.

What can be done further?

- **Judicial interference:** As the custodian of India’s constitutional order, it is high time that the judiciary acted and imposed necessary checks on the unbridled exercise of power by the executive.
- **International agencies:** Courts should use international law to counter the nationalist-populist discourse.
- **Legal Provisions:** Any justification for a demolition drive, as a penal consequence to a criminal act is totally against established canons of criminal justice.
- **Saving the Basic structure:** The conduct of demolition drives, as a retaliatory measure, even with the avowed object to curb violence is a clear act of subversion of the principle of rule of law.

PRACTICE QUESTION

Q1: What do you understand by the term ‘unconstitutional state of affairs’? Discuss the role of judicial intervention in order to combat the structural causes of the violations and to put everything back in order with the Constitution.

Q2: Discuss the various tenets require to preserve and conserve the Rule of Law.

CENTRE FOCUSES ON ACCESS TO ANGANWADI SERVICES FOR MIGRANTS

CONTEXT

The Centre has instructed state governments and their Women and Child Development (WCD) departments to ensure digitization of anganwadi services so that migrating families can continue accessing the government's Take Home Ration scheme even if they move to other states.

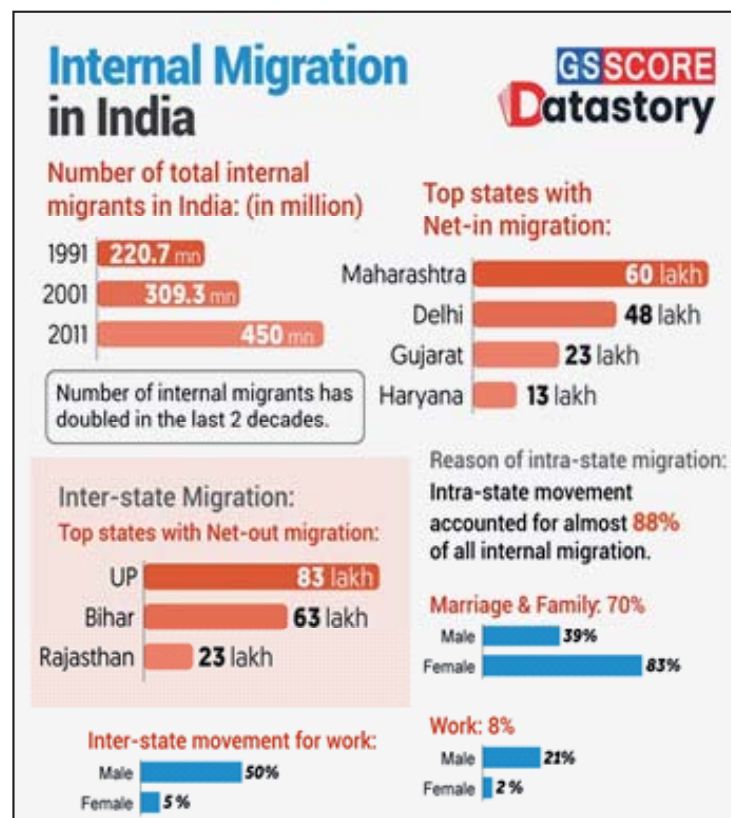
ANALYSIS

What are Anganwadi services?

- Anganwadi is a type of rural mother and child care centre in India.
- They were started by the Indian government in 1975 as part of the Integrated Child Development Services program to combat child hunger and malnutrition.
- A typical Anganwadi center provides basic health care in Indian villages.
- It is a part of the Indian public health care system. Basic health care activities include contraceptive counseling and supply, nutrition education and supplementation, as well as pre-school activities.
- The centers may be used as depots for oral rehydration salts, basic medicines and contraceptives.

Driving factors of migration:

- Economic migration** - moving to find work or follow a particular career path
- Social migration** - moving somewhere for a better quality of life or to be closer to family or friends
- Political migration** - moving to escape political persecution or war
- Environmental** - causes of migration include natural disasters such as flooding, pandemic like COVID.
- Structural defects such as :**
 - Inability to see the magnitude and significance of these communities
 - Inability to properly calculate such migrants due to their migration between their villages and towns due to the informal conditions in which they live and work.



Challenges for migrants

- **Poor accommodation:** Vulnerable individuals, especially children, are prone to respiratory infections and gastrointestinal illnesses because of poor living conditions, suboptimal hygiene and deprivation during migration.
- **Gender specific:** Female migrants who do not have access to and are not informed about the availability of reproductive health services, including antenatal care, may receive late diagnoses, and their conditions may sometimes be life-threatening for women, mothers and their babies.
- **Susceptibility to diseases:** Migrants come from communities affected by war, conflict or economic crisis and undertake long, exhausting journeys often increase their risks for diseases, which include communicable diseases, particularly measles, and food- and waterborne diseases.
- **Lack of basic amenities:** Migrants are more likely to experience disrupted or uncertain supplies of safe food and water, especially under difficult and sometimes desperate circumstances. In these conditions, people may be more prone to use inedible or contaminated food ingredients, cook food improperly or eat spoiled food.
- **Hurdles in Inoculation:** Providing vaccination in migrants is a tremendous challenge in itself due to lack of awareness in migrants, inadequate documentation and vaccine hesitancy.
- **Political exclusion:** The political class ignores them because they don't count as votes, especially in the case of inter-state migrants.

Role of Anganwadi services in dealing these challenges

- Anganwadi Workers ensure that regular health and medical check-ups for women 15- to 49-years-old take place and that all women and children have access to these check-ups.
- Anganwadi Worker (AWW) guides **ASHA** in performing activities such as organizing Health Day once/twice a month at Anganwadi Centre

and orientating women on health related issues such as importance of nutritious food, personal hygiene, care during pregnancy, importance of immunization etc.

- Anganwadi workers need to provide care for newborn babies and ensure that all children below the age of 6 are immunized.
- They are expected to provide antenatal care for pregnant women and ensuring that they are immunized against tetanus. In addition to this they provide post-natal care to nursing mothers.
- They make home visits for educating parents to enable mothers to plan an effective role in the child's growth and development and special emphasis on new born child.
- To identify the disability among children during her home visits and refer the case immediately to the nearest PHC or District Disability Rehabilitation Centre.
- Assist mothers to establish breastfeeding and overcome any difficulties, which is the best way to prevent malnutrition, some diseases and mortality among infants according to WHO.
- Anganwadi centers were allowed to inoculate the migrants with verification in the recent covid pandemic.

How the move will be advantageous?

The complete digitization of the process of registration will allow the beneficiaries of one state to avail the aforesaid services in other states which will ensure that migrant families especially children can continue to get supplementary nutrition given by the government to curb the malnutrition.

◎ CONCLUSION

It's a praiseworthy move of the Centre the issues of migrants are real and undeniable. Government should ensure that each migrant must have full, uninterrupted access to a hospitable environment and, when needed, to high-quality health care, without discrimination on the basis of **gender, age, religion, nationality or race**.

PRACTICE QUESTION

Q1: Anganwadi centres play a vital role in securing children's rights for their all-round development. What impact can an empowered Anganwadi worker bring about?

Q2: Do you think there is need to empower Anganwadi Workers in order to reinvent rural India.

INTER-STATE COUNCIL

CONTEXT

Tamil Nadu CM has urged the central government to increase the frequency of Inter-state council meetings to strengthen the spirit of cooperative federalism.

◎ BACKGROUND

- The Constitution of India provides for a polity, which clearly defines spheres of authority between the Union and the States to be exercised in the fields assigned to them.
- Consistent with this, the Constitution has made an elaborate distribution of powers between the Union and the States in the areas of legislative, administrative and financial powers.
- The Union Government, constituted a Commission in 1988 under the Chairmanship of Justice **R.S. Sarkaria** to review the working of the existing arrangements between the Union and the States.
- One of the important recommendations of **Sarkaria Commission** was for establishing a permanent Inter-State Council as an independent national forum for consultation with a mandate well defined in accordance with **Article 263** of the Constitution of India.

◎ ANALYSIS

What is Inter-state Council?

- This is an established mechanism "to support coordination and cooperation between nations and between Indian nations".
- The Interstate Council was established in accordance with Article 263 of the Constitution, which states that the President may establish such an institution if the need arises.
- The council is basically intended to serve as a forum for discussions between different governments.

Important role played by Inter-state council

- The Intergovernmental Council is a counselling body empowered to study and discuss common concerns between centre and the states, or between states.
- There are also recommendations for better coordination of policies and actions on these

subjects, as well as advice on general concerns for the State, which may be delegated by the Chair.

- It also considers other matters of general interest to the State that the Chair may refer to the Board.
- The Council can meet at least three times a year. There is also a standing committee of the council.

What are the major objectives of the Council?

- **Establish a strong institutional framework to strengthen the Spirit of Cooperative federalism**
- **Facilitates discussions** by the Zone Council and the Interstate Council on all pending and new issues of interstate and interstate relations.
- **Develop a robust system** to monitor the implementation of the recommendations they make.

Why this Council matters?

- The ISC is the only multilateral central national forum that operates directly within the framework of the **Constitution (Articles 263 (b) and (c)), issues such as GST, disaster management, terrorism, internal security, etc.**
- ISC's constitutional approval puts the state on a stronger foundation. This is an essential element in building the collaborative atmosphere needed to coordinate relations between the intermediaries.
- The Council helps fill the lack of trust between the center and the states. If it wasn't always the problem solver, it at least acted as a safety valve.

What are the major challenges and issues?

- **Advisory in nature**
- **Non-permanent body; on President's discretion; with no sustainable legal backing**
- Irregular meetings of **Interstate Council**
- ISC also needs a **Secretary-General** to make regular meetings more fruitful.

PRACTICE QUESTION

Q1: What is the Inter-State Council? Do you think Inter-State Council helps in strengthening the spirit of cooperative federalism? Justify your answer

Q2: Discuss how Inter-State Council act as tool for cooperation and coordination among states.

GREECE PASSES COUNTRY'S FIRST CLIMATE LAW

CONTEXT

The Government of Greece recently passed the country's first climate law to end the use of lignite/coal in the country's electricity generation by 2028.

ANALYSIS

About the law:

- The law contains the establishment of a process for developing sectoral carbon budgets for seven sectors of the economy.
- It establishes measures and policies to optimise the country's adaptation to climate change and ensure Greece's carbonation path by 2050.

Targets:

- The legislation sets interim targets for Greece to cut greenhouse emissions:
 - ▶ by at least 55% by 2030 and
 - ▶ by 80% by 2040
 - ▶ zero-net emissions by 2050
- Aiming towards reducing the dependency on fossil fuels.
- This target might be brought forward to 2025, depending on supplies.
- The deadline for National Climate Law — Transition to climate neutrality and adaptation to climate change will be reviewed in 2023.

Measures and Policies:

The law established measures and policies for the following: ww

- Cost efficient climate change adaptive measures.
- Intermediate targets for mitigating anthropogenic emissions for 2030 and 2040

- Carbon budgeting mechanism for key sectors of the economy
- Progress indicators, progress assessment and target adjustment procedures.

What is the rationale behind the law?

- Rising dependency on fossil fuels
- Increased anthropogenic emissions
- Rising instances of forest fires
- Environmental impact on climate change
- Threat to public life and safe environment

Lessons and key takeaways for India:

New framework on climate action by Greece can benefit India in several ways:

- To phase down the carbon usage and fossil fuel dependency
- To meet the targets committed under Paris climate deal
- Cost efficient climate change adaptive measures.
- Paving the ways to curb anthropogenic emissions.

CONCLUSION:

First climate action law legislated by Athens in the backdrop of rising environmental issues and forest fires during summer, has the potential to drive the global climate action plan and assist the developing nations to pave a new way of energy security, including India. India will be benefitted from the plan of action by Greece, considering the measures through socio-economic and geographical lens.

PRACTICE QUESTION

Q1: Owing to climate change mitigation measures Greece has passed a new climate law. Examine the potential challenges before India to implement climate laws. Suggest some measurable steps India should adopt to meet the climate mitigation targets.

Q2: Climate change mitigation measures urged the need for structural shift in infrastructure and legislative framework. Discuss the policy measures taken by the government to satisfy the need.

RURAL ECONOMY NEEDS A NEW DEAL

CONTEXT

Covid-19, the Ukraine war, and the climate crisis show that policymaking for rural India should shift from casual approach to one that invests in long-term risk management.

◎ BACKGROUND

- At the beginning of the green revolution, between the 1960s and 1970s, the growth rate of agricultural remains high in Uttar Pradesh.
- In the 1990s**, the substantial loss is suffered by the farm economy as the growth space brings by the Green revolution may be used up. Such as the decline in the outputs of Cereal crops, wheat, and groundnuts.
- After **the period of the liberalization**, the growth of the food grains stayed behind the increase in the population between 2000 and 2001 and the Total factor productivity show a decreasing trend from 1993.
- The rural economy with slow growth pace has developed to a high-speed growth economy after the liberalization in economic and the improvement in the facilities.
- The launch of **new economic policies** leads to a decline in the output of food grains and an increase in **non-food crops such as cotton**.



Need for revival of rural economy

- The agricultural sector that saves the economy suffers from neglect and policy errors by Government.
- The second wave affected rural areas in terms of health and well-being.
- Economic stress in rural areas is also unreported and underestimated.
- Increasing out of pocket expenditure for health care.
- It has led to a dramatic increase in debt from non-institutional sources.

- Increasing demand for employment in the NREGS.
- The prices of agricultural commodities in the domestic market have declined while commodity prices such as food and pulses have contributed to inflation.
- Rising diesel prices and rising fertilizer prices have added to the suffering of farmers.
- Global conditions: Three catastrophic global events — the coronavirus pandemic, the Russia-Ukraine war, and the climate crisis — have made visible sources of precarious resilience and fragility in India's rural economy.
- Boosting up economic growth: However, in 2020-21, agriculture was the only sector of the economy that showed an upward trend in growth rate.
- Serves as a prime source of employment during the pandemic
- Finally, rising investment costs and inflation reduce the purchasing power of the domestic economy.

Causes of decline in rural economy

- Disruptions in demand and supply chain
- Rising Inflation
- Pandemic and shutdowns
- Failure of governmental schemes
- Inadequate penetration of insurance sector
- Increased expenditure on health
- Inadequate soil management and water management measures

Why rural economy for India is important to attain its future goals?

- Targeting policy support and investment** in rural areas to build vibrant food systems and supporting agro-industries
- More inclusive economy to thrive towards a **\$5 trillion mark**.
- Diversification of job and employment opportunities**
- Reducing the rural-urban migration rate.

- Increased agricultural production will level up the economic prosperity along with more demand creation from the rural economy.
- Realising the potential of the demographic dividend is necessary to reach the \$5trillion mark.
- From the economic history of the many developed countries, agricultural prosperity is a key element for the economic advancement.
- **Sustainable source of raw material for agro-based industries.**
- Boosting up the export competitiveness of agricultural products
- Infrastructural development for better post-harvest management system and better market access.

Ways to attain a better of rural economy

- Promotion of education for various sections of the society aligned with the 'New Education Policy'.
- Reducing the out of the pocket expenditure of the rural household in health care sector, and enabling insurance access via various schemes like AYUSH.
- Infrastructural development for better service delivery system.
- Legislative measures for better social and economic security for the rural households.
- Incorporation with civil societies, NGOs and SHGs for better social security.
- Promotion Agro-based industries to diversify the rural economy and increase the economic prosperity to the rural households.

- Penetration of insurance sector in the rural areas to provide economic security during crop failure.



◎ CONCLUSION

Rural development is a must for the economic development of a country. Agricultural progress is essential to provide food for growing non-agricultural labour force, raw materials for industrial production and saving and tax revenue to support development of the rest of the economy, to earn foreign exchange and to provide a growing market for domestic manufactures. So supportive public policies and investments will be key to harnessing demand as an engine for transformative and equitable growth, and measures designed to ensure market participation by small-scale, family-farmers must be hard-wired into policies.

PRACTICE QUESTION

Q1: In the post-Covid recovery phase rural economy is experiencing a decline in the growth process. Examine major factors that have led to the decline in the rural economy.

Q2: Analyse the significance of primary and rural economy in the developmental process for India. Also suggests some measure to strengthen the rural economy.

INDIAN MARITIME SECURITY

CONTEXT:

A long plan to execute a satellite based vehicle monitoring system since 26/11 Mumbai attack; the process is still facing hurdles. The long unfulfilled journey is widening the threat over maritime security.

◎ BACKGROUND

- India with huge coastline is vulnerable to the threats emerging from maritime domain.
- After the Mumbai attack of 26/11 Indian government had increased the focused on the maritime security domain.
- Apart from the maritime terrorism, blue economy is a major part of the Indian economy requires security of fisherman community and their livelihood.
- Tokyo summit of the QUAD grouping has enhanced the focused on the maritime security concerns over Indo-Pacific region and announced an ambitious Indo-Pacific Maritime Domain Awareness (IPMDA) initiative.
- On the strategic front Indo-Pacific is gaining a significance to fulfil the interests of major powers of the world, providing a ground for power tussle of the countries.



◎ ANALYSIS

Why maritime security is important for India?

- **Water for trade:** India's major import and exports is carried out through the maritime water, thus enhancing the importance of securing coastlines is imperative of economic growth.
- **Maritime threats:** India's huge coastlines, around 7000km, increases the vulnerability to maritime threats as testified by 26/11 Mumbai attacks.
- **Blue economy:** One of the major economic activities of the coastal states of India, comprising around 4% of the Indian economy, with an immense future potential.

- **Strategic Interest in the IOR:** Increasing Chinese influence and assertiveness in the Indian Ocean Region providing a potential threat to the India's regional interest.
- Disruption of maritime communications has consequences both nationally and internationally.
- Freedom of movement and free trade are keys to the spread of prosperity.
- India's natural interests extend to both Indian and Pacific Oceans as reflected in its all-inclusive Indo-Pacific view.
- Security of the fisherman
- Ocean resource security

What are the persistent issues in Maritime Security?

- Piracy threat
- Terrorism and terrorist attacks
- International water provides safe gateway for illegal migration, impacting the demography and government's social responsibility
- Transnational Organised crimes also get a safer routes through maritime water
- Rising pollution and climate change have increased the environmental concerns on the seas

India's 5-Point Agenda for Promoting Maritime Cooperation:

- We need to remove barriers to maritime trade as it is a global challenge.
- Maritime disputes should be resolved amicably and on the basis of international law only.
- We have to deal with natural disasters and maritime threats created by non-state actors together.
- We must preserve the marine environment and marine resources.
- We must promote responsible maritime communications.

Mechanism available for combating maritime security:

- **United Nations Convention on the Law of the Sea (UNCLOS)** provides a framework regarding rights and responsibility of the nations over international waters.

- **SAGAR (Security and Growth for All in the Region) Doctrine:** Indian initiative, aims to deepen the economic and security cooperation with its maritime neighbours, along with enhancing their security capabilities.
- Indo-Pacific Oceans' Initiative (IPOI)
- QUAD initiative to ensure safe, secure and free Indo-Pacific region
- National level mechanism:
 - ▶ **The Customs Marine Organisation**
 - ▶ **The Indian Coast Guard**
 - ▶ **Operation Tasha**
 - ▶ **Operation Swan**
 - ▶ **Monitoring system**

What are the major challenges ahead of India's maritime security?

- **Inadequate legislative structure** provides certain barriers in the Implementation
 - ▶ **State List issue:** Fisheries are defined under the state list barring the central government to legislate over the subject.
 - ▶ **Hindrances from fisherman:** Vehicle monitoring system cannot be mandated due to agitation arising from fisherman community to prevent their privacy on good yield and illegal activities.
- **Transnational Interest:** India shares its international waters with other countries as well, e.g., Sri Lanka, which hinders the process of stringent legislative actions on maritime security.
- Non obedience over international laws and arbitration process.
- Lack of Universal International laws over international waters.
- Geopolitical dominance over security interest.

What should be done?

- Five points agenda on maritime security by UNSC

- ▶ Free maritime trade without barriers for establishing legitimate trade;
- ▶ Settlement of maritime disputes should be peaceful and on the basis of international law only;
- ▶ Responsible maritime connectivity should be encouraged;
- ▶ Need to collectively combat maritime threats posed by non-state actors and natural calamities;
- ▶ Preserve the maritime environment and maritime resources.
- Diplomatic channels: Diplomatic channels should be fostered for better collaboration with the maritime neighbor states.
- Coastal development plans should be executed
- Involvement of state police for securing maritime borders.
- Vehicle monitoring system for the fishing vessels
- Satellite monitoring of weather forecast and disaster resilient preparedness
- Increased capacity of maritime safety facilities to monitor and monitor national marine areas
- Improved technical monitoring of coastal and coastal areas
- Establishment of mechanisms for coordinating various agencies
- Increased regulation of activities in the marine environment
- Integration of fishing and coastal communities

◎ CONCLUSION:

Coastal security involves multiple stakeholders with both, independent and shared responsibilities. Hence coordination amongst these agencies should be maintained through a cooperative approach that will focus on the key aspects described below, whilst remaining sensitive to any limitations and constraints of partner agencies.

PRACTICE QUESTION

Q1: Presence of long maritime boundary can act as a double edged sword for India. Elucidate.

Q2: In the contemporary geo-political power tussle, discuss the significance of maritime water for India.

INDIA'S STAND IN ENVIRONMENT PERFORMANCE INDEX 2022

CONTEXT

With an overall score of 18.9, India ranks at the bottom of all countries in the 2022 EPI with low scores across a range of critical issues.

ANALYSIS

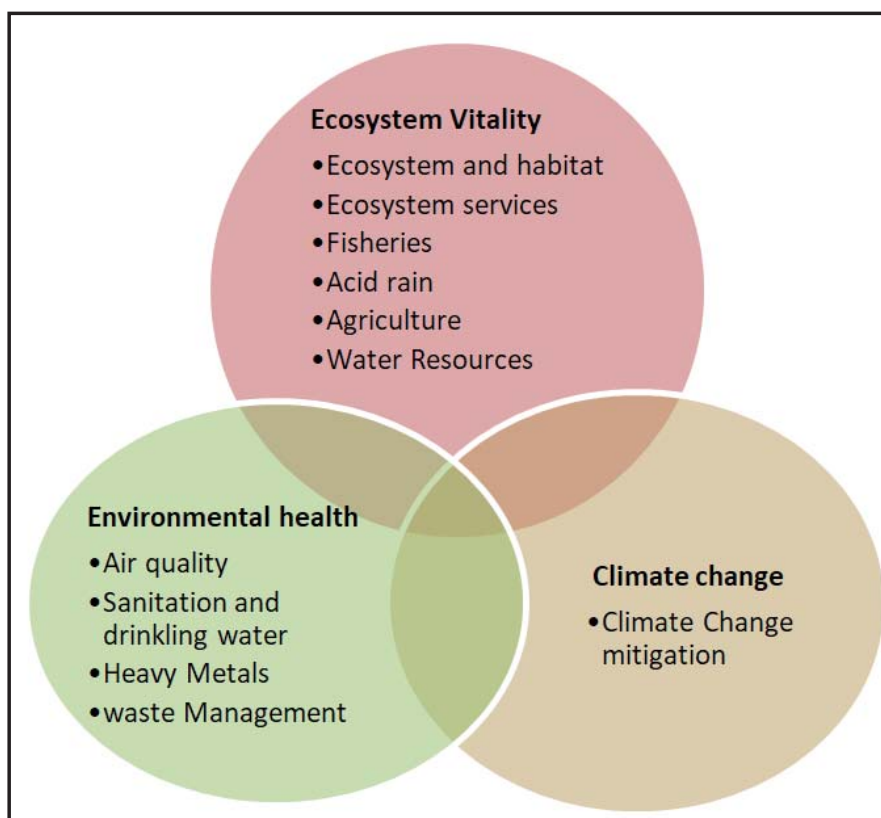
What does EPI stand for India?

- With an overall score of **18.9**, India ranks at the bottom of all countries in the 2022 EPI with low scores across a range of critical issues.
- Deteriorating **air quality and rapidly rising greenhouse gas emissions** pose especially urgent challenges.
- Most low-scoring countries such as **Myanmar and Vietnam** are those that have prioritised economic growth over sustainability, or those that are struggling with civil unrest and other crises.
- According to EPI, India also ranks poorly in terms of rule of law, corruption control, and government performance.

- "India slips to the bottom of the rankings for the first time, with increasingly hazardous air quality and quickly rising greenhouse gas emissions," the report stated.
- With a score of 27.6, India was ranked 168th in EPI-2020.

Other highlights:

- Denmark is at the top of the 2022 rankings - a breakthrough based on strong performance in all aspects of the EPI, and significant leadership in efforts to promote the future of clean energy and sustainable agriculture.
- The United Kingdom and Finland rank 2nd and 3rd, both earning high marks by cutting off greenhouse gas emissions in recent years.
- The United States ranks 20th of the 22 richest democracies in the Global West and 43th in total.



- With a minimum of 18.9 points, India's 180 level follows Pakistan, Bangladesh, Vietnam and Myanmar.

Significance of the Index

- The EPI offers a scorecard that highlights leaders and laggards in environmental performance and provides practical guidance for countries that aspire to move toward a sustainable future.
- The indicators provide a gauge at a national scale of how close countries are to established environmental policy targets.
- The Index provides a data-driven summary of the state of sustainability around the world.
- Data and fact-based analysis can also help government officials refine their policy agendas, facilitate communications with key stakeholders, and maximise the return on environmental investments.
- The EPI also offers a powerful policy tool in support of efforts to meet the targets of the UN Sustainable Development Goals and to move society toward a sustainable future.

What are the concerns recognized for India?

- **On India's 180th ranking**, the Government of India has responded by saying that some indicators are extrapolated and based on surmises and unscientific methods.
- Some concerns raised by India are:
 - ▶ **Projected GHG Emissions Levels in 2050** the new indicator in the Climate Policy Objective is calculated using the average rate of change in emissions over the previous ten years rather than modelling that takes into account a longer time period.

- ▶ It also included the level of renewable energy capacity and usage, extra carbon sinks, energy efficiency and so on in the individual nations.
- ▶ China and India are projected to be the largest and second-largest emitters of greenhouse gases in 2050, despite recently promising to curb emission growth rates.
- ▶ The weight of indicators in which the country performed well has been lowered as compared to earlier performances.

What is India's stand on its performance?

- The Environment Ministry questioned the ranking stating that some of the indicators it used were "**extrapolated**" and based on "**surmises and unscientific methods**".
- Indicators such as **agricultural biodiversity, soil health, food loss and waste** are not included, despite the fact that these are critical for developing nations with significant agrarian populations.
- In the current calculation, historical data on the lowest emission trajectory was ignored.
- The country's forests and wetlands are important carbon sinks that have been overlooked while calculating EPI 2022's predicted GHG emissions trajectory up to 2050.
- The equity principle is given relatively small weightage in the form of statistics such as GHG emission per capita and GHG emission intensity trend.

◎ CONCLUSION

India ranked lowest on the parameters set by the Environmental Performance Index. India must make information about its efforts and achievements easily available and verifiable. This will aid in providing a more accurate picture of the country's environmental performance.

PRACTICE QUESTION

Q1: Environmental Performance Index has downgraded the India's rank at the bottom level. Discuss the concerns highlighted in the report for India's worst performance.

Q2: India in the process of achieving climate mitigation targets is facing several challenges. Critically analyse the challenges and highlight the measures to mitigate the challenges.

WIDENING URBAN-RURAL DIVIDE, AND NEED OF ECONOMY'S STRUCTURAL TRANSFORMATION

CONTEXT

There are some serious concerns about growing inequality or disparity between rural and urban areas in India.

- Disparities in income distribution, consumption, and quality of life between the rural and urban area are known as the rural-urban divide. The rural-urban disparity, as measured by the ratio of urban-to-rural expenditure, has gone up from 1.63 in 1993-'94 to 2.42 in 2017-'18.

Role of rural economy

Rural areas

- As per the last census (2011) 68.84 percent of India's population (833m) live in 640867 villages.
- All the areas not covered by **Notified Area Council (NAC), Municipal Corporation, Cantonment Area** are basically rural area.

The rural-urban divide

There are glaring disparities in income distribution, consumption and quality of life between rural and urban India.

- **Income disparity:** The rural-urban divide in India is so prominent that the income of an average person in the rural parts of India is less than even half of the urban counterpart.
- **Lack of opportunities:** There is a lack of livelihood opportunities, modern amenities and services, necessary for decent living in rural areas.
- **Insufficient public healthcare infrastructure.** A majority of health infrastructure is in the private sector, which is limited to the middle classes in urban India. Rural areas are catered by government-run dispensaries which lack infrastructure and medicines.
- **Exclusion:** A majority of rural society remains excluded from India's journey of development.
- **Lack of infrastructure:** There is improper and inadequate provision of infrastructure when compared to urban areas.
- **Decline in profitability and productivity within agriculture:** The decline of India's agriculture and the rise of the urban-centric service-led economic growth has led to the widening of rural-urban disparities.

What are the major causes of Rural-Urban divide?

- Dependence of rural population on agriculture

- Lack of rural livelihood and employment opportunity
- Differentiated impact of growth and development
- Homogeneity in employability
- Disguised unemployment
- Inadequate penetration of formal credit line and banking system

What are the challenges?

- **Social customs:** In closed rural societies, social institutions such as caste system, joint family system and various social customs play a major role in the day-to-day life of an individual.
 - ▶ For example, the rigid caste system does not allow a low caste person to give up his traditional work. While in urban areas, the emphasis is on individual's merit and qualification.
- **Pushing factor:** The rural area characterised by lower wages, a small size of landholdings, lack of opportunities and amenities have been a pushing factor for migration from rural area to urban area.
- **Multiple issues:** Although there is no dearth of schemes for rural development, the benefits of these schemes are not reaching the target population mainly due to
 - ▶ Corruption in the disbursal of funds
 - ▶ Non-transparency in financial transactions
 - ▶ Wrong identification of the beneficiaries
 - ▶ Lack of involvement of gram panchayats in planning and implementation
 - ▶ Lack of political and administrative accountability

What measures are required?

- **Reforms in farm sector:** To address the longstanding economic problems of agriculture, the farm sector needs reform to raise productivity, enhance farmers' income, built market infrastructure and address declining soil fertility.

- A concomitant industrial policy that takes into account the structural relationship between agriculture-industry that also provides urban infrastructure and social sector support, particularly investments in education and health.
- Policies need to be crafted to increase productivity simultaneously diversify the workforce to accelerate the structural transformation of the Indian economy.
- Penetration of proper insurance and banking sectors
- Implementation of Rurban mission:
 - ▶ Bridging the rural-urban divide by ensuring facilities and services.
 - ▶ Stimulating local economic development while focusing on reduction in poverty and unemployment in rural areas.
 - ▶ Regional development
 - ▶ Attracting investment in rural areas.
- Equitable access to quality education and healthcare.

PRACTICE QUESTION

- Q1: Post-Pandemic recovery phase is coupled with widening of urban-rural divide on several parameters. Critically examine the components responsible for widening up the divide.**
- Q2: Differentiated accessibility and availability of basic amenities in rural and urban areas are the sole factors contributing to the rural –urban divide. Critically analyse the steps taken by the government to narrow down the divide.**

THE WORLD COMPETITIVENESS INDEX 2022

CONTEXT

The annual World Competitiveness Index was released by the Institute for Management Development (IMD).

◎ BACKGROUND

- The **World Competitiveness Index** is a comprehensive annual assessment that serves as a global benchmark for country competitiveness.
- Global Indices and India's Rankings represent the country's performance on indicators that range from social to economic factors along with political indicators as well.
- IMD is a **Swiss foundation**, based in Switzerland, dedicated to the development of international business executives at each stage of their careers.
- The IMD **World Competitiveness Yearbook (WCY)**, first published in 1989, is a comprehensive annual report and worldwide reference point on the competitiveness of countries.

Key Highlights of the Report

- **Top Global Performers:**
 - ▶ **Europe: Denmark has moved to the top of the 63-nation list** from the third position last year, while Switzerland slipped from the top ranking to the second position and Singapore regained the third spot from fifth.
 - ▶ **Asia:** The top-performing Asian economies are **Singapore (3th), Hong Kong (5th), Taiwan (7th), China (17th) and Australia (19th)**.
 - ▶ **Others:** Both Russia and Ukraine were not assessed in this year's edition due to the limited reliability of data collected.
- **India's Performance:** Performance on **four** Parameters:
 - ▶ **Economic performance:** It has improved from **37th** in 2021 to **28th** in 2022.
 - ▶ **Government efficiency:** It has improved from **46th** in 2021 to **45th** in 2022.
 - ▶ **Business efficiency:** It saw a huge improvement from 32nd rank in 2021 to 23rd in 2022.
 - ▶ **Infrastructure:** It on the other hand, saw no change at **49**.

- Re-regulation of a number of sectors, including drones, space and geo-spatial mapping.
- Significant improvement in the competitiveness of the Indian economy
- India as a driving force in the global movement to fight climate change and India's pledge of net-zero by 2070 at the COP26 summit also sits in harmony with its strength in environment-related technologies in the ranking.

What are the recent steps taken by India to increase its Competitiveness?

- **Towards Increasing Manufacturing Capacity:** India has made appreciable efforts to ensure resilience in manufacturing capacity such as via **Atmanirbhar Bharat** and **Make in India** initiatives which are aimed at domestic supply chains and heavy investment in manufacturing hubs.
- **The government has introduced the Production-Linked Incentive (PLI) Scheme** in various sectors for enhancing India's manufacturing capabilities and exports.
- **Technological Advancement:** To facilitate technological advancement for increasing competitiveness, India's Department of Telecom (DoT) has constituted six task forces on 6G technology.
- The **Ministry of External Affairs**, through its **New, Emerging And Strategic Technologies (NEST) division** is also ensuring India's active participation in international forums on technology governance.
- It acts as the nodal division within the ministry for issues pertaining to new and emerging technologies and assists in collaboration with foreign partners in the field of technology.

◎ ANALYSIS

Reasons for India's Good Performance

- Major improvements in the context of retrospective taxes in 2021

India's strength	India's Weaknesses
<ul style="list-style-type: none"> • The top five attractive factors of India's economy for business are – 	<ul style="list-style-type: none"> • The challenges that India faces include;

<ul style="list-style-type: none"> • A skilled workforce • Cost competitiveness • dynamism of the economy • high educational level • Open and positive attitudes 	<ul style="list-style-type: none"> • Managing trade disruptions and energy security • Maintaining high GDP growth post the pandemic • Skill development and employment generation • Asset monetisation and resource mobilisation for infrastructure development
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Way forward

- A nation that ensures balance between economic and social progress can enhance its productivity, followed by creating competitiveness and thus, prosperity.
- Therefore, it is necessary to create an environment which not only pushes the businesses to compete successfully in local as well as international markets but ensures that the average citizen's standard of living also improves.
- Governments need to provide an environment characterized by efficient infrastructures, institutions and policies that encourage sustainable value creation by the enterprises.
- According to Michael Porter, a country that achieves a balance between economic growth and development could increase productivity, leading to increased competition as well as wealth.
- As a result, it is important to create an environment that not only encourages businesses to compete effectively in the domestic and international markets but also ensures that the standard of living of the average citizen grows.
- Governments should provide an environment with efficient infrastructure, institutions, and laws that encourage firms to build long-term value.

PRACTICE QUESTION

- Q1: According to the annual World Competitiveness Index 2022 released recently, India has improved its ranking among Asian economies. In this context, elaborate on the major factors responsible for increasing India's ranking.**
- Q2: What are the current challenges India is facing in achieving competitiveness measures?**

CABINET APPROVES MEGA 5G AUCTION

CONTEXT

The Union Cabinet has approved the auction of airwaves capable of offering fifth generation, or 5G, telecom services, including ultra-high-speed Internet, and gave its nod for setting up of captive 5G networks by big tech firms.

◎ BACKGROUND

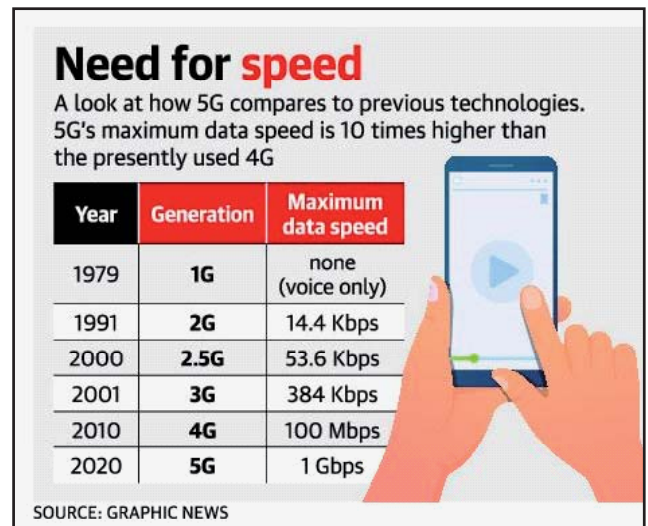
- Devices such as cell phones and wire line telephones require signals to connect from one end to another.
- These signals are carried on airwaves, which must be sent at designated frequencies to avoid any kind of interference.
- The **Union government** owns all the publicly available assets within the geographical boundaries of the country, which also include **airwaves**.
- With the expansion in the number of cell phone, wire line telephone and internet users, the need to provide more space for the signals arise from time to time.
- To sell these assets to companies willing to set up the required infrastructure to transport these waves from one end to another, the central government through the **DoT auctions these airwaves**.
- These airwaves are called **spectrum**, which is subdivided into bands which have varying frequencies.
- All these airwaves are sold for a certain period of time, after which their validity lapses, which is generally set at **20 years**.

◎ 5G SPECTRUM

- **About 5G Technology:**
 - ▶ It is the latest upgrade in the Long-Term Evolution (LTE) mobile broadband networks with reduced latency than 4G.
 - ▶ 5G technologies offer an extremely low latency rate, the delay between the sending and receiving information.
 - ▶ From 200 milliseconds for 4G, 5G brings it down to 1 millisecond (1ms).
 - ▶ It works in three bands of the spectrum with their respective pros and cons.
- **Low Band Spectrum:**
 - ▶ It shows great promise in terms of coverage and speed of internet and data exchange with a maximum speed limited to 100 Mbps (Megabits per second).
 - ▶ Telcos can use and install it for commercial cellphone users who may not have specific

demands for very high-speed internet.

- ▶ It may not be optimal for the specialised needs of the industry.
- **Mid-Band Spectrum:**
 - ▶ It offers higher speeds compared to the low band but has limitations in terms of coverage area and penetration of signals.
 - ▶ It may be used by industries and specialised factory units for building captive networks that can be molded into the needs of that particular industry.
- **High-Band Spectrum:**
 - ▶ It offers the highest speed of all three bands, but has extremely limited coverage and signal penetration strength.
 - ▶ Internet speeds have been tested to be as high as 20 Gbps (gigabits per second).
- **Importance:** Operators will use a combination of different spectrum bands to deliver 5G services, and it will play a critical role in determining the speed and range of coverage.



- **Benefits of 5G Technology:**
 - ▶ **Healthcare:** Healthcare providers can create sensor networks to track patients and share information faster than ever before.
 - ▶ **Public Safety:** A vast network and rapid response times mean that public works can respond to incidents and emergencies in seconds rather than minutes, and municipalities

can react fast and with reduced costs.

- ▶ **Autonomous Vehicles:** 5G will allow vehicles to communicate between them and with infrastructure on the road, improving safety and alerting drivers to travel conditions and performance information.

Global scenario

- More than governments, global telecom companies have started building 5G networks and rolling it out to their customers on a trial basis.
- In countries like the US, some companies have taken the lead when it comes to rolling out commercial 5G for their users.
- A South Korean company, which had started researching on 5G technology way back in 2011, has, on the other hand, taken the lead when it comes to building the hardware for 5G networks for several companies.

Where does India stand in the 5G technology race?

- On par with the global players, India had, in 2018, planned to start 5G services as soon as possible, with an aim to capitalize on the better network speeds and strength that the technology promised.
- Indian private telecom players have been urging the DoT to lay out a clear road map of spectrum allocation and 5G frequency bands so that they would be able to plan the rollout of their services accordingly.
- One big hurdle, however, is the lack of flow of cash and adequate capital with some companies due to their AGR dues.

Benefits for India after auction of 5G services

- **Revenue generation:** The auction process will generate revenue for the government as well as make companies to involve in contributing for societal benefits.
- **Less departmental burden:** Work load of technological advancements in every field has made the departments full with less time for other developmental projects.
- **Privatization of Infrastructure**
- **More Bidders availability**
- **More efficient services of 5G**
- **Better implementation:** The implementation of 5G technologies will now be included to rural areas also with the help of private players.
- **Penetration in the hinterlands**
- Other Benefits
 - ▶ Health Care: Healthcare providers can build nerve networks to track patients and share information.
 - ▶ Public Safety: Large network and emergency response times mean that public services can respond to incidents and emergencies in seconds rather than minutes, and municipalities can respond more quickly and at reduced costs.
 - ▶ Independent Vehicles: 5G will allow vehicles to connect with each other and road infrastructure, improve safety and alert drivers for traffic conditions and operational information.

PRACTICE QUESTION

- Q1:** Discuss the concerns and challenges related to 5G technology. Where does India stand in the 5G technology race as compare to other global players?
- Q2:** 5G technology aims to bring a revolution not only in technological domain but also in various policy and welfare process. Critically examine the benefits and challenges of the 5G technology in the Indian context.

SECTION: B
(CONTEMPORARY ISSUES
BASED ESSAY)

DID WE OVERLOOK RECYCLING FOR PROFIT?

◎ HINTS

India launched a nationwide awareness campaign on Single-Use Plastics on World Environment Day, and as a result, the Plastic Waste Management Amendment Rules, 2021 were issued for prohibiting the 20 identified single-use plastic items by 2022. The emphasis on the banning of single-use plastics clears this perception that plastics are going to stay with us as not all plastics are bad. Only certain plastics which cannot be recycled get dumped un-managed. But is this true that the plastic we are not including in the direct control for plastic waste management is going to be recycled completely? Is there any guarantee that the recycling rates are going to be up in the future?

If we go by the definition, Recycling is the process of converting waste materials into new materials and objects. The data shows that India's recycling rates, which means the conversion of plastic waste into new material are low viz-a-viz the volumes of waste it generates. As per Material Recycling Association (MRAI), India's recycling rate stands at around 30%. Plastic products have become an integral part of our daily life as a result of which the polymer is produced on a massive scale worldwide. On average, the production of plastic globally crosses 150 Million tonnes per year. Its broad range of applications is in packaging films, wrapping materials, shopping and garbage bags, fluid containers, clothing, toys, household and industrial products, and building materials.

Poorly managed waste is contaminating the world's oceans, clogging drains and causing flooding, transmitting diseases, increasing respiratory problems from burning, harming animals that consume waste unknowingly, and affecting economic development, such as through tourism. Because waste generation is expected to rise with economic development and population growth, lower-middle-income countries are likely to experience the greatest growth in waste production. The fastest-growing regions are Sub-Saharan Africa and South Asia, where total waste generation is expected to triple than double by 2050, respectively, making up 35% of the world's waste.

The industry sold the public on an idea that the majority of plastic could be, and would be, recycled all while making billions of dollars selling the world new plastic. The recycling of virgin plastic material can be done 2-3 times only because after every recycling, the plastic material deteriorates due to thermal pressure and its life span is reduced. Hence recycling is not a safe and permanent solution for plastic waste

disposal. It has been observed that the disposal of plastic waste is a serious concern due to improper collection and segregation systems. For industries recycle was costing more than it was to dispose of the same material as garbage.

On the other hand, new plastic is cheap. It's made from oil and gas, and it's almost always less expensive and of better quality to just start fresh. Recycling costs money because the material must be hauled and managed before it can be used in new products. A service fee is paid to have your garbage picked up at the curb, transferred, and buried at a landfill. Similar to the costs of waste hauling, it also costs money and becomes unfeasible. Recycling plastic wasn't making economic sense as there were too many different kinds of plastic, hundreds of them, and they can't be melted down together. They have to be sorted out.

But when it comes to consumer and business demand for the products made from these materials, the economics of recycling falls apart. "Recycling is a victim of its success." Mountains of recyclable material remain in storage while recyclers wait for the price to rise to a level that allows them to cover the cost of collection, transportation, processing, packaging, and storage and to make a reasonable profit.

Germany's package-reduction ordinance requires that retailers take back all sales packaging from customers and add a 30-cent deposit to most nonrefillable containers. German manufacturers and product suppliers now pay a licensing fee to place a green dot on products; the green dot guarantees that a product's packaging will be recycled by the recycling industry. Since many German retailers now refuse to stock products without the dot, the European Community countries have called these German initiatives protectionist and antitrust suits were filed.

The World Bank's investments have stepped up to help countries meet that demand. In India, Plastic Waste Management (PWM Rules), 2016; Reduce, Reuse, Recycle, and Recovery methods opted; Operation Blue Mountain in Nilgiris, Tamil Nadu, Sikkim: First State to Ban Plastics Bottles & Disposable Foam Products, Maharashtra banned single-use disposable plastic and Himachal Pradesh- Sustainable Plastic Waste Management Plan. In India, enough measures have been taken but what is needed is the right implementation of these rules. India needs to shift its focus to seeing waste as a resource and develop technology around the utilization of these resources which are leaking into the environment and haunting us back with diseases.

To build demand for recycled materials, the government and businesses must not only reinvent themselves, but must also reinvent their relationship, especially when it comes to economic problems that neither can solve alone. Solid waste management is everyone's business. Ensuring effective and

proper solid waste management is critical to the achievement of the Sustainable Development Goals. Left unmanaged, dumped, or burned, waste harms human health, hurts the environment and climate, and hinders economic growth in poor and rich countries alike.

SECTION: C

(PRELIMS)

CURRENT AFFAIRS

To Attempt
Weekly Current Affairs Test, Visit

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NEW MAP OF EARTH'S TECTONIC PLATES

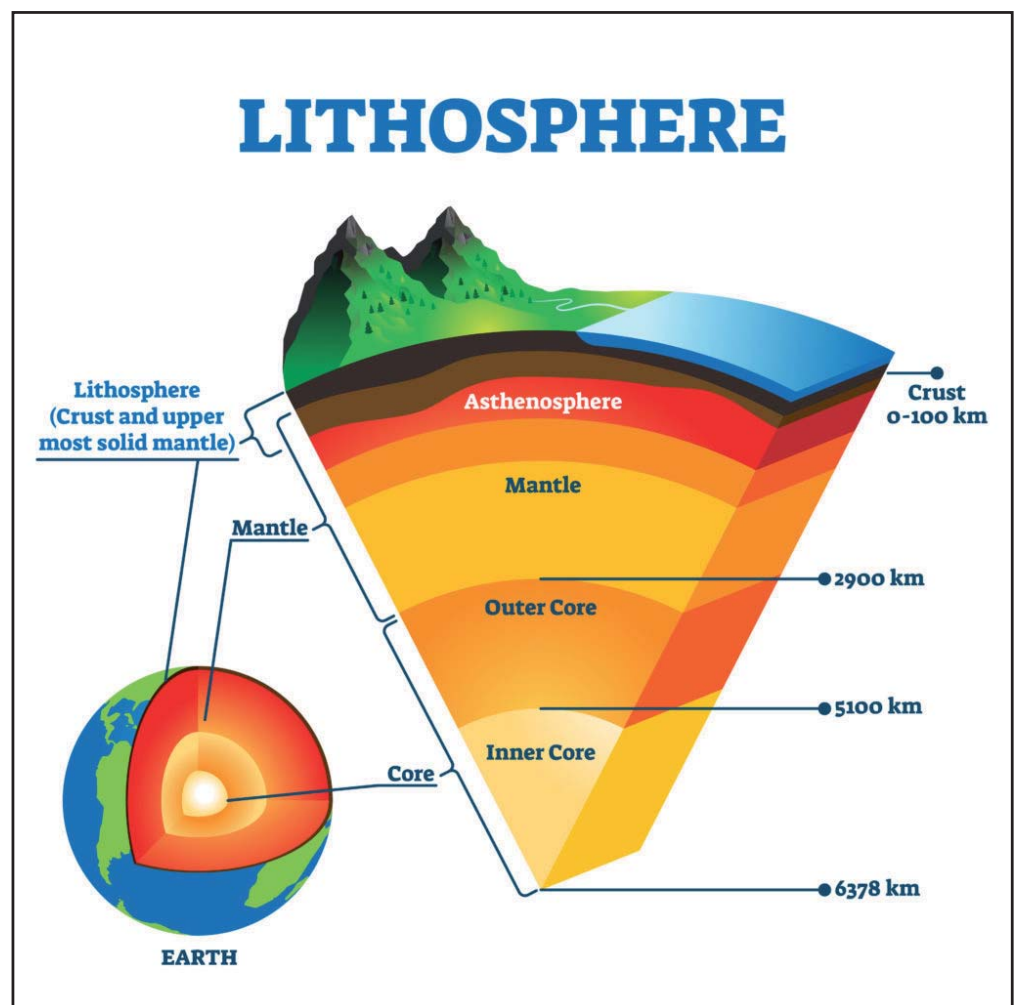
◎ **CONTEXT:** Researchers have carried out a new study that includes an updated map of the earth's tectonic plates.

- It sheds light on how past continents were formed by tectonic movements; new micro plates have been added with existing plates.

The last study regarding the maps where done in 2003.

About The Earth's Tectonic Plates

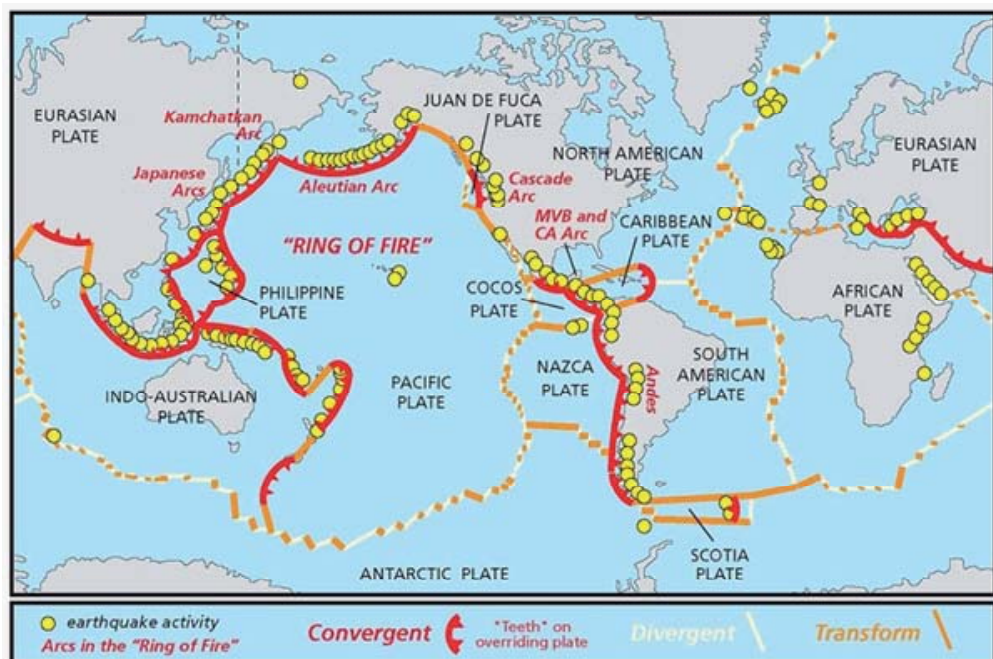
- In the **Earth's lithosphere**, gigantic and irregularly-shaped rocks, known as **tectonic plates** cover the surface (crust and mantle).



- These tectonic plates can range in size from hundreds of kilometers wide to thousands of kilometers across.
- The Earth's crust and the upper part of the mantle form the lithosphere. This lithosphere is divided into **tectonic plates**.
- **Composition:** Most tectonic plates are composed of both oceanic and continental crust. The Pacific Plate, however, is made up of mostly oceanic crust.
- There are **three main types of plate boundaries**:
 - **Divergent**, where plates move apart from each other and new lithosphere is formed in the process of sea-floor spreading

- **Transform**, where plates slide past each other
- **Convergent**, where plates converge and lithosphere is “consumed” by the process of subduction

Major tectonic plates	
<ul style="list-style-type: none"> • African Plate • Antarctic Plate • Arabian Plate • Australian Plate • Caribbean Plate • Cocos Plate • Eurasian Plate 	<ul style="list-style-type: none"> • Indian Plate • Juan de Fuca Plate • Nazca Plate • North American Plate • Pacific Plate • Philippine Plate • Scotia Plate • South American Plate



Key-highlights of the findings

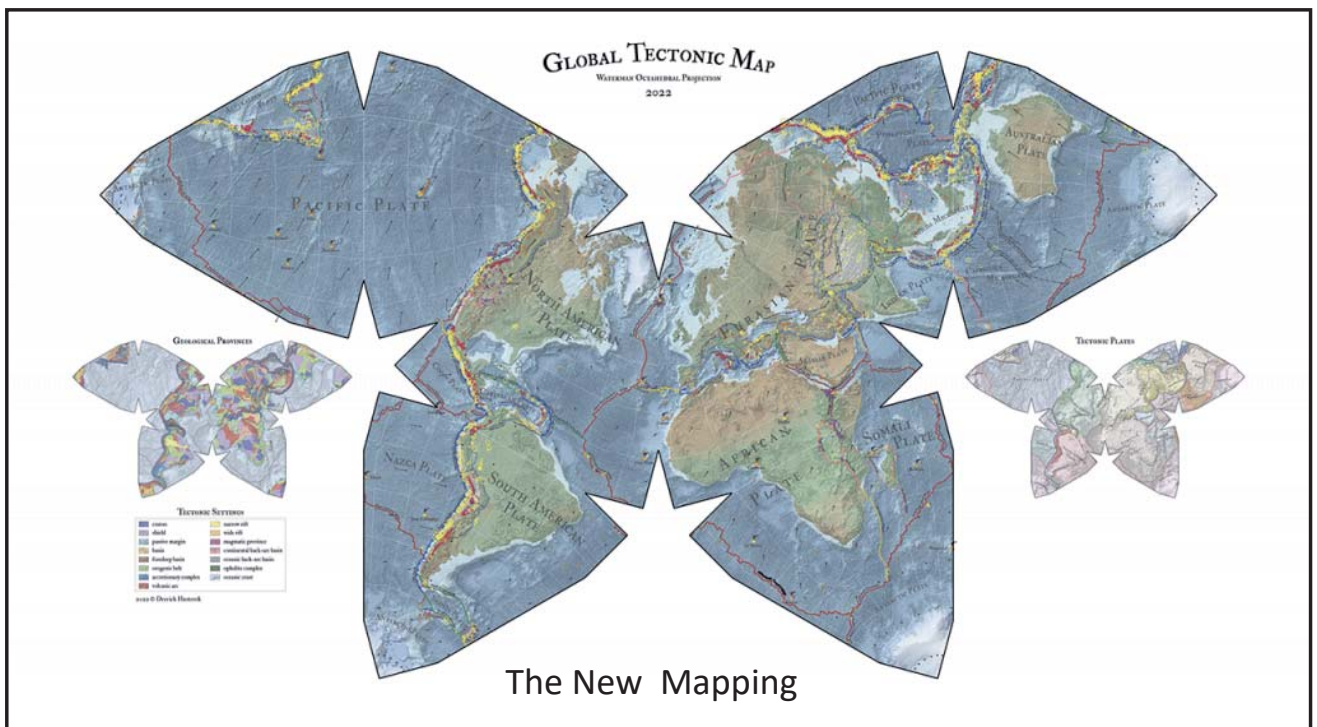
The paper “New maps of global geological provinces and tectonic plates” is published in the journal *Earth-Science Reviews* (2022).

- The cratons of modern continents - the continental cores with the oldest and thickest crust - formed more than 3.2 billion years ago.
- Over time, more and more crustal fragments formed, pushed together by convection currents in Earth’s mantle, forming the **first supercontinent** called **Vaalbara**.
 - These collisions were accompanied by mountain-building processes along the boundaries of the tectonic plates.
 - Eventually, Vaalbara broke apart, forming a subset of smaller continents.
- In the last 3 billion years a number of supercontinents formed and broke apart again, with the most recent being **Pangea**, a supercontinent existing from 335 to 65 million years ago.

- Today Earth's crust consists of eight large tectonic plates and various microplates.
- There are **26 orogenies** (the process of mountain formation) that have left an imprint on the present-day architecture of the crust.

Important Updates

- The new study added **several new microplates** to the existing tectonic plate model like the
 - **Macquarie microplate** which sits **south of Tasmania**
 - **Capricorn microplate** that separates the **Indian and Australian plates**
 - **Western North America:** The biggest update to the existing plate model has been in **western North America**.
 - ▶ The newly delineated boundary is much wider, approximately 1,500 km, than the previously drawn narrow zone.
 - **Central Asia:** The other large change is in **central Asia**.
 - ▶ The new model now includes all the deformation zones **north of India** as the plate bulldozes its way into **Eurasia**.



WHAT WEST SETI POWER PROJECT

◎ **CONTEXT:** India will be taking over an ambitious hydropower project in Nepal, West Seti, nearly four years after China withdrew from it.

About:

- The Government of Nepal has decided to hand over the agreement of the 750-megawatt (MW) West Seti Hydropower Project and 308 MW SR6 Storage Hydroelectric Project to India's National Hydro Power Company Limited (NHPC).

West Seti is a 750MW hydro power project.

- It is planned on West Seti river/basin in Seti, Nepal.



Six decade wait:

- West Seti Hydropower Project, which is to be built on the Seti River in far-western Nepal, has remained on the drawing board for the last six decades.
- China's Three Gorges Corporation had informed the Nepal Government in August 2018 that it would not be able to execute the **750-MW West Seti Hydropower Project**.
- Prior to that, the **Snowy Mountain Engineering Corporation (SMEC)** had been refused renewal of its licence following its failure to begin the work "convincingly" during an entire decade from the mid-1990s.
- The Australian company had been given a generation licence for 30 years under a **Build, Own, Operate and Transfer (BOOT) scheme**.

India -Nepal power relations:

- Nepal is rich in power sources with around 6,000 rivers and an estimated potential for 83,000 MW. India has formally approached Nepal on many occasions.
- India is viewed as a feasible market for Nepal, but there has been some uncertainty in Nepal over India's inability to deliver projects on time. India has undertaken to harness or expressed intent to harness major rivers in the north.
- An ambitious Mahakali treaty was signed back in 1996, to produce 6,480 MW, but India has still not been able to come out with the Detailed Project Report.
- The Upper Karnali project, for which the multinational GMR signed the contract, has not made any headway for years.
- West Seti, therefore, has the potential to be a defining model for Nepal India's power relations in future.

NATIONAL ACHIEVEMENT SURVEY 2021

◎ **CONTEXT:** Department of School Education and Literacy has released the National Achievement Survey (NAS) 2021 report.

About National Achievement Survey (NAS):

- National Achievement Survey (NAS) is a nationally representative large-scale survey of students' learning undertaken by the **Ministry of Education**, Government of India.
- NAS gives a system level **reflection on effectiveness of school education**.
- Findings help compare the performance across spectrum and across population in order to find the desirable direction for improvements.
- The National Council of Educational Research and Training (**NCERT**) have developed the **Assessment Framework** for gauging the competencies attained by the students vis-a-vis learning outcomes.
- This national level survey is **conducted by the Central Board of Secondary Education (CBSE)**.

Ministry of Education
Government of India

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National Achievement Survey (NAS) 2021
held on 12-11-2021

Improving learning levels with long-term, mid-term & short-term interventions

Report is available on nas.gov.in

Ministry of Education
Government of India

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National Achievement Survey (NAS) 2021
held on 12-11-2021

Conducted in **22 regional languages** Across the nation

Report is available on nas.gov.in

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Government of India

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National Achievement Survey (NAS) 2021
held on 12-11-2021

Survey conducted for **Grades 3, 5, 8 and 10**

Report is available on nas.gov.in

Ministry of Education
Government of India

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National Achievement Survey (NAS) 2021
held on 12-11-2021

Covered **34 Lakh** students of **1.18 Lakh** schools across the nation

Report is available on nas.gov.in

About National Achievement Survey (NAS) 2021 report:

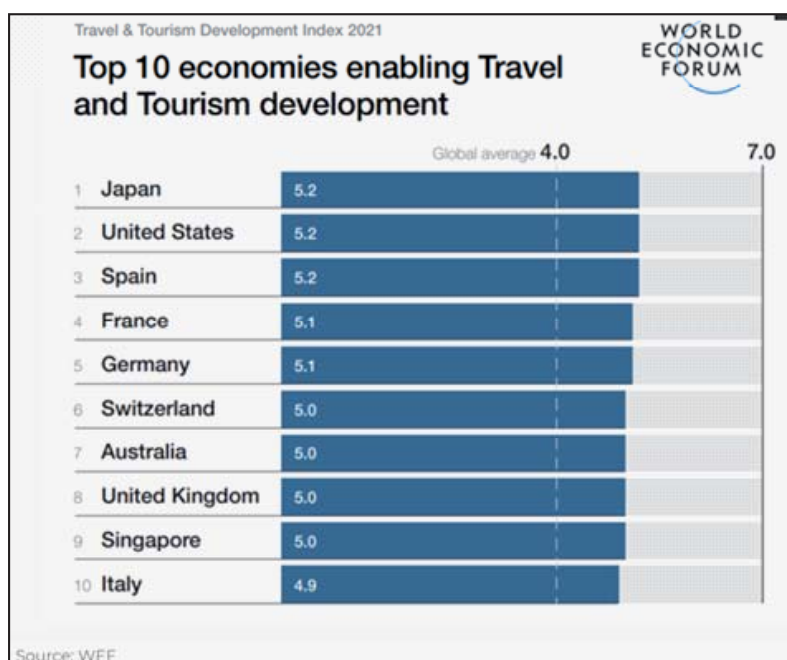
- The report assesses the health of school education system in the country by conducting comprehensive evaluation survey of **children's learning competencies at grades third, fifth, eighth & tenth** with a cycle period of three years.
- It reflects the overall assessment of school education system.
- The **last NAS was held in 2017**.
- The **objective of NAS 2021** is to evaluate children's progress and learning competencies as an indicator of the efficiency of the education system, so as to take appropriate steps for remedial actions at different levels.
 - It will help to unravel the gaps in learning and will support state/UT governments in developing long term, mid-term and short-term interventions to improve learning levels and orient on differential planning based on NAS 2021 data.
- About **34 lakh students** of 1.18 lakh schools in 720 districts from both rural and urban areas have participated in NAS 2021.
- NAS 2021 covered both **central and state government schools, government-aided schools and private schools** across the country.
- The survey was conducted in **22 languages**.
- The report is based on the **performance in all subjects** through disaggregation by **gender** (female, male), **Area** (Rural and Urban), **Management of schools** (Government, Government aided and Private unaided) and **Social Groups** (Schedule Caste (SC), Schedule Tribe (ST), Other Backward Communities (OBC) and General.

INDIA DROPS 8 SLOTS ON TOURISM INDEX© **CONTEXT:**

India ranked at the 54th place in a global travel and tourism development index, down from 46th in 2019.

About Travel and Tourism Development Index:

- It is published by **World Economic Forum (WEF)**.



- The Travel and Tourism Development Index assesses 117 economies, identifying key factors in enabling the sustainable and resilient growth of travel and tourism economies.
- It is based on 5 sub-indices, 17 pillars and 112 individual indicators, distributed among the different pillars.
- The **five Sub-indices**:
 - Enabling Environment
 - Travel and Tourism Policy and Enabling Conditions
 - Infrastructure
 - Travel and Tourism Demand Drivers
 - Travel and Tourism Sustainability
- The World Economic Forum's **biennial** travel and tourism study also showed a recovering sector following pandemic lows, though the recovery has been uneven and challenges remain.
- Japan, the United States, Spain, France and Germany are at the top of the list.
- **India, with a score of 4.2, ranks 54th**, eight lower than in 2019.
 - India is the top scorer in South Asia.

PM CARES BENEFITS FOR 'COVID ORPHANS'

◎ **CONTEXT:** **PM Modi transferred scholarships to school-going children under the PM CARES scheme.**

PM CARES for Children scheme:

- PM CARES for Children Scheme was launched in 2021.
- It was aimed to support children who have lost both their parents or legal guardian or adoptive parents or surviving parents to COVID-19 pandemic.
- The objective of the scheme is to ensure comprehensive care and protection of children in a sustained manner by providing them boarding and lodging, empowering them through education and scholarships, equipping them for self-sufficient existence with financial support of Rs 10 lakh on attaining 23 years of age and ensuring their wellbeing through health insurance.
- **Online portal:** An online portal by the Government was launched to register the children.
 - The portal is a single-window system which facilitates the approval process and all other assistance for children.
 - The portal named "pmcaresforchildren.in".
 - The portal is a single window system which facilitates approval process and all other assistance for children.
- Beneficiaries are also being given **Ayushman Health Card**, which will help them with free medical treatment of up to Rs 5 lakh.
- Identified beneficiaries under the age of six will receive support and assistance from the Anganwadi services for supplementary nutrition, pre-school education/ECCE, immunization, health referrals, and health check-up.
- For children 10 years of age, the government will provide admission in the nearest school as a day scholar.

- For a child in a government school, two sets of free uniforms and textbooks will be provided. While for a student in a private school, the fees will be exempted.
- Children will receive a monthly stipend once they attain 18 years of age, by investing the corpus of Rs 10 lakhs.
 - The beneficiary will receive stipend till they attain 23 years of age.
 - They will receive an amount of Rs. 10 lakh on attaining 23 years of age.

THE REUTERS INSTITUTE DIGITAL NEWS REPORT 2022

◎ CONTEXT:

According to the 2022 Reuters Institute Digital News Report, trust in news is falling in nearly half the countries surveyed, with significant proportions of the public, especially younger age groups, beginning to turn away from news.

About the report:

- It is an annual report commissioned by the Reuters Institute for the Study of Journalism, which tracks how news is consumed in different countries.
- The 2022 report (11th edition) is based on a survey (online questionnaires), covering 46 markets in six continents.
- Because it is based on online questionnaires, the results may not be nationally representative, particularly in countries with low internet penetration.
- The 2022 report flags six major trends which could have wider socio-political implications.

Key findings of the Digital News Report

- People are trusting news content less and less.
- Consumption of traditional news media declined in nearly all the countries surveyed.
- The proportion of news consumers who say that they “avoid news” has risen sharply across countries with the report describing the phenomenon as “selective avoidance”.
- Despite small increases in the proportion of people willing to pay for online news (mostly in richer countries), the growth in digital subscriptions for news content seems to be levelling off.
- Smartphones have become the dominant way in which most people first access news in the morning.
- Facebook remained the most-used social network for news. But it is TikTok that has become the fastest-growing network. However, TikTok is currently banned in India.

Key findings about India:

- In India, the **data is more representative of younger English speakers rather than the general population.**
- India saw a slight increase in trust, with **41% trusting news in general.**
- The top social media platforms for sourcing news were **YouTube (53%) and WhatsApp (51%).**
- India is a **heavily mobile-focused market**, with **72% of survey respondents accessing news via smartphones** and 35% via computers.
- In addition, **84% of Indian respondents got their news from the internet**, 63% from social media, 59% from television and 49% from print.

CHANGING MEDIA

SOURCES OF NEWS



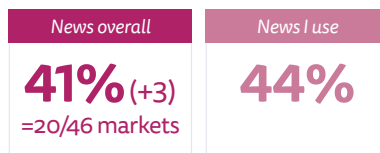
DEVICES FOR NEWS



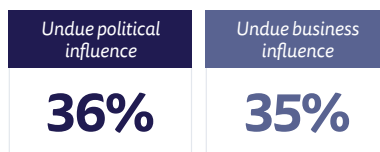
TRUST

India registered a small increase in news trust, improving its overall position among the 46 markets. Legacy print brands and public broadcasters, such as DD News and All India Radio, continue to enjoy high trust among the survey respondents, while 24-hour television news channels are less well trusted – along with newer digital-born brands like The Print and The Wire.

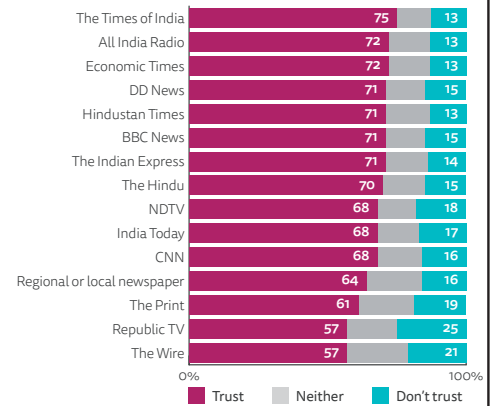
OVERALL TRUST SCORES



MEDIA IS FREE FROM ...



BRAND TRUST SCORES



Trust = % scored 6-10 on 10-point scale. Don't trust = 0-4, Neither = 5. Those that haven't heard of each brand were excluded. Only the above brands were included in the survey so should not be treated as a list of the most trusted brands.



TOP SOCIAL MEDIA AND MESSAGING

Rank	Brand	For News	For All	Rank	Brand	For News	For All
1	YouTube	53% (-)	76%	4	Instagram	32% (+5)	55%
2	WhatsApp	51% (-2)	76%	5	Twitter	22% (+3)	35%
3	Facebook	43% (-)	62%	6	Telegram	21% (+3)	41%

PANEL TO HEAR APPEALS ON SOCIAL MEDIA POSTS

◎ **CONTEXT:**

The government has proposed a new panel that will have the power to overturn the decisions related to content moderation/takedown of social media platforms such as Facebook, Twitter and YouTube, following appeals by users.

Grievance Appellate Committees:

- The Central Government would constitute One or more 'Grievance Appellate Committees' as per the draft of the proposed amendments to the **IT Rules, 2021**.
- The appellate committees will be dealing with appeals by users against the decision of the **Grievance Officer** appointed by the social media intermediary.
- **Composition:** The committee will comprise
 - a chairperson
 - other members appointed by the Central government

SOCIAL MEDIA

- Identify 'first originator' of content that authorities consider anti-national
- Appoint grievance officer, resolve complaints in 15 days
- File monthly compliance report on complaints received, action taken

DIGITAL NEWS

- Follow Press Council of India, Cable TV Networks (Regulation) Act norms.
- Self-regulatory bodies to oversee adherence to Code of Ethics
- I&B Ministry to form panel, oversight mechanism

OTT PLATFORMS

- Self-classify content into five age-based categories: U (universal), U/A 7+ (years), U/A 13+, U/A 16+, and A.

- Parental locks for any content classified as U/A 13+ or above.
- Age verification mechanism for content classified as 'A' (adult)

What are IT Rules, 2021?

- The Rules aim to empower ordinary users of social media and OTT platforms with a mechanism for redressal and timely resolution of their grievance with the help of a Grievance Redressal Officer (GRO) who should be a resident in India.
- **Safety measures:** Special emphasis has been given on the protection of women and children from sexual offences, fake news and other misuse of the social media.
- **Source identification:** Identification of the "first originator of the information" would be required in case of an offence related to sovereignty and integrity of India.
- **Appointment of Chief Compliance Officer:** A Chief Compliance Officer, a resident of India, also needs to be appointed and that person shall be responsible for ensuring compliance with the Act and Rules.
- **Complaint monitoring:** A monthly compliance report mentioning the details of complaints received and action taken on the complaints would be necessary.
- **Code of Ethics:** The OTT platforms, online news and digital media entities, on the other hand, would need to follow a **Code of Ethics**.
- **Self-classification:** OTT platforms would be called as 'publishers of online curated content' under the new rules.
 - ▶ They would have to self-classify the content into five categories based on age and use parental locks for age above 13 or higher. They also need to include age verification mechanisms for content classified as 'Adult'.
- **Redressal mechanism:** A three-level grievance redressal mechanism has been mandated. This includes the appointment of a GRO, self-regulatory bodies registered with the Ministry of Information & Broadcasting (MIB) to look after the Code of Ethics and a Charter for the self-regulating bodies formulated by MIB.

HOW TO DECARBONISE DEFENCE: INTERNATIONAL MILITARY COUNCIL SHARES GUIDELINES

© **CONTEXT:** International Military Council on Climate and Security (IMCCS) recently released a report on the need to decarbonise defence agencies across the world.

Key highlights of the report:

- Only a handful of the 30 members of the North Atlantic Treaty Organization (NATO) share information on the carbon footprint from their defence activities
- The world's defences are dominated by the use of fossil fuels, which serve as a reliable and efficient means to operate the forces across the world.
 - But military fuel consumption does not only pose a problem in terms of operations but also involves high expenses and dependence on external suppliers.
- The Russian army attack on a fuel storage facility in Odessa in southern Ukraine in April 2022, for instance, crippled the Ukrainian troops fighting the Russians near the Mikolayev front.
- The recent risks and the commitments of the United States and the European Union to become carbon neutral by 2050 and the recent conflict have compelled the western international organisations and the European Union (EU) to accelerate the process of military decarbonisation.

Key recommendations:

- **High technology innovations** such as use of bio-fuel, could help to shift them to low-carbon alternatives thus evolving the modernisation process.
- To bring **hybrid vehicles or alternative fuel technologies** to reduce reliance on fossil energy.
- Concerted move in such a direction to **combat climate change by phasing out use of fossil energy** can also work as weapon against Russia in its war against the Ukraine.

NATO's stand

- In **2010, NATO acknowledged the link between climate change and security** for the first time in its report Strategic Concept.
 - The Allied forces have prioritised adaptation to the drawbacks of climate change on various aspects of the military such as its installations, equipment, force readiness and operations.
- NATO strongly believes that decarbonisation can be achieved by initially introducing **innovations and sustainable solutions** in sectors of operating buildings, facilities, short and medium distance vehicles, equipment and energy consumption.
- NATO is **not a first responder to climate change**. This role is played by other international bodies, in particular those who can set limits on CO2 emissions.
 - NATO **instead seeks to become "the leading international organization when it comes to understanding and adapting to the impact of climate change on security.**

International Military Council on Climate and Security (IMCCS):

- IMCCS is a **group of senior military leaders**, security experts, and security institutions across the globe dedicated to anticipating, analysing, and **addressing the security risks of a changing climate**.
- The **launch** of the IMCCS was announced at **The Hague, Netherlands**, in **2019** in response to a growing demand from military professionals for sharing information and best practices on addressing the security and military dimensions of climate change.
- **Governance:** The IMCCS is administered by the Center for Climate and Security (CCS), an institute of the Council on Strategic Risks, and consists of three main entities.
 - ▶ **IMCCS Leadership:** The IMCCS Leadership is a multi-organizational consortium made up of an Expert Group, Executive Committee and Secretariat who govern the activities of the IMCCS.
 - ▶ **IMCCS:** The IMCCS is a Council of senior military leaders and security experts from the governmental and nongovernmental sectors, consisting of the full Council and an IMCCS Expert Group.
 - ▶ **IMCCS Institutional Partners:** IMCCS Institutional Partners are security organizations, networks and donors that formally affiliate with the IMCCS.

CiSS APPLICATION TO HELP REHABILITATION OF CHILDREN IN STREET SITUATIONS

- ◎ **CONTEXT:** **The National Commission for the Protection of Child Rights (NCPCR) has launched the “CiSS application” to help Street Children.**

About CiSS application

- The **CiSS application** is used for receiving data of children in street situations from all the states and union territories, tracking their rescue and rehabilitation process.
- The initiative is taken under the direction of **the Supreme Court of India**.
- The program embodies **Article 51 (A)** of the Constitution of India, as it provides a platform to the public and organizations catering to the welfare of the children to report any child in need of assistance.
- It also provides a platform for professionals and organizations to provide any help that they can to children in need.
- Help can be provided in the form of open shelters, counselling services, medical services, sponsorships, de-addiction services, education services, legal/paralegal services, volunteering etc.
- CiSS application has been launched under the **Baal Swaraj portal**.
 - The Baal Swaraj portal was launched by the **National Commission for the Protection of Child Rights (NCPCR)** for online tracking and monitoring of children in need of care and protection.
- Baal Swaraj portal follows a 6 steps framework for children’s rehabilitation-
 - Collection of the child’s details through the portal
 - Prepare a **Social Investigating Report (SIR)** i.e. investigating the child’s background under the supervision of the **District Child Protection Unit (DCPU)**
 - Formulating an **Individual Care Plan (ICP)** for the child

- Release an order of the **Child Welfare Committee (CWC)** based on the reports.
- Allocating the schemes and benefits
- Prepare a Checklist for the evaluation of the progress.

About National Commission for Protection of Child Rights (NCPCR)

- The National Commission for Protection of Child Rights (NCPCR) is a **statutory body** established under the Commission for Protection of Child Rights (CPCR) Act, 2005.
- It is under the administrative control of the **Ministry of Women and Child Development**.
- **Under the act, a Child is defined as a person in the 0 to 18 years age group.**
- It aims to ensure that all Laws, Policies, Programmes, and Administrative Mechanisms are in harmony with the Child Rights perspective as enshrined in the Constitution of India and also the UN Convention on the Rights of the Child.

Composition

- This commission has a chairperson and six members of which at least two should be women.
- All of them are appointed by the Central Government for 3 years.
- The maximum age to serve in commission is 65 years for Chairman and 60 years for members.
- The salary and allowances payable to, and other terms and conditions of service of, the Chairperson and Members, shall be such as may be prescribed by the Central Government.

BALIKA PANCHAYAT

◎ **CONTEXT:** Gujarat is the first state in the country to launch Balika Panchayat.

Balika Panchayat:

- The initiative aims to promote the **social and political development of the girls** and ensure their active participation in politics.
- It is a new initiative has been started in **Kutch under Beti Bachao Beti Padhao**.
 - The main objective of panchayat is that the girls should move forward in politics.
 - In Balika panchayat, the member is **nominated just like Gram panchayat**.
- This initiative has been taken by the **Women and Child Development Welfare Department of the Gujarat Government** under the 'Beti Bachao Beti Padhao' campaign.
- 'Balika Panchayat' is managed by people in the **11-21 age group and its main objective is to promote the social and political development of the girl child** and to remove the evil practices from the society such as child marriage, and the dowry system.

Significance:

- It focuses on **women- led development** instead of women's development.
- It's a **replicable model** for other states where child marriage is prevalent or girls education is on the decline.
- Balika Panchayat have **made girls vocal**, which is proven by the Gujarat model.

ALL-FEMALE AFFAIR

- Members of 'Balika Panchayat' will be elected from six wards
- This is the first-ever election of this kind
- Six members have been unanimously elected uncontested
- Contestants are young females aged between 10 and 21 years
- Post of sarpanch will be a contest between four candidates
- Aims to develop leadership qualities in girls for future Panchayat polls



HOW DID THE IDEA COME ABOUT?

This idea of Balika Panchayat came from a gram sabha meeting that was organized to discuss a cricket tournament for boys. The girls raised demands that some form of activity should be done for the girls too. "I read in the newspapers that in foreign countries there is a concept of youth parliament/forum. From there we have taken this concept. We will provide a separate sitting arrangement to these elected girls in the Panchayat building and we will give them to use the budget of gender sensitivity for the development work they choose to do," said village chief, Suresh Chhanga

TOKENISATION AND ITS IMPACT

◎ **CONTEXT:** As per RBI guidelines, with effect from 1st July 2022, neither businesses nor payment aggregators can save customer card details on their platforms.

What is Tokenisation?

- Tokenisation refers to the process of exchanging sensitive consumer data in the form of non-sensitive tokens.
- In other words, tokens are a unique set of characters related to digital payments that retain the essential information without compromising the security of underlying sensitive data.
- In technical terms, tokenisation also refers to the process of replacing the 16-digit card account number with a unique identifier, known as a token.
 - This tokenized data is irreversible and undecipherable as there is no mathematical relationship between the randomly assigned token and the original number it replaces.
 - It also allows secure payment processing without exposing sensitive data that could result in a security breach.

Purpose of Tokenisation

- The primary purpose of tokenisation is the protection of sensitive payment-related information to preserve its utility.

- Using this process, organizations can continue to use the tokenized data for business purposes without worrying about the compliance issues related to storing sensitive data internally.

Benefits of tokenization

The main benefits of tokenization include the following:

- It is more compatible with legacy systems than encryption.
- It is a less resource-intensive process than encryption.
- The risk of the fallout in a data breach is reduced.
- It makes the payment industry more convenient by propelling new technologies like mobile wallets, one-click payment and cryptocurrency. This, in-turn, enhances customer trust because it improves both the security and convenience of a merchant's service.
- It reduces the steps involved in complying with PCI DSS regulations for merchants.

Types of tokens

There are numerous ways tokens can be classified. However, three main types of tokens as defined by the Securities and Exchange Commission (SEC) and the Swiss Financial Market Supervisory Authority (FINMA). These are:

- **Asset/Security token:** These are tokens that promise a positive return on an investment. These are analogous to bonds and equities, economically.
- **Utility token:** These are created to act as something other than a means of payment. For example, a utility token may give direct access to a product or platform, or as a discount on future goods and services offered by the platform. It adds value to the functioning of a product.
- **Currency/Payment token:** These are created solely as a means of payment for goods and services external to the platform they exist on.

Difference between tokenisation and encryption:

- Many individuals consider tokenisation as a synonym for data encryption, which is not true.
- Although both the processes may seem to work on ensuring data security, there are finer differences between the two.

Encryption	Tokenisation
Used to transform plain text into cipher text mathematically using an encryption algorithm	Used to generate a random token value for plain text and then stores the mapping in a database
Used for structured and unstructured data fields	Used for structured data fields, like card details
Easy to scale to large data volumes using a small encryption key	Difficulty may arise to scale securely as database size increases
Comes with a trade-off of lower strength with the format-preserving encryption schemes	Easy to maintain format without losing strength of data security
Make the original data leaves the organization but in encrypted format	Does not require the original data to leave the organization, which satisfies various compliance requirements

GST APPELLATE TRIBUNAL (GSTAT)

◎ **CONTEXT:** The GST Appellate Tribunal is already much-delayed, and the apex court has directed the government to set it up swiftly.

Goods and Services Tax Appellate Tribunal

- GSTAT would serve as the forum of second appeals to do with the applicability of GST, and will also be the first common forum of dispute resolution between the Centre and the States.
- It will be situated in New Delhi.

Composition

- The tribunal has been established under Chapter XVIII of the CGST Act which provides for the Appeal and Review Mechanism for dispute resolution under the GST Regime.
- Section 109 under CGST Act empowers the Central Government to constitute, on the recommendation of Council, an Appellate Tribunal known as the Goods and Services Tax Appellate Tribunal for hearing appeals against the orders passed by the Appellate Authority or the Revisional Authority.
- It will be presided over by its president. It will consist of a technical member from the Centre and a representative of the States.

Aim and Functions

■ Twin functions of second appellate and first common forum between centre and states

- The appeals against the orders in first appeals issued by the Appellate Authorities under the Central and State GST Acts lie before the GST Appellate Tribunal, which is common under the Central as well as State GST Acts.
- The disputes that state tribunals would be looking at would be appeals under GST law wherein the taxpayer is contesting the tax demand put by the tax department. The appeal based on the assessment would be made to the Commissioner (Appeals) if not satisfied at the state level and from there it would go to the Appellate Tribunal.
- Being a common forum, GST Appellate Tribunal will ensure that there is uniformity in redressal of disputes arising under GST, and therefore, in implementation of GST across the country.

Significance

- The national bench of the GST Appellate Tribunal will expedite resolution of disputes under GST laws.
- Being a common forum, GST Appellate Tribunal (national bench) will ensure that there is uniformity in redressal of disputes arising under GST.
- The appellate authority is being seen crucial as a forum for higher appeal for disputes under the indirect tax regime and will also help in resolving the confusion created by contradictory rulings given by **Appellate Authority for Advance Rulings (AAAR)** on the same or similar issues in different states.

What is GST?

- GST is an Indirect Tax which has replaced many Indirect Taxes in India.
- The Act came into effect on 1st July 2017; Goods & Services Tax Law in India is a comprehensive, multi-stage, destination-based tax that is levied on every value addition.

What is GST Council?

- Goods & Services Tax Council is a constitutional body for making recommendations to the Union and State Government on issues related to Goods and Service Tax.
- The GST Council is chaired by the Union Finance Minister and other members are the Union State Minister of Revenue or Finance and Ministers in-charge of Finance or Taxation of all the States.

What is Appellate Authority for Advance Rulings (AAAR)?

- Any advance tax ruling is a written interpretation of tax laws. It is issued by tax authorities to corporations and individuals who request for clarification of certain tax matters.
- An advance ruling is often requested when the taxpayer is confused and uncertain about certain provisions. Advance tax ruling is applied for, before starting the proposed activity.
- The applicant or the officer aggrieved by any advance ruling can appeal to the Appellate Authority. Appeal against advance ruling must be made within 30 days (extendable by 30 days) from the date of the advance ruling.

PRADHAN MANTRI JEEVAN JYOTI BIMA YOJANA (PMJJBY)

◎ CONTEXT:

The Insurance Regulatory and Development Authority of India (IRDAI) recently relaxed capital requirement norms significantly for insurers to encourage their participation in the government's flagship programme Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY).

Key Points:

- The government has recently hiked the premium rates for the two flagship schemes – PMJJBY and Pradhan Mantri Suraksha Bima Yojana (PMSBY) — to make these schemes economically viable.
- The premium for PMJJBY has been increased from Rs 330 to Rs 436 annually effective June 1.
- The premium for PMSBY has been increased from Rs. 12 to Rs. 20
- The premium rate of PMJJBY has been revised upward to Rs 1.25 per day.

Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):

- The PMJJBY is available to people in the age group of 18 to 50 years having a bank account who give their consent to join / enable auto-debit. Aadhar would be the primary KYC for the bank account.
- Risk coverage under this scheme is for Rs. 2 Lakh in case of death of the insured, due to any reason.
- The premium is Rs. 330 per annum (Now revised to Rs. 436) which is to be auto-debited in one instalment from the subscriber's bank account as per the option given by him.

- The scheme is being offered by Life Insurance Corporation and all other life insurers who are willing to offer the product on similar terms with necessary approvals and tie up with banks for this purpose.
- **Performance:**
 - The number of active subscribers enrolled under the PMJJBY was 6.4 crore as of March 31, 2022.
 - An amount of Rs 9,737 crore has been collected by the implementing insurers towards premium and claims of Rs 14,144 crore have been paid under the PMJJBY as of March 31, 2022.

Pradhan Mantri Suraksha BimaYojana (PMSBY):

- The Scheme is available to people in the age group 18 to 70 years with a bank account.
- Aadhar would be the primary KYC for the bank account.
- The risk coverage under the scheme is Rs. 2 lakh for accidental death and full disability and Rs. 1 lakh for partial disability.
- The premium of Rs. 12 per annum (Now revised to Rs. 20) is to be deducted from the account holder's bank account through 'auto-debit' facility in one instalment.

The scheme is being offered by Public Sector General Insurance Companies or any other General Insurance Company who are willing to offer the product on similar terms with necessary approvals and tie up with banks for this purpose.

Insurance Regulatory and Development Authority of India (IRDAI)

- It is an autonomous, statutory body tasked with regulating and promoting the insurance and re-insurance industries in India.
- It was constituted by the Insurance Regulatory and Development Authority Act, 1999, an Act of Parliament passed by the Government of India.
- IRDAI is a 10-member body including the chairman, five full-time and four part-time members appointed by the government of India.
- It was created based on the recommendations of the Malhotra Committee.
- Its headquarters is in Hyderabad.

NEW ARUNACHAL MONKEY NAMED AFTER MOUNTAIN PASS

◎ **CONTEXT:** **Scientists of the Zoological Survey of India (ZSI) have discovered a new macaque species in Arunachal Pradesh.**

About the species:

- A new species of old world monkey recorded from Arunachal Pradesh has been named after a strategic mountain pass at 13,700 ft above sea level.
- **Sela macaque (Macaca selai)**, the new-to-science primate was identified and analysed by a team of experts from the Zoological Survey of India (ZSI) and the University of Calcutta.
- The new species was found in **western and central parts of Arunachal Pradesh.**
- The Sela macaque was **geographically separated from the Arunachal macaque (Macaca munzala) by Sela**, the Eastern Himalayan pass at 13,700 ft.

- Sela Pass acted as a barrier and prevented migration between the two macaque species for around two million years.

Physical Features of Sela macaque:

- The **Sela macaque is genetically closer to the Arunachal macaque** and both species have many similar physical characteristics such as **heavy built and long dorsal body hair**.
- The Arunachal macaque has a dark face and dark brown colour coat, while the **Sela macaque has a pale face and brown colour coat**.
- The Sela macaque has a **tail longer than the Tibetan macaque, Assamese macaque, Arunachal macaque and the white-cheeked macaque** but shorter than the bonnet macaque and toque macaque.
- Arunachal macaque (*M. munzala*) is an endangered and recently discovered cercopithecine primate from Western Arunachal Pradesh, India.



BIOMASS ELECTRICITY: NEW BOILER TECHNOLOGY

◎ CONTEXT:

A new biomass-based boiler technology has been introduced this year in Denmark.

- **Biomass-based electricity is gaining attention of regulators and policy makers, as the country moves towards power generation that is not carbon-intensive.**

About new Technology:

- Denmark has launched a vibrating grate boiler. It can be a solution for firing any kind of biomass. These boilers have a capacity of 75 tonnes per hour.
- The new Denmark-based technology allows the plant to fire a wide range of fuels with less fuel preparation and handling, and mainly avoid the **energy-intensive process** of briquetting and pelletisation.
- This combustion technology is advantageous because of the **vibrating grate**.
 - The grate of a steam boiler supports the solid fuel in the furnace. It is so designed that it can also allow air to admit air in the solid fuel for combustion.
 - Vibrating grate is different from the more common stationary, travelling and reciprocating grates since it accommodates biomass of every density.

- The **Union Ministry of New and Renewable Energy (MNRE)** announced central finance assistance for projects utilising biomass like **bagasse, agro-based industrial residue, crop residues, wood produced through energy plantations, weeds** as well as wood waste produced in industrial operations for power generation.
- According to Union Power Ministry, around **2.6 per cent** of the country's electricity demand is met by **biomass**.

How it works?

- Instead of converting biomass into pellets or briquettes, the agro residue is converted into bales right after procurement from the farmers.
 - Before it is conveyed to the combustion system, it is subjected to a bale string cutter and dosing screw to cut the string tying the bales and mixing the bales to reduce its size respectively.
- The size of the bale is reduced for achieving complete combustion of the biomass fed into the boiler.
- Then, the bales are sent to a vibrating grate for combustion.
 - Here, the combustion happens as a series of events.
 - For the first 250 seconds, a set of fuel is fired, and then it is moved to the next combustion stage by vibration.
- After the first set of biomass is moved to the next grate, fresh biomass enters the firing system for combustion.
- After complete combustion, the burnt biomass in the form of ash is let out for disposal.
- The biomass-based boiler is as efficient as a coal-based boiler.
 - The average steam to fuel ratio of this biomass-fired boiler is 4-4.5 and the efficiency is also achieved upto 85 per cent, which is equivalent to coal-based thermal power generation.

Advantages:

- The new Denmark-combustion technology is advantageous **because of the vibrating grate.**
- The grate of a steam boiler **supports the solid fuel in the furnace.**
 - It is so designed that it can also **allow air to admit air in the solid fuel for combustion.**
- Vibrating grate is different from the more common stationary, travelling and reciprocating grates since it accommodates biomass of every density.
 - The moisture content of the fuel, however, has to be 15-20 per cent.
- Since the vibrating grate supports firing agro residue of any size, it saves energy consumed for processing biomass for energy generation

GLOBAL INITIATIVE 'LIFESTYLE FOR THE ENVIRONMENT- LIFE MOVEMENT'

◎ CONTEXT:

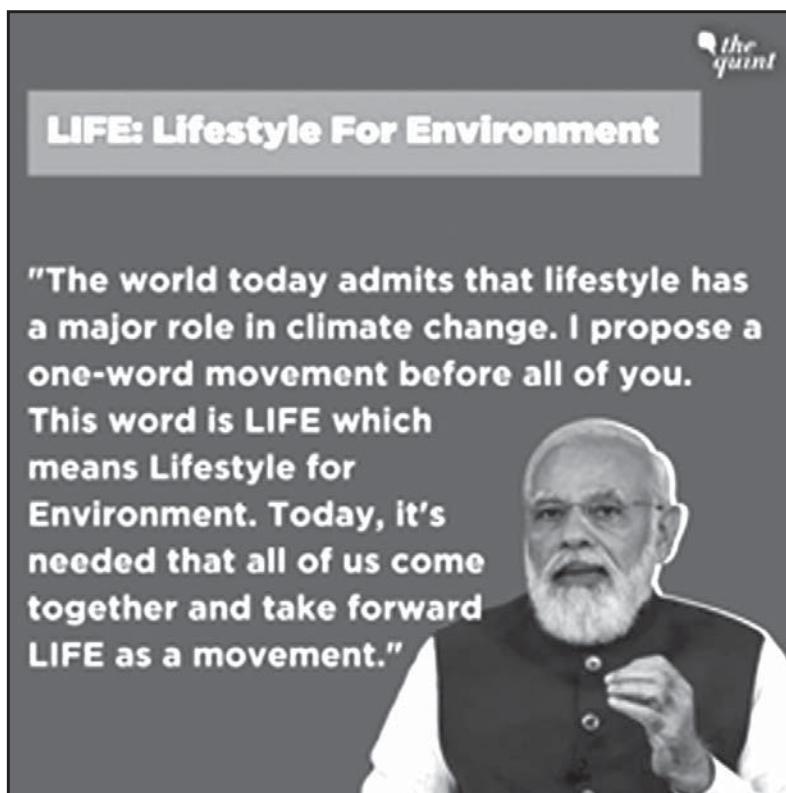
Prime Minister Narendra Modi has launched the 'Lifestyle for the Environment (LiFE) Movement', a global initiative, and asserted that its vision is to live a lifestyle that is in tune with our planet

Key points:

- The idea of LiFE was introduced by the Prime Minister during the 26th United Nations Climate Change Conference of the Parties COP-26 in Glasgow last year.
- The idea promotes an environment conscious lifestyle that focuses on mindful and deliberate utilisation instead of mindless and destructive consumption.
- Mission LiFE borrows from the past, operates in the present and focuses on the future.

What is the aim of the LiFE movement?

- The LiFE Movement aims to bring positive change in the environment by collective action.
- It aims to persuade individuals across the world to undertake simple climate-friendly actions in their daily lives or adoption of environment-conscious lifestyle.
 - Global leaders have applauded India for focusing on individual behaviour change towards Climate Change
- It also seeks to make the best use of social networks to influence social norms surrounding climate.

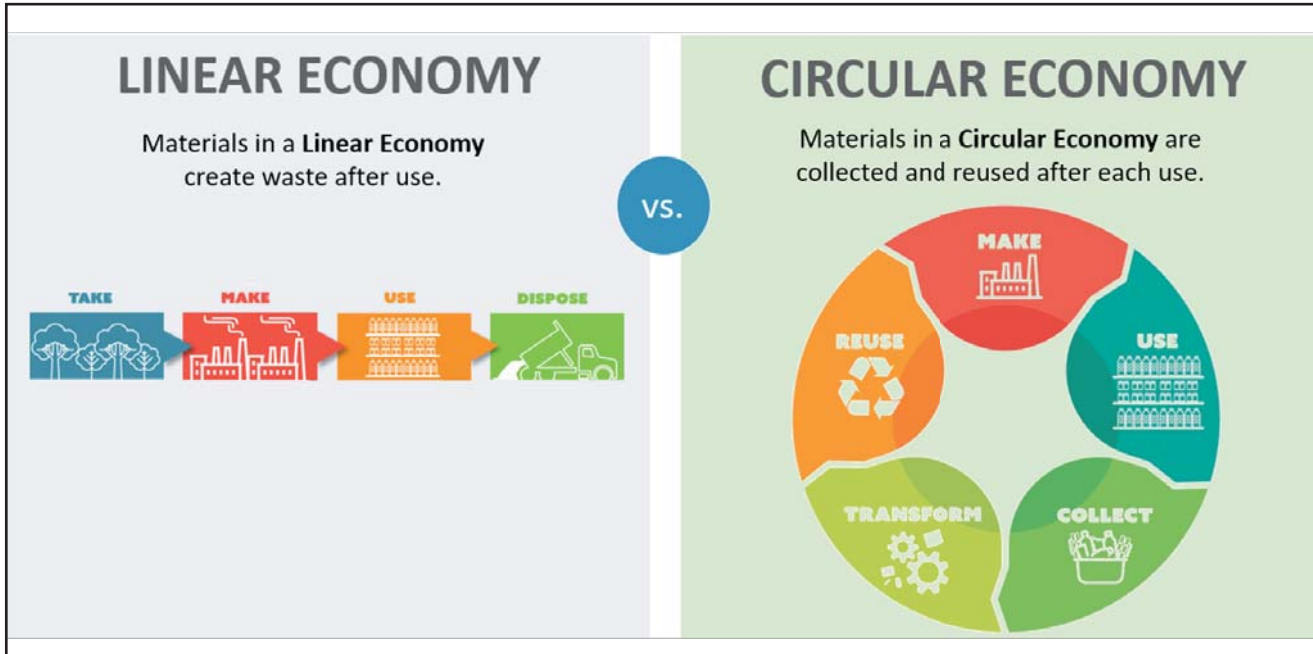


What is P3 in LiFE movement?

- The Mission plans to create and nurture a global network of individuals, namely 'Pro-Planet People' (P3)
- P3 will have a shared commitment to adopt and promote environmentally friendly lifestyles.
- Through the P3 community, the Mission seeks to create an ecosystem that will reinforce and enable environmentally friendly behaviors to be self-sustainable.

What is one of the most important objectives of LiFE?

- The Mission envisions replacing the prevalent '**use-and-dispose**' economy with a **circular economy**.
- 'Use and dispose' economy is governed by mindless and destructive consumption whereas circular economy is defined by mindful and deliberate utilization.
- The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible.
 - In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum.



WORLD'S FIRST FISHING CAT CENSUS DONE IN CHILIKA

◎ **CONTEXT:** The Chilika Development Authority (CDA) recently informed that there are 176 fishing cats in Odisha's Chilika Lake.

About the census:

- The Census was conducted in collaboration with **The Fishing Cat Project (TFCP)**.
- This is the **world's first population estimation** of the fishing cat, which has been conducted outside the protected area network.
- **Spatially Explicit Capture Recapture (SECR)** method was used to analyze the data.
- The census by The Fishing Cat project was conducted in **two phases**.
 - In 2021, for the first phase, surveyors focused on the 115 sq. km marshland in the north and north eastern section of Chilika Lake.
 - The second phase of the fishing cat survey conducted in 2022 on the Parikud Side along the coastal part.

About the Fishing Cat:

- The fishing cat is a globally threatened species found in marshlands, mangroves, flooded forests and other wetlands.
- They are found in 10 Asian countries but have remained untraced in Vietnam and Java for more than a decade.
- Wetlands are the favorite habitats of the fishing cat.
- In India, fishing cats are mainly found in the mangrove forests of the Sundarbans, on the foothills of the Himalayas along the Ganga and Brahmaputra river valleys and in the Western Ghats.
- **West Bengal** declared the fishing cat to be its **state animal in 2012**.

- Authorities in Chilika also named the cat as the **lake's ambassador in 2020**.
- Protection Status:
 - IUCN Red List: Vulnerable. Despite multiple threats, the Fishing Cat was recently down listed to **"Vulnerable" from "Endangered"** in the IUCN Red List species assessment.
 - CITES: **Appendix II**
 - Indian Wildlife Protection Act, 1972: **Schedule I**
- The fishing cat is nocturnal and apart from fish also preys on frogs, crustaceans, snakes, birds, and scavenges on carcasses of larger animals.



© Ben Williams



Fishing Cat range Map:



■ **Importance:**

- The fishing cat, a **Schedule I** species according to the **Wildlife (Protection) Act, 1972**, generally indicates the health of wetland and coastal ecosystems, which are considered as one of the major safeguards against climate change.
- Fishing cats are the apex predator in coastal areas.
- If they survive, it means the area is climate-resistant.

RHINO REINTRODUCTION SUCCESS IN ASSAM

- ◎ **CONTEXT:** Recently, the latest census (14th Assam rhino estimation) revealed that the Manas National Park rhinos have higher life expectancy but need translocation support.

About the 14th Assam rhino estimation

- The rhino census in the **Manas Park** was carried out in all three ranges: **Bhuyanpara, Bansbari and Panbari** comprising 71 estimation blocks.
- The current rhino population in the park was estimated at 40.
- The park's rhinos have a male-female sex ratio of 1:1.
- The number of calves born in the wild reflects the availability of welfare factors to foster rhinos in Manas National Park.
- **Methodology: Total count or Direct count method**
 - A total count is generally used when a single species is targeted to be counted in a well-defined, specific area.
 - This method assumes the detection probability to be one, which means that each and every animal has a 100% chance of being seen during the counting.

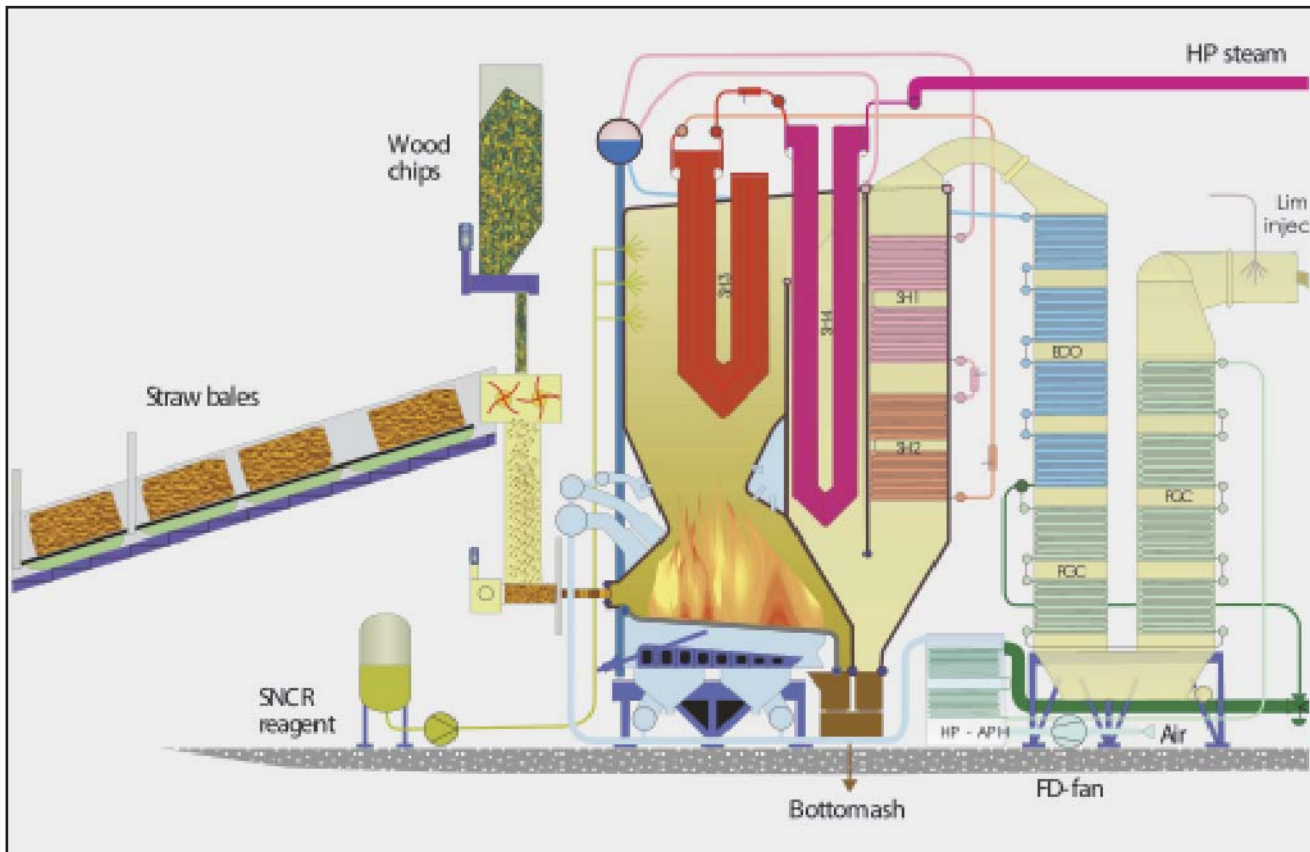
Limitations of this method

- The limitations of this method include undercounting as the assumption of a detection probability of 1 is unrealistic especially if the population closure cannot be established satisfactorily within a small area of 10-20 sq. km.
- Total count requires high visibility to observe the animals from far off, which is not possible in case of "shy, cryptic animals".

The level of precision cannot be measured in total counts either.

About Greater One-Horned Rhino

- There are three species of rhino in Asia-
 - ▶ Greater one-horned (*Rhinoceros unicornis*)
 - ▶ Javan
 - ▶ Sumatran
- World Rhino Day is celebrated on September 22 every year.
- The five rhino range nations are India, Bhutan, Nepal, Indonesia and Malaysia.
- They have signed 'The New Delhi Declaration on Asian Rhinos 2019' for the conservation and protection of the species.
- **IUCN Red list-**
 - ▶ Javan and Sumatran Rhino are critically endangered
 - ▶ Greater one-horned (or Indian) rhino is vulnerable
- **CITES-**
 - ▶ All three listed under **Appendix I**
- **Wildlife Protection Act, 1972-**
 - ▶ Greater one-horned rhino is listed under the **Schedule I of the Act.**



CHELONOIDIS PHANTASTICUS

◎ CONTEXT:

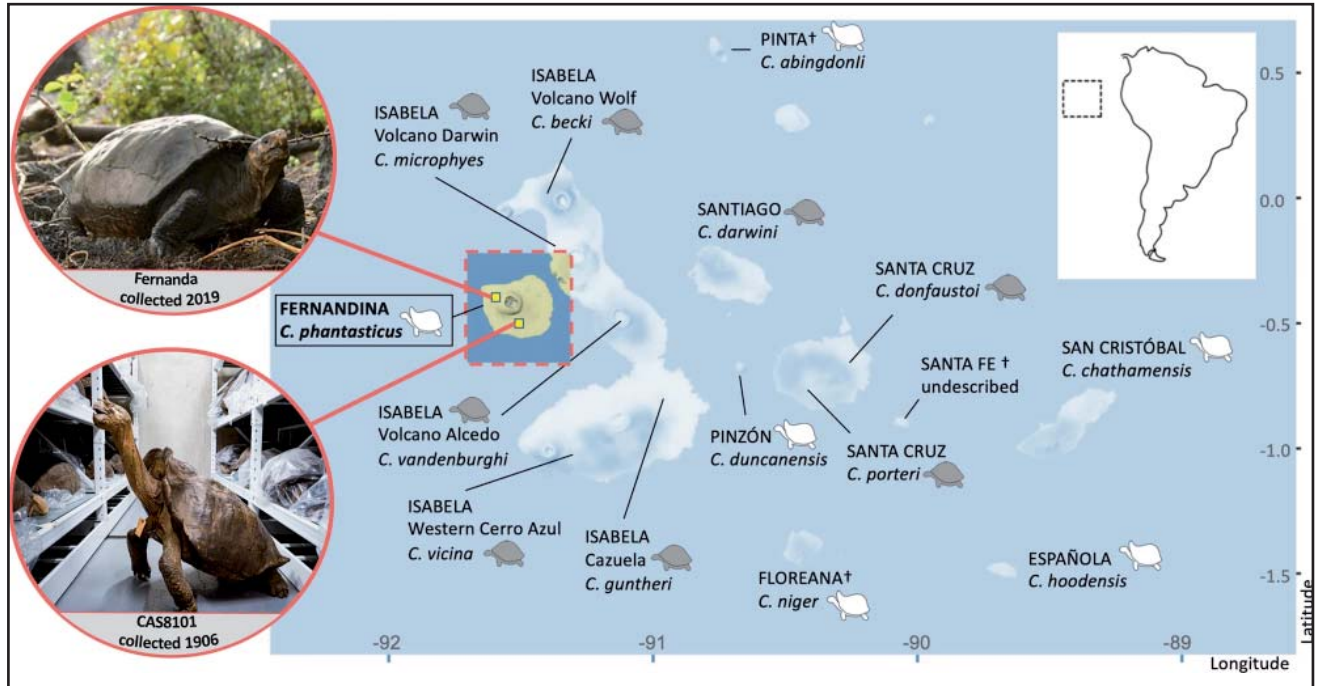
Species of turtle named Fernanda after her Fernandina Island thought extinct 100 years ago rediscovered recently.

What is Chelonoidis Phantasticus?

- It belongs to **Chelonoidis phantasticus**.
- Chelonoidis phantasticus means “fantastic giant tortoise”.
 - It is commonly called **Fernandina Island**, Galápagos Giant Tortoise.
 - It has been named Fernanda after the Fernandina Island where it was discovered.
- The species was so far known only from a single individual, collected in 1906.
- It has now been recently discovered again in 2019.
- These tortoises can’t swim from one island to another. But they can be carried from one Galápagos island to another during major storms. There are also historical records of seafarers moving the tortoises between islands.

Habitat and Distribution

- Chelonoidis phantasticus is a saddle backed tortoise adapted for browsing on higher vegetation such as Opuntia trees.
- Fernandina habitat is largely dry xeric brushland at lower elevations, but much of that habitat has been destroyed by extensive recent lava flows.
- The small area of remaining higher-quality habitat is mesic and at higher elevations.



IUCN Status

- Chelonoidis phantasticus is listed as **Critically Endangered**.

What is Fernandina Island?

- Fernandina Island is an active volcano that stands alone on the western periphery of the **Galápagos Archipelago**.
- It is reputed to be the largest pristine island on Earth.

Fernandina Island is the **third largest**, and **youngest**, island of the Galápagos Islands, as well as the **furthest west**.

About Galapagos Islands

- The Galapagos Islands, spread over almost 60,000 sq km, are a part of Ecuador, and are located in the Pacific Ocean around 1,000 km away from the South American continent.
- Ecuador made a part of the Galapagos a wildlife sanctuary in 1935, and the sanctuary became the Galapagos National Park in 1959.
 - ▶ In 1978, the islands became UNESCO's first World Heritage Site.
- The Galapagos Islands host a wide array of aquatic wildlife, including marine iguanas, fur seals, and waved albatrosses.

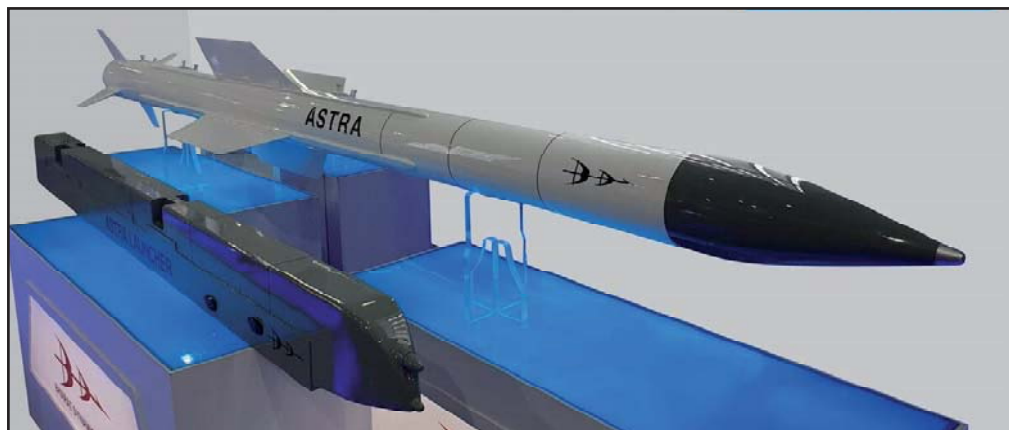
ASTRA MISSILE ORDERED FOR AIR FORCE AND NAVY

◎ CONTEXT:

The Ministry of Defence has recently signed a contract with the Hyderabad-based public-sector Bharat Dynamics Ltd (BDL) for supply of the Astra Mark-1.

About Astra Mark-1:

- The Astra Mk-1 is a **beyond visual range (BVR), air-to-air missile (AAM)**.
- The missile has been designed and developed by the **Defence Research and Development Organisation (DRDO)**.
- It will be used for **deployment on fighter jets like Sukhoi-30 MKI and Tejas** of the IAF and the **Mig-29K of the Navy**.
- BVM missiles are capable of **engaging beyond the range of 20 nautical miles or 37 kilometers**.
- AAMs are fired from an airborne asset to destroy an airborne target.
- The missile can travel at **speeds more than four times that of sound** and can reach a **maximum altitude of 20 km**, making it extremely flexible for air combat.

**About Astra project:**

- The Astra project was **officially launched in the early 2000s** with defined parameters and proposed future variants.
 - Around 2017, the development phase of Mk-1 version was complete.
- While the range for **Astra Mk-1 is around 110 km**, the **Mk-2 with a range over 150 km** is under development and Mk-3 version with a longer range is being envisaged.
- One more version of Astra, with a range smaller than Mk-1 is also under development.

SOFT ROBOTS

◎ CONTEXT:

The market size for Soft robotics, which is still in its early growth stages, is forecasted to grow at the CAGR of about 37% in the years between 2021 and 2026.

What are soft robots?

- Soft robots are robots that are flexible and unlike their hard-edged cousins can be used to perform more delicate manoeuvres, such as reaching into difficult crevices or holding onto delicate objects.
- Such robots are usually made of liquid crystal elastomers, which are polymers having viscosity and elasticity.
- Soft robots are primarily composed of easily deformable matter such as fluids, gels, and elastomers that can match certain materials, in a process called compliance matching.

- Compliance matching is the principle that materials that come into contact with each other should share similar mechanical rigidity in order to evenly distribute internal load and minimize interfacial stress concentrations.

Comparison of soft robotics vs classic robotics

Advantages	Drawbacks
<ul style="list-style-type: none"> • Achieve complex motion • Collision avoidance: absorb impacts, prevent injury • Elastically deformable and soft • Adaptable shape • Multifunctional • Compatible for human interaction (biocompatible and compliant) • Same elastic and rheological properties as soft biological matter (compliance matching) • Low cost materials 	<ul style="list-style-type: none"> • Difficult to control • Less powerful and precise than rigid robots • Support equipment (hardware) kept off-board: limit motion and autonomy • Today's electronics are not adapted (rigid supports)

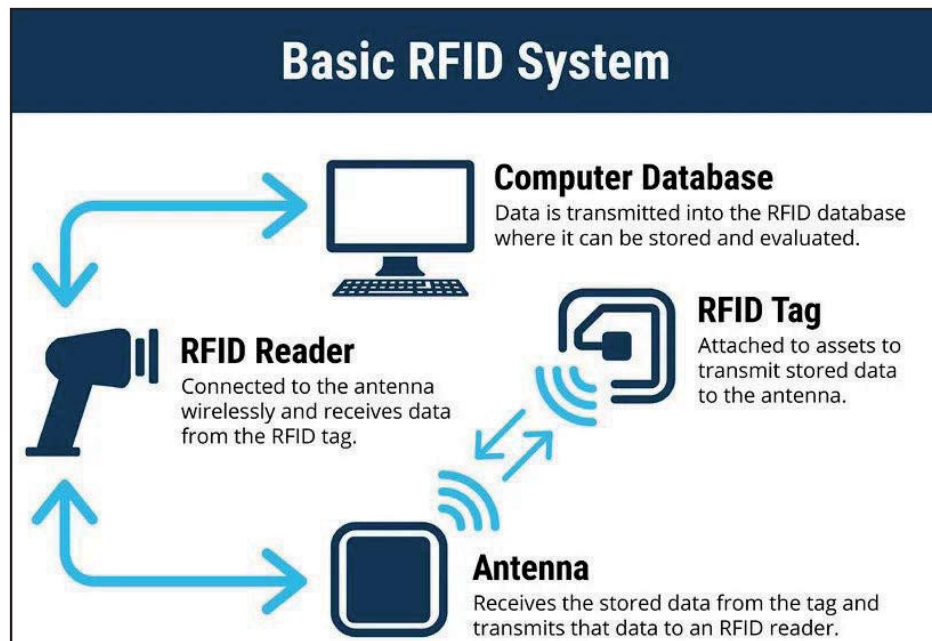
RADIO-FREQUENCY IDENTIFICATION TAGS

◎ **CONTEXT:**

Baggage tags equipped with radio-frequency identification (RFID) will soon be available at Delhi's Indira Gandhi International Airport, marking a first of its kind for the country.

Radio-frequency identification (RFID) technology:

- Radio Frequency Identification (RFID) is a technology that **uses radio waves** to passively identify a tagged object.
- It is used in several commercial and industrial applications, from **tracking items along a supply chain to keeping track of items checked out of a library.**
- Radio Frequency Identification (RFID) is a type of **passive wireless technology** that allows for tracking or matching of an item or individual.
- The **three components of an RFID system are:**
 - Transponder,
 - receiver, and
 - transmitter
- The system has **two basic parts:** tags and readers.
 - The reader gives off radio waves and gets signals back from the RFID tag, while the tag uses radio waves to communicate its identity and other information.



Different kinds of RFID:

Passive tags, semi-passive tags, and active tags are the three types of RFID tags that are commercially available.

- **Passive Tags:** There is no power supply for passive tags. They acquire their power from the readers' incoming radio waves.
- **Semi-passive tags** comprise an internal circuit with a power source, but rely on the radio waves received from the reader to transmit the response.
- **Active Tags:** The internal circuit of active tags is powered by a power source.

Type of Tag	Power source	Range	Description
Passive	Rely on radio signal that was transmitted to them	10 cm – a few meters	Can only reflect signals back
Semi Passive	Internal battery	10-100 meters	Power source activates chip, does not emit signal
Active	Internal battery	Hundreds of meters	Generate powerful responses – reliable and effective

Barcode:

- A barcode is a **printed series of parallel bars or lines of varying width** used for entering data into a computer system.
- The **bars are black on a white background** and vary in width and quantity depending on the application.

- The **bars represent the binary digits zero and one**, which represent the digits zero to nine processed by a digital computer.
- These barcodes are scanned using special **optical scanners** known as barcode readers, which come in a variety of shapes and sizes.
- The majority of these codes use only two different widths of bars, however some use four.
- The numbers that make up a barcode are also printed at the bottom. One of the most **well-known examples of a barcode is the QR code.**

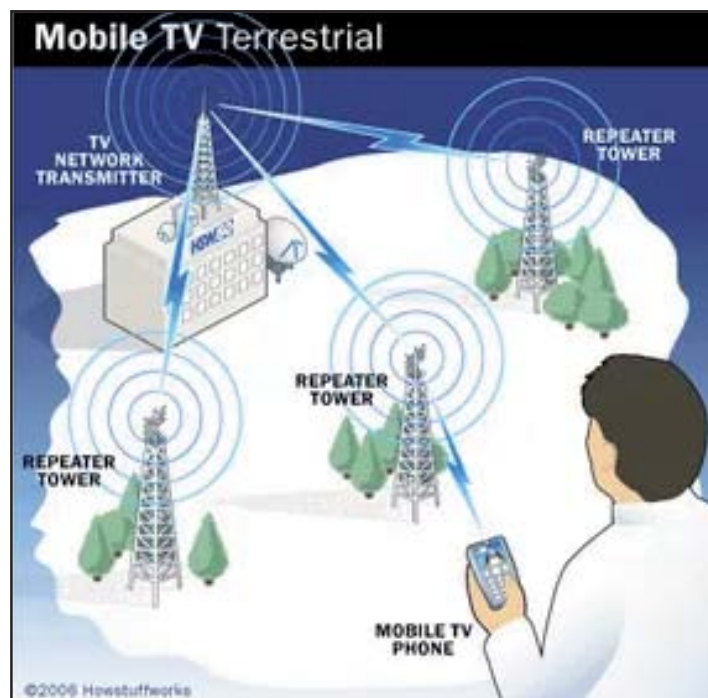
D2M TECHNOLOGY

© **CONTEXT:**

The Department of Telecommunications (DoT) and India's public service broadcaster Prasar Bharati are exploring the feasibility of a technology that allows broadcasting video and other forms of multimedia content directly to mobile phones, without needing an active internet connection.

Direct-to-Mobile (D2M) broadcasting:

- The technology is based on the convergence of broadband and broadcast, using which mobile phones can receive terrestrial digital TV.
- It would be similar to how people listen to FM radio on their phones, where a receiver within the phone can tap into radio frequencies.
- Using D2M, multimedia content can also be beamed to phones directly.



Possible benefits:

- It can possibly be used to directly broadcast content related to citizen-centric information.
- It can be further used to counter fake news, issue emergency alerts and offer assistance in disaster management.

- It can be used to broadcast live news, sports etc. on mobile phones.
- The content should stream without any buffering whatsoever while not consuming any internet data.

Impact:

■ For consumers:

- A technology like this would mean that they would be able to **access multimedia content** from **Video on Demand (VoD) or Over The Top (OTT)** content platforms **without** having to exhaust their **mobile data** and at a **nominal rate**.
- The technology will also allow people from rural areas, with limited or no internet access, to watch video content.

■ For businesses:

- It can enable telecom service providers to **offload video traffic** from their mobile network onto the broadcast network.
 - ▶ It will help them to **decongest valuable mobile spectrum**.
- This will also **improve usage of mobile spectrum** and **free up bandwidth** which will **help reduce call drops, increase data speeds** etc.

INTERMEDIATE RANGE AGNI-4 BALLISTIC MISSILE

◎ CONTEXT:

India successfully carried out a “training launch” of the Agni-4 intermediate-range ballistic missile from the APJ Abdul Kalam Island in Odisha, marking a significant boost to the country’s military capabilities.

Ballistic Missile:

- A ballistic missile is a missile that has a ballistic trajectory over most of its flight path, regardless of whether or not it is a weapon-delivery vehicle.
- Ballistic missiles are categorised according to their range, maximum distance measured along the surface of earth’s ellipsoid from the point of launch to the point of impact of the last element of their payload.
- The missile carries a huge payload. The carriage of a deadly warhead is justified by the distance the missile travels.
- Ballistic missiles can be launched from ships and land based facilities.
- For example, **Prithvi I, Prithvi II, Agni I, Agni II** and **Dhanush ballistic missiles** are currently operational in the Indian defence forces.

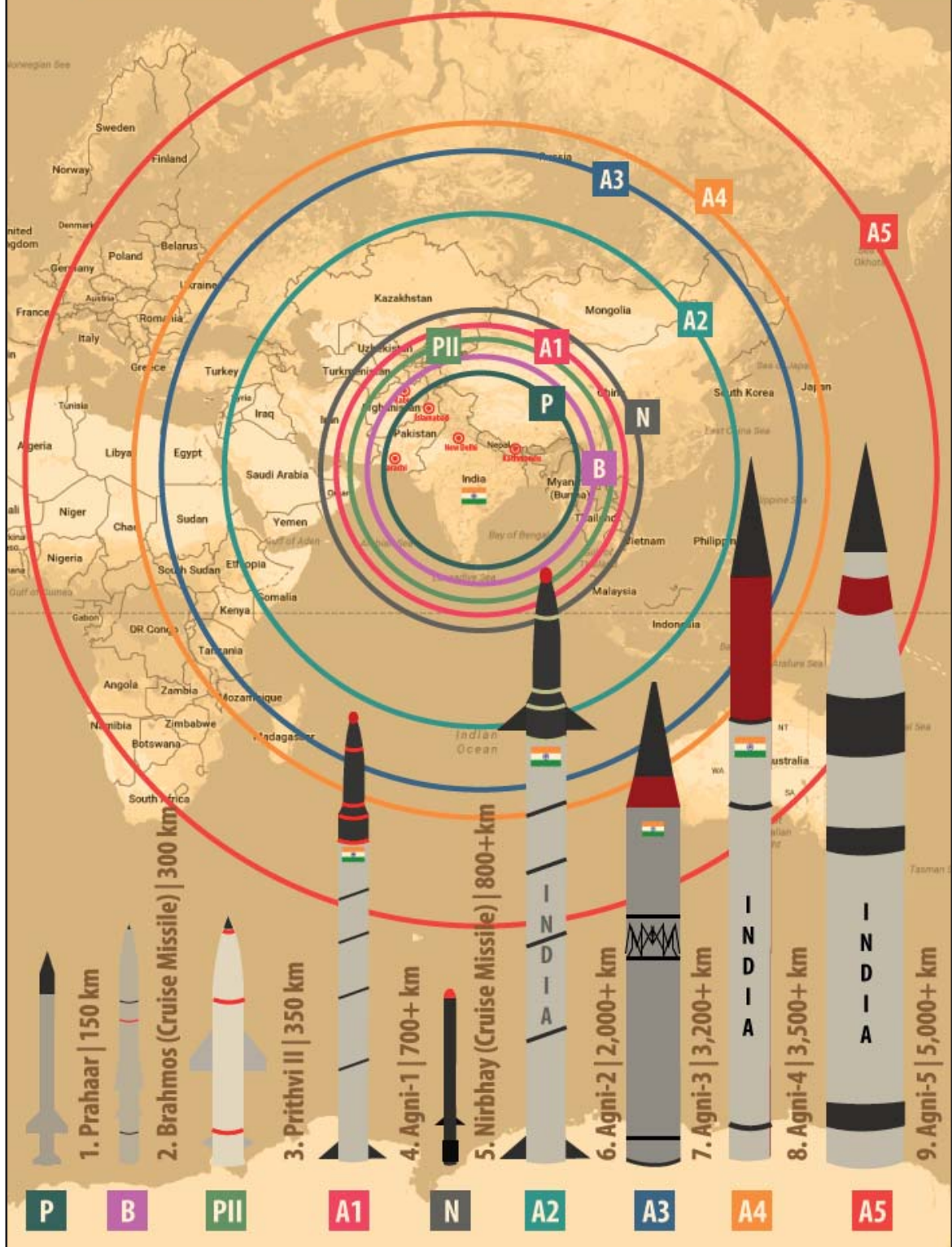
Advantages:

- The course taken by ballistic missiles has two significant desirable properties. First, ballistic missiles that fly above the atmosphere have a much longer range than would be possible for cruise missiles of the same size.
- Powered rocket flight through thousands of kilometers of air would require vastly greater amounts of fuel, making the launch vehicles larger and easier to detect and intercept.
- Ballistic missiles can travel extremely quickly along their flight path. An ICBM can strike a target within a 10,000 km range in about 30 to 35 minutes.

INDIA'S MISSILES



India has developed a series of tactical, medium and long-range missiles to deal with the threat posed by two nuclear adversaries - China in the north and Pakistan on its west.



- With terminal speeds of over 5,000 m/s, ballistic missiles are much harder to intercept than cruise missiles, due to the much shorter time available.
- Therefore ballistic missiles are some of the most feared weapons available, despite the fact that cruise missiles are cheaper, more mobile, and more versatile.

Nuclear Triad:

- A nuclear triad comprises land-based ICBM (inter-continental ballistic missile), SLBM (INS Arihant) and strategic bomber aircraft (sukhoi-30 and Mirage-2000) .
- These tests are a strong reminder to the adversaries about our capabilities.
- Agni Missile Family:
 - ▶ The name Agni originates from the Sanskrit word for fire and is taken in the context of Agni being one of the five primary elements of Panch Mahabhutas.
 - ▶ Agni I: Range of 700-800 km
 - ▶ Agni II: Range more than 2000 km
 - ▶ Agni III: Range of more than 2,500 Km
 - ▶ Agni IV: Range is more than 3,500 km and can fire from a road mobile launcher
 - ▶ Agni-V: The longest of the Agni series, an Inter-Continental Ballistic Missile (ICBM) with a range of over 5,000 km
- **No-first use policy** India maintains the 'Non-use of nuclear weapons against non-nuclear-weapon states', the doctrine states that 'in the event of a major attack against India, or Indian forces anywhere, by biological or chemical weapons, India will retain the option of retaliating with nuclear weapons.'

FAST RADIO BURST

© **CONTEXT:**

Astronomers have recently reported a fast radio burst (FRB) whose characteristics are different from almost all other FRBs previously detected, except one.

Fast radio burst (FRB):

- FRBs are bright flashes of light that appear for a few milliseconds and then vanish.
- The phenomenon was discovered in 2007, by graduate student David Narkevic and his supervisor Duncan Lorimer.
- The source of these highly energetic events is a mystery, but clues as to their nature are being gradually collected.
- Since 2007, 140 more were discovered until June 2021. Their origins are unknown, and their appearance is unpredictable.

Fast radio burst 20190520B:

- The new source, Fast radio burst 20190520B, was detected with the Five hundred-meter Aperture Spherical radio Telescope (FAST) in Guizhou, China in May 2019.
- It emits frequent, repeating bursts of radio waves. And between bursts, it constantly emits weaker radio waves.
- Only one FRB has been previously observed to behave this way. Called FRB 121102, which was discovered in 2012.

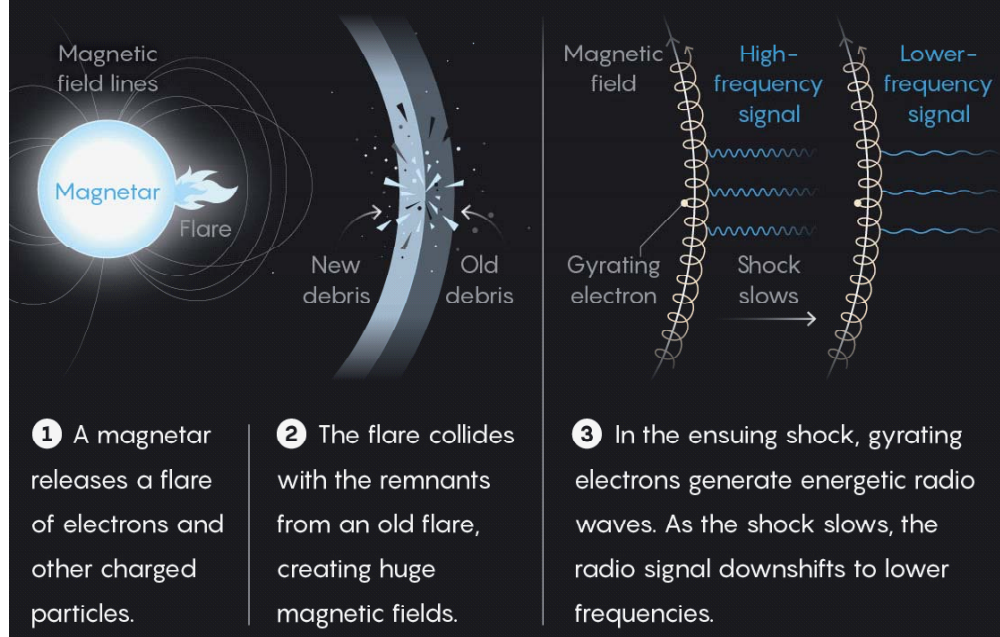
How a Burst Bursts

- Astronomers have racked up roughly 50 separate theories to explain fast radio bursts — a tally that until recently outnumbered the events.

- The ideas include a variety of wild scenarios involving evaporating black holes, snapping cosmic strings, and even the propulsion systems of alien civilizations.

How Fast Radio Bursts Work

Fast radio bursts are brief, energetic blips of radio waves. A recent theory suggests that they come from a shock wave created by a magnetar.



What is a magnetar?

- A magnetar is a neutron star, “the crushed, city-size remains of a star many times more massive than our Sun.”
- The magnetic field of such a star is very powerful, which can be over 10 trillion times stronger than a refrigerator magnet and up to a thousand times stronger than typical neutron stars.
- Neutron stars are formed when the core of a massive star undergoes gravitational collapse when it reaches the end of its life.

INDIA’S FIRST DARK SKY RESERVE TO SOON COME UP IN LADAKH

◎ **CONTEXT:** The Hanle in Ladakh is all set to become India’s first Dark Sky Reserve.

- The site is going to promote astronomy-tourism, giving a boost to local tourism through science.

◎ **ABOUT:** What is a dark-sky reserve (DSR)?

- A dark-sky Reserve (DSR) is an area, usually surrounding a park or observatory that restricts artificial light pollution.



- The International Dark-Sky Association (IDA) is associated with the International Dark Sky Reserve (IDSR) and International Dark Sky Park (IDSP).
- An **International Dark-Sky Association (IDA)** was founded in 1988 to reserve **public or private land** for an exquisite outlook of nocturnal territories and **starry night skies**.
- In 1993, Michigan became the first state in the **United States** to designate a tract of land as a **"Dark Sky Reserve"** at the Lake Hudson State Recreation Area.
- It is generally understood that a dark-sky reserve, should be sufficiently dark to promote astronomy.
- However, this is not always the case. The lighting protocol for a dark-sky reserve is based on the sensitivity of wildlife to **artificial light at night**.

What is the objective of these reserves?

- The purpose of the dark-sky movement is generally to promote astronomy.
- However, astronomy is certainly not the only objective of conserving a dark sky.
- A dark night sky is associated with so many facets of history, philosophy, religion, societal development, poetry, song, mathematics, and science.
- The preservation of a DSR is necessary to understand our environmental history.

India's first site for dark reserve

- A part of **Changthang Wildlife Sanctuary** at Hanle in Ladakh is all set to become India's first Dark Sky Reserve.
- The site will also promote **astronomy tourism**, giving a boost to local tourism through science.
- The reason for selecting site for the programme:
- Ladakh holds great potential for undertaking uninterrupted astronomical observations.
- At a height of 4,500 metres, Hanle is already home to optical, gamma ray and infrared telescopes for Space exploration.
- It is pristine for the dry weather for most months of the year, remains cloudless during nights and offers dark skies, making it a perfect natural setup for sky gazing.

About the Hanle Dark Sky reserve (HDSR)

- The HDSR will be an area spanning **22 km** in radius centred around the Hanle observatory.
- Both **locals and tourists both** have to follow regulations that will be imposed on the outdoor lighting, use of high beam vehicle headlights, light shields and curtains, among other measures to cut down light pollution.
- Under the observatory the **administration, local council members along with the scientists** will collectively work towards preservation of the night sky from unwanted light pollution and illumination.

‘COSMIC CANNIBALISM’

◎ **CONTEXT:**

Astronomers have observed a phenomenon, called, “cosmic cannibalism,” a dead star is ripping apart its planetary system.

About:

- A **white dwarf is ripping up an entire planetary system** with its death throes.
- A **star is ending its life** so violently that the dead star left behind, called a white dwarf, is disrupting an entire planetary system by sucking in debris from both its inner and outer reaches.
- This **cosmic phenomenon is the first time that astronomers have observed.**
- The **white dwarf star is consuming the rock-metallic** and icy material, both of which are the “ingredients of planets”.
- This case of cosmic cannibalism was diagnosed with the help of archival data from the Hubble Space Telescope and other NASA observatories.
- The researchers obtained the findings based on the analysis of material captured by the atmosphere of the nearby **white dwarf star G238-44.**

White Dwarf:

- A white dwarf is formed when a **low-mass star like our sun exhausts most of its nuclear fuel.**
- It is usually **very dense** and about the size of a planet.
- They are dense, **dim, stellar corpses** — the last observable stage of evolution for low- and medium-mass stars.
- Compared to our sun, a white dwarf has a similar carbon and oxygen mass though it is much smaller in size — similar to Earth.
- White dwarf temperatures can exceed 100,000 Kelvin according to NASA (that’s about 179,500 degrees Fahrenheit).
 - Despite these sweltering temperatures, white dwarfs have a low luminosity as they’re so small in size.

SECTION: D
(CONCEPTS)

CURRENT AFFAIRS

Geo-Tagging:

- Geotagging is the addition of geographical information, usually in the form of latitude and longitude coordinates, to Web sites, images, videos, smartphone transmissions, and various other data types and sources.

Inter-State Council:

- This is an established mechanism "to support coordination and cooperation between nations and between Indian nations". The Interstate Council was established in accordance with Article 263 of the Constitution, which states that the President may establish such an institution if the need arises.

GM Crops:

- The plants in which DNA has been modified using genetic engineering methods for agricultural purposes are called Genetically modified crops or GM crops. BT Brinjal, GM-Mustard and Protato (protein-rich potato) are some of the examples of Genetically modified crops.

Critical Information Infrastructure:

- CII includes the public telephone network, the Internet, and terrestrial and satellite wireless networks. They are regarded as critical information infrastructures since their disruption or destruction would have a serious impact on vital societal functions.

Marine Heatwave:

- Marine heat waves are defined as at least five days of unusually high temperatures for a patch of ocean. Heat waves wreak havoc on ocean ecosystems, leading to seabird starvation, coral bleaching, dying kelp forests, and migration of fish, whales and turtles in search of cooler waters (SN: 1/15/20; SN: 8/10/20).

Super Cyclone:

- A rapidly-rotating storm system characterised by spiral arrangement of thunderstorms rains, a low-pressure centre, strong winds, is what is known as a super cyclone. They form over large bodies of warm water, deriving their energy from water evaporation from the surface of the ocean

Cosmic Cannibalism:

- The finding, which challenges current understanding about how planets are formed and survive, was made in the so-called Helmi stream -- a group of stars that originally belonged to a dwarf galaxy that was devoured by the Milky Way in what the astronomers called "an act of

galactic cannibalism."

Rule of Law:

- Rule of law, the mechanism, process, institution, practice, or norm that supports the equality of all citizens before the law, secures a non-arbitrary form of government, and more generally prevents the arbitrary use of power.

LFPR:

- Labour Force Participation Rate (LFPR): LFPR is defined as the percentage of persons in labour force (i.e. working or seeking or available for work) in the population.

Chromosome:

- A structure found inside the nucleus of a cell. A chromosome is made up of proteins and DNA organized into genes. Each cell normally contains 23 pairs of chromosomes.

Micro-plastic:

- The term microplastics describes plastic items with a diameter ≤ 5 mm. Microplastics are tiny plastic particles that result from both commercial product development and the breakdown of larger plastics. As a pollutant, microplastics can be harmful to the environment and animal health.

Diversify Crops:

- Crop diversification means growing more than one crop in an area. Diversification can be accomplished by adding a new crop species or different variety, or by changing the cropping system currently in use. Commonly it can mean adding more crops into an existing rotation.

Carbon Bombs:

- We define a carbon bomb as a proposed or existing fossil fuel extraction project (a coal mine, oil or gas project) that would result in more than 1 gigaton of CO₂ emissions if its reserves were completely extracted and burnt.

Climate Law:

- Climate laws are popularly understood as instruments for the imposition of emissions caps. There is, however, an alternative model, sometimes called a framework law, which needn't decree numerical targets, but acts as an overarching mechanism to establish a unifying basis for climate policy.

E-marketplace:

- The E-commerce marketplace or the online

e-commerce marketing is a place or a website where one can find different brands of products coming from multiple vendors, shops or person showcased on the same platform.

❑ **Soft Robotics:**

- Soft robotics is a subset of robotics that focuses on technologies that more closely resemble those of living organisms. They consist of motion that imitates human, animal, and plant life. Traditional robotics are more “hard” and rigid in nature.

❑ **RFID Tags:**

- Radio Frequency Identification (RFID) technology uses radio waves to identify people or objects. There is a device that reads information contained in a wireless device or “tag” from a distance without making any physical contact or requiring a line of sight.

❑ **Stagflation:**

- Stagflation is characterized by slow economic growth and relatively high unemployment—or economic stagnation—which is at the same time accompanied by rising prices (i.e., inflation). Stagflation can be alternatively defined as a period of inflation combined with a decline in the gross domestic product (GDP).

❑ **Eco-Sensitive Zone:**

- Eco-sensitive zones are areas notified by the MoEFCC around Protected Areas, National Parks and Wildlife Sanctuaries. The purpose of declaring ESZs is to create some kind of “shock absorbers” to the protected areas by regulating and managing the activities around such areas.

❑ **Bhakti Movement:**

- The Bhakti movement was a trend that occurred in Hinduism during medieval times. It played an important role in the social and cultural development of India and was important in the downfall of the caste system.

❑ **Populism:**

- Populism is a name for a kind of political movement. Populists usually try to make a difference between common people and “elites” (meaning usually, top classes of people). Populists may think of wealthy people or well-educated people as belonging to the class of elites.

❑ **Miniprotein:**

- Miniproteins are a diverse group of protein scaffolds characterized by small (1–10 kDa) size, stability, and versatility in drug-like roles. Coming

largely from native sources, they have been widely adopted into drug development pipelines.

❑ **Habitus:**

- The physical characteristics of a person, esp. appearance and constitution as related to disease.

❑ **Glacial Advances:**

- When a mountain glacier’s terminus extends farther downvalley than before; occurs when a glacier flows downvalley faster than the rate of ablation at its terminus.

❑ **Patent:**

- A patent is an exclusive set of rights granted for an invention, which may be a product or process that provides a new way of doing something or offers a new technical solutions to a problems.

❑ **Ever greening of Patents:**

- Evergreening of patent is a social practice rather than legal principle practiced by patent owners. Evergreening of patent can also be described as a business strategy to elongate the patent period. The patents are granted for a period of 20years in India by paying of annuilty fees.

❑ **Cooperative Federalism:**

- Cooperative federalism is a concept of a stable relationship between the centre and state governments to coordinate on issues of common interests.

❑ **Tokenization:**

- Tokenisation refers to the process of exchanging sensitive consumer data in the form of non-sensitive tokens.

❑ **Circular Economy:**

- It is a change to the model in which resources are mined, made into products, and then become waste. A circular economy reduces material use, redesigns materials to be less resource intensive, and recaptures “waste” as a resource to manufacture new materials and products.

❑ **D2M Technology:**

- The technology is based on the convergence of broadband and broadcast, using which mobile phones can receive terrestrial digital TV.

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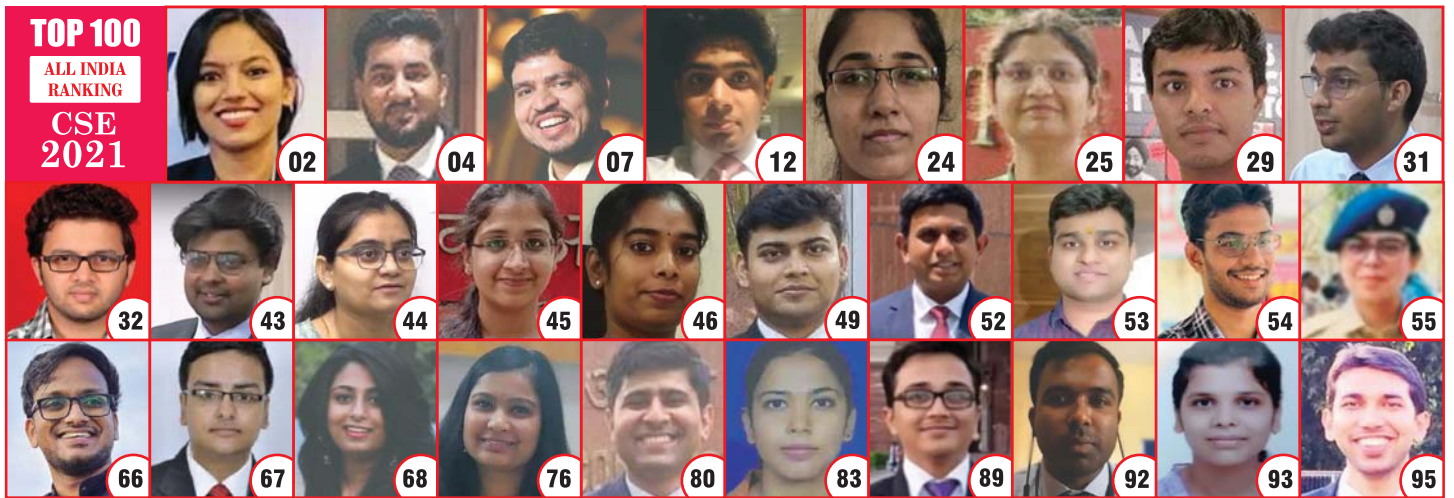
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