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TATHASTU

Institute of Civil Services



CURRENT AFFAIRS February Month 2023

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Editorials of the Month

MGNREGS – Is its significance dwindling?

News: In the Union Budget 2023-24, the Government has allocated INR 60,000 crore for the MGNREGS and has cut the funds by 33% compared to INR 89,000 crore in FY2022-23 (Revised Estimates).

Background:

- The Union Budget 2023-24 has allocated INR 60,000 crore for the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) scheme for FY2023-24.
- The allocation in FY2023-24 is only 1.3% of the total expenditure compared to 2.1% last year.
- According to Ministry Of Rural Development, the total active workers in 2022-23 are 15.12 crores. The number of households benefited were 5.78 crore in 2022-23.

Importance of MGNREGS:

Women Empowerment

- Women workers account for **more than 33% of the workers** under MGNREGS. Money is transferred directly into the accounts of these women workers which gives them job satisfaction, income security and empowers them to take their own decisions.

Growth of Rural economy and infrastructure

- The programme mandates that **at least 60%** of the works undertaken must be related to **land and water conservation**.
- The creation of these productive assets boost rural incomes as the majority of villages are agrarian.

Addresses the issue of Distress Migration

- Rural projects under MGNREGS in areas of water conservation has ensured that Bandlapalli village in Andhra Pradesh is drought proof today and people no longer migrate to cities in search of better life style and job security.

Relief to Migrants during COVID-19

- There was a big jump in the number of workers from 2019-20 to 2020-21 (pandemic year). MGNREGS proved to be vital in providing relief to the migrants during the distress. It ensured income support to the vulnerable during the pandemic.

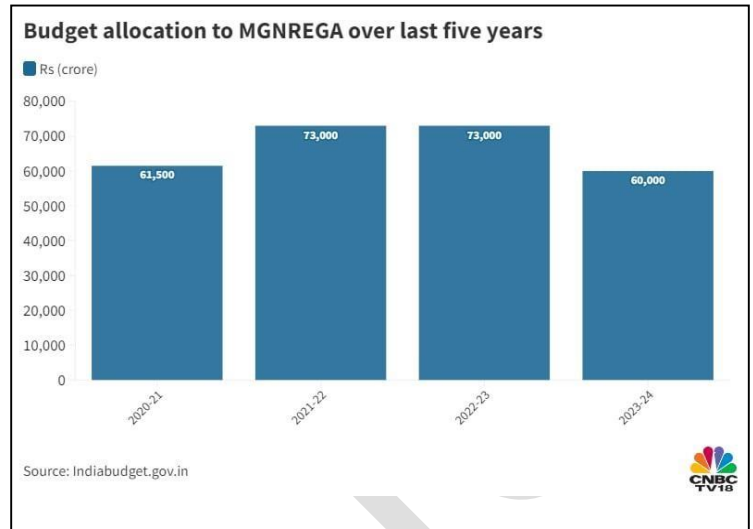
Creation of Community Assets

- The scheme has helped creation of common community assets such as Johads which had remained abandoned in several villages of Haryana.

What are the issues associated with functioning of MGNREGS?

- The success of MGNREGS depends on the performance of individual States. Although centrally funded, studies show uneven outcomes across different States.

- While women and men are paid equal wages under MGNREGS, however it is seen that discrimination is observed against women. For example, fewer job cards are being issued to women.
- Delay in payment of wages. While the SC advocated for compensation to workers in case of delay the delay in payment is due to issues such as faulty/inactive Aadhar cards, blocked Bank accounts.
- There are reports of genuine job cards are being randomly deleted as there is a huge administrative pressure to meet 100% Direct Benefit Transfer (DBT) implementation targets in MGNREGA
- Plans of Gram Sabhas and Gram Panchayats are being neglected in favor of linking MGNREGS to construction of PMAY.



Way Forward

The **PSC on Rural Development and Panchayati Raj** has made few recommendations as follows:

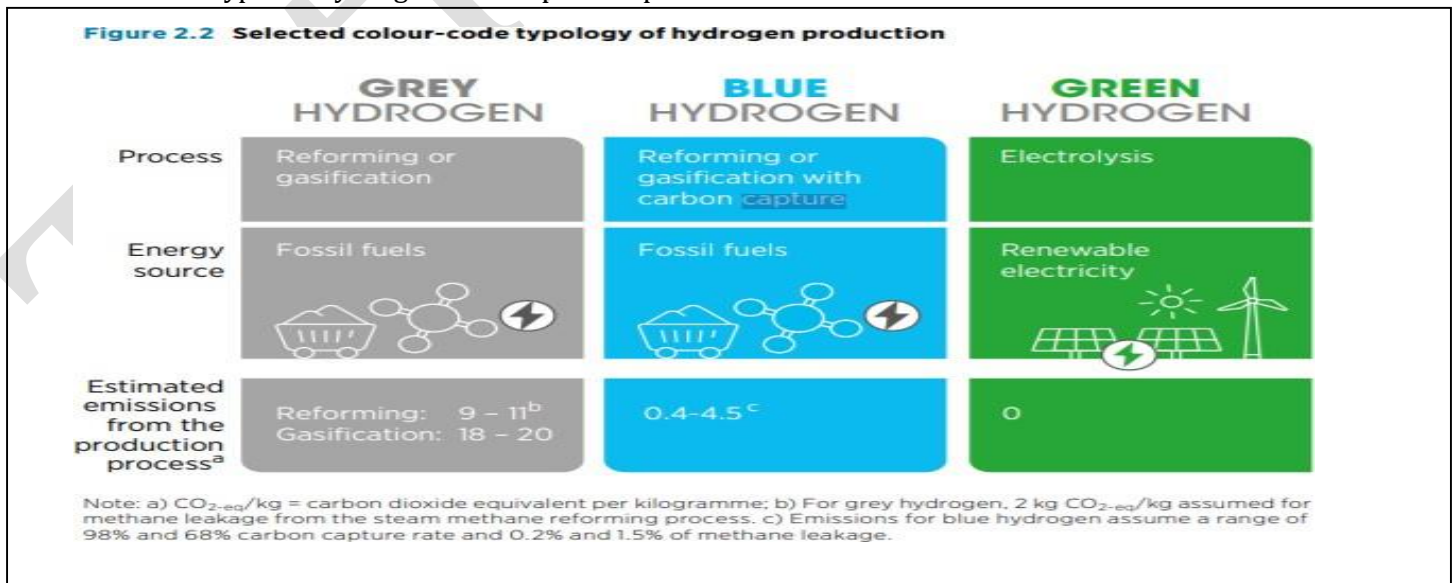
- It recommended **increasing the guaranteed days of work** under the scheme from 100 days to 150 days.
- It recommended devising a mechanism for a **unified wage rate** across the country.
- The Committee recommended increase in wages in context of Inflation so that laborers are not forced to migrate to cities for better jobs
- The committee recommended **due diligence in Social Audits** by Gram Panchayats and subsequently making and preparing reports in context of Social audits.
- The Committee noted that **payment of delay compensation is not adhered** to in most places in the country. The Ministry must ensure strict compliance in payment of compensation.

India's Green Hydrogen Challenge

News: On India's 75th Independence Day, the Prime Minister announced the National Hydrogen Mission to make the country a production and export hub of green hydrogen.

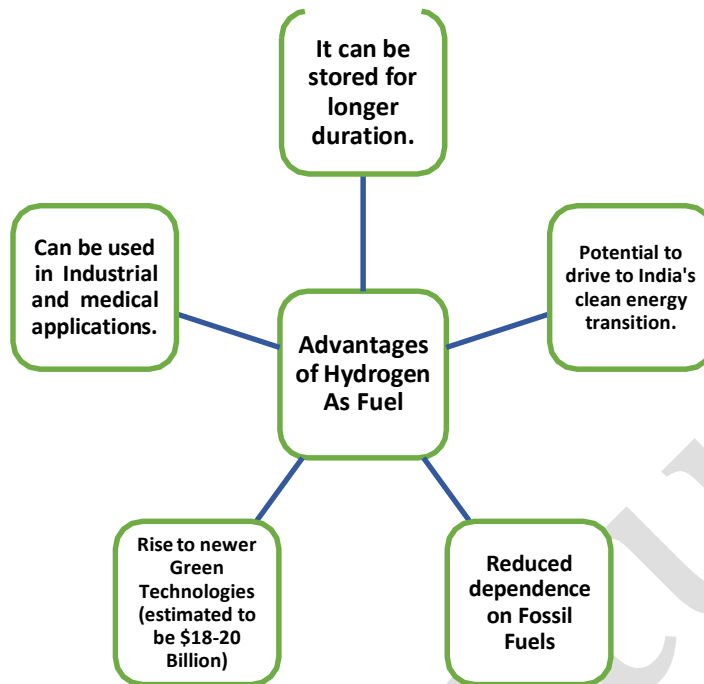
Background:

- Hydrogen is one of the most abundant elements on earth for a cleaner alternative fuel option. There are different types of hydrogen based upon the process of its formation.



What is India's National Hydrogen Mission?

- It is a program to incentivize the **commercial production of green hydrogen** and make **India a net exporter** of the fuel.
- With an initial outlay of Rs 19,744 crore over the next five years. The target is **5 million metric tonnes production per annum** with an associated renewable energy capacity addition of about **125 GW by 2030**.
- It will lead to savings of **\$12.5 billion from fuel imports**, averting 50 MMTs of annual emissions of Carbon dioxide, fresh investments of \$100 billion, and 6,00,000 green jobs.



What are the Possible Challenges?

1. Electrolyser Challenge

- According to IEA, as of 2021 the global manufacturing capacity of electrolysers stands at 8 GW/year. If India were to achieve its 2030 target, it would need 60-100 GW of electrolyser capacity. It is almost 12 times the current global production capacity.
- India currently has launched projects to manufacture electrolysers, but the actual numbers as of today are negligible.
- Access to critical minerals such as nickel, platinum group metals and rare earth metals could hinder scaling up electrolyser manufacturing capability in India. These resources are concentrated in countries such as China, Democratic Republic of Congo, Australia, Indonesia, South Africa, Chile and Peru.
- India also has limited processing capabilities in these minerals.

2. Energy Source Challenge

- As per current estimates a completely efficient electrolysis system would require 39 kWh of electricity to produce 1 kg of hydrogen. Green hydrogen requires renewable energy as a source of electricity.
- India currently estimates a capacity of 125 GW of renewable energy to meet its green hydrogen 2030 targets. So far India has only achieved 119 GW of the 175 GW targeted capacity using solar, wind, bio-power and small hydro.
- In addition to the generation capacity, the transmission capacity for cross-border exchange of power between states is a critical requirement.

3. Endogenous Resources Challenge

- It has been estimated that the production of one kg of hydrogen by electrolysis requires around nine litres of water. Moreover, in the case of India, an independent assessment suggests a requirement of approximately 50 billion litres of demineralised water supply. As several parts of India are already severely water-stressed, solutions need to be found to cater to this additional water demand.

4. End-Use Challenge

- Currently, most of the demand for hydrogen comes from the chemical industry to produce ammonia for fertilisers, refining for hydrocracking and the desulphurization of fuels. It can be a source of heat for industries such as steel, cement and aluminium production. It can be used as fuel for heavy duty vehicles, aviation and shipping.
- The conversion efficiency from one form of energy carrier to another in the end use application will determine the scale of green hydrogen's applicability.
- Hydrogen is a highly combustible and volatile element. Its potency in other forms such as ammonia or methanol is only relatively reduced.
- It is critical to establish safety standards for storage and transportation. It will add to the cost of hydrogen as a fuel.

Way Forward:

- Scale up large scale manufacturing of electrolyzers.
- Secure Geo-political partnerships with countries having access to critical minerals.
- Proposed green hydrogen hubs will be required to strike a fine balance between availability of renewable energy and being close to hydrogen demand centres for economic feasibility.
- It would require India to add efficiently and economically close to 100 GW of overall renewable energy capacity per year over the next seven years and make available dispatch corridors and mechanisms.

Mental Health issues in India

News: The National Human Rights Commission (NHRC) has raised concern over the Deplorable Condition of many Mental Healthcare Institutions (MHIs) in India, violating Mental Healthcare Act (MHA), 2017.

Background:

- NHRC states that several MHIs in India are 'illegally' keeping patients long after their recovery which violates Article 21 of Indian constitution and several international conventions that India is part of.
- The latest survey by India's **National Institute of Mental Health and Neurosciences (NIMHANS)** found that **nearly 150 million Indians** are in need of mental healthcare services, but **fewer than 30 million are seeking care.**

What is Mental Health?

- According to WHO, "Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationships and shape the world we live in".

MENTAL HEALTHCARE ACT, 2017

Features of the Act

- ✦ Decriminalization of suicide
- ✦ Restriction on use of Electro-Convulsive Therapy and Psychosurgery
- ✦ Special clause for women and children related to admission, treatment, sanitation and personal hygiene
- ✦ Nominated representative
- ✦ Provision of advance directive

www.mohfw.gov.in

What is Mental Healthcare Act, 2017? What rights are available under it?

- The Act makes several provisions to improve the state of mental health in India.

- The Act seeks to ensure rights of the person with mental illness to receive care and to live a life with dignity. It provides the Right to Access to Healthcare.
- It provides right to free of cost healthcare services, right to live in community.
- The Act decriminalized suicide stating that whoever attempts suicide will be presumed to be under severe stress, and shall not be punished for it.

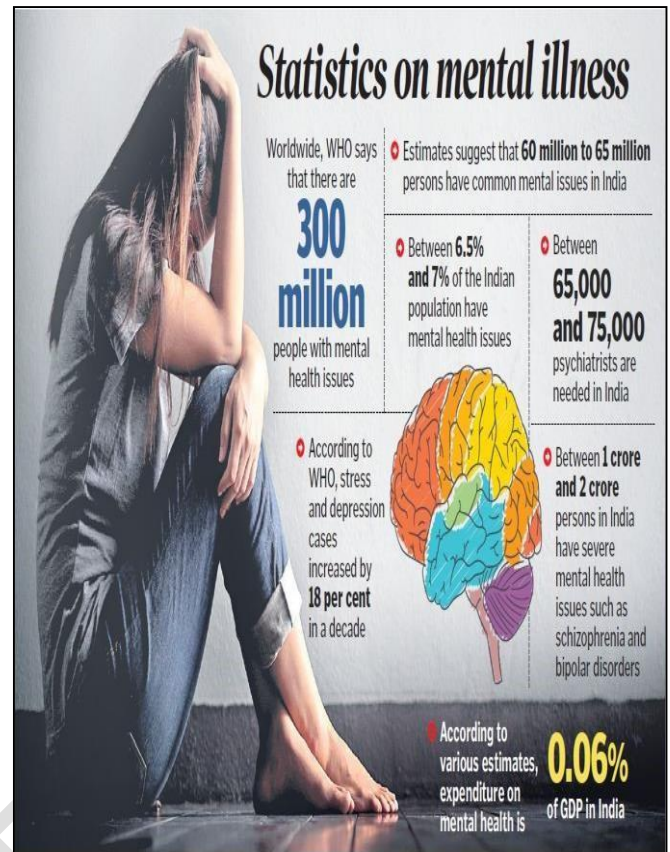
What are consequences of poor Mental health?

- Poor mental health can lead to poor physical health, harmful behavior.
- Depression has been linked to chronic illnesses such as diabetes, asthma, cardiovascular diseases.
- It impacts person's ability to concentrate and thereby harming productivity levels.
- It can lead to strained relationship with family, friends and close ones.

What are the causes for poor status of Mental Health in India?

- **Perception around mental health** – In India, mental health issue is not perceived as a health issue. There is stigma and discrimination associated with Mental health issues.
- **Fewer mental healthcare professionals in India**
- **Income inequalities** – Mental issues are closely linked with poverty. People living in poverty are at greater risk of experiencing mental health conditions.
- **Access to treatment** – Only 20-30% of people with mental illness receive adequate treatment.
- **Increased access to Social media** – Youth of the nation is more vulnerable to mental health issues owing to increased use of social media. It minimizes social interactions between people and it erodes confidence and self-esteem amongst people due to comparison on social media.
- **Lower Budget allocation specifically for Mental Health.**

What are Government initiatives to prevent Mental Health issues?



Way Forward

- Address Stigma surrounding the Issue
- Mental Health should be integral part of Public Health Programme
- Improve access to Mental health services, number of healthcare professionals.
- Train and empower ASHA workers on mental health issues so that Women and poor people in Rural areas at least can be taken care of.
- Increase spending on Mental healthcare and infrastructure
- Mental Health needs more attention especially since the impact it has had on minds and lifestyle of people since COVID-19 pandemic.

Biogas

News: The Union Budget 2023-24 has earmarked INR 10,000 crore for establishing 500 new 'Waste to Wealth' plants under GOBARdhan (Galvanizing Organic Bio-Agro Resources Dhan) scheme for promoting circular economy. Of the 500 new plants announced, 200 will be **Compressed Biogas Plants (CBG)**, including 75 in cities and the remaining 300 will be community or cluster-based plants.

Background

- In this context, we will study about Biogas, its advantages and limitations and also government initiatives with respect to tapping Biogas potential.

What is Biogas?

- Biogas is an **environmentally-friendly, renewable energy source**. It's produced when **organic matter**, such as food or animal waste, is broken down by microorganisms in the **absence of oxygen**, in a process called **anaerobic digestion**. For this to take place, the waste material needs to be enclosed in an environment where there is no oxygen.
- Biogas can occur naturally or as part of an industrial process to intentionally create it as a fuel.
- A wide variety of waste material breaks down into biogas, including animal manure, municipal rubbish or waste, plant material, food waste or sewage.

Which gases does Biogas contain?

- Biogas consists mainly of **methane** and **carbon dioxide**. It can also include small amounts of **hydrogen sulphide, siloxanes** and some moisture. The relative quantities of these vary depending on the type of waste involved in the production of the resulting biogas.

Advantages of Bio-Gas:

- The raw materials used in biogas production are **renewable**, as trees and crops will continue to grow. Manure, food scraps, and crop residue are always available raw materials, making it a highly sustainable option.
- It is a simple and low-cost technology that promotes a **circular economy**. The technology used to generate biogas is relatively inexpensive. It is simple to set up and requires little investment when used on a small scale.
- Biogas can also be compressed to the quality of natural gas and **used to power automobiles** in large plants. Such plants require **little capital investment** and **create green jobs**.
- Biogas generators relieve women and children from gathering firewood. As a result, more time is available for other productive activities. More importantly, cooking on a biogas rather than an open fire keeps the family safe from smoke in the This aids in the prevention of deadly respiratory diseases.
- Producing biogas from waste reduces dumping of wastes in landfills. Landfills also allow toxic liquids to enter underground water and as a result shifting to Biogas plants can prevent water pollution too.
- Similarly, waste collection and management improve dramatically in areas with biogas plants. This, in turn, leads to improvements in the environment, sanitation, and hygiene.
- The byproduct of the biogas generation process is enriched organic digestate, which is an excellent supplement to or replacement for chemical fertilisers.

What are limitations of Biogas?

- Setting up Biogas plants is a costly affair with little innovation and technology upgradation seen that can minimize the costs.
- Impurities remain in biogas after refinement and compression. Use of Biogas in automobiles can corrode the engine's metal parts.
- Biogas generation, like other renewable energy sources (such as solar and wind), is influenced by the weather. The ideal temperature for bacteria to digest waste is around 37°C. Digesters in cold climates require heat energy to maintain a constant biogas supply. Hence its use is limited to warm regions.
- Difficult to establish Biogas plants in urban areas which contribute to more wastes. More land is required to establish these plants and setting them up in rural areas will lead to higher transportation costs and more pollution would follow.

What are Government initiatives to promote Biogas?

- Sustainable Alternative to More Affordable Transportation (SATAT) programme – Private companies are encouraged to setup Compressed Biogas plants.
- Galvanizing Organic Bio-Agro Resources (GOBAR)-Dhan was launched by the Government of India as a part of the biodegradable waste management component under the Swachh Bharat Mission-Gramin.
- The Government of India and NITI Aayog have devised road maps to speed up the country's transition to environmentally friendly fuels and to boost the use of liquefied natural gas (LNG), hydrogen, and methanol.
- National Bio-energy Programme (2021-22 to 2025-26)

Can Drones replace tractors someday?

News: In this editorial we will discuss about role of technology in agriculture.

Background:

- The Economic Survey of India 2022-23 highlighted that India's agriculture sector has grown 4.6% over the last six years with over 1000 agri-tech start-ups having emerged in the sector.
- The modern era of technology demands increased and focused attention towards role of agri-technology in India.

What is significance of technology in modern day agriculture?

Precision Farming

- Technology such as GPS, drones, and sensors are being used to monitor crops, soil, and weather conditions. It helps farmers to make scientific, data-driven decisions and make optimum use of water and fertilizers.

Drones

- They have ability to transform agriculture sector. Drones or UAV's can help in in aerial seeding, pesticide spraying and remote data collection for research.

Biotechnology

- Biotechnology has been used to develop crops that are resistant to pests and diseases, drought-resistant, and have increased yield. This has resulted in increased productivity, reduced crop loss, and better quality crops. Example, Bt.Cotton, GM Mustard.

Mechanization of Agriculture

- Modern agricultural machinery such as tractors, harvesters, and seed drills have enabled farmers to increase their efficiency and reduce labor costs.

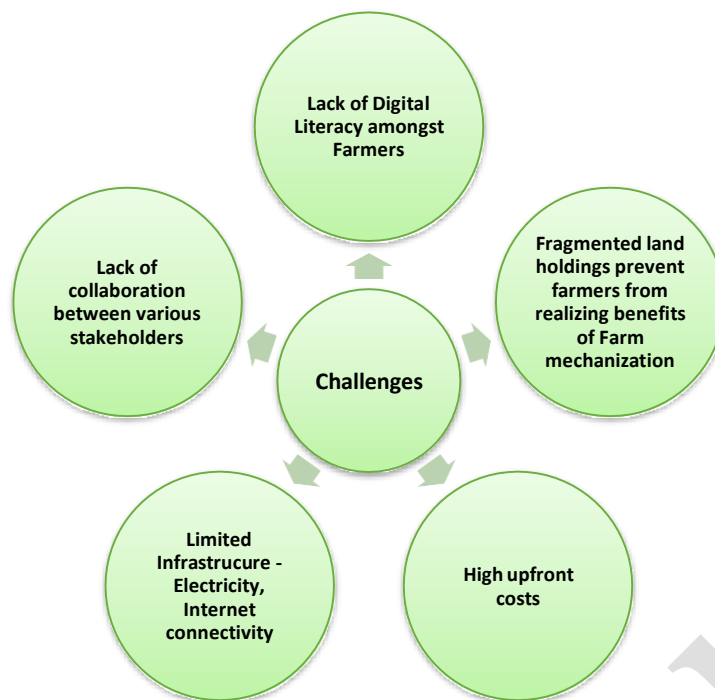
Food Processing and Dairy Processing

- Technology has enabled the development of food processing and preservation techniques that ensure food is safe and has a longer shelf life. It has reduced food wastage while contributing to food security as well.
- Enhanced storage facilities and improved transport equipment have enabled better price and business opportunities for farmers.

Improved Market Access

- It has opened door both locally and internationally. Internet and e-commerce have helped farmers connect with buyers at touch of their fingers.

What are challenges for Agri-tech in India?



Way Forward

- Government should encourage farmers to adopt modern technology in farming.
- Agriculture research should be dedicated to providing affordable solutions to farmers.
- Drone regulation is a critical issue that requires careful consideration to ensure the safety and privacy of individuals and communities.

Storage hurdle on Net Zero Track

News: In this editorial we will discuss about India's push for De-carbonization and storage challenges it is likely to face in the course.

What is Net Zero?

- Net zero refers to the **balance** between the amount of greenhouse gas (GHG) that's produced and the amount that's removed from the atmosphere. It can be achieved through a combination of emission reduction and emission removal.

Why do we need adequate storage facilities?

- India's push towards decarbonisation has to be backed with adequate storage facilities, without which it clearly cannot go forward beyond a point. This is because of two reasons.
- The first is that the storage will handle the **intermittency problem** (due to sudden cloud cover or drop in wind velocity) of renewables.
- Second, coal-based generation **cannot be phased out till such time as we can rely on stored energy** to provide electricity in the non-solar hours.

What are the storage options before us? What are their limitations?

- 3 options are available. I) **Hydrogen Based Storage** II) **Lithium Ion Batteries** III) **Pump Storage Plants**
- **Hydrogen Based Storage** - It is found to be feasible for **long-term storage**, meaning across seasons. One can use this stored energy, for example, in situations when coal mining goes down (which happens during monsoons) affecting thermal generation or when hydro generation depletes due to low reservoir levels.
- **Lithium Ion Batteries** - For day-to-day storage and dissipation, batteries are still the ideal source. However, for the first time since 2010, the cost of batteries has increased due to increase in cost of Lithium and battery components.

- **Pump Storage Hydropower Plants** - India has a total capacity of about 4.7 GW (out of a worldwide capacity of 169 GW, China alone accounting for about 32 GW) but only 3.3 GW is functional. Pump storage plants have not really grown in India due to several factors, including high investment costs, long gestation periods, non-remunerative pricing models and lack of adequate sites having the topography that is required for operating a pump storage plant.

What are other hurdles apart from Storage that may hamper our Net Zero targets?

- The Financial condition of our Distribution companies (Discoms)
- The additional solar and wind capacity has to come from the private sector and no developer is going to come forward unless there is some credible payment security mechanism.
- Problems with land acquisition, and securing the right of way for laying down transmission lines will also continue to hinder progress.

Conclusion

- The target of having 500 GW of non-fossil generating capacity by 2030 may sound impressive but may prove to be elusive unless we can enhance our storage capacity through not only batteries but also pump storage plants.

Watch this video to understand how Pump storage hydropower works - <https://youtu.be/lsSUPpwtqhQ>

India can become a Biodiversity Champion

Background:

- The importance of biodiversity was strongly articulated at the United Nations Biodiversity Conference in Montreal, Canada.
- In the same conference, 188 country representatives adopted an agreement to “**halt and reverse**” biodiversity loss by conserving 30% of the world’s land and 30% of the world’s oceans by 2030, known as the **30×30 pledge**.

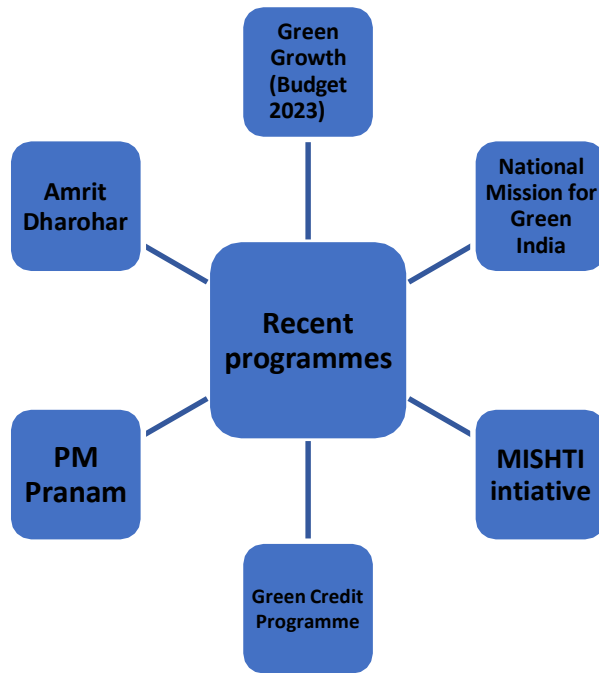
What is Biodiversity?

- Biodiversity is the number and variety of living organisms present in a specific geographical region. It includes various plants, animals and microorganisms, the genes they have and the ecosystems formed by them.
- India currently hosts 17% of the planet’s human population and 17% of the global area in biodiversity hotspots
- India can guide the planet in becoming biodiversity champions.

What are challenges related to Biodiversity conservation?

- Rising temperatures, changing rainfall patterns, and extreme weather events are affecting ecosystems and altering the distribution and behavior of many species.
- Human activities such as deforestation, urbanization, and infrastructure development are leading to the loss and fragmentation of natural habitats.
- Unsustainable use of natural resources such as overfishing, hunting, and harvesting of timber and other forest products can lead to the decline or extinction of species.
- Non-native species introduced by humans can compete with and displace native species, disrupt ecosystem functioning, and spread diseases.

Which programmes recently launched by India have potential to conserve Biodiversity?



How should these programmes be implemented?

- A science-based and inclusive monitoring programme is critical for the success of efforts and for documentation and distillation of lessons learnt for replication, nationally as well as globally.
- Green India Mission implementation should focus on ecological restoration rather than tree plantation. Choose sites where it can contribute to ecological connectivity in landscapes fragmented by linear infrastructure.
- Choice of species and density should be informed by available knowledge and evidence on resilience under emerging climate change and synergies and trade-offs with respect to hydrologic services.
- New missions and programmes should effectively use modern concepts of sustainability and valuation of ecosystems that consider ecological, cultural, and sociological aspects of our biological wealth.
- Site selection should also be carefully considered for the mangrove initiative with a greater emphasis on diversity of mangrove species with retention of the integrity of coastal mud-flats and salt pans themselves, as they too are important for biodiversity.
- Each of these efforts must be inclusive of local and nomadic communities where these initiatives will be implemented.
- Traditional knowledge and practices of these communities should be integrated into the implementation plans.

Way Forward:

- Each programme should include significant educational and research funding to critically appraise and bring awareness to India's biological wealth.
- The National Mission on Biodiversity and Human Wellbeing, already approved by the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC), will be immediately launched by the government.
- This mission seeks to harness the power of interdisciplinary knowledge for greening India and its economy, restore and enrich our natural capital for the well-being of our people and position India as a global leader in applied biodiversity science.

General Studies – 1

Indian Heritage and Culture

1. Indian culture will cover the salient aspects of Art Forms, Literature and Architecture from ancient to modern times.

History

2. Modern Indian history from about the middle of the eighteenth century until the present significant events, Personalities, Issues.
3. The Freedom Struggle — Its various stages and Important contributors / contributions from different parts of the country.
4. Post-independence consolidation and reorganization within the country.
5. History of the world will include events from 18th century such as Industrial revolution, World wars, Redrawing of national boundaries, Colonization, decolonization, Political philosophies like communism, capitalism, socialism etc.— their forms and effect on the society

Society

6. Salient features of Indian Society, Diversity of India.
7. Role of women and women's organization, Population and associated issues, Poverty and developmental issues, Urbanization, their problems and their remedies.
8. Effects of globalization on Indian society.
9. Social empowerment, Communalism, regionalism & secularism.

Geography

10. Salient features of world's physical geography.
11. Distribution of key natural resources across the world (including South Asia and the Indian sub-continent) Factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).
12. Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., Geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes

History & Culture

Shumang Leela

News: This article is based on “Shumang Leela: The art of Gender-Bending” covered recently in a newspaper.

What is Shumang Leela?

- Shumang Leela is a traditional form of theatre in **Manipur**.
- ‘Shumang’ means ‘open courtyard’ and ‘leela’ means play and literal meaning of Shumang leela is “play of the open courtyard”.
- The roles of female artists are all played by male actors (who are called Nupi Shabis) and male characters are played by female artists in case of female theatre groups.
- Shumang Leela started as a comic genre presented before the kings and noblemen, which ultimately developed into the present form of courtyard-enacted play. The groups of those days attempted to preserve and promote humanism, tolerance, confidence, devotion, truth and justice through their performances.
- It has, today, developed both theatrically and artistically.
- It has become a powerful medium for mass education besides giving entertainment and relaxation.
- It has also been trying to strengthen the bond of brotherhood and friendship among various communities in the State.
- The plays also serve as a medium to spread awareness among people of social, political and economic issues. Shumang Leelas may also discuss moral values, unity and integrity.



Vijayanagar Empire

News: Salman Rushdie’s latest work, “Victory City” is a fictionalized telling of the story of Vijayanagara, one of the richest and most powerful kingdoms in medieval India.

About:

- Founded in 1336, the kingdom of Vijayanagara lasted for more than three centuries, a period in which it withstood multiple political stresses, and saw significant advances in art and economy.
- Founded by Harihara I of the Sangama dynasty, Vijayanagara expanded from a strategic position on the banks of the Tungabhadra river.
- The kingdom reached its peak under Krishna Deva Raya (reign 1509-1529), a period in which it enjoyed military superiority to its rival kingdoms such as the Bahmani Sultanate, the Golconda Sultanate and the Gajapatis of Odisha.
- At its peak, the kingdom stretched from Goa in the Konkan coast to parts of southern Odisha in the east and all the way to the very tip of the subcontinent in the south.

What was the Economy like during Vijayanagar Empire?

- While the economy of the kingdom was **largely dependent on agriculture**, trade thrived in its many ports on either coast.
- Traveller **Abd al-Razzaq Samarqandi** chronicled how “the ports of Mangalore, Honavar, Bhatkal, Barkur, Cochin, Cannanore, Machilipatnam, and Dharmadam **saw traders from Africa, Arabia, Aden, the Red sea, China and Bengal** and also served as **ship building centres**.”

- The empire's **principal exports** were pepper, ginger, cinnamon, cardamom, myrobalan, tamarind timber, anafistula, precious and semi-precious stones, pearls, musk, ambergris, rhubarb, aloe, cotton cloth and porcelain.
- Coins were minted by the state as well as by merchant guilds using gold, silver, copper, and brass, and their value depended on material weight.

What about the art and culture during Vijayanagar era?

- Literature in **Tamil, Telugu, Kannada** as well as **Sanskrit** was produced in the kingdom, with new writing styles and methods emerging.
- Vijayanagara architecture is "a vibrant combination and blossoming of the Chalukya, Hoysala, Pandya and Chola styles."
- The **Prasanna Virupaksha** temple of Bukka I and the **Hazara Rama** temple of Krishna Deva Raya are striking examples of Vijayanagara's characteristic style and intricate artistry.

Was it an Urbanized city?

- From accounts of foreign travellers, by the beginning of the 16th century, Hampi-Vijayanagara was probably the **second largest urban settlement on the planet** (after Beijing) and among the most prosperous.
- Vijayanagara's capital Hampi is a **UNESCO World Heritage Site** today, known for its **sophisticated fortifications** as well as innumerable temples, beautiful gardens and other architectural marvels.

Conclusion

- Vijayanagara has been remembered as an era of "**cultural conservatism**", when classical forms of Hinduism were preserved amidst growing Islamization of the rest of the subcontinent, especially the North.

Siddi Dhamal

News: Delegates of G20's tourism working group recently enjoyed Kutchi garba, beda raas, **Siddi dhamal**, art forms from all over Gujarat and the flavours of the state.

Who are Siddi Tribes?

- Siddi, also known by the names of **Sheedi** and **Habshi**, is one of the major tribal communities of Gujarat, while a few of them also live in parts of Karnataka, Goa and Maharashtra.
- Most Siddis are believed to be the descendants of slaves, sailors, servants and merchants from the **Bantu-speaking parts of East Africa** who arrived and became residents of the subcontinent during the 1200-1900 CE period.
- Although Siddis have adopted the language and customs of their present residence, some African traditions have remained undisturbed.
- They are part of **Particularly Vulnerable Tribal Groups (PVTG)** in Gujarat alongwith Kathodi, Kotwalia, Padhars and Kolghas.

About Dhamal Dance:

- The cultural heritage of Siddis dates back to almost 300 years. Their dance and music are quite exquisite.
- Dhamal is one such dance form that reflects the **Siddis' passion for hunting**.
- In the earlier days, dhol (known as dhamal in their tongue) or mushira, as well as small dholkis were played as essential instruments. An **action-filled dance**, the dancers are sometimes **seen throwing coconuts in the air** which fall on their heads and get broken into bits and pieces. On certain occasions dancers even dance barefoot over burning embers.
- When it comes to costumes, they hardly wear anything above the waist while they wear either a piece of fabric or peacock feathers below the waist. However, a waist belt with shells is a must.



- Siddis, known for their physical strength and loyalty, are proud of their cultural heritage and participate in the dance as and when they get an opportunity.

Sarojini Naidu

News: On 13th February, birth anniversary of Sarojini Naidu was celebrated. She is known as Nightingale of India. Her Birth anniversary is also celebrated as National Women's Day.

About:

- Born on February 13, 1879, in Hyderabad, India. Sarojini Naidu was an Independence activist, poet and politician.
- She joined the Indian national movement in the wake of partition of Bengal in 1905.
- The British government lauded Sarojini Naidu with the 'Kaisar-i-Hind' Medal for her service during the plague epidemic in India.



What was her role in Freedom movement?

- She was elected as the **first Indian woman president** of the Indian National Congress(INC) in 1925(Kanpur Session).
- She participated in the Non-Cooperation Movement launched by Gandhi in 1920 and was arrested several times for her involvement in various freedom activities.
- In 1930, she was selected by Gandhi to lead the Salt Satyagraha movement. On May 21, **Sarojini Naidu led 2,500 marchers on the Dharasana Salt Works.**
- She was arrested for her involvement in Quit India movement.
- Naidu traveled to different countries, to raise awareness about India's struggle for independence and to mobilize international support. She also represented India at various international forums and spoke about the Indian independence movement and women's rights.
- She accompanied Gandhiji to London during second session of the Round Table Conference.

Other significant contribution:

- Post Indian Independence, Naidu was appointed as the governor of Uttar Pradesh, becoming the **first woman to hold a governor's office** in India.
- Important works - "The Golden Threshold (1905)", "The Bird of Time (1912)", and "The Broken Wing (1912)".
- **"In the Bazaars of Hyderabad"** is one of her popular poems.
- She was a strong advocate of women's rights.

Draft Geo-Heritage Sites and Geo-Relics Bill, 2022

News: The Union Ministry of Mines notified the draft Geo-Heritage Sites and Geo-relics (Preservation and Maintenance) Bill, 2022, for public comments.

Background:

- The Geological Survey of India (GSI, established in 1851, comes under the Ministry of Mines) investigates and assesses coal and other mineral resources of the country through regional-level exploration.
- It declares geo-heritage sites/ national geological monuments and along with the respective state governments takes necessary measures to protect these sites.

Key Provisions:

- It is aimed at providing for the declaration, preservation, protection and maintenance of geo-heritage sites and geo-relics of national importance, for geological studies, education, research and awareness purposes.

- It defines Geo-heritage sites as sites containing geo-relics and phenomena, stratigraphic type sections, geological structures and geomorphic landforms including Caves, natural rock sculptures of national and international interest; and Land adjoining the site is required for their conservation/ access.
- It defines a Geo-relic as any relic or material of geological significance or interest like sediments, rocks, minerals, meteorites or fossils. The GSI will have the power to acquire geo-relics for its preservation and maintenance.

Key provisions regarding Preservation:

- Authorise the Central Government to declare a geo-heritage site to be of national importance. This would be under the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCTLARR Act).
- Compensation to the owner of land in accordance with the RFCTLARR Act.
- Prohibition on construction, reconstruction, repair or renovation of any building within the geo-heritage site area.
- Penalties for destruction, removal, defacement or contravention of any direction issued by the Director General, GSI.

Why is it being criticized?

- Sweeping powers provided to GSI and issue pertaining to land acquisition can create tensions with Local communities.

Way Forward

- A body like National Geo-Heritage Authority needs to be created which can democratically decide locations of “geo-historical” significance.

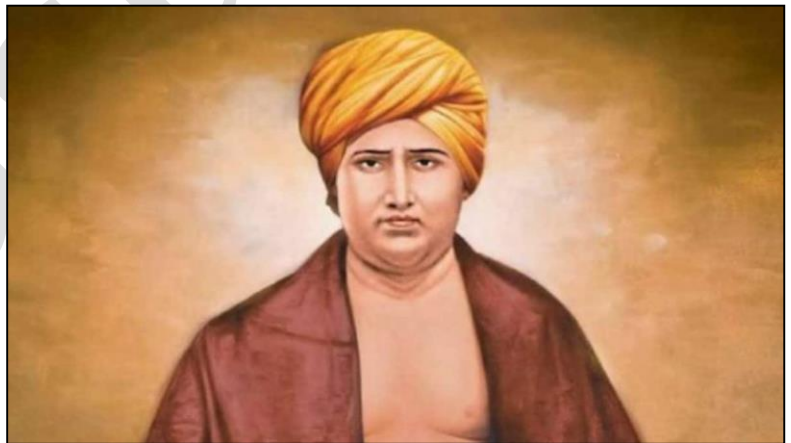
Maharishi Dayanand Saraswati

News: Prime Minister Narendra Modi recently addressed a gathering on the occasion of the 200th birth anniversary of Maharishi Dayanand Saraswati.

- The Prime Minister said that path shown by Swami Dayanand Saraswati instills hope in crores of people at a time when the 21st century is unstable due to numerous conflicts.

Who was Dayanand Saraswati?

- Swami Dayanand Saraswati was born on 12th February 1824 in Tankara, Gujarat in a Brahmin family.
- He was earlier named Mool Shankar Tiwari as he was born during Mool Nakshatra.
- He wandered as an ascetic for fifteen years (1845-60) in search of truth.
- His views were published in his famous work, **Satyarth Prakash** (The True Exposition).
- He was an Indian philosopher, social leader and founder of the **Arya Samaj**.



What were his contributions?

Education

- He was one of the first to advocate for education of Women in India. He encouraged the use of Sanskrit language as a medium of instruction.
- The DAV (Dayanand Anglo Vedic) schools came into existence in 1886 to realize the vision of Swami Dayanand Saraswati.

Social reformer

- He sought to promote the values of the Vedas in modern society.
- His vision of India included a classless and casteless society, a united India (religiously, socially and nationally)

- He worked to eliminate practices such as child marriage and sati.

Nationalism

- He was the first to give the call for Swaraj as "**India for Indian**" in 1876.
- He believed in the power of India to reclaim its status as Great civilization.
- He encouraged the study of Indian history and culture and emphasized on Indians to be proud of their rich heritage.
- As quoted by the PM, "Swami Dayanand Saraswati kindled patriotism in the hearts of many freedom fighters. Lakhs of them were inspired by Maharishi Dayanand Saraswati."

Scientific thought

- He vouched for critical examination of religious texts and beliefs and sought to promote a rational and scientific approach to religion.

Environmentalist

- He encouraged planting of trees, protection of wildlife and conservation of natural resources.

What was the role and philosophy of Arya Samaj?

- It aimed to reestablish the Vedas, the earliest Hindu scriptures, as revealed truth.
- The Samaj opposed worship of murtis (images), animal sacrifice, shraddha (rituals on behalf of ancestors), basing caste upon birth rather than upon merit, untouchability, child marriage, pilgrimages, priestly craft, and temple offerings.
- It upholds the infallibility of the Vedas, the doctrines of karma (the accumulated effect of past deeds) and samsara (the process of death and rebirth), the sanctity of the cow, the importance of the samskaras (individual sacraments), the efficacy of Vedic oblations to the fire, and programs of social reform.
- It has worked to further female education and inter-caste marriage, has built missions, orphanages, and homes for widows, has established a network of schools and colleges, and has undertaken famine relief and medical work.

Napoleon's failed Russian invasion – What's the history?

News: Recently, Russia asked French President Emmanuel Macron to remember the fate of Napoleon Bonaparte after he called for Russia's defeat against Ukraine.

Why did France invade Russia under Napoleon's rule?

- After winning the **Battle of Friedland** in 1807, Napoleon signed the **Treaties of Tilsit** with Russia's Tsar Alexander I, which marked the beginning of their alliance.
- The Russians also accepted to become part of Napoleon's Continental Blockade, which prohibited both neutral parties and French allies from trading with Great Britain. However, this caused severe damage to the Russian economy, forcing the Tsar to break the agreement in 1810 and start trading with Britain openly.
- When all the attempts of negotiations failed, Napoleon sent 600,000 of his Grande Armée into Russia.

Why did the invasion not succeed?

- When the Grande Armée reached the Russian territory, the Tsar's army retreated into the interior regions, compelling the French to cover much longer distances than expected. This led to a shortage of food and other supplies. Napoleon's military strategists also realized that restocking was a daunting task in Russia because it had a poor road network.
- Russian soldiers, who adopted "a **scorched earth policy of destroying everything possible as they retreated before the French**", made food scarcity worse.
- As a result, Napoleon's troops started to suffer from hunger, fatigue and diseases like typhus and diarrhoea.
- After the Tsar refused to respond to any of Napoleon's proposed negotiations for weeks, the French emperor begrudgingly ordered his men to return.
- But the French weren't prepared to face the bone-chilling cold of Russia and the situation spiralled out of control. When temperatures fell to minus 22 degrees Celsius, the soldiers froze to death.

What happened after the invasion?

- Napoleon's failed conquest of Russia united the rest of Europe against him.

- Known as the **War of the Sixth Coalition**, the battle concluded with the defeat of Napoleon, who then went into exile.
- He briefly returned to power in France in 1815 but had to abdicate his throne for the second time after he lost the **Battle of Waterloo** during the War of the Seventh Coalition.

Sangam Era's Keeladi

News: Recently, the Archaeological Survey of India (ASI) has submitted a detailed report on the findings during the first two phases of the digging at the Sangam-era site Keeladi.

About Keeladi:

- Keeladi is a tiny hamlet in the Sivaganga district in south Tamil Nadu. It is about 12 km south-east to the temple city of Madurai and is located along the Vaigai river.
- The excavations here from 2015 prove that an **urban civilization** existed in **Tamil Nadu in the Sangam age** on the banks of the **Vaigai river**.

Key Findings:

- Over 18,000 artefacts have been unearthed from the site and the unique artefacts will be on display at the museum to be opened soon.
- Unearthing of heaps of pottery suggest the **existence of a pottery making industry**,
- Over a thousand Tamil Brahmi inscribed potsherds, found at Keeladi and other sites clearly suggest the long survival of the script.
- Spindle whorls, copper needles, terracotta seal, hanging stones of the yarn, terracotta spheres and earthen vessels to hold liquid suggest various stages of a weaving industry. There also existed a dyeing industry and a glass bead industry.
- Gold ornaments, copper articles, semi-precious stones, shell bangles, ivory bangles and ivory combs reflect the artistic, culturally rich and prosperous lifestyle of the Keeladi people.
- Agate and carnelian beads suggest import through commercial networks while terracotta and ivory dice, gamesmen and evidence of hopscotch have been unearthed revealing their pastime hobbies.

What do recent findings signify?

Links with Sangam Age

- The Sangam age is a period of history in ancient Tamil Nadu which was believed to be from the 3rd century BCE to the 3rd century CE and derives its name from the renowned Sangam assemblies of the poets of Madurai from that time.
- A recent ASI report has pushed the Sangam age to 800 BCE based on these archaeological findings.
- Keeladi could also provide crucial evidence for understanding the missing links of the Iron Age (12th century BCE to sixth century BCE) to the Early Historic Period (sixth century BCE to fourth century BCE) and subsequent cultural developments.

Comparison with Indus Valley Civilization

- The unearthed Keeladi artefacts have led academics to describe the site as part of the Vaigai Valley Civilization. The findings have also invited comparisons with the Indus Valley Civilization while acknowledging the cultural gap of 1,000 years between the two places. The gap is filled with Iron Age material in south India, which serve as residual links.
- According to Tamil Nadu State Archaeology Department (TNSDA) Keeladi has all the characteristics of an urban civilization, with brick structures, luxury items and proof of internal and external trade.
- It comes across as an industrious and advanced civilization and has given evidence of urban life and settlements in Tamil Nadu during the Early Historic Period.

Karakattam Dance

News: Recently, the Prime Minister of India congratulated Karakattam dancer and recent Ustad Bismillah Khan Yuva Puraskar awardee **V Durga Devi**.

About:

- Karakattam is a form of folk dance performed at festivals, conferences, road shows, and primarily at **Mariamman festivals**.
- It is one of the many creative traditions that owe their existence to Mariamman, the rain goddess. While the dance form is not dying, it has undergone radical change and adaptation in recent years.
- Karakattam and agriculture have a link. It is because the Mariamman pooja is held in the month of Medam after Makarakkoythu (harvest season) in Kerala.
- Karakattam is mostly famous in Tamil Nadu, it's performed in different parts of Kerala as well.

Key Features of Karakattam Dance:

- Karakattam performances are characterized by a lot of swaying movements and joyous banter.
- It requires a lot of practice and dedication. Three tiers of flower arrangements of different colors sit on top of a container filled to the brim with either water, rice, or soil.
- All of this is balanced on the head of a Karakattam dancer while he or she dances.
- Other highlights include blowing fire, inserting needles into eyes, and keeping balance while holding a bottle parallel to the ground on the performer's back.



Special Marriage Act, 1954

News: The Act was in news recently after a celebrity registered her marriage under the provisions of this act.

What is SMA, 1954?

- It governs a civil marriage where the state sanctions the marriage rather than the religion.
- The SMA allows marriage between **inter-faith** or **inter-caste couples without giving up religious identity or opting for conversio**
- Whereas, personal laws such as the Muslim Marriage Act, 1954, and the Hindu Marriage Act, 1955, require either spouse to convert to the religion of the other before marriage.

Who can get married under the SMA?

- The applicability of the Act extends to the people of all faiths, including Hindus, Muslims, Sikhs, Christians, Sikhs, Jains, and Buddhists, across India.
- Some customary restrictions such as parties not being within degrees of a prohibited relationship still apply to couples under SMA.
- Further, Section 4 of the SMA requires that both the parties should be capable of giving consent and must be of sound mind.
- The minimum age to get married under the SMA is 21 years for males and 18 years for females.
- Section 19 of the Act provides that couples belonging to the undivided Hindu, Buddhist, Sikh or Jain religion shall be deemed to end their relationships with their family that might affect their inheritance rights.

What is procedure for a civil marriage?

- Under Section 5 of the Act, the parties to the marriage are required to give a notice, in writing, to a "Marriage Officer" of the district in which at least one of the parties has resided for at least 30 days immediately preceding the notice.
- Under Section 6 of the Act, a copy of the notice is kept under the "Marriage Notice Book" which is opened for inspection at reasonable times.
- After receiving the notice, the marriage officer publishes it to invite any objections to the marriage within 30 days.

What is Section 7 of the act that deals with 'objection to marriage'?

- It allows any person, within 30 days of publishing the notice, to object to the marriage on the ground of violation one or more of the conditions specified in Section 4 of the Act.
- If an objection has been made, the Marriage Officer looks into the matter and marriage is not solemnized until the officer is satisfied against the objection or unless the person making such an objection withdraws it.
- However, this provision is often criticized because it is misused to harass couples.
- Moreover, the Delhi High Court in 2009 struck down the practice of posting the notice of intended marriage under the SMA because it violated the right to privacy.
- The Allahabad High Court in 2021, ruled that couples seeking to solemnize their marriage under the SMA can choose not to publish the mandatory 30-day notice of their intention to marry.

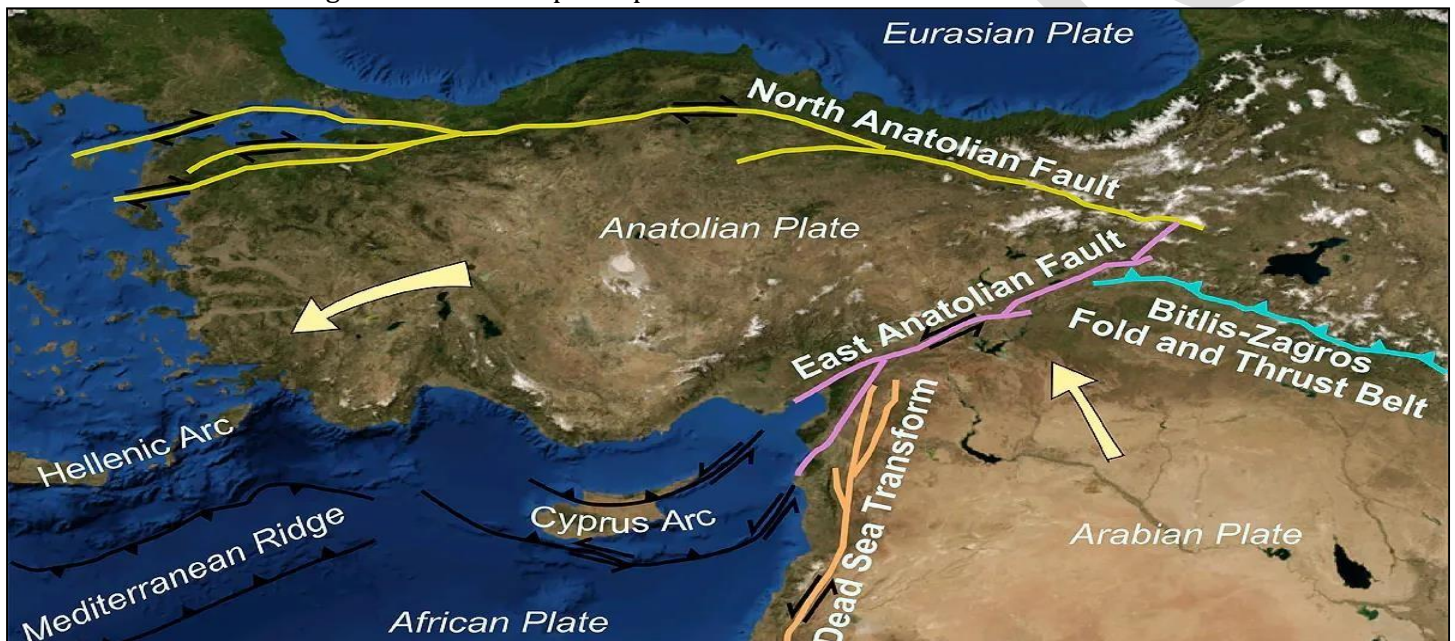
Geography

Earthquake in Turkey and Syria

News: Turkey has been getting hammered by a series of powerful earthquakes since the early hours of Monday, with the first one, a quake of **magnitude 7.8**, being described as the strongest the country has experienced in over a century.

What are earthquakes?

- According to WHO, an earthquake is a **violent and abrupt shaking** of the ground, caused by **movement between tectonic plates** along a fault line in the earth's crust. Earthquakes can result in the ground shaking, soil liquefaction, landslides, fissures, avalanches, fires and tsunamis.
- The extent of destruction and harm caused by an earthquake depends on magnitude, intensity and duration, the local geology, the time of day that it occurs, building and industrial plant design and materials and the risk-management measures put in place.



About Earthquake in Turkey and Syria:

- The region where the earthquake has struck lies along a well-known seismic fault line called the **Anatolia tectonic block** that runs through northern, central, and eastern Turkey.
- It is a **seismically active zone** — though not as active as, say, the Himalayan region which is one of the most dangerous regions in the world from the perspective of earthquakes.
- The seismicity in this region is a result of interactions between the **African, Eurasian, and Arabian plates**.

Do shallow earthquakes cause more damage?

- Recent earthquakes in Turkey emerged from relatively **shallow depths** which made them devastating. The first earthquake, of magnitude 7.8, originated 17.9 km below the Earth's surface. All the subsequent ones, including the one of 7.5 magnitude, emerged from even closer to the surface.
- Shallow earthquakes are generally more devastating because they **carry greater energy** when they emerge on the surface.
- Deeper earthquakes lose much of their energy by the time they come to the surface. The deeper quakes spread farther though — the seismic waves move conically upwards to the surface — even as they lose energy while travelling greater distances, and hence cause less damage.

What does the term Magnitude mean?

- Magnitude is a measure of **how big the waves are**, while the strength refers to the energy it carries.

- Magnitude is measured on a logarithmic scale, which means the seismic waves produced by a magnitude 6 earthquake have 10 times higher amplitude than the ones produced by a magnitude 5 earthquake. The energy differential is even higher, 32 times for every change of 1 in magnitude.

Why do earthquakes remain unpredictable?

- They remain most common hazard which cannot be predicted as no early warning systems can be developed.
- It is only possible **to offer a lead time** of a few seconds between the time of the origin of the earthquake and the time it reaches the Earth's surface.
- Scientists have been able to map the areas that are earthquake prone, and are likely to generate earthquakes in future, but there is no way to predict when.

What are the areas affected by recent Earthquake?

- **Nurdagi** in southern Turkey's **Gaziantep** province, **Ekinozu** in Kahramanmaraş province.

How has India helped Turkey?

- India is sending an **Army medical team, National Disaster Relief Force (NDRF) personnel, and medical supplies.**
- The medical team comprises critical care specialist teams to include orthopaedic surgical Team, general surgical specialist team, medical specialist teams apart from other medical teams.
- Sending aid to Turkey is yet another instance of India quickly coming in support of a country hit by a natural disaster.

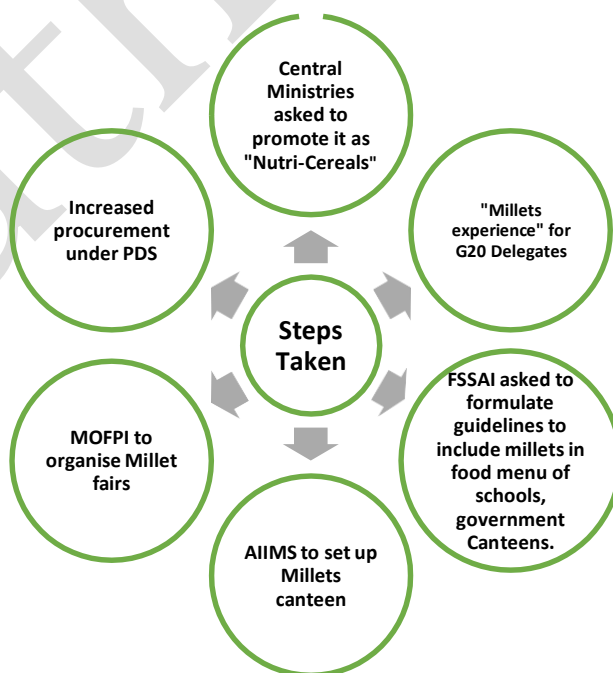
Understanding India's Big Millets Push

News: Two years ago, the UN General Assembly adopted India's resolution to declare 2023 as the International Year of Millets.

Background:

- The Union Budget has accorded **high priority** to millets grains such as **jowar, bajra, ragi** citing their health benefits. "We are the largest producer and second largest exporter of 'Sree Anna' (millets) in the world.
- The **Indian Institute of Millet Research-Hyderabad** will be supported as the Centre of Excellence for sharing best practices, research and technologies at the international level."

What steps are taken by government recently to promote millets?



What are the benefits of Millets?

- **Eco-friendly** and **healthier** than other traditionally consumed grains.
- **Require less water** compared to Rice and wheat and can be **grown in rain-fed areas** without irrigation.
- **Increased tolerance** to Drought and extreme weather events.
- Millets can be a healthier option to keep lifestyle diseases such as **obesity** and **diabetes at bay**. Shifting to Millets will help change the image of country which is perceived to be Diabetes capital of world.
- Millets have a much **lower glycaemic index** (a measure of how much blood sugar levels spike after consuming a food item) than processed rice or wheat. A low glycaemic diet can help in **controlling weight** and **blood sugar levels**, consequently reducing the risk of heart disease or even cancers.
- Millets are also **high in fibre content** that is known to improve gut microbiota. They result in satiety faster and keeps people fuller for longer, thereby reducing the amount of food consumed.
- **Rich in micronutrients** such as zinc and iron, which can help reduce country's burden of Anemia.

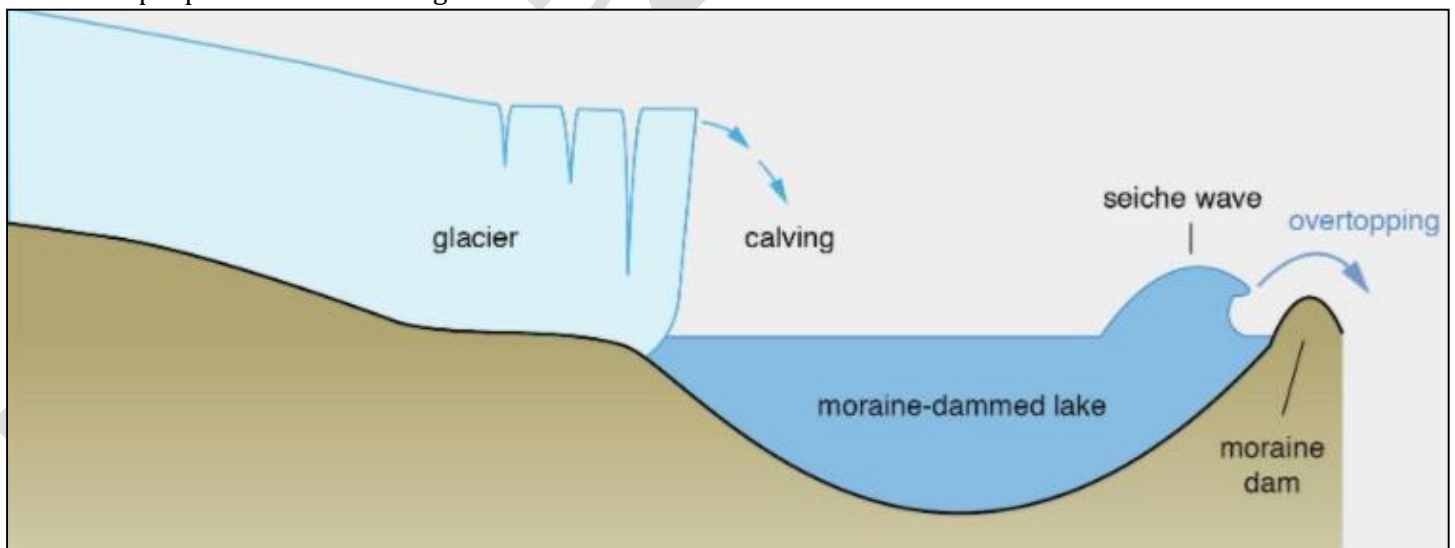


What are possible concerns around Millets?

- Although millets have a low glycaemic index, they are **not a low-calorie option**.
- The millets should not be polished like rice or else any nutritional gains made will be lost.

Glacial Lake Outburst Floods

News: Three million Indians live in areas where a glacial lake outburst flood (GLOF) can happen at any time, the first global assessment of such areas has found. Together with two million Pakistanis, they form a third of the total number of people worldwide facing such a risk.



What is GLOF?

- ICIMOD or the International Centre for Integrated Mountain Development defines GLOF as the sudden release of water from a lake fed by glacier melt that has formed at the side, in front, within, beneath, or on the surface of a glacier. GLOF has the potential to catastrophically threaten people's lives, livelihoods and regional infrastructure.

- The researchers found that it was not the size or number of glacial lakes that determined the risk to people. Instead, it was the number of exposed people that greatly elevated the potential impact of GLOFs globally especially across High Mountain Areas and the Andes.
- In the Hindu Kush Himalaya (HKH), GLOF events can be traced back to the failure of moraine-dammed glacial lakes
- The pressure on the dam, water seeping through the structure, fragmentation of the source glacier, landslides, etc., can trigger a GLOF.
- The frequency of GLOFs is expected to increase due to climate change.

Key Findings:

- The majority of the globally exposed population is located in the region of high mountain Asia and more than 50% in India, Pakistan, Peru and China.
- The population exposed to GLOFs increases with distance from a glacial lake.
- Rapid deglaciation over the last 20 years has led to the growth of many large glacial lakes.
- Increase in the population living in close proximity to glacial lakes between 2002 to 2022.
- According to the ICIMOD, Himalayan glacial lakes increased by about 9% in number, and 14% in the area.
- The best-studied glacier is north India's Chhota Shigri, which has lost three times its mass.
- The rapid onset of GLOFs means there is insufficient time to effectively warn downstream populations.

Way Forward:

- Studying glaciers through satellite observations and learning from past events and their dynamics will help in disaster risk reduction and climate change adaptation in the region.

Lithium reserves in J&K

News: Recently, the Geological Survey of India has for the first time discovered Lithium reserves in the Salal-Haimana area of Reasi District of Jammu & Kashmir(UT).

What is Lithium?

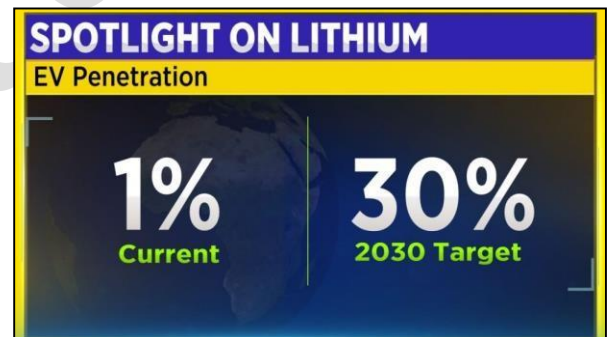
- Lithium is a soft, silvery metal. It has the lowest density of all metals.
- Under standard conditions, Lithium is the lightest metal and the lightest solid element. Like all alkali metals, lithium is highly reactive and flammable. It never occurs freely in nature due to its high reactivity.
- **Greenbushes mine** in Western Australia is the largest hard-rock lithium mine in the world and Australia is the global leader in Lithium production.
- Lithium is primarily extracted from brine pools ('Salar' in Chile) and rock minerals such as spodumene (in Australia)

What are the uses of Lithium?

- Lithium is used in rechargeable batteries for mobile phones, laptops, digital cameras and electric vehicles.
- Lithium metal is made into alloys with aluminium and magnesium, **improving their strength and making them lighter**. A magnesium-lithium alloy is used for armour plating.
- Aluminium-lithium alloys are used in aircraft, bicycle frames and high-speed trains.
- Lithium oxide is used in special glasses and glass ceramics.
- Lithium is used in the treatment of bipolar disorder due to its ability to stabilize mood swings.
- Lithium is used as a lubricant in high-temperature and high-vacuum environments.

Few Facts about Lithium reserves around the world:

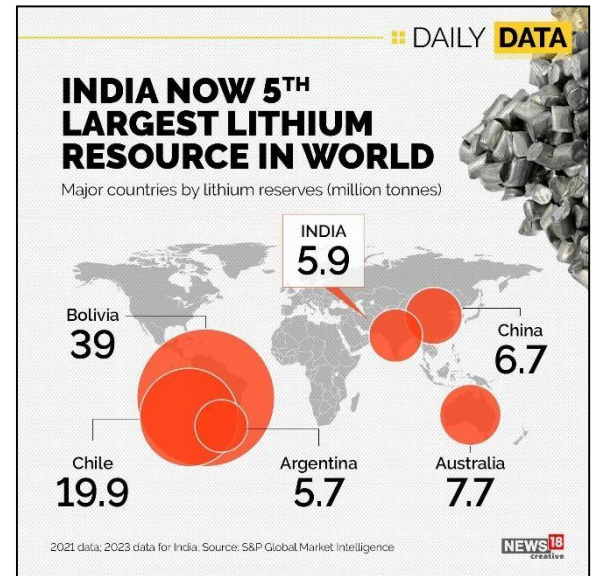
- According to the US Geological Survey, the world has 98 million tonnes of Lithium reserves. Of that, half of it is in South America's 'lithium triangle' of Bolivia, Chile and Argentina. Apart from that, the US, Australia and China also have some Lithium reserves.



- The recent Lithium discovery in Jammu & Kashmir is about **5.9 million tonnes** which is about **5.5% of the world's total Lithium reserves**.

What is the significance of recent Lithium findings?

- Lithium's lightness and ability to pack in energy make it a good pick for vehicles and devices that run on rechargeable batteries since lithium ions can store and release electricity without adding much body weight.
- Reduced dependence on imports for Lithium. India currently imports around 70 percent of its lithium requirement from countries like China and Hong Kong.
- It will boost the manufacture of rechargeable batteries.
- India's plan to increase EV penetration by 30 percent by 2030 relies heavily on lithium. This vital discovery by GSI can help boost the production of lithium-ion batteries and will put India on track to reaching its goal of net zero emissions by 2070.
- It will significantly boost employment opportunities and economic development.
- China dominates the Lithium supply chain and it has agreements with South American suppliers. We can build our own networks after recent discovery and be a market for World's lithium cell assembly.



Way Forward:

- While the discovery is significant as it is a step towards self-sufficiency. A lot also depends on how much of it is actually discovered and refined as well, because that is what the value chain looks like.
- After that it goes for refining self-production, then module assembly and that is when it goes into the OEMs. So, a lot of steps have to be covered here right now.

Hydroelectric Projects in India

News: Recent crisis in Joshimath has led to large scale displacement of local people. All construction activities have been stopped in the area and primary reason for crisis is attributed to large-scale development projects in the region. In this context, we will understand Hydroelectric projects in India, their advantages and concerns.

What is Hydroelectric energy?

- Hydroelectric energy, also called hydroelectric power or hydroelectricity, is a form of energy that harnesses the power of water in motion—such as water flowing over a waterfall—to generate electricity.

What is status of hydroelectric projects in India?

- In 2022, hydropower capacity of **46,512 MW (megawatts)** accounted for **~12% of total capacity**.
- In the last two decades the most significant policy push for hydropower was the 2003 plan for developing 50,000 MW of hydropower capacity. Under the plan, 162 new hydro-electric projects were identified. Out of these, more than half the capacity identified was in Arunachal Pradesh and about a third was in the Himalayan and North-eastern states.

What are advantages of Hydroelectric projects?

- Compared to traditional fossil fuel sources of energy, using hydropower to produce electricity **does not release any pollutants** in air or water.
- Hydropower is a **renewable source** of energy. The energy generated through hydropower relies on the water cycle, which is driven by the sun, making it renewable.
- Such projects though involve heavy initial construction costs but they are **viable for long term** as they provide reliable source of power over long time.
- Hydroelectric projects support lot of economic activities and generate additional employment including in manufacturing, utilities, business services, construction, transportation, energy systems, water management, tourism.
- They provide water for drinking and irrigation activities as well.

- Reservoirs/Storage-based hydropower projects **aid in flood control**. Local communities can benefit from fisheries and other activities in the reservoirs.
- It can help save valuable Foreign exchange reserves as there is reduced dependence on Fossils.

What are concerns associated with Hydroelectricity projects?

- The storage/reservoir based dams can prevent natural flow of river waters, it will reduce flow of useful sediments downstream.
- Other issues such as Erosion, landslides, sedimentation have adverse impacts on local environment.
- As natural flow of river water is disturbed it obstructs fish migration routes. It will deplete fish marine resources.
- Hydroelectric generation is not 100% emission-free. Studies have shown that reservoirs created by dammed rivers emit greenhouse gases. Dead plants and other organic materials in the reservoir water decompose and release methane (a strong greenhouse gas) and carbon dioxide into the atmosphere.
- The projects require large expanse of land. Submergence of land under reservoirs leads to loss of people's homes and livelihoods, important natural areas, agricultural land, or historical landmarks. Submergence can impact local wildlife and ecology.
- While dams help in flood control however during extreme weather events, dams may not be able to hold water and floods induced due to breach of dams can worsen things. For example, Rishiganga Tragedy in Uttrakhand 2021.

Way Forward:

- Avoid Large scale hydro projects in Upper Ganga region.
- Promote construction of Small Hydro power projects such as small run of the river projects that have minimal impact on ecosystem and help fulfill basic needs in remote village areas as well.
- Utilize hydropower potential in areas where ecology is not so fragile.
- The involvement of the private sector and joint ventures with the neighboring countries can go a long way towards achieving the goal of "power to all" in the coming years.

General Studies – 2

Polity & Constitution

1. Indian Constitution—historical underpinnings, evolution, features, amendments, significant provisions and basic structure.
2. Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.
3. Separation of powers between various organs dispute redressal mechanisms and institutions
4. Comparison of the Indian constitutional scheme with that of other countries.
5. Parliament and State legislatures—structure, functioning, conduct of business, powers & privileges and issues arising out of these.
6. Structure, organization and functioning of the Executive and the Judiciary—Ministries and Departments of the Government; pressure groups and formal/informal associations and their role in the Polity.
7. Salient features of the Representation of People’s Act.
8. Appointment to various Constitutional posts, powers, functions and responsibilities of various Constitutional Bodies.
9. Statutory, regulatory and various quasi-judicial bodies.

Social Justice

10. Government policies and interventions for development in various sectors and issues arising out of their design and implementation.
11. Development processes and the development industry —the role of NGOs, SHGs, various groups and associations, donors, charities, institutional and other stakeholders.
12. Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.
13. Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.
14. Issues relating to poverty and hunger.

Governance

15. Important aspects of governance, transparency and accountability, e-governance, applications, models, successes, limitations, and potential; citizens charters, transparency & accountability and institutional and other measures.
16. Role of civil services in a democracy.

International Relations

17. India and its neighborhood- relations.
18. Bilateral, regional and global groupings and agreements involving India and/or affecting India’s interests.
19. Effect of policies and politics of developed and developing countries on India’s interests, Indian diaspora.
20. Important International institutions, agencies and fora- their structure, mandate

Polity & Governance

Judicial Majoritarianism

News: The blind acceptance of numerical majorities in judicial decision-making and the constitutional disregard of analysis and appreciation of arguments and evidence in dissenting judgments have been in news recently post the Supreme Court Judgement on demonetization.

What is Judicial Majoritarianism?

- Judicial majoritarianism refers to numerical majorities, i.e., number of judges supporting a judgment.
- Cases in SC are usually heard either by Division Benches which consist of two judges or by Constitutional Benches which consist of five, seven, nine, 11 or even 13 judges.
- Judicial majoritarianism deals with the Constitution divisions which involve a substantial interpretation of constitutional provisions. It helps in making the decision-making process easier.
- The concept of majoritarianism comes from **Article 145(5)** of the Constitution which states that no judgment in such cases can be delivered except with the concurrence of a majority of the judges.
- However, it also says that judges are free to deliver dissenting judgments or opinions.

What are concerns with Judicial Majoritarianism?

- Issue of why numerical majorities of judicial bodies are accepted without any debate, while numerical majorities in representative bodies such as the Lok Sabha are often looked at with suspicion.
- Differences in judicial decisions can be because of differences in either the methodology adopted and the logic applied by the judges. Since judgements are made on different methodology and logic, there are chances that those judges giving the majority may have fallen into error of methodologies or logics.
- In such a scenario, judges who are dissenting may form a minority but their methodology applied may be correct and without errors compared to those who formed the majority. However, those forming the minority get very little attention.
- A great example is of the dissenting opinion of Justice H.R. Khanna in A.D.M. Jabalpur v. Shivkant Shukla (1976) upholding the right to life and personal liberty even during situations of constitutional exceptionalism.
- Another example is the dissenting opinion of Justice Subba Rao in the Kharak Singh v. State of U.P. (1962) case upholding the right to privacy which received the judicial stamp of approval in the K.S. Puttaswamy v. UOI (2017) case.
- Moreover, the rate of Dissent itself is subjected to influences. For example, the study found that the rate of dissent where the Chief Justice was a part of the Bench was lower than in those cases where the Chief Justice was not on the Bench. Such instances highlight the concerns of the efficiency of the judgments and of the majoritarianism procedures adopted by the judiciary in deciding the case of national and constitutional importance.

Way Forward

- Seniority-based assessment as suggested by Ronald Dworkin prefers a system which may either give more weightage to the vote of senior judges given that they have more experience or to the junior judges as they may represent popular opinion better.

Governor vs Government

News: The role, duty and involvement of Office of Governor is constantly in news. In this article, we will discuss about recent controversies seen in states of Kerala, Tamil Nadu and West Bengal and broadly discuss about role of Governor, important Supreme court judgements pertaining to his role and way forward.

Background:

- **Tamil Nadu** – The ugly scenes in the Tamil Nadu Assembly with Governor R N Ravi deleting and adding words in his speech, his walkout, and the pandemonium in the House have once again brought to the fore the uneasy relationship and confrontational course between the head of state and the executive.

- **Kerala** - Kerala's Governor sought the resignation of 9 Vice-chancellors following a Supreme Court judgement setting aside the appointment of the Vice-Chancellor of a technology university. The Governor had also said that the statements of individual ministers that lower the dignity of the office of the Governor, can invite action including 'withdrawal of pleasure'.
- **West Bengal** – Right from public spat between CM and Governor to the CM blocking the Governor on social media. The conflict between the Governor and state government here has seen different dynamics evolve.

What are the reasons for controversies associated with Office of Governor?

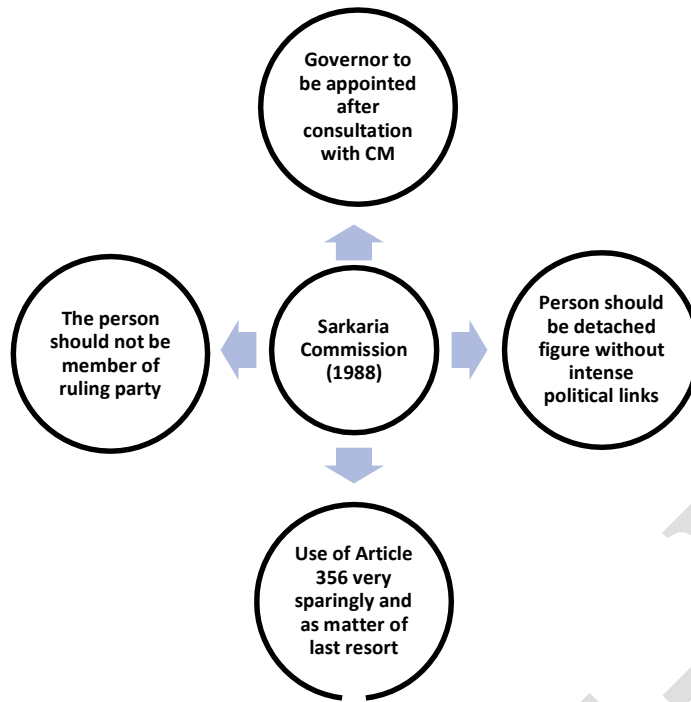
- **Appointment and Removal** - The Governor is appointed by the President and holds the Office during the pleasure of the President. There are no specified qualifications for appointing a person as the Governor (apart from being a Citizen of India and being above 35 years of age). The President appoints and removes the Governor based on the recommendations of the Union Government. Thus the Governor tends to act according to the liking of the Union Government.
- **Political factors** – The conflict is more common when different political parties are in power at the Union and State level.
- **Discretionary Powers of Governor** - According to **Article 163**, there is a Council of Ministers to aid and advise the Governor to exercise her functions. However, the Constitution provides **certain discretionary powers** to the Governor, where she can act without the advice of the Council. For example, I) The Governor can **reserve a Bill** passed by the State Legislative Assembly for the consideration of the President of India, II) exercising her power under **Article 356** to recommend President's Rule in the State, III) The Governor can appoint Chief Minister when no political party has a clear majority etc. Such discretionary powers lead to conflict and controversy between state government and Governor.

Important Supreme Court Judgements regarding Office of Governor:

- **Shamsher Singh vs State of Punjab (1974)** - In this case, a seven-judge Constitution Bench of the Supreme Court said that the President and Governor, custodians of all executive and other powers under various Articles, shall exercise their formal constitutional powers **only upon and in accordance with the advice of their Ministers save in a few well-known exceptional situations**.
- **SR Bommai vs. Union of India (1994)** – It was concerned with the **use of Article 356** and the Governor's power to dismiss a State Government. The Supreme Court ruled that **whether the State Government has the majority should be tested on the floor of the House**. It shouldn't be based on the subjective assessment of the Governor.
- **Nabia Rebia vs Deputy Speaker (2016)** - The Governor had gone against the advice of the State Cabinet and called the session of the Legislative Assembly at an earlier date. The SC confirmed that the **Governor does not enjoy broad discretionary powers** and is **always subject to Constitutional standards**. The Court concluded that the Governor's discretion did not extend to the powers conferred under Article 174. Hence, he could not summon the House, determine its legislative agenda or address the legislative assembly without consultation. (Article 174 is related to the Sessions of the State Legislature, prorogation and dissolution).

Key recommendations of Bodies/Commissions regarding Governor's office:

- **Administrative Reforms Commission (1969)** – It recommended **non-partisan persons** having experience in public administration should be appointed as the Governors of State.
- **National Commission to Review the Working of the Constitution (NCRWC)** - The Governor should be appointed by a Committee comprising the Prime Minister, Home Minister, Speaker of the Lok Sabha, and the Chief Minister of the State concerned.
- **The Second Administrative Reforms Commission (ARC)** - The Inter-State Council needs to come up with some guidelines for governors to follow when they are using their discretionary power.
- **Punchi Commission (2010)** – I) It proposed a **fixed 5-year term** for Governors and advocated for using **Impeachment process** (similar to President) by state legislature. II) It reiterated certain provisions as recommended by Sarkaria Commission. III) The convention of making Governors as Chancellor of universities should be done away with.
- Below are recommendations made by Sarkaria Commission:



Way Forward:

- Various Commissions have suggested practical reforms that need to be implemented in letter and spirit especially those concerning the appointment and removal of Governors.
- The Governor's discretion and Constitutional mandate should be guided by certain 'norms and principles', which can be defined in a 'Code of Conduct'. Discretion must be a decision that is guided by reason and motivated by good faith.
- Lastly, the Governors should also act in the best interests of the State as well as the Union. The terms used in reference to Governor's office 'Agent of Central Government' does not augur well with a democracy as Vibrant as India's.

Section 33(7) of RPA, 1951

News: Recently, the Supreme Court has rejected a petition to bar candidates from contesting from more than one constituency in the general or assembly elections, calling it a matter of "**parliamentary sovereignty**" and "**political democracy**".

Background:

- The plea had challenged the **constitutionality of Section 33(7) of the Representation of Peoples Act, 1951**, citing that it is unreasonable for creating extra burden on the public exchequer as by-elections will invariably follow because candidates have to give up one seat in case, they win on both the seats.

What are the key details of the verdict?

- No relevant provision mentioned in RPA, 1951 that mandates intervention of Supreme Court and the **matter strictly falls within legislative domain**.
- It is parliament's will that determines whether political democracy is furthered by granting such a choice.
- Contesting from multiple seats can be due to multiple reasons and there would be reasons which weigh in the balance and whether it furthers parliamentary democracy is something which is in the legislative domain.
- It highlighted that **parliament did amend the law in 1996** to restrict the number of constituencies to two whereas earlier, **a candidate could contest from any number of seats**.
- The parliament has already intervened in the past. The parliament can certainly step in again. At the relevant time when the parliament deems it appropriate to do it, they will do it. There is no question of inaction on anybody's part.

Issues around Twin candidature:

- Fighting election in multiple can create conflict of interest.
- Waste of resources, money and valuable time of people.
- Creates confusion of among voters regarding whom to vote for.
- Running in multiple constituencies can also raise questions about the candidate's motivation and create the perception of corruption, as they may be seeking multiple seats in order to increase their chances of winning office.

Way Forward

- The Election Commission recommended amending Section 33(7) on multiple occasions so as to allow one candidate to contest from only one seat.
- Now is the right time to modify and expand the principle of electoral democracy to “One person, one vote; one candidate, one constituency.”

Parliament is ‘North Star’ of Democracy – Vice President

News: The recent statement by Honorable Vice President comes days after the CJI’s statement calling the Basic Structure Doctrine a ‘North Star’ that gives direction to interpreters and implementers of the Constitution.

Background:

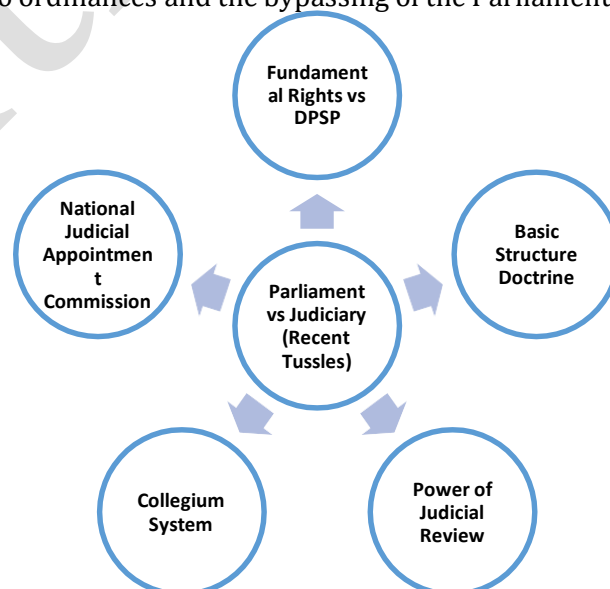
- The Vice President has been consistent in criticizing the judiciary for “overstepping its boundaries” and has also questioned the landmark 1973 Kesavananda Bharati case verdict on the basic structure doctrine.
- According to the Vice President, the verdict had set a “bad precedent” and he stated that if any authority questions Parliament’s power to amend the Constitution, it would be difficult to say we are a democratic nation.

What is the role and function of Parliament?

- Parliament is the essence of democracy – participation by people in the decision-making process and government by consent.
- It is a place for debate/discussion/deliberation to realize the aspirations and dreams of the people of India.
- The Parliament is there to control, guide and inform the government and deliberate the process of law making.

What are the challenges faced by Parliament?

- Frequent disruptions in daily functioning of Parliament.
- Decrease in number of bills being referred to Parliamentary committees for scrutiny and thorough inspection.
- Shrinking space for the opposition
- Increasing recourse to ordinances and the bypassing of the Parliament on several important initiatives.



Impact of tussle between Parliament and Judiciary:

- It creates a perception of environment of distrust in the minds of common citizen.
- Impact on right of People due to lack of urgency on issues such as pendency of cases, pending appointments to higher judiciary.
- Judicial overreach.

Way Forward:

- Executive, judiciary and legislature should respect the Doctrine of Separation of powers (Article 50)
- Wherever possible Judiciary must exercise restraint
- Improving overall Governance
- Memorandum of Procedure for judicial appointments must be finalized at the earliest.

National Commission for Scheduled Tribes

News: The recent data presented by the Ministry of Tribal Affairs (MoTA) revealed that the National Commission for Scheduled Tribes (NCST) is currently functioning with **less than 50% of its sanctioned strength**.

About:

- NCST was set up in 2004 by amending Article 338 and by inserting a new **Article 338A** in the Constitution through the **89th Constitution Amendment Act, 2003**. Hence, it is a constitutional body.
- By this amendment, the erstwhile National Commission for Scheduled Castes (NCSC) and Scheduled Tribes was replaced by two separate Commissions namely - the NCSC, and the NCST
- Article 338A inter-alia gives powers to the NCST to oversee the implementation of various safeguards provided to Scheduled Tribes (STs) under the Constitution or under any other law for time being in force or under any other order to the Government and to evaluate the working of such safeguards.

Composition:

- It consists of a Chairperson, a Vice-Chairperson and 3 other Members who are appointed by the **President** by warrant under his hand and seal.
- At least one member should be a woman.
- The Chairperson, the Vice-Chairperson and the other Members hold office for a **term of 3 years**.
- The members are not eligible for appointments for more than two terms.

Functions:

- To investigate and monitor all matters relating to the safeguards provided for the STs under the Constitution or under any other law for the time being in force or under any order of the Government.
- To inquire into specific complaints with respect to the deprivation of rights and safeguards of the STs.
- To participate and advise in the planning process of the socio-economic development of the STs and to evaluate the progress of their development.
- The Commission shall provide reports on the operation of those safeguards to the President annually and as necessary.
- To make in such reports recommendations as to the measures that should be taken by the Union or any State for effective implementation of those safeguards.
- The President, subject to the provisions of any law made by Parliament, may, by rule, discharge any other functions relating to the protection, welfare, development, and advancement of the STs.

Article 356

News: Recently, PM Modi in the Rajya Sabha recalled about misuse of Article 356 of the Constitution by previous Governments. In this context we will discuss more about the Article, its origin and how it was misused.

What are the origins of Article 356?

- Article 356 was inspired by **Section 93 of the Government of India Act, 1935**.

What does Article 356 say?

- Article 356 empowers the **President** to withdraw to the Union the executive and legislative powers of any state “if he is satisfied that a situation has arisen in which the government of the state cannot be carried on in accordance with the provisions of the Constitution”.
- Whether the constitutional machinery has broken down may be determined by the President at any time, either upon receipt of a report from the Governor, or suo motu.
- According to the provisions of Article 356, President’s Rule in a state can be imposed for **six months at a time for a maximum duration of three years**. Every six months, Parliamentary approval to impose President’s Rule will be required again.

What are the impacts of Article 356?

On Executive

- State government is dismissed and executive powers of the State are exercised by the Centre.

On Legislature

- President can either dissolve or suspend the State legislative assembly.
- Law making for state is done by Parliament.
- President can promulgate Ordinances when Parliament is not in session for State governance.

Other impacts

- The Fundamental rights of citizen does not have any effect of Article 356.
- There is no effect of Article 356 on Financial Relation of the Centre and State.
- The Constitutional position, status, powers and function of concerned State High courts remain same even during President’s rule.

What is the S.R. Bommai Vs Union of India, 1994?

The Supreme Court set some guidelines about the provisions to be kept in mind regarding use of Article 356.

- Judicial review will involve 3 questions – Is there a material basis of proclamation? Whether the material is relevant? Is there a malafide use of power?
- If there is inappropriate use of Article 356, the courts can reverse the action taken by President.
- Centre should give adequate warning and time period of minimum 1 week to the concerned states.
- Until Parliament approves the proclamation, President shall not take any irreversible action.
- Majority enjoyed by the Council of Ministers in the State shall be decided on the Floor of the house.
- Use of Article 356 can be justified only in situations of physical breakdown of the Government or when there is a ‘hung assembly’ or if there is violent breakdown of Constitutional machinery.

What were issues with Article 356 highlighted by Sarkaria Commission?

- No clear definition of the expression “Breakdown of Constitutional Machinery”
- Opposition Parties were being denied a chance to form Alternate government.
- The misuse of Article 356 to dislodge state governments run by parties other than those belonging to ruling party at the Centre.
- Accusation that reports sent by Governor were actually prepared by the Union Government.

Recommendations of Sarkaria Commission:

- Use of Article 356 as a matter of last resort.
- State governments should be given warning and opportunity to correct its behavior.
- In the case of issue of breakdown of Public order, first, exhaust all the alternative means such as use of security forces, paramilitary forces.
- Impose Article 356 based on Governor’s report which must be kept in public domain.

Conclusion

- While giving explanation pertaining to Article 356 in the Constituent Assembly Dr. B.R. Ambedkar had said that the Article 356 would remain as ‘Dead Letter’ and would be used only as a measure of last resort.
- The reality however was starkly different. The Article is an extraordinary power and must be utilized in right spirit as envisaged by the Constituent Assembly.

Expunging in Parliament

News: A portion of a speech delivered by the opposition leader in the Lok Sabha on February 7th, 2023 were expunged from the records of Parliament by the Speaker's orders.

Background:

- The decision of what parts of a speech are to be expunged lies with the Presiding Officer of the House.

What are rules on Expunging from the record?

- Under Article 105(2) of the Indian Constitution, Members of Parliament enjoy immunity from court proceedings for their statements in Parliament. However, their speeches are subject to the discipline of the Rules of Parliament, the "good sense" of its Members, and the control of proceedings by the Speaker.
- Rule 380 of the Rules of Procedure and Conduct of Business in Lok Sabha gives the Speaker the discretion to expunge any words or expressions used in debate that are considered defamatory, indecent, unparliamentary, or undignified.

How is the decision taken?

- The decision to expunge a word or portion of a speech is taken by the Speaker under Rule 380, based on a recommendation from the head of the reporting section, taking into account the context in which the word or sentence was used.
- The context is key in making the decision to expunge a remark. The focus is on removing the minimum number of words. Rule 381 says: The portion of the proceedings of the House so expunged shall be marked by asterisks and an explanatory footnote shall be inserted in the proceedings as follows: 'Expunged as ordered by the Chair'.
- The expunged portions cease to exist in the records of Parliament and cannot be reported by media houses, although they may have been heard during the live telecast of the proceedings. However, the proliferation of social media has introduced challenges in implementing expunction orders.

How a ChatGPT-based chatbot can help rural India?

News: Bhashini, a small team at the Ministry of Electronics and IT (MeitY), is building a WhatsApp-based chatbot that relies on information generated by ChatGPT to return appropriate responses to queries.

How will Chatbot work?

- In essence, a user could simply ask a question using voice notes, and receive a voice-based response generated by ChatGPT.
- The chatbot has been developing with the view of India's rural and agrarian population that most depend on government schemes and subsidies. These potential users speak a wide range of languages, which makes it important to build a language model that can successfully identify and understand them.
- It will help numerous farmers in India who may not be familiar with typing on smartphones.
- The ChatGPT-powered WhatsApp chatbot will support 12 languages, including English, Hindi, Tamil, Telugu, Marathi, Bengali, Kannada, Odia, and Assamese.
- The majority of those who will use this chatbot would not know English, for which the **Government's Bhasha Daan Initiative** will be used.
- Bhasha Daan is an initiative to crowdsource language inputs for multiple Indian languages as part of Project BHASHINI. It calls upon citizens to help build an open repository of data to digitally enrich his/her own language.

What are concerns associated with such models?

- Responses of ChatGPT, Google's Bard may not always be accurate.
- Last week, when Google unveiled Bard, its competitor to ChatGPT, the bot made a factual error about the James Webb Space Telescope. The company's shares dropped by \$100 billion after the mistake was spotted.
- In its current testing phase, the WhatsApp chatbot **can only respond to simple queries** about government schemes, etc. This is primarily due to the current limitation of ChatGPT itself the fact that it cannot access information from the Internet in real time.

- ChatGPT's language model was trained on a dataset that only includes information until 2021. However, this is set to change.

Custodial Deaths

News: According to the Ministry of Home Affairs (MHA) in the last five years, the highest number of custodial deaths have been reported in **Gujarat at 80**.

What are Custodial Deaths?

- Custodial death is a death that occurs while a person is in the custody of law enforcement officials or in a correctional facility. It can occur due to various causes such as use of excessive force, neglect, or abuse by the authorities.
- According to the Law commission of India, the crime by a public servant against the arrested or the detained person who is in custody amounts to custodial violence.

What are reasons for Custodial Deaths?

- India does not have **anti-torture legislation** and hasn't criminalized custodial violence.
- The **use of excessive force** including torture to target criminals.
- Lengthy, expensive formal processes followed by courts dissuade the poor and the vulnerable.
- Although India has signed the United Nations Convention against Torture in 1997 its ratification still remains.
- Poor training or lack of accountability among law enforcement officials.
- Inadequate or substandard conditions in detention centers.
- Underlying health conditions or pre-existing medical conditions that are not adequately addressed or treated while in custody.

What are provisions available regarding Custody?

- Protection from torture is a fundamental right enshrined under Article 21 (Right to Life) of the Indian constitution.
- Article 22 provides "Protection against arrest and detention in certain cases"
- Primary responsibility of State governments to ensure protection of human rights as Police and public order fall under State list according to 7th Schedule of Indian Constitution.
- Section 41 of Criminal Procedure Code (CrPC) was amended in 2009 to include safeguards so that arrests and detentions for interrogation have reasonable grounds and documented procedures, arrests are made transparent to family, friends and public, and there is protection through legal representation.
- Sec 330 & 331 of the Indian Penal Code 1860 provides punishment for injury inflicted for extorting confession. Crime of custodial torture against prisoners can be brought under Sec 302, 304, 304A, and 306 of IPC.
- Section 25 of the Indian Evidence Act provides that a confession made to the police cannot be admitted in Court. Section 26 of the Act provides that a confession made to the police by the person cannot be proved against such person unless it is made before the Magistrate.

Way Forward

- It is responsibility of State to check that strict adherence is followed in human rights laws and regulations which includes prevention of torture and inhuman treatment of prisoners.

The Missing Deputy Speaker

News: The Supreme Court has issued notices on a petition highlighting the vacant posts of Deputy Speakers in Lok Sabha and five state assemblies for years.

Background:

- A Bench sought responses on a PIL that contends that not electing a Deputy Speaker to the 17th (present) Lok Sabha, is "against the letter and spirit of the Constitution".

What are Constitutional provisions regarding Deputy Speaker?

- **Article 93** of the Constitution of India establishes the post of the Deputy Speaker of Lok Sabha and **Articles 94-96** detail their appointment, removal, and powers.
- In the absence of the Speaker, the Deputy Speaker serves as the Speaker and wields the full powers of the Speaker. Deputy Speaker is not subordinate to the Speaker and is directly responsible to the House.
- **Article 178** of the Constitution establishes the post of Deputy Speaker of assemblies and **Articles 179-181** deal with their powers and appointment or resignation.

What are different viewpoints pertaining to the matter?

- Experts point out that both Articles 93 and 178 use the word “**shall**”, indicating that the election of Speaker and Deputy Speaker is mandatory under the Constitution.
- Government argues that there is no “**immediate requirement**” for a Deputy Speaker as “**bills are being passed and discussions are being held**” as normal in the House. Further, there is a panel of nine members selected from different parties who can act as chairpersons to assist the Speaker to run the House.

Can the courts intervene in cases of delay in electing the Deputy speaker?

- Article 122(1) says: “The validity of any proceedings in Parliament shall not be called in question on the ground of any alleged irregularity of procedure.”
- However, experts said that the courts do have jurisdiction to at least inquire into why there has been no election to the post of Deputy Speaker since the Constitution does envisage an election “as soon as may be”.

Sealed cover Jurisprudence

News: The Chief Justice of India firmly refused the ‘suggestions’ offered by the government in a sealed cover on the formation of a proposed committee to enquire into the Hindenburg report on the Adani Group.

Background:

- The origins of sealed cover jurisprudence can be traced to service or administrative cases. Official service records and promotion assessments of individual personnel were received in a sealed cover in order to avoid harm to the reputation of officers.
- The court continues to receive confidential documents in sexual assault cases to protect the identity of survivors.
- However, recently there has been a rise in the incidence of the government providing documents in a sealed cover. For example, Rafale jets deal, Gujarat Police ‘fake encounter’, Bhima Koregoan Case.

What is Sealed Cover Jurisprudence?

- Sealed Cover Jurisprudence (SCJ) is a legal concept that refers to the practice of presenting sensitive or confidential information to a court or tribunal in a sealed envelope or cover, to be opened and reviewed only by the judge or judges in charge of the case.
- The Court can ask for information in a sealed cover in two circumstances – 1) When information is connected to an ongoing investigation and when it involves personal or confidential information whose disclosure may result in violation of an individual’s privacy or breach of trust.

What are issues associated with it?

- Sealed cover jurisprudence can limit transparency and accountability in the legal process, as the evidence or arguments presented in the sealed cover are not available to the public or other parties.
- It creates an unequal playing field, as the parties who have access to the information in the sealed cover may have an advantage over those who do not.
- The parties who are not privy to the information in the sealed cover may not have the opportunity to respond to or challenge the evidence or arguments presented in it, which can undermine their ability to present their case effectively.
- Passing on materials in a sealed cover to the court compels judges to accept the state’s version, that too, in cases in which the government’s narrative is under challenge.

What are SC's observations over Sealed Cover Jurisprudence?

- **P Gopalakrishnan vs State of Kerala (2019)** - The SC held that disclosure of documents to the accused is constitutionally mandated, even if the investigation is ongoing and documents may lead to a breakthrough in the investigation.
- **INX Media Case (2019)** - The Supreme Court had criticised the Delhi High Court for basing its decision to deny bail to a former Union Minister on documents submitted by the Enforcement Directorate (ED) in a sealed cover. It held the action as against the concept of fair trial.
- In the **Pegasus case judgement**, SC underscored that the government must prove the facts that the information sought would affect national security concerns. The state cannot get a free pass every time the issue of 'national security' is raised.

Special Category Status

News: Recently, Union Finance Minister made it clear that the Centre will not consider demands for "special category status" for any state citing the 14th Finance commission observations.

What is Special Category Status?

- SCS is a classification given by the Centre to assist development of states that face **geographical and socio-economic disadvantages**.
- Constitution does not make a provision for SCS and this classification was later done on the recommendations of the Fifth Finance Commission in 1969.
- Status was first accorded to Jammu and Kashmir, Assam and Nagaland in 1969.
- Eleven States including Assam, Nagaland, Himachal Pradesh, Manipur, Meghalaya, Sikkim, Tripura, Arunachal Pradesh, Mizoram, Uttarakhand and Telangana have been accorded the special category state status.
- SCS is different from Special status which imparts enhanced legislative and political rights, while SCS deals with only economic and financial aspects.
- The 14th Finance Commission has done away with the 'special category status' for states, except for the Northeastern and three hill states. It suggested to fill the resource gap of such states through tax devolution by increasing it to 42% from 32%.

What are parameters upon which SCS is given?

- The parameters were based upon Gadgil Formula.
- It includes - Hilly Terrain, Low Population Density and/or Sizeable Share of Tribal Population, Strategic Location along Borders with Neighbouring Countries, Economic and Infrastructure Backwardness and Nonviable Nature of State finances.

What are benefits of having SCS states?

- The Centre pays **90% of the funds required in a centrally-sponsored scheme** to special category status states as against 60% or 75% in case of other states, while the remaining funds are provided by the state governments.
- Unspent money in a financial year does not lapse and is carried forward.
- Significant concessions are provided to these states in excise and customs duties, income tax and corporate tax.
- 30% of the Centre's Gross Budget goes to Special Category states.
- However, granting such concessions results in increased burden on center's finances and many other states (West Bengal, Andhra, Odisha) have been vocal for granting them similar status.

National Data and Analytics Platform (NDAP)

News: National Data and Analytics Platform enables policy-makers and researchers to exploit the potential of government data.

What is NDAP?

- NDAP is a transformational open data platform launched by NITI Aayog in 2022.

- It provides foundational datasets from central and state government entities in machine-readable formats, with a user-friendly interface and powerful analytics.
- The platform uses **cutting-edge methods** to link diverse datasets from across the government and enables the use of several types of data at once.
- NDAP's **target users** include policymakers, civil servants, university students and researchers, journalists, innovators, and civil society groups.
- The design process of NDAP was preceded by extensive research with diverse data users to learn about their demand for government data, and challenges faced in doing so.

What is the need for NDAP?

- Collecting and storing data is just the first step in realising its potential.
- A coherent data ecosystem that is, a strategy and a set of tools to process, manage and use data is essential. At the scale of the Government of India, improvements to the data ecosystem can have profound positive impacts.
- Public data is often stored on platforms that are difficult to use. It is available in formats that delay analysis. Data from different sources do not speak to each other. Users cannot compare data from different departments or data gathered over time.
- There are issues related to slow updating processes and inconsistencies in data quality. It is not always clear that the appropriate data is publicly available.

What are benefits of NDAP?

- A Civil servant who wants to build a new primary health centre (PHC) where state lacks health facilities needs to go across 3 different departments, collect and receive data and it is time consuming process. It is unnecessary because there exists technology to link all data sets on a single portal.
- However, with NDAP, in a matter of minutes, the decision-maker can access the data from all three sources seamlessly linked into a single dataset. She can then download the data and analyse it using her preferred method or use inbuilt analytics and visualisation tools to better understand the data on the platform itself.
- It will help make **Data driven decisions**.
- The people of the state can enjoy **better governance** and **programme outcomes**.
- The Prime Minister has often exhorted the adoption of **evidence-based policy-making** and **implementation**. The NDAP in collaboration with states can turn this into reality.
- Training on NDAP has been included in the curriculum of officer trainees at the Lal Bahadur Shastri National Academy of Administration, Mussoorie. This will enable incoming government officers to develop a data-driven decision-making mindset from their first field job.

Conclusion

- NDAP will promote co-operative federalism, improve governance and the open data platform can play a vital role in facilitating Data-Driven governance.

Section 153A of IPC

News: Recently, The SC granted interim bail to a Congress leader arrested for alleged hate speech (booked under Section 153A of the IPC) by Assam Police.

What is Section 153A of IPC?

- It penalises (with imprisonment up to 3 years/fine/both) promoting enmity between different groups on grounds of religion, race, place of birth, residence, language, etc., and committing offences against the maintenance of peace.
- The provision was enacted in 1898 and was not in the original penal code. In 1969, the offence was amended (made cognisable – arrest without a warrant) to enlarge its scope to prevent communal tensions.

When is the law applied?

- Hate speech laws have been invoked under different regimes to crack down on criticism of public functionaries and to arrest individuals. For example, a Marathi actor was arrested (booked under Section 153A of the IPC) last year, for a Facebook post allegedly defaming an NCP leader.

- According to the NCRB data, the rate of conviction for Section 153A is very low. In 2020, 1,804 cases were registered (six times higher than in 2014), however, the conviction rate was 2%. Also, the registration of multiple FIRs across different states drains the resources of the accused to secure legal representation.

What are the safeguards against its misuse?

- Section 153A requires prior sanction (before the trial begins, not at the stage of preliminary investigation) from the government for initiating prosecution.
- In the *Arnesh Kumar v State of Bihar* case (2014), the SC laid down a set of guidelines. For instance, the police cannot automatically arrest a suspect before investigation for crimes that carry a punishment of less than seven years.
- In 2021, the SC ruled that the state will have to prove intent (to cause disorder or incite people to violence) for securing a conviction under Section 153A.

Way Forward

- Hate speech strikes at the foundational values of society. However, the suspected unlawful speech should be evaluated using the standards of reasonableness.

What forms Corrupt Practice under RPA Act, 1951?

News: Recently, the Supreme Court (SC) has said that providing false information about electoral Candidates Qualification is not a Corrupt Practice under RPA (Representation of People's Act) 1951.

Background:

- The SC was hearing a petition, challenging a 2017 Allahabad High Court ruling, which held that declaration of false information pertaining to education qualification does not interfere with the free exercise of electoral rights of the electors.
- The petition said that the electoral candidate committed a "corrupt practice" under **Section 123(2)** by interfering in the free exercise of electoral rights of the voters by not disclosing his liabilities and correct educational qualifications in his affidavit of nomination.
- However, The SC declared the Petition as "null and void", saying that providing false information about a candidate's qualifications cannot be considered a "Corrupt Practice" under Sections 123 (2) and Section 123 (4) of the RPA, 1951.

What are 'Corrupt Practices' under the RPA, 1951?

- Section 123 of the Act - It defines 'corrupt practices' to include bribery, undue influence, false information, and promotion or attempted promotion of "feelings of enmity or hatred between different classes of the citizens of India on grounds of religion, race, caste, community, or language" by a candidate for the furtherance of his prospects in the election.
- Section 123 (2) - It deals with 'undue influence' which it defines as "any direct or indirect interference or attempt to interfere on the part of the candidate or his agent, or of any other person, with the consent of the candidate or his election agent, with the free exercise of any electoral right." It may include threats of injury, social ostracism and expulsion from any caste or community.
- Section 123 (4) - It extends the ambit of "corrupt practices" to the intentional publication of false statements which can prejudice the outcome of the candidate's election.

Which practices were held 'corrupt' by Court in the past?

- **Abhiram Singh v CD Commachen Case** - In 2017, the SC in '*Abhiram Singh v C.D. Commachen* held that an election will be annulled if votes are sought in the name of a candidate's religion, race, caste, community, or language, as per Section 123 (3) which prohibits the same.
- **SR Bommai v Union of India** - In 1994, the Supreme Court's ruling in '*SR Bommai v. Union of India*', said that the encroachment of religion into secular activities is strictly prohibited, citing subsection (3) of Section 123 of the RPA Act, 1951.

Social Justice

AISHE 2020-21

News: The **Union Ministry of Education** released data from the All India Survey on Higher Education (AISHE), 2020-2021, which showed a **7.5% increase** in student enrolments across the country compared to 2019-20.

About:

- To portray the status of higher education in the country, the Ministry of Education has endeavored to conduct an annual web-based AISHE since 2010-11.
- Data is being collected on parameters such as **teachers, student enrolment, examination results, education finance, infrastructure**.
- Indicators of educational development such as Institution Density, Gross Enrolment Ratio, Pupil-teacher ratio, Gender Parity Index, Per Student Expenditure will also be calculated from the data collected through AISHE.
- This will help make informed policy decisions and research for development of the education sector.

Key Findings:

Student Enrolment

- Gross Enrolment Ratio (GER) for all enrolments (as per 2011 Census) increased by over 2 points to 27.3.
- The highest enrolment was seen at the **undergraduate level**, which accounted for 78.9% of all enrolments.
- The **female enrolment** in higher education programmes had **increased to 49%** of total enrolments in 2020-21 compared to 45% in 2019-20.
- But, the overall figures for STEM enrolments (at all levels of higher education) showed that women lagged behind men.
- Gender Parity Index (GPI), the ratio of female GER to male GER, has increased from 1 in 2017-18 to 1.05 in 2020-21.
- The number of students in the Persons with Disabilities category dropped in 2020-21 to 79,035 from 92,831 in 2019-20.
- The proportion of Muslim students enrolling for higher education dropped to 4.6% in 2020-21 from 5.5% in 2019-20.
- Uttar Pradesh; Maharashtra; Tamil Nadu; Madhya Pradesh; Karnataka and Rajasthan are the top 6 States in terms of number of students enrolled.

Number of Universities and College

- During 2020-21, the number of universities has increased by 70, and the number of colleges has increased by 1,453.
- The 21.4% government colleges accounted for 34.5% total enrolments in 2020-21, whereas the rest 65.5% enrolments were seen at private aided colleges and private unaided colleges put together.
- Uttar Pradesh; Maharashtra; Karnataka; Rajasthan; Tamil Nadu; Madhya Pradesh; Andhra Pradesh and Gujarat are the top 8 States in terms of number of colleges.
- The female per 100 male faculty has improved to 75 (2021) from 74 (2019) and 63 (2014)

Major issues in India's higher education system:

- AISHE 2020-21 showed that the teacher-pupil ratio was at 27 for all universities, colleges and standalone institutions and at 24 if only regular mode is considered due to which the quality of education remains a concern.
- Management of Indian higher education faces challenges of lack of accountability, transparency, and professionalism.
- Poor infrastructure



- Issue of Brain Drain where students prefer to go abroad to study owing to cut-throat competition in India, fewer opportunities, lack of quality in teaching and lesser job opportunities.

Assam Government's crackdown on Child Marriages

News: Over the last few days, the Assam government has arrested over 2,000 men in a campaign against child marriages that have taken place in the state. The arrests come in the backdrop of growing debate on the minimum age of marriage of Muslim women.

Which laws were invoked for the arrests?

- The men who married girls below 14 years of age would be booked under the **Protection of Children from Sexual Offences (POCSO) Act** and those marrying girls between the age of 14 and 18 years would be booked under the **Prohibition of Child Marriage Act (PCMA), 2006**.

About POCSO Act:

- The POCSO Act, of 2012 criminalizes sex between a minor and an adult. The law does not recognize a minor's consent as valid.
- Sexual assault under POCSO is a non-bailable, cognisable offence. This means that the police can make an arrest without warrant. So, a presumption of sexual assault is being made in cases of child marriage involving minor girls below the age of 14.
- Sexual assault, that is not penetrative, carries a minimum imprisonment of three years that may extend to five years with a fine.
- Under Section 19, the Act imposes a "mandatory reporting obligation" which requires every person who suspects or has knowledge of a sexual offence being committed against a child must report it to the police or the Special Juvenile Police Unit. Failure to do so will result in imprisonment, a fine, or both.

About PCMA, 2006:

- It says that child marriages are illegal but not void. They are voidable at the minor's choice if he/she petitions the court to declare the marriage null and void.
- The Act stipulates 18 years as the minimum marriageable age for women, while for men it is 21 years.
- The Act punishes child marriage with rigorous imprisonment which may extend to two years or with a fine which may extend to one lakh rupees or both. The punishment also extends to anyone who performs, conducts, directs, or abets any child marriage.

Debate around Marriage age for Muslims:

- Under Muslim personal laws, the marriage of a bride who has attained puberty is considered. Puberty is presumed, in the absence of evidence, on completion of the age of fifteen years.
- This gap between Muslim personal law and special legislation prohibiting child marriages or sexual activity of minors puts a shadow on criminality in such marriages.

What is Central government's stand?

- In 2021, the Central government sought to introduce the Prevention of Child Marriage (Amendment) Bill 2021, to raise the marriageable age for women across all religions, from 18 to 21 years. As per the Union Minister for Women and Child Development this Amendment will apply to all communities in the country and once enacted, will supersede existing marriage and personal laws.
- Despite Constitutional laws and international provisions, child marriages in India continue to have religious sanctions in many parts of the country.

National Organ Transplantation Guidelines

News: Recently, the Ministry of Health and Family Welfare has modified National Organ Transplantation Guidelines, allowing those above 65 years of age to receive an organ for transplantation from deceased donors.

Background:

- In India, Transplantation of Human Organs Act, 1994 provides various regulations for the removal of human organs and its storage. It also regulates the transplantation of human organs for therapeutic purposes and for the prevention of commercial dealings in human organs.

Key Details of Revised Guidelines:

- The upper age limit has been removed as people are now living longer. Earlier, according to the NOTTO (National Organ and Tissue Transplant Organization) guidelines, an end-stage organ failure patient above 65 years of age was prohibited from registering to receive the organ.
- There will no longer be any registration fees as was seen earlier in cases of few states such as Gujarat, Maharashtra.
- The ministry has removed the domicile requirement to register as an organ recipient in a particular state under a 'One Nation, One Policy' move.

Need for new guidelines:

- Lack of uniformity pertaining to Organ transplantation as 'health' is state subject
- A new national policy is sought for Organ transplantation
- The steps are aimed at better and more equitable access to organs and also to promote cadaver donations, which currently form a minuscule fraction of all organ transplants carried out in India.

Cadaveric Donors - Also called non-living or deceased donors (preferred term), are those who donate their organs or tissue after they have died.

Few statistics regarding Organ Transplantation in India:

- India conducts the **third highest** number of transplants in the world.
- Organs from deceased donors accounted for nearly 17.8% of all transplants in 2022.
- The total number of organ transplants – with organs from both deceased and living donors – increased from 4,990 in 2013 to 15,561 in 2022.
- Every year, an estimated 1.5-2 lakh people need a kidney transplant.

Way Forward:

- Promoting Organ donations is an important initiative that can save lives and benefit society as a whole. By increasing awareness, educating the public, and improving the donation process, we can make organ and tissue donation more accessible and increase the number of potential donors.

Trends in Maternal Mortality – UN report

News: According to the United Nations' (UN) new report "Trends in Maternal Mortality", of the estimated 287,000 maternal deaths recorded in 2020, 70 % took place in sub-Saharan Africa.

Key Findings of Report:

- Every two minutes, a woman dies during pregnancy or childbirth, revealing alarming setbacks for women's health over recent years, as maternal deaths either increased or stagnated in nearly all regions of the world.
- There were an estimated 287,000 maternal deaths worldwide in 2020, which is a slight decrease from 309,000 in 2016 when the UN's Sustainable Development Goals (SDGs) came into effect.
- Although there has been significant progress in reducing maternal deaths between 2000 and 2015, gains largely stalled, or in some cases even reversed, after this point.

The tweaks in policy

According to officials familiar with the matter, the guidelines are likely to undergo following changes:

UPPER LIMIT CHANGED:

The Centre has removed the upper age limit as life expectancy has increased, and a 65-year-old is no longer considered a very old patient.

NO DOMICILE REQUIREMENT:

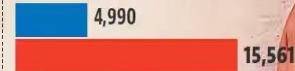
A citizen can now register for organ donation in any state; previous requirement of registering in the state of domicile has been removed

NO REGISTRATION FEES:

The Centre has asked state governments to stop taking fees to register a patient for organ transplants

■ 2013 ■ 2022

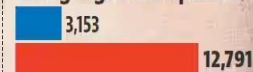
Total organ transplants



Deceased organ transplants



Living organ transplants:



Since health is a state subject, the Centre has begun consultation with states to bring them on board with the changes



- In 2020, about 70% of all maternal deaths were in sub-Saharan Africa.
- With approximately 82,000 maternal deaths in 2020, Nigeria accounted for over a quarter (28.5%) of all estimated global maternal deaths in the pandemic year.

Key Findings (India)

- India recorded the second highest number of maternal deaths in 2020, coming second at 24,000 to only Nigeria. However, there has been an overall reduction of 73.5% in MMR in India, between 2000 and 2020.
- In 2020, **India's MMR stood at 103**, a vast improvement from 384 at the turn of the century. However, other developing countries such as Argentina (45), Bhutan (60), Brazil (72), Kyrgyzstan (50) and Philippines (78) have fared better than India.

What are causes of Maternal deaths?

- Severe bleeding, high blood pressure, pregnancy-related infections, complications from unsafe abortion, and underlying conditions that can be aggravated by pregnancy (such as HIV/AIDS and malaria) are the leading causes of maternal deaths.
- Globally, 1,878 HIV-related indirect maternal deaths were recorded, of which 1,738 (around 92.5%) were in sub-Saharan Africa.
- Roughly a third of women **do not have even four of a recommended eight antenatal checks or receive essential postnatal care**, while some 270 million women lack access to modern family planning methods.
- Inequities related to income, education, race or ethnicity further increase risks for marginalized pregnant women, who have the least access to essential maternity care but are most likely to experience underlying health problems in pregnancy.

Recommendations:

- More investments in Primary health care and stronger resilient health systems are need of the hour.
- Community-centered primary health care can meet the needs of women, children and adolescents and enable equitable access to critical services such as assisted births and pre- and postnatal care, childhood vaccinations, nutrition and family planning.
- Exercising control over their reproductive health, particularly decisions about if and when to have children, is critical to ensure that women can plan and space childbearing and protect their health.
- Ending preventable maternal deaths and providing universal access to quality maternal health care require sustained national and international efforts and unwavering commitments, particularly for the most vulnerable populations.
- The world must significantly accelerate progress to meet global targets for reducing maternal deaths, or else risk the lives of over 1 million more women by 2030.
- The **SDG target for maternal deaths** is for a **global MMR of less than 70 maternal deaths per 100,000 live births by 2030**.

National Curriculum Framework for Foundational Stage

News: Recently, the Ministry of Education has launched Learning - Teaching Material for the Foundational Stage under National Education Policy 2020 and **Jadui Pitara** was also initiated as well.

What is Jadui Pitara?

- Jadui Pitara is a **play-based** learning-teaching material tailored for children between the age group of 3-8 years.
- It comprises playbooks, toys, puzzles, posters, flash cards, story books, worksheets as well as reflecting the local culture, social context and languages is designed to pique curiosity and accommodate the diverse needs of learners in the foundational stage.
- It has been developed under the National Curriculum Framework (NCF) and is available in 13 Indian languages. It intends to enrich learning-teaching environment and make it more child-centric.

What is National Curriculum Framework for Foundational stage?

- As per the National Education Policy (NEP), 2020, following four NCFs will be developed - National Curriculum Framework for Early Childhood Care and Education (NCFECE), National Curriculum

Framework for School Education (NCFSE) , National Curriculum Framework for Teacher Education (NCFTE) and National Curriculum Framework for Adult Education (NCFAE).

- NCF, under NCFECCE, for foundational stage is the first ever integrated Curriculum Framework for children between ages 3-8 in India.
- This is the first Stage in the 5+3+3+4 Curricular and Pedagogical restructuring of School Education as envisioned in NEP 2020.
- Objective is to help in positively transforming the school education system as envisioned in NEP 2020, through corresponding positive changes in the curriculum including pedagogy.
- It will be the basis for all pedagogy adopted by schools, pre-schools and anganwadis for children studying between nursery and Class 2.

Key Highlights of NCF:

- Students should be taught exclusively in their mother tongue until the age of eight.
- For ages three to six, there should not be any prescribed textbooks for the children, and instead NCF recommended simple worksheets for curricular goals and pedagogical needs.
- Introducing an ethics component into the curriculum early on to build character, lead productive and happy lives, and contribute positively to society.
- Balanced gender and community representation through use of stories, characters, and pictures, must be ensured, books need to be attractive and should grab the attention of young children.
- It includes activities that are fun and engaging for the children. For example, story-telling, riddles, toys, visual art etc
- Providing better learning environment. It should be well lit and ventilated etc.
- Panchkosha system for education. The framework includes Physical development, intellectual development, spiritual development, development of life energy and emotional and mental development. The Panchkosha system is described in Taittiriya Upanishad.

International Relations

Initiative on Critical and Emerging Technologies

News: The talks between India's NSA Ajit Doval and his American counterpart Jake Sullivan in Washington this week have concluded with the announcement of a new road map for **deeper military** and **techno-economic cooperation** between the two countries.

Background:

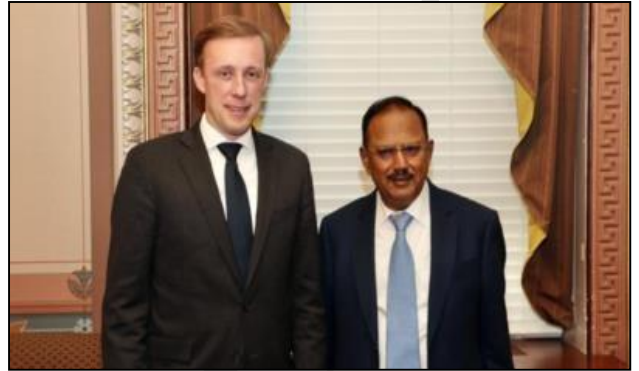
- If implemented with speed and purpose, the bilateral **Initiative on Critical and Emerging Technologies (iCET)** could lend a new strategic depth and breadth to the expanding engagement between **India** and the **United States**.

About:

- The iCET involves collaboration in a range of areas including **quantum computing, semiconductors, 5G and 6G wireless infrastructure**, and **civilian space** projects such as lunar exploration. The two sides are also focused on cooperation in defence production.
- A making of a fighter jet engine in India was also announced. Phased tech transfer will also be made to Indian companies. The move goes well on India's plans to modernize its rusty defence base.

Need and significance:

- Lending urgency to the iCET is the **growing convergence** of **Indian** and **US interests** in managing the security, economic, and technological challenges presented by a rising and assertive China.
- India is also looking to **reduce its over dependence** on Russian weapons and military technology and to produce more weapons at home in partnership with western countries.



UNSC Reforms

News: UN General Assembly (UNGA) President Csaba Korosi has expressed concern that the UN Security Council does not reflect today's realities, is paralysed and is unable to discharge its basic function of maintaining international peace and security.

What concerns were raised?

- The General Assembly has always been very much divided. Among the 193 countries, there are five negotiating groups and they are neutralising each other.
- The functioning of the General Assembly is as much important as the permanent members of the UNSC in ensuring reform of the United Nations system.
- The permanent members were "historically not enthusiastic" about reform of the UN system but they have all agreed that it is necessary for introducing changes in the Security Council.

What is UNSC?

- It is one of the UN's six main organs and is aimed at maintaining international peace and security.
- Headquarters – New York City.
- UNSC has 15 members: 5 permanent members (P5) and 10 non-permanent members elected for 2-year terms. The 5 permanent members are - United States, Russian Federation, France, China and the United Kingdom.

Why is there growing need for reforms in UNSC?

- Since 1945, the world has changed significantly - The Cold War strategic influences have declined; the membership of the UN has increased almost fourfold and the expectations of what the UN should do have grown.
- There is a huge **European bias** in P-5 due to the presence of the United Kingdom and France, including Russia.

- **Misuse of Veto Power** to put national interests ahead of global interests. Critics of the veto power say that it is the most **undemocratic element** of the UN and the **main cause** of inaction on war crimes & crimes against humanity.
- The **geopolitical rivalry** among the permanent members has prevented the UNSC from coming up with **effective mechanisms** to deal with **global issues**.
- Regions like Latin America, the Caribbean Group, the Arab World, and Africa **do not have a single permanent member**.
- As the principal organ of international peacekeeping and conflict resolution, the UNSC is responsible for keeping peace and managing conflict. Its decisions (referred to as resolutions) are **binding on all member countries**, unlike the General Assembly's. This means that any state's sovereignty can be encroached upon if necessary by taking action, such as imposing sanctions.
- Only China is representative of the global south region, whereas the global north has four nations to represent them at the UNSC.
- Geopolitical conflict, climate change, food and energy insecurity, and pandemics have brought out the inequities and inadequacies of the way the world currently functions. For example, rising food inflation and shortage of wheat around the world due to Russia-Ukraine War.

What should be the way forward?

- **Address the power imbalance** between P5 countries and other UNSC member countries.
- Changing global dynamics need a change in status quo. UNSC **must expand** its permanent and non-permanent seats to address complex issues world is facing.
- **Equitable representation** of all the regions in the UNSC is critical to decentralizing its governing power and authority over nations.

What steps must India take?

- India as current non-permanent member can start by **drafting a resolution** containing a **comprehensive set of proposals** for reforming the UNSC.
- In September 2022, India made a push for UNSC reform hosting a meeting of two separate groupings – **G-4** and **L-69** – in New York on the sidelines of the UN General Assembly.
- As India leads Global South, it needs to revitalise its engagement with its traditional partners in the “global south” by articulating their peace and security concerns in the UNSC.

Conclusion

- India advocates for democratic reforms in multilateral fora. It believes that if UNSC is made for representative, approachable, efficient and effective than it will not only be better responsive but also earn the respect of developing countries for making efforts to reform and change.

France, India, UAE Trilateral Initiative

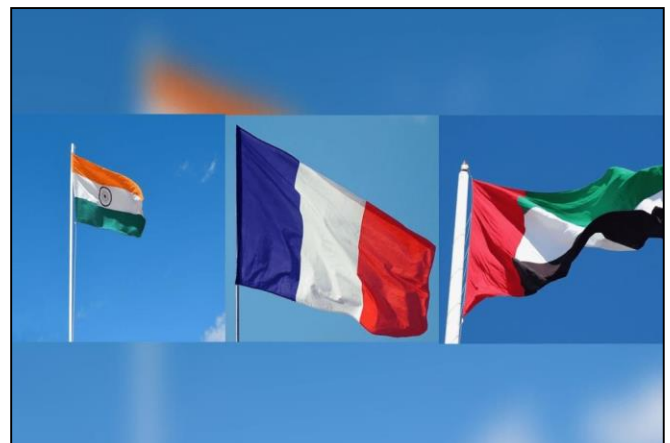
News: Recently, India, France, and the United Arab Emirates (UAE) have agreed to form a partnership to work together in the fields of nuclear and solar energy, as well as in tackling climate change and preserving biodiversity.

Background:

- The idea of this partnership was first discussed at a meeting in New York during the United Nations General Assembly in September 2022.

Key Highlights:

- It will serve as a forum to promote the design and execution of cooperation projects in the fields of energy, with a focus on solar and nuclear energy, as well as in the fight against climate change and the protection of biodiversity, particularly in the Indian Ocean region.
- The three countries have also agreed to work together in defence, countering infectious diseases, and promoting cooperation in global health



organisations such as the World Health Organization, Gavi-the Vaccine Alliance, the Global Fund, and Unitaid.

- They look to attempt to identify tangible cooperation on implementing the “One Health” approach, and support the development of local capacities in biomedical innovation and production within developing countries.
- They also agreed to expand their cooperation through initiatives such as the Mangrove Alliance for Climate led by the UAE and the Indo-Pacific Parks Partnership led by India and France.

Paris Club

News: The Paris Club, an informal group of creditor nations, will provide financial assurances to the International Monetary Fund (IMF) on Sri Lanka’s debt.

About:

- The Paris Club is an informal group of creditor nations whose objective is to find workable solutions to payment problems faced by debtor nations.
- The Paris Club has 22 permanent members, including most of the western European and Scandinavian nations, the United States, the United Kingdom, and Japan.
- The group is organized around the principles that each debtor nation be treated case by case, with consensus, conditionality, solidarity, and comparability of treatment.
- The Paris Club stresses the informal nature of its existence. As an informal group, it has no official statutes and no formal inception date, although its first meeting with a debtor nation was in 1956, with Argentina.

Member Countries:

- Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Japan, Netherlands, Norway, Russia, South Korea, Spain, Sweden, Switzerland, the United Kingdom and the United States.
- All 22 are members of the group called Organisation for Economic Co-operation and Development (OECD).

Recent Developments:

- According to its official website, Paris Club has reached 478 agreements with 102 different debtor countries.
- The Paris group countries dominated bilateral lending in the last century, but their importance has receded over the last two decades or so with the emergence of China as the world’s biggest bilateral lender.
- In Sri Lanka’s case, for instance, India, China, and Japan are the largest bilateral creditors. Sri Lanka’s debt to China is 52% of its bilateral debt, 19.5% to Japan, and 12% to India.

Canada’s Indo-Pacific Strategy

News: Recently, India welcomed the announcement of Canada’s Indo-Pacific Strategy during India-Canada Strategic Dialogue.

Key Highlights:

- The Ministers discussed strengthening the economic partnership, advancing security cooperation, facilitating migration and mobility, and growing our strong people-to-people ties.
- Canadian FM termed India as a critical partner for Canada in the Indo-Pacific. In return, Canada can be a reliable supplier of critical minerals, a strong partner in the green transition and a major investor.

Importance of the meeting:

- Canadian FM’s visit is expected to pave the way for a continued reset in India-Canada ties after a freeze between 2020-2022.
- Freeze was over a number of issues including attacks on Indian-origin people and establishments by Khalistani groups in Canada, Canadian comments over India’s farmer protests and India’s cancellation of diplomatic talks in response.
- Apart from encouraging investment from Canadian funds, both the countries look forward to the ‘**Early Progress Trade Agreement** (EPTA)’ as a first step towards ‘Comprehensive Economic Partnership Agreement (CEPA)’.

- Both countries share a suspicion of China and are seeking to expand trade ties, improve supply chain resilience, and encourage greater exchange of people between their countries.

What is Canada's Indo-Pacific Policy?

- Canada released a new Indo-Pacific strategy, focusing on four regions - China, India, the North Pacific (Japan and Korea), and ASEAN. The Indo-Pacific region is home to the largest diaspora in Canada, with 1 in 5 Canadians having family ties to the region and 60% of Canada's international students.
- The strategy contains strong words on China's challenge to the international rules-based order and human rights, while expressing a positive view of India's shared tradition of democracy and pluralism. However, Canada also acknowledges its dependence on China as its main export destination and recognizes the need for cooperation with China on issues such as climate change and health.
- Canada's strategy includes a funding commitment of \$1.7 billion over five years, including infrastructure projects, enhanced military presence, and expanded participation in regional military exercises.
- Key Objectives - Promote peace, resilience and security, expand trade, investment and supply chain resilience, invest in and connect people, build a sustainable and green future and be an active and engaged partner to the Indo-Pacific.

Japan's outreach to Global South

News: Japan has taken the initiative to raise the Global South to the top of the G7 agenda.

What is Global South?

- The term 'Global South' began by loosely referring to those countries that were left out of the industrialisation era and had a conflict of ideology with the capitalist and communist countries, accentuated by the Cold War. It includes countries from Asia, Africa and South America.
- It is significant owing to its large population, rich culture and natural resources.

What are challenges faced by Global South?

- Many countries struggle with issues of Poverty, glaring inequalities and are devoid of basic necessity and resilient infrastructure.
- Countries here are more vulnerable to environmental challenges such as climate change, pollution, cyclones.
- Political instability is one of the major issues in some countries in the Global South, with challenges ranging from coups and civil wars to corruption and weak governance.
- Many countries struggle to provide access to quality education for their populations, which can limit economic opportunities and further exacerbate poverty and inequality.
- Access to quality healthcare is not available.

Why Japan intends to reach out to Global South?

- Japan thinks that the war in Ukraine has made it recognise the essential relationship between diplomacy and defence. Diplomacy needs to be backed by defence capabilities and reinforcing defence capabilities will also lead to persuasiveness in carrying out our diplomatic efforts.
- After the collapse of the Soviet Union, the G7 simply took the Global South for granted and was more interested in lecturing rather than talking to the leaders of the Global South. This, in turn, left much room for China and Russia to play in the developing world.
- Japan has transformed its foreign and security policies, since it fears similar Ukraine-Like Implications.

Way Forward

- Japan has been a reliable partner of India and India has already highlighted its intention of voicing the concerns of Global South as a part of its G20 Presidency. Both, Tokyo and New Delhi can co-operate and work for Global South.

Russia suspends NEW START

News: Days before the first anniversary of the beginning of the war in Ukraine, President Vladimir Putin announced in an address to his nation that Russia is suspending its participation in the New START, the last remaining major military agreement with the United States.

What is NEW START?

- The name START comes from the original “Strategic Arms Reduction Treaty”, known as START-I, which was signed between the US and the erstwhile USSR in 1991, and came into force in 1994.
- START-I, which capped the number of nuclear warheads (to 6,000) and intercontinental ballistic missiles (ICBMs to 1,600), lapsed in 2009.
- This was replaced first by the Strategic Offensive Reductions Treaty (SORT)/the Treaty of Moscow and then by the New START treaty.
- The New START, officially, the “Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms”, entered into force on February 5, 2011, and placed **new verifiable limits** on intercontinental-range nuclear weapons. For example, 700 deployed ICBMs, deployed SLBMs (submarine-launched) and deployed heavy bombers equipped for nuclear armaments, etc.
- The US and Russian Federation subsequently agreed to extend the treaty through February 4, 2026.

How is compliance with treaty ensured? What is latest situation on compliance?

- The two parties have conducted on-site inspections, exchanged notifications, held meetings with the Bilateral Consultative Commission, and held data exchanges.
- The US claims that Russia was not complying with the New START, jeopardising a source of stability in their relationship.
- While Russia believes that the USA’s goal is Russia’s strategic defeat, and for Russia the “theatre of the absurd” (the idea of existentialism) is important.

Conclusion

- Over the decades, the two sides signed various arms control agreements, imposing breaks on the nuclear arms race – an alarming feature of the Cold War competition.
- However, deep fissures in their relationship and the suspension of almost all the treaties in recent years, have once again raised the risk of a nuclear arms race.

General Studies – 3

Economic Development

1. Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.
2. Inclusive growth and issues arising from it.
3. Government Budgeting.
4. Major crops-cropping patterns in various parts of the country, - different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers.
5. Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.
6. Food processing and related industries in India- scope' and significance, location, upstream and downstream requirements, supply chain management.
7. Land reforms in India.
8. Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.
9. Infrastructure: Energy, Ports, Roads, Airports, Railways etc.
10. Investment models.

Technology

11. Science and Technology- developments and their applications and effects in everyday life.
12. Achievements of Indians in science & technology; indigenization of technology and developing new technology.
13. Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Environment & Bio-diversity

14. Conservation, environmental pollution and degradation, environmental impact assessment.

Disaster Management & Security

15. Disaster and disaster management.
16. Linkages between development and spread of extremism.
17. Role of external state and non-state actors in creating challenges to internal security.
18. Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.
19. Security challenges and their management in border areas - linkages of organized crime with terrorism.
20. Various Security forces and agencies and their mandate.

Economic Development

Key Takeaways from Economic Survey 2023

News: Recently, the government tabled the Economic Survey 2022-23. The Survey laid out the outlook for India's growth, inflation and unemployment in the coming years.

What is Economic Survey?

- The Survey provides a detailed report of the national economy for the year along with forecasts. It touches upon everything from agriculture to unemployment to infrastructure.
- It is prepared by the **Economic Division of the Department of Economic Affairs (DEA)**.
- The comments or policy solutions contained in the Survey are **not binding** on the government.

Key Takeaways:

GDP Growth

- The Survey said India's growth estimate for FY23 is higher than for almost all major economies.
- Despite global concerns, India is still expected to grow between 6.5 and 7.0 per cent.

Inflation

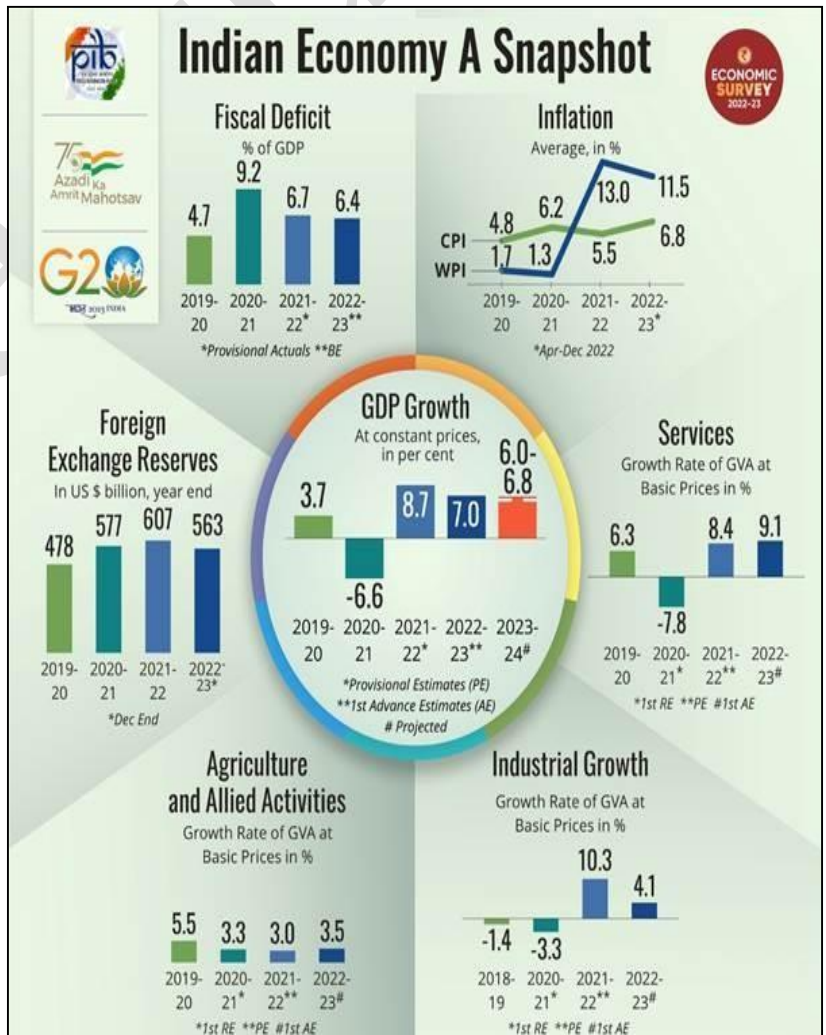
- The RBI has projected headline inflation at 6.8% in FY23, outside its comfort zone of 2% to 6%.
- High inflation is seen as one big factor holding back demand among consumers. However, the Survey optimistically stated "it is not high enough to deter private consumption and also not so low as to weaken the inducement to invest."

Unemployment

- The Survey said "employment levels have risen in the current financial year."
- It pointed to the Periodic Labour Force Survey (PLFS), which showed that urban unemployment rate for people aged 15 years and above declined from 9.8% in the quarter ending September 2021 to 7.2% one year later.
- The Survey also underlined that the fall in unemployment rate is accompanied by an improvement in the labour force participation rate.

Health

- India's budgeted expenditure on the health sector reached 2.1% of the GDP in the financial year 2023 (Budget estimates) and 2.2% in FY 2022 (revised estimates).
- The National Health Policy 2017 as well as the 15th Finance Commission recommended 2.5% by 2025.
- An increase in the share of government health expenditure (in comparison to the total health expenditure) is observed due to expenditure incurred on the national Covid-19 vaccination program, Aatmanirbhar Bharat Abhiyaan, Intensified Mission Indradhanush (MI) program. There is decline in out of pocket expenditure.



- Ayushman Bharat Jan Arogya Yojana (AB-JAY) is however falling short of the target as less than 50% of the originally targeted 50 crore beneficiaries under the scheme.

Education

- As a share of total GDP, the budgetary allocation for education saw only a minimal gain of 0.1 percentage points, from 2.8% to 2.9% during the same seven-year period.
- A decline in the government share of expenditure, while the expenditure on social services increased.

Agriculture

- The Indian agriculture sector has been growing at an average annual growth rate of 4.6% during the last six years. In recent years, India has also rapidly emerged as the net exporter of agricultural products (an all-time high of \$50.2 billion during 2021-22)
- Strong growth in agriculture has led to year on year demand for MGNREGS. Government intervention through PM Kisan, Pradhan Mantri Fasal Bima Yojana and KCC has improved prospects.

Digital Infrastructure

- In 2022, over a billion people have unique digital ID documents, more than 80% have bank accounts, and over 600 cr digital payment transactions have been completed on a monthly basis. Digital infra can add 60-100 bps to GDP growth.

Start-ups

- Despite layoffs, the number of direct jobs created by Startups rose 36 percent to around 2.7 lakh last year
- The number of start-ups recognized by the Department for Promotion of Industry and Internal Trade (DPIIT) has increased from 452 in 2016 to 84,012 in 2022.

Industry

- The industry not only accounts for 31% of the GDP but also has a significant contribution in generating employment for up to 12.1 crore people in the financial year 2023, directly or indirectly.

Service sector

- India has been placed among the top 10 service-exporting countries in the year 2021 and commercial services export has increased from 3% in 2015 to 4% in 2021.
- Non-contact intensive services like ICT, financial, professional, and business services have contributed significantly to the economy.

Electronics

- India has become the second-largest mobile phone manufacturer globally and is on course to reach \$300 Billion worth of electronics manufacturing by 2026.

Outlook for 2023-24

- The Survey projected a baseline GDP growth of 6.5% in real terms in FY24.
- However, low demand for Indian exports, owing to poor global growth, may widen India's trade deficit and make the rupee depreciate. Similarly, sustained monetary tightening (higher interest rates) may drag down economic activity in FY24.

Conclusion

- The central thrust of this year's Survey is that India's economy has recovered from the Covid disruption and, at long last, is poised to see sustained robust growth in the rest of the decade.

Shipbuilding for Atma-Nirbhar Bharat

News: According to the Economic Survey 2023, shipbuilding has one of the highest employment multipliers and is capable of generating mass employment in remote, coastal and rural areas.

Significance:

- Shipbuilding industry is a **strategically important** industry due to its role in energy security, national defence and the development of the heavy engineering industry.
- Among manufacturing activities, shipbuilding has one of the **highest employment multipliers of 6.48** and is capable of generating **mass employment** in remote, coastal and rural areas. For instance, the recently commissioned aircraft carrier INS Vikrant alone engaged approximately **500 MSMEs, 12,000 employees** from ancillary industries, and 2,000 shipyard employees.

- A study undertaken by the Navy for the construction of seven P17A ships reveals that around three-fourths of the total project cost of warships is invested back into the Indian economy.
- This investment is ploughed back into the economy through indigenous sourcing of raw materials, development of equipment and systems installed onboard ships and other manpower services.
- An indigenous shipping and shipbuilding industry can also **reduce freight bills** and **forex outgo**, thus reducing the current account deficit.
- It has links to other ancillary industries including steel, engineering equipment, port infrastructure, trade and shipping services.

Challenges

- A snapshot of India's private shipbuilding sector shows that apart from mismanagement, most shipbuilders are debt-ridden or function at break-even levels with hardly any of them generating profits.
- It has failed to ensure a level playing field since most government orders are given to public sector shipyards by nomination. To cap it all, the absence of a complex of shipbuilding ancillary industries has imposed a further barrier on private shipyards.

Way forward:

- It is time to acknowledge shipbuilding as a "strategic industry," with a vital role to play in the nation's security as well as industrialization and job creation, and to accord it the status of a full-fledged department or ministry.
- Concurrently, a strategy and road-map for shipbuilding need to be drawn up, independent of the Sagarmala Project, which has remained focused on ports.

Union Budget 2023-24

News: We will discuss about schemes, important programs mentioned and those launched in the Budget.

Important Figures that you should know:

- **Fiscal Deficit** - According to the Revised Estimates 2022-23 the fiscal deficit is 6.4% of GDP. The fiscal deficit for 2023-24 is estimated to be **5.9% of GDP**.
- **Per capita income** - It has more than doubled to ₹1.97 lakh in around nine years.
- **Income Tax** - The rebate limit in the new tax regime has been increased to ₹7 lakh, meaning that people in the new tax regime with income up to ₹7 lakh will not have to pay any tax. The tax structure in the new personal tax regime has been changed by reducing the number of slabs to five and increasing the tax exemption limit to ₹ 3 lakh.

Key schemes discussed and launched in the Budget:

Agriculture Sector

- **Atmanirbhar Clean Plant Program** - The program will be launched to boost the availability of disease-free, quality planting material for high value horticultural crops.
- **Agriculture Accelerator Fund** - It will be set-up to encourage agri-startups by young entrepreneurs in rural areas.
- **PM Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth (PM-PRANAM)** - It seeks to incentivize States and Union Territories to promote alternative fertilizers and balanced use of chemical fertilizers.
- **GOBARDhan (Galvanizing Organic Bio-Agro Resources Dhan)** scheme - 500 new 'waste to wealth' plants under GOBARDhan scheme to be established for promoting circular economy.

Environment

- **Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI)** - For mangrove plantation along the coastline and on salt pan lands, through convergence between MGNREGS, CAMPA Fund and other sources.
- **Amrit Dharohar Scheme** - To encourage optimal use of wetlands, enhance bio-diversity, carbon stock, eco-tourism opportunities and income generation for local communities.
- **Green Credit Programme** - It will be notified under the Environment (Protection) Act to incentivize and mobilize additional resources for environmentally sustainable and responsive actions.

Infrastructure

- Urban Infrastructure Development Fund (UIDF) - It will be established through the use of Priority Sector Lending shortfall. It will be managed by the National Housing Bank and will be used by public agencies to create urban infrastructure in Tier 2 and Tier 3 cities.

Industries

- **Unity Mall** - States will be encouraged for setting up such malls for the promotion and sale of their own and also all other states' ODOPs (One District, One Product), GI products and handicrafts.
- **Entity DigiLocker** - It will be setup for use by MSMEs, large businesses and charitable trusts to store and share documents online securely.

Skilling and Training

- **Unified Skill India Digital platform** - For enabling demand-based formal skilling, linking with employers including MSMEs, and facilitating access to entrepreneurship schemes.
- **Pradhan Mantri Kaushal Vikas Yojana 4.0** - It will be launched to skill lakhs of youth within the next three years covering new age courses for Industry 4.0 like coding, AI, robotics, mechatronics, IOT, 3D printing, drones, and soft skills.

Health

- The government will launch a Sickle Cell Anaemia elimination mission and a new programme that will promote research in Pharmaceuticals.

Governance

- **National Data Governance Policy** - To unleash innovation and research by start-ups and academia.

Education and Women

- **National Digital Library for Children and Adolescents** - To facilitate the availability of quality books across geographies, languages, genres and levels, and device-agnostic accessibility.
- **Bharat Shared Repository of Inscriptions** - It will be set up in a digital epigraphy museum, with the digitization of one lakh ancient inscriptions in the first stage.
- **Mahila Samman Savings Certificate** - A new small savings scheme for women which will offer a deposit facility upto Rs 2 lakh in the name of women or girls for the tenure of 2 years (up to March 2025) at a fixed interest rate of 7.5 per cent with a partial withdrawal option.

Tribal Development

- **Pradhan Mantri PVTG Development Mission** - The government allocated funds for the implementation of the mission under the Development Action Plan for the Scheduled Tribes.

'Saptarishi Priorities' - Budget 2023-24

News: The FM in her Budget speech announced for Saptarishi Targets or 7 priorities that the government envisages in Amrit Kaal of Bharat.

Background:

- The FM called this as the first Budget in Amrit Kaal. The vision for the Amrit Kaal is an empowered and inclusive economy that is technology-driven and knowledge-based with a robust financial sector.
- The Budget identifies 4 transformative opportunities to be leveraged before reaching India@100 - Economic Empowerment of Women through SHGs, PM Vishwakarma Kaushal Samman (PM VIKAS), Tourism Promotion in Mission Mode and Green Growth.



What are the Saptarishi Priorities?

Priority 1 - Inclusive Development (Agriculture, Health, Education)

Agriculture:

- **Digital public infrastructure for agriculture** - It will be built as an open-source, open-standard and interoperable public good. It will help farmers in terms of Crop planning, improved access to farm inputs, credit and insurance.
- **Agri-Credit** - Agriculture credit target to be increased to Rs 20 lakh crore with focus on animal husbandry, dairy and fisheries. A new sub-scheme of PM Matsya Sampada Yojana with targeted investment of Rs 6,000 crore to be launched for fishermen, fish vendors and MSMEs.
- **Atmanirbhar Clean Plant Programme** will be launched to boost availability of disease-free, quality planting material for high value horticultural crops at an outlay of Rs 2,200 crore.
- **Global Hub for Millets 'SHREE ANNA'** - The Indian Institute of Millet Research, Hyderabad will be supported as the Centre of Excellence for sharing best practices, research and technologies at the international level.
- **Agri-Cooperatives** - To fulfil the vision of "Sahakar Se Samridhhi", the Government plans to establish decentralized storage capacity and set up multiple cooperative societies in uncovered villages over the next 5 years.
- **Agriculture Accelerator Fund** will be set-up to encourage agri-startups by young entrepreneurs in rural areas.


Health:

- 157 new nursing colleges will be established (in co-location with the existing 157 medical colleges)
- To promote R&D in pharmaceuticals through centres of excellence.
- A Mission to eliminate Sickle Cell Anaemia by 2047 will be launched to enable awareness, screening of 7 crore people (0-40 years age group) and counselling.

Education:

Education and Skilling

- ✓ Revamped Teachers' training via **District Institutes of Education and Training**
- ✓ **National Digital Library** to be set up for children and adolescents
- ✓ States will be encouraged to set up physical libraries at Panchayat and ward levels



Priority 2 - Reaching the Last Mile (Tribal Welfare, Water, Housing, Criminal Justice System, Languages and Inscriptions)

Tribal Welfare:

- **Aspirational Block Programme** - The government had recently launched the Aspirational Blocks Programme covering 500 blocks for saturation of essential government services across multiple domains.
- **Eklavya Model Residential Schools** - Centre will recruit 38,800 teachers and support staff for the 740 Eklavya Model Residential Schools, serving 3.5 lakh tribal students.
- **Pradhan Mantri PVTG Development Mission** - It will provide PVTG families and habitations with basic facilities such as safe housing, clean drinking water and sanitation, improved access to education, health etc.

Water:

- In the drought prone central region of Karnataka, central assistance of Rs 5,300 crore will be given to the Upper Bhadra Project to provide sustainable micro irrigation and filling up of surface tanks for drinking water.

Housing:

- The outlay for PM Awas Yojana is being enhanced by 66% to over Rs 79,000 crore.

Criminal Justice System:

- The government will provide support poor prisoners who are unable to afford the penalty or the bail amount, required financial support will be provided. For quick delivery of justice, phase 3 of E-courts project will be launched.

Languages and Inscriptions:

- A 'Bharat Shared Repository of Inscriptions (Bharat SHRI)' will be set up in a digital epigraphy museum, with digitization of 1 lakh ancient inscriptions in the first stage.

Priority 3 – Infrastructure and Investments

Capital Investment as the driver of Growth and jobs:

- Capital investment outlay has been increased steeply for the third year in a row **by 33 per cent** to 10 lakh crore (3.3 per cent of GDP)—almost three times that of 2019-20.

Support to State Governments for Cap-Investment:

- The Government has decided to continue the 50-year interest free loan to state governments for one more year to spur investment in infrastructure and to incentivize them for complementary policy actions.

Effective Capital Expenditure (through grant-in-aid to states):

- Budgeted at 13.7 lakh crore (4.5 per cent of GDP)

Railways:

- A capital outlay of Rs 2.40 lakh crore has been provided for the Railways - the highest ever outlay and about 9 times the outlay made in 2013- 14.

Aviation:

- 50 additional airports, heliports, water aerodromes and advanced landing grounds will be revived for improving regional air connectivity.

Enhancing Opportunities for Private Investment in Infrastructure

- It will be done through the newly established Infrastructure Finance Secretariat.

Harmonized Master List of Infrastructure:

- The sectors eligible for financial assistance from IIFCL are the Harmonized list of infrastructure e.g., transportation, energy, water, etc. It will be reviewed by an expert committee.

Lab Grown Diamonds:

- To encourage indigenous production of LGD, and to reduce import dependency, a research and development grant will be provided to one of the IITs for five years.

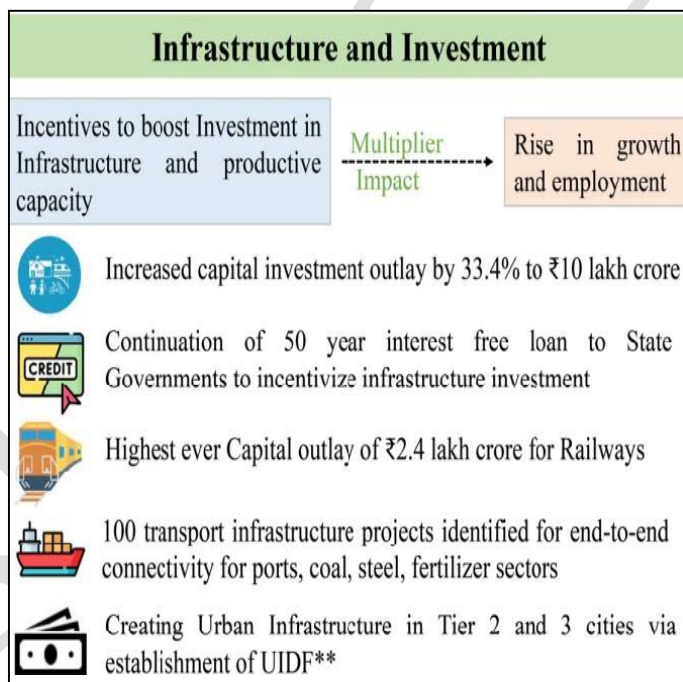
Sustainable Cities of Tomorrow:

- States and cities will be encouraged to make 'sustainable cities of tomorrow' meaning the efficient use of land resources, transit-oriented development, and opportunities for all.

Urban Sanitation:

- All cities and towns will be enabled for 100 per cent mechanical desludging of septic tanks and sewers to transition from manhole to machine-hole mode. The enhanced focus will be provided for the scientific management of dry and wet waste.

Urban Infrastructure Development Fund (UIDF):



- UIDF for urban areas on the lines of RIDF. UIDF will be established through use of Priority Sector Lending shortfall and will be carried out by National Housing Board.

Logistics:

- 100 critical transport infrastructure projects, for last and first-mile connectivity for ports, coal, steel, fertilizer, and food grains sectors have been identified.

Priority 4 - Unleashing the Potential (AI, Governance, Digitization)

Governance:

- **National Data Governance Policy** - To facilitate innovation and research by start-ups and academia, a National Data Governance Policy will be brought out, which will enable access to anonymized data.
- The KYC process will be simplified by adopting a 'risk-based' instead of a 'one size fits all' approach.
- PAN will be used as the common identifier for all digital systems of specified government agencies.
- To enhance ease of doing business, more than 39,000 compliances have been reduced and more than 3,400 legal provisions have been decriminalised under the amendments to the Companies Act 2013.
- To further the trust-based governance, the Government introduced the Jan Vishwas Bill to amend 42 Central Acts.

Artificial Intelligence:

- **Centres of Excellence for AI** - Three such centres to be setup in top educational institutes.

Digitization:

- 100 labs for developing applications using 5G services will be set up in engineering institutions.
- An Entity Digi Locker will be set up for use by MSMEs, large businesses and charitable trusts, to share documents online securely, whenever needed by authorities.

Priority 5 - Green Growth (National Green Hydrogen Mission, GOBARDhan scheme, Green Credit Programme, MISHTI, Battery Energy Storage Projects)

GOBARDhan Scheme:

- 500 new 'waste to wealth' plants under GOBARDhan (Galvanizing Organic Bio-Agro Resources Dhan) scheme will be established for promoting a circular economy.

MISHTI initiative:

- Mangrove Initiative for Shoreline Habitats & Tangible Incomes' will be taken up for mangrove plantation along the coastline and on salt pan.

Green Credit Programme:

- For encouraging behavioural change by companies, individuals and local bodies, a Green Credit Programme will be notified under the Environment (Protection) Act.

Battery Energy Storage Projects:

- Battery Energy Storage Systems with the capacity of 4,000 MWH will be supported with Viability Gap Funding.
- A detailed framework for Pumped Storage Projects will also be formulated.

Amrit Dharohar:

- It will encourage the optimal use of wetlands, and enhance bio-diversity, carbon stock, eco-tourism opportunities and income generation for local communities for the next 3 years.

Bhartiya Prakritik Kheti Bio-Input Resource Centres:

- Over the next 3 years, the Centre will facilitate 1 crore farmers to adopt natural farming by setting up 10,000 Bio-Input Resource Centres, creating a national-level distributed micro-fertilizer and pesticide manufacturing network.

Priority 6 - Youth Power

Pradhan Mantri Kaushal Vikas Yojana 4.0:

- Launched to skill lakhs of youth within next 3 years and new age courses such as Industry 4.0 (robotics, IOT, 3D printing) will be covered.
- 30 Skill India International Centres will be set up across different States

Unity Mall:

- States will be encouraged to set up a Unity Mall in their state capital/important cities or most prominent tourism centre for the promotion and sale of their own ODOPs (one district, one product), GI products and other handicraft products, and for providing space for such products of all other States.

Priority 7 – Financial sector

Data Embassy:

- The government will facilitate the setting up of Data Embassies in GIFT IFSC, Gandhinagar.

Banking:

- Improved Governance and investor protection in banking sector. Certain amendments proposed in Banking Regulation Act, Companies Act and RBI act.

Financial Schemes:

- Mahila Samman Savings Certificate
- Senior Citizen Savings Scheme - The maximum deposit limit for Senior Citizen Savings Scheme will be enhanced from Rs 15 lakh to Rs 30 lakh.

Securities Market:

- Central Data Processing Centre - It will be set up for faster response to companies through centralized handling of various forms filed with field offices under the Companies Act.
- SEBI will be empowered to develop, regulate, maintain and enforce norms and standards for education in the National Institute of Securities Markets and to recognize the award of degrees, diplomas and certificates.

What is the status of Fiscal Management?

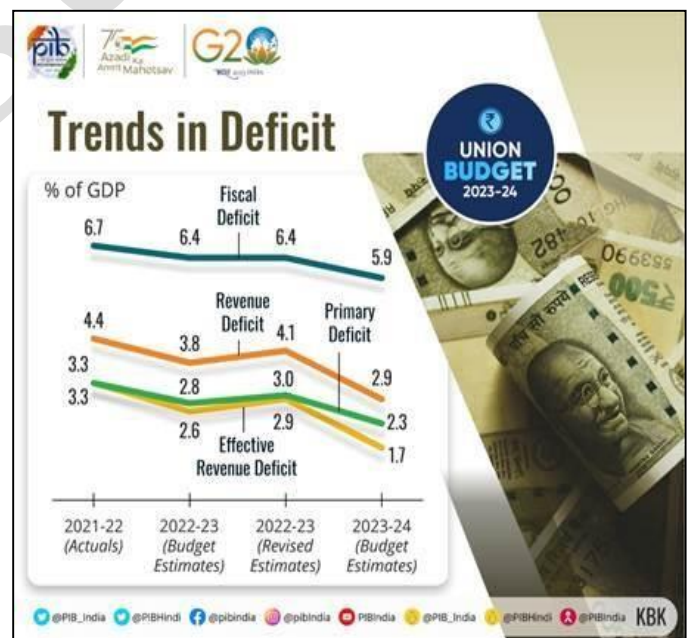
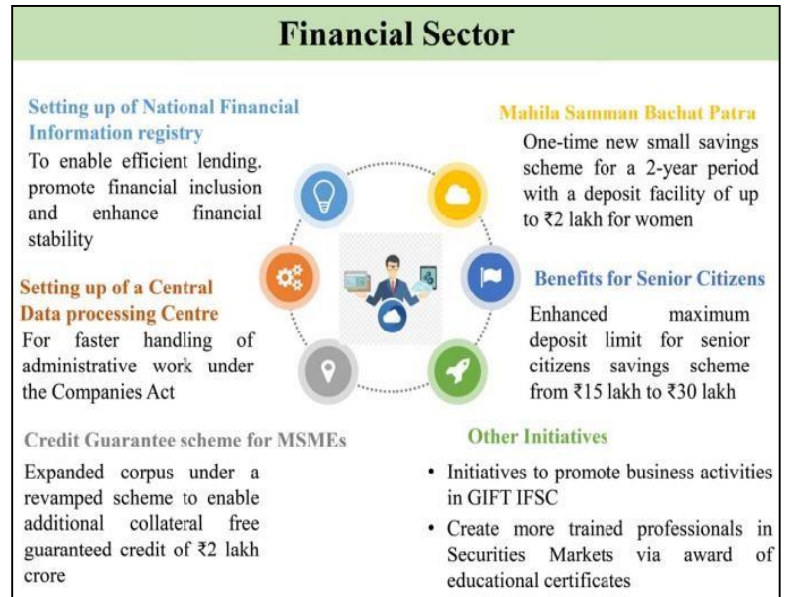
- The Indian Finance Minister stated that all states must utilize their fifty-year loan for capital expenses by the end of 2023-24.
- States are allowed to have a deficit of 3.5% of their Gross State Domestic Product (GSDP), with 0.5% of this amount specifically designated for power sector reforms.

Revised Estimates 2022-23:

- Total receipts, (excluding borrowings): Rs 24.3 lakh crore
- Net tax receipt: Rs 20.9 lakh crore.
- Total expenditure: Rs 41.9 lakh crore
- Capital expenditure: Rs 7.3 lakh crore

Budget Estimates 2023-24:

- Total estimated receipts (excluding borrowings): Rs 27.2 lakh crore,
- Total estimated expenditure: Rs 45 lakh crore.
- Net tax receipts: Rs 23.3 lakh crore.
- Fiscal deficit - 5.9% of GDP.
- To finance the fiscal deficit in 2023-24, the net market borrowings from dated securities are estimated at Rs 11.8 lakh crore.
- The gross market borrowings are estimated at Rs 15.4 lakh crore.



- Also, the government is committed to sticking to this plan to reduce the fiscal deficit to below 4.5% by 2025-26.

Union Budget 2023-24 – Direct and Indirect Taxation

News: Here, we will discuss about the reforms proposed in Direct and Indirect Taxation in the recently released Union Budget.

Reforms proposed in Direct Taxation:

Personal Income Tax

- There are five major announcements relating to the personal income tax. The rebate limit in the new tax regime has been increased to ₹7 lakh which means that persons in the new tax regime with income up to ₹7 lakh will not have to pay any tax.
- The tax structure in the new personal tax regime has been changed by reducing the number of slabs to five and increasing the tax exemption limit to ₹ 3 lakh.

MSME's

- The limits for presumptive taxation have been increased for micro enterprises and certain professionals as long as the amount received in cash does not exceed 5% of the total gross receipts/turnover. The deduction for payments made to MSMEs will only be allowed when payment is actually made to support their timely receipt of payments.

Online Gaming

- Taxability on online gaming will be clarified with TDS and taxability on net winnings at the time of withdrawal or at the end of the financial year.

Start-ups

- The date for start-ups to receive income tax benefits has been extended to 31.3.2024. The carry forward of losses for start-ups has been increased from 7 years of incorporation to 10 years.

Co-operatives

- New manufacturing co-operatives that start manufacturing before 31.3.2024 will have a lower tax rate of 15%.
- The limit for cash deposits and loans by Primary Agricultural Co-operative Societies and Primary Co-operative Agriculture and Rural Development Banks has been increased to 2 lakh rupees per member.
- Tax Deduction at Source (TDS) on cash withdrawals for co-operative societies has been increased to 3 crore rupees.

Gold

- Conversion of gold into electronic gold receipt and vice versa will not be treated as capital gains.

Common-IT Return Form

- To improve taxpayer services, the government rolled out a proposal for next-generation Common IT Return Form for taxpayer convenience, along with plans to strengthen the grievance redressal mechanism.

Who is exempted from Income Tax?

- Income of authorities, boards and commissions set up by Union or State laws for housing, town and village development, and regulation, will be exempt from income tax.
- Agniveer Fund has been given Exempt-Exempt-Exempt (EEE) status. Payments received by Agniveers enrolled in Agneepath Scheme, 2022 will be exempt from taxes. Deduction in total income will be allowed for contributions to the Agniveer Seva Nidhi account by the Agniveer or the Central Government.

Reforms proposed in Indirect Taxation:

Indirect Tax Proposals

- Green Mobility:
 - To exempt excise duty on GST-paid compressed bio gas
- Electronics:
 - To provide relief in customs duty on import of certain parts of mobile phones
 - To reduce basic customs duty on parts of open cells of TV panels to 2.5%
- Electricals:
 - To increase basic customs duty on electric kitchen chimney from 7.5% to 15%
 - To reduce basic customs duty on chimney heat coils from 20% to 15%
- Chemicals and Petrochemicals:
 - To exempt basic customs duty on chemicals and petrochemicals
 - To reduce basic customs duty on acid grade fluorspar and crude glycerine to 2.5%

UNION BUDGET 2023-24

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Custom Duties

- The number of basic customs duty rates for goods other than textiles and agriculture has been decreased to 13 from 21.
- National Calamity Contingent Duty (NCCD) on specified cigarettes revised upwards by about 16%
- Increased Duties on Articles made from gold and platinum and Import duties on silver dore, bars, and articles

Exception from Duties

- Compressed biogas contained in blended compressed natural gas.
- Testing agencies that import vehicles, automobile parts/components, sub-systems, and tires for testing and/or certification purposes.
- Also, the deadline for the customs duty on specified machinery for lithium-ion cell manufacturing for EV batteries has been extended to 31.03.2024.
- Denatured ethyl alcohol used in the chemical industry.

Changes in CGST Act

- The minimum amount of tax for starting a prosecution under GST will be raised from 1 crore to 2 crore.
- The compounding amount for tax will be reduced from 50-150% to 25-100% of the tax amount.
- Certain offences will be decriminalised.
- The filing of returns or statements will be limited to a maximum of three years from the due date.
- Unregistered suppliers and composition taxpayers will be allowed to make intra-state supply of goods through E-Commerce Operators (ECOs).

Indirect Tax Proposals

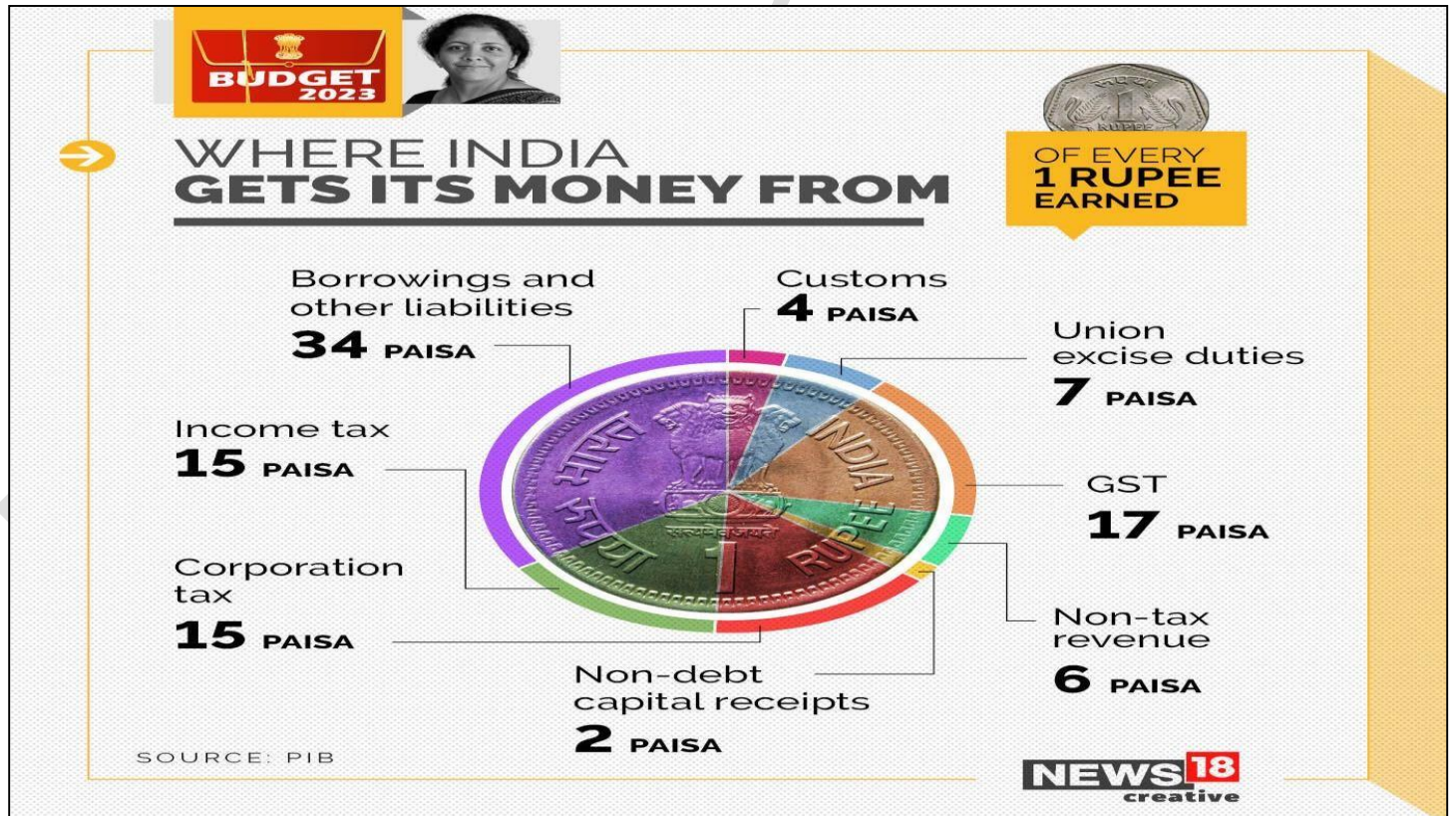
- **Marine products:**
 - To reduce duty on key inputs for domestic manufacture of shrimp feed
- **Lab Grown Diamonds:**
 - To reduce basic customs duty on seeds used in their manufacturing
- **Precious Metals:**
 - To increase customs duties on articles made from gold and platinum
 - To increase import duty on silver dore, bars and articles
- **Compounded Rubber:**
 - To increase basic customs duty rate on compounded rubber from 10% to 25%
- **Cigarettes:**
 - National Calamity Contingent Duty (NCCD) on specified cigarettes to be revised upwards by about 16%

UNION BUDGET 2023-24

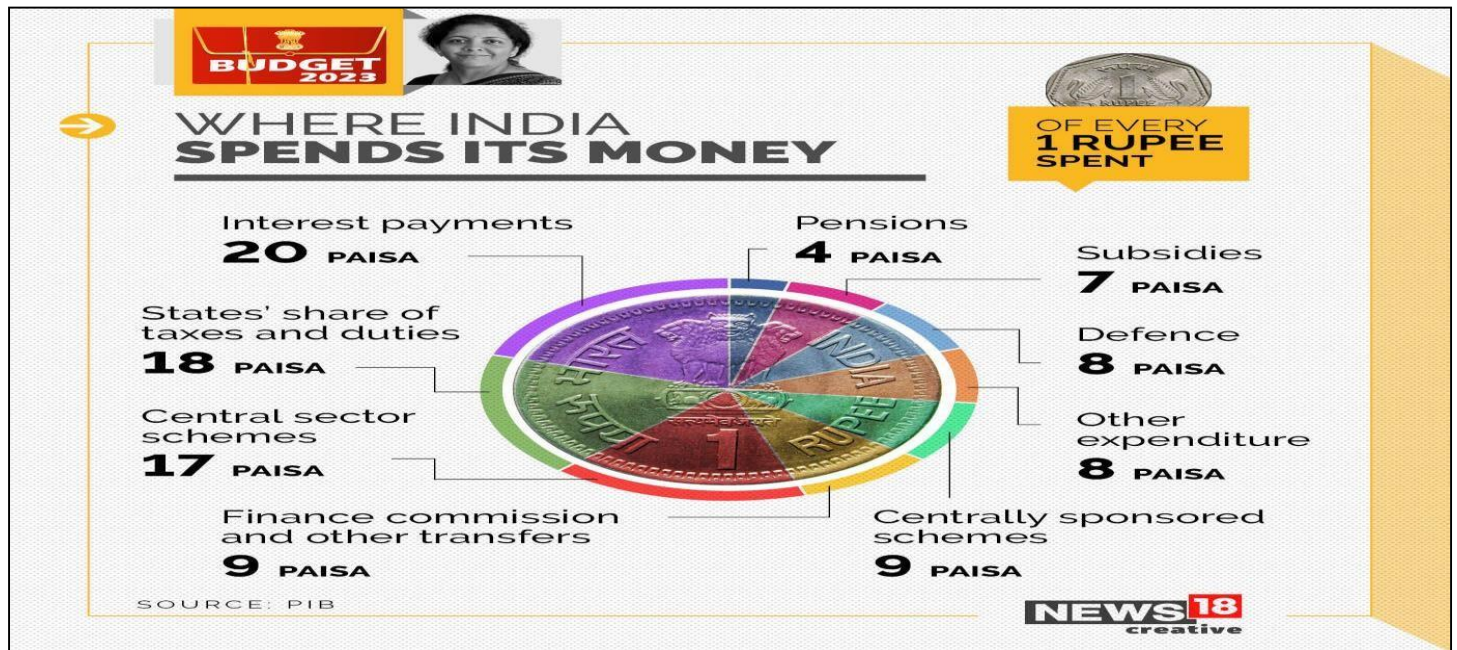
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Where India gets its Money from?



Where India Spends its money?



World Economic Outlook

News: Recently, the International Monetary Fund (IMF) has released its World Economic Outlook (WEO) Update, which has marginally improved the forecast for global growth in 2023.

Key Findings:

On India

- India will be the world's fastest growing economy in 2023 and 2024.
- Growth in India is set to decline from 6.8 % in 2022 to 6.1 % in 2023 before picking up to 6.8% in 2024, with resilient domestic demand despite external headwinds.

On Global Growth

- The global growth, which was estimated at 3.4% in 2022, is now projected to fall to 2.9% in 2023 before rising to 3.1% in 2024. The IMF effectively rules out a global recession.
- Negative growth in global GDP (Gross Domestic Product) or global GDP per capita—which often happens when there is a global recession is not expected. Instead, it expects global growth to bottom out in 2023 before starting to gather speed in 2024.

On Inflation

- Inflation is expected to have peaked in 2022 but the disinflation will be slow and take all of 2023 and 2024.
- About 84% of countries are expected to have lower headline (consumer price index) inflation in 2023 than in 2022.
- Global inflation is set to fall from 8.8 % in 2022 (annual average) to 6.6 % in 2023 and 4.3 % in 2024.
- In 2023, advanced economies are expected to have an inflation of 4.6% while emerging economies will continue to face an inflation of 8.1%.

What are the reasons for slowing of price rise?

- One, **monetary tightening** all across the world — higher interest rates drag down overall demand for goods and services and that, in turn, slows down inflation.
- Two, in the wake of a faltering demand, prices of different commodities both fuel and non-fuel have come down from their recent highs.

Startup India Seed Fund Scheme

News: Recently, the Ministry of Commerce and Industry has approved Rs. 477.25 crore under the Startup India Seed Fund Scheme (SISFS), which is a flagship Scheme under Startup India Initiative.

What is Seed Funding?

- Seed Funding is an early stage of investment in a start-up or a new business idea. The goal of seed funding is to help the company reach a point where it can secure additional rounds of funding or generate revenue to become self-sustaining.

About SISFS:

- The scheme was announced at Startup India International Summit on 16th January 2021.
- DPIIT approved an outlay of Rs. 945 Crore for the period of 4 years starting from 2021-22 to provide financial assistance to startups for Proof of Concept, prototype development, product trials, market entry, and commercialization.
- An Experts Advisory Committee (EAC) has been constituted by DPIIT, which will be responsible for the overall execution and monitoring of the Startup India Seed Fund Scheme.

What are the Eligibility criteria?

- A startup, recognized by DPIIT (Ministry of Commerce and Industry), incorporated not more than 2 years ago at the time of application.
- Startups should not have received more than Rs. 10 lakhs of monetary support under any other Central or State Government scheme.
- Preference would be given to startups creating innovative solutions in sectors such as social impact, waste management, water management, financial inclusion, education, agriculture, food processing, biotechnology, healthcare, energy, mobility, defence, space, railways, oil and gas, textiles, etc.
- The scheme is likely to support around 3600 entrepreneurs and grants worth 5 crores are likely to be provided to eligible incubators selected by Committee.

How will Seed Funds help?

- Easy availability of working capital at early stages which means lesser dependence on crowd funding, boot strapping.
- The Indian startup ecosystem suffers from **capital inadequacy** in the seed and '**Proof of Concept**' development stage. The capital required at this stage often presents a make-or-break situation for startups with good business ideas.
- Many innovative business ideas fail to take off due to the absence of this critical capital. Seed Fund offered to such promising cases can have a **multiplier effect** in validation of business ideas of many startups, leading to employment generation.

What are other initiatives to promote Startups?

- Ranking of States on Support to Startup Ecosystems
- National Startup Awards
- Startup Innovation Challenges
- SCO Startup Forum
- Prarambh Summit

Pradhan Mantri Mudra Yojana(PMMY)

News: As per the sample survey conducted at the national level by Ministry of Labour and Employment to assess employment generation under PMMY, the scheme helped in generating **1.12 crore net additional employment** during a period of approximately 3 years (2015 to 2018).

About:

- The scheme was launched in 2015 and it provides **collateral-free institutional loans up to Rs. 10 lakhs for small business enterprises**.
- The funding is provided by Member Lending Institutions (MLIs) i.e. Scheduled Commercial Banks (SCBs), Regional Rural Banks (RRBs), Non-Banking Financial Companies (NBFCs) and Micro Finance Institutions (MFIs).
- The loan can be used for income-generating activities in the manufacturing, trading, services sector, and agriculture.

- Three types of loans are provided - **Shishu** (loans up to Rs. 50,000), **Kishore** (loans between Rs. 50,000 and Rs. 5 lakh) and **Tarun** (loans between Rs. 5 lakh and Rs. 10 lakh).

Key Findings:

- Out of 81 lakh loans given in the state of Rajasthan, over 52 lakh were given to women entrepreneurs in the last three financial years, which is 64% of all loans.

How has the scheme evolved over the years?

- The PMMY has been expanded over time:
- In 2016-17, the scheme was expanded to cover activities related to agriculture, such as fishing, dairy, and food processing.
- In 2017-18, loans for tractors and power tillers became eligible under PMMY and from 2018-19 onwards, loans for two-wheelers for commercial use were included in PMMY.
- Provision for online applications through udyamimitra portal.
- Nomination of Mudra Nodal Officers in PSBs.
- Some Public Sector Banks (PSBs) have put end-to-end digital lending for automated sanctions under PMMY.
- Intensive publicity campaigns by PSBs and Mudra Ltd. for increased visibility of the scheme amongst the stakeholders.

Primary Agricultural Credit Societies (PACS)

News: The Union Budget has announced Rs 2,516 crore for computerisation of Primary Agricultural Credit Societies (PACS) over the next five years.

What are PACS?

- PACS are village-level cooperative credit societies that serve as the last link in a three-tier cooperative credit structure headed by the State Cooperative Banks (SCB) at the state level.
- Credit from the SCBs is transferred to the district cooperative central banks, or DCCBs, that operate at the district level. The DCCBs work with PACS, which deal directly with farmers.
- Since these are cooperative bodies, individual farmers are members of the PACS and office-bearers are elected from within them. A village can have multiple PACS.

What is the lending mechanism?

- PACS are involved in short-term lending popularly called as crop loan. At the start of the cropping cycle, farmers avail credit to finance their requirement of seeds, fertilizers etc.
- Banks extend this credit at 7% interest, of which 3% is subsidized by the Centre and 2% by the state government. Effectively, **farmers avail the crop loans at 2% interest only.**

What makes PACS attractive and challenges they face?

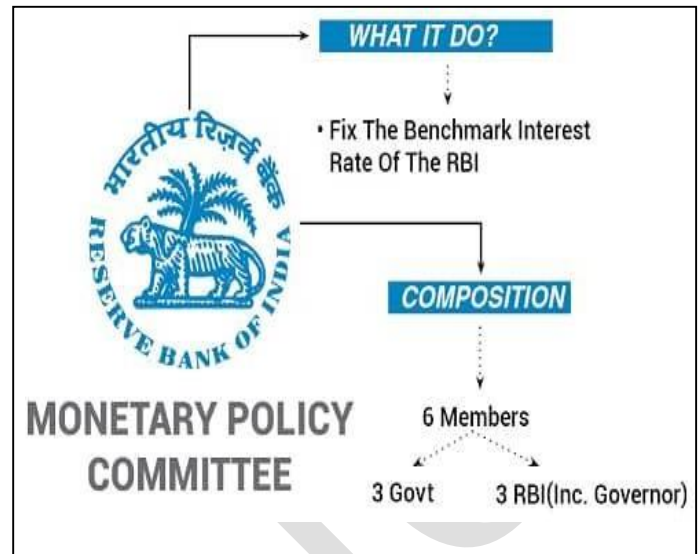
- The attraction of the PACS lies in the last-mile connectivity they offer. For farmers, timely access to capital is necessary at the start of their agricultural activities. PACS have the capacity to extend credit with minimal paperwork within a short time.
- However, as they are cooperative bodies, political compulsions often trump financial discipline and the recovery of loans is hit.
- Chairpersons of PACS participate in electing the office-bearers of DCCBs. Political affiliations are important here as well.

RBI hikes Repo Rate yet again

News: The Monetary Policy Committee (MPC) of the Reserve Bank of India on Wednesday hiked the key policy rate, the Repo rate or the rate at which the RBI lends funds to banks, by 25 basis points to **6.50 per cent** in a bid to rein in retail inflation.

What is the MPC?

- **Section 45ZB** of the amended RBI Act, 1934 provides for an empowered **six-member** monetary policy committee (MPC) to be constituted by the Central Government by notification in the Official Gazette. The first such MPC was constituted on September 29, 2016.
- Governor of RBI is the ex-officio chairperson of MPC.
- The MPC determines the policy repo rate required to achieve the inflation target.
- The MPC is required to meet **at least four times** in a year. **The quorum** for the meeting of the MPC is **four members**.
- Each member of the MPC has one vote, and in the event of an equality of votes, the **Governor has a second or casting vote**.
- Each Member of the Monetary Policy Committee writes a statement specifying the reasons for voting in favour of, or against the proposed resolution.



What will be the impact of recent hikes?

- Lending rates of banks are expected to go up as the cost of funds is expected to rise further.
- EMIs on vehicles, home and personal loans will also rise.
- The external benchmark linked lending rate (EBLR) of banks will rise by 25 bps — one basis point is one-hundredth of a percentage point— as such loans are linked to the Repo rate.
- As much as 43.6 per cent of the total loans are now linked to the Repo rate.
- Marginal cost of funds-based lending rates (MCLR), which accounts for 49.2 per cent of the loans portfolio of banks, are also expected to move up. The hike will help in moderating inflation in the country.
- Deposit rates are also expected to witness some realignment.

Key Highlights about Forecasts:

- The RBI has projected GDP growth for the next fiscal (FY2024) at 6.4 per cent.
- The central bank has lowered the inflation target for FY23 from 6.7 per cent to 6.5 per cent – which is still above the RBI's comfort level of four per cent. Inflation is expected to be 5.3 per cent in FY24.

Market Volatility and SC's concerns

News: The SC asked the SEBI and the government about the existing regulatory framework in place to protect Indian middle-class investors.

Background:

- It comes after the Adani Group was accused of stock manipulation and accounting fraud by the American firm Hindenburg Research. Earlier, a number of small investors lost lakhs of crores due to rapid market volatility following a collapse in the value of the shares of the Adani Group.

What are investor protection measures taken by SEBI?

- Investor Education and Protection Fund (IEPF)
- Investor Protection Fund (IPF)
- Investor Awareness Programme
- Simplification of Share Transfer and Allotment Procedure

What are different types of Asset classes and Risk and reward linked with it?

Investment Type	Description	Risk	Reward
Stocks	These include a share of ownership of a listed company. You earn through stock price increases and dividends.	High	High
Bonds	These are investment options where your money is invested with a government or institution, and you receive a fixed interest rate at regular intervals or maturity.	Low	Low
Mutual funds	A well-diversified portfolio of equity, bonds, and money market securities. You can invest in individual funds or hybrid funds.	Medium	Medium
United Linked Insurance Plan (ULIP)	ULIPs offer you a venue to invest in multiple equities and debt funds at the same time and manage the portfolio manually or in auto mode.	As per your Portfolio	High
Gold	You can invest in gold through mutual funds or Exchange Trade Funds (ETFs).	Medium	Low

MCLR

News: Recently, the State Bank of India, Bank of Baroda and Indian Overseas Bank have raised their marginal cost of fund-based lending rates (MCLR) by up to 15 basis points.

What is MCLR?

- It is the **lowest rate** of fund lending. No bank is permitted to lend below this.
- The methods used to renew credit limits and sanction loans are per MCLR norms. It is determined by **banks internally**, depending upon the loan repayment time.

What is purpose of MCLR?

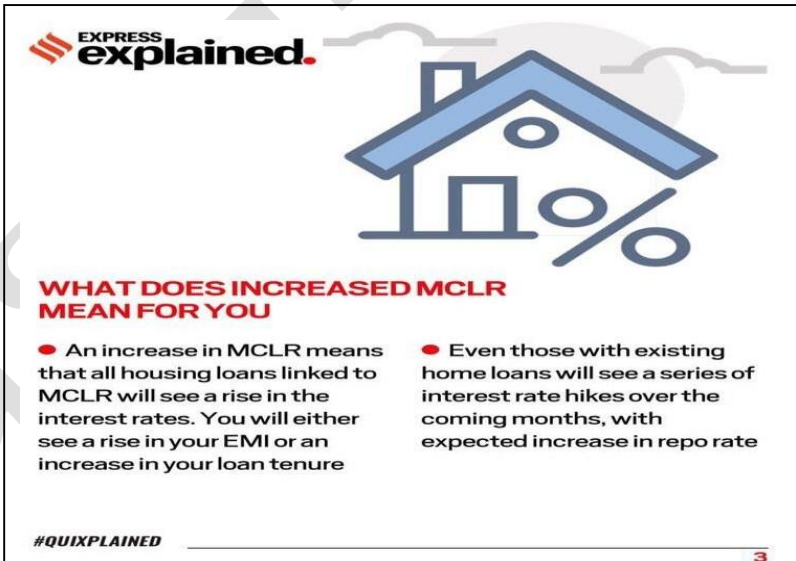
- Under MCLR, as soon as the Repo rate changes, banks must adjust their Interest Rates. MCLR is implemented to bring transparency and uniformity at the interest rate on advances followed by banks.
- It is also calculated that the interest rate is equally fair and beneficial for the banks and the borrowers. As a result, banks will improve their long-run value and become more competitive using marginal cost pricing of loans.

Which factors impact MCLR?

- MCLR is calculated based on four components Marginal cost of fund, Negative carry on account of cash reserve ratio, Operating costs, Tenor premium.

What is difference between MCLR and Base rate?

- MCLR is an advanced version of the base rate.
- The base rate is based on the average cost of funds, but MCLR is based on the marginal or incremental cost of money.
- MCLR depends on the repo rates changed by RBI while Base Rate does not depend on the repo rates changed by RBI.



EXPRESS explained.

WHAT DOES INCREASED MCLR MEAN FOR YOU

- An increase in MCLR means that all housing loans linked to MCLR will see a rise in the interest rates. You will either see a rise in your EMI or an increase in your loan tenure
- Even those with existing home loans will see a series of interest rate hikes over the coming months, with expected increase in repo rate

#QUIXPLAINED 3

Air India's Big Deal

News: Recently, the Tata Group, which acquired Air India, has placed an order for 470 new passenger planes from Airbus (France) and Boeing (USA). This is the largest ever deal in aviation in India.

Why is the deal significant?

- It reflects India's aspirations to be a world leader in the aviation sector, which is projected to require over 2,000 aircraft in the next 15 years.
- It is expected to make India the **third-largest player** in the aviation sector and create new opportunities in aerospace manufacturing under India's 'Make in India-Make for the World' vision.
- It will match features of international airlines like Emirates, Qatar Airways, Singapore Airlines, British Airways and Lufthansa and Enable Air India to enter, capture traffic flows and build foundations in markets such as Vietnam, Thailand, Indonesia, Malaysia and SAARC nations.
- It will facilitate significant expansion in aviation sector. The domestic civil aviation industry will become competitive and offer better services and options to the citizens.
- It will also help India to Forecast Indian aviation sector growth at a global level, Improve India's economic growth prospects and geopolitical dynamics, and Help in leveraging geopolitical dynamics to provide a competitive edge for India's international relations.

What are Government initiatives under Aviation sector?

- National Civil Aviation Policy, 2016
- The regional connectivity scheme or UDAN Scheme – Ude Desh ka Aam Nagrik.
- UDAN 2.0 – It lays out the vision of improving value realization through better integration and optimization of Agri-harvesting and air transportation and contributing to Agri-value chain sustainability, resilience under different and dynamic conditions.
- The Centre has earmarked a total of 25 airports for asset monetisation over the years 2022 to 2025 under the National Monetization Pipeline.

Current Account Deficit

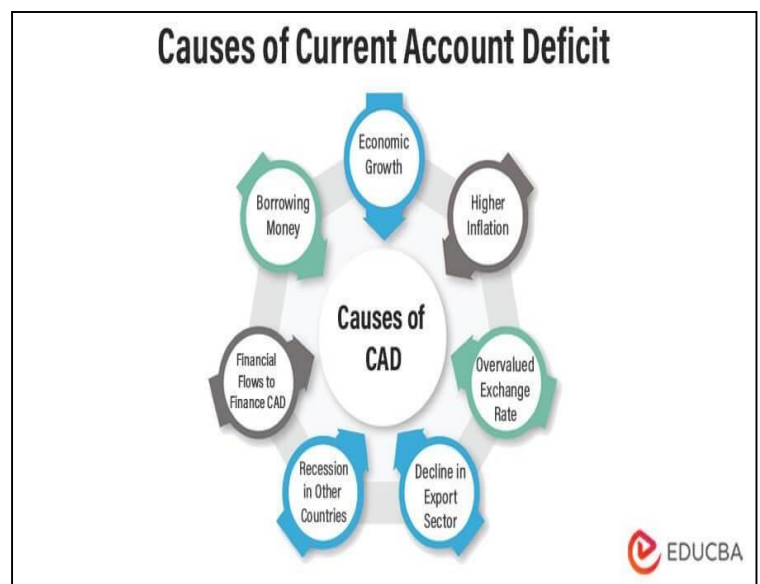
News: Recently released Government Data shows that India's exports and imports declined by 6.59% and 3.63% respectively in January, indicating that the current account deficit (CAD) will moderate despite the global slowdown triggered by the rising inflation and interest rates.

What is CAD?

- When the value of the goods and services that a country imports exceeds the value of the products it exports, it is called the current account deficit.
- CAD and the fiscal deficit together make up the twin deficits – the enemies of the stock market and investors.

What are its implications?

- The CAD is significant because it affects the economy, stock markets, and returns on investments by people.
- While rising CAD raises concerns among investors as it hurts the currency and thereby the inflow of funds into the markets, a notable decline in CAD in January has improved market sentiments.
- A surplus in the current account indicates that money is flowing into the country, which can boost foreign exchange reserves and the value of the local currency.



What are negative impact of CAD?

- When a country's imports exceed its exports, it can cause a decrease in demand for its currency, leading to depreciation of currency.
- Imports become more expensive which in turn contributes to higher inflation and reduces purchasing power.
- If a country is unable to finance its current account deficit with foreign investment, it may need to borrow to cover the gap. This can lead to an increase in debt levels, which can further harm the economy.

How can we moderate CAD?

- Firstly, we must make our **exports competitive** globally. When we do that automatically our exports will improve and consequently CAD will decline.
- Secondly, to make exports competitive the government can provide **incentives to export-oriented industries, minimize barriers that harms our exports.**
- Thirdly, **encouraging domestic production** of goods that are currently being imported can help to reduce the trade deficit. Through this, we can also realize our vision of Atmanirbhar Bharat.
- Fourthly, **improved service exports.**
- Lastly, domestic economy can be made **more robust** so that it can withstand shock of external environment and our fundamentals remain strong. This can be ensured through improved infrastructural facilities, regulatory reforms, ease of doing business, adoption of newer technologies and skilling of Indian employees.

Conclusion

- As quoted by Nilesh Shah, MD, Kotak Mahindra MF, "The reduction in CAD, thanks to services exports, is a positive sign. However, we need to maintain this for many more months before we can say that the CAD worry is behind us".

India's UPI and Singapore's PayNow Integrated

News: India's Unified Payments Interface (UPI), and its equivalent network in Singapore called PayNow, were integrated today to enable faster remittances between the two countries at a competitive rate.

What are UPI and PayNow?

- Unified Payments Interface (UPI) is India's mobile-based fast payment system, which facilitates customers to make round-the-clock payments instantly, using a Virtual Payment Address (VPA) created by the customer.
- It eliminates the risk of sharing bank account details by the remitter. UPI supports both Person-to-Person (P2P) and Person-to-Merchant (P2M) payments and it also enables a user to send or receive money.
- PayNow is a fast payment system in Singapore. It enables peer-to-peer funds transfer service, available to retail customers through participating banks and Non-Bank Financial Institutions (NBFIs) in Singapore.
- It allows users to send and receive instant funds from one bank or e-wallet account to another in Singapore by using just their mobile number, Singapore National Registration Identity Card (NRIC)/Foreign Identification Number (FIN), or VPA.

How will the integration help?

- Cross-border retail payments are generally less transparent and more expensive than domestic transactions. The UPI-PayNow linkage is a significant milestone in the development of infrastructure for cross-border payments between India and Singapore and closely aligns with the G20's financial inclusion priorities of driving faster, cheaper and more transparent cross-border payments.
- It will enable users of each of the two fast payment systems to **make instant, low-cost fund transfers** on a reciprocal basis **without a need** to get on board the other payment system.
- It will also help the **Indian diaspora in Singapore**, especially migrant workers and students, through the instantaneous and low-cost transfer of money from Singapore to India and vice-versa.
- Of the total inward remittances to India in 2020-21, the share of Singapore stood at 5.7 per cent, according to the RBI Remittance Survey, 2021.

Payment Aggregators

News: Recently, the Reserve Bank of India (RBI) has given in-principle approval to 32 firms to operate as Online Payment Aggregators (PA), under the Payment and Settlement Systems Act, 2007.

What is PA and what are its functions?

- They are companies that facilitate online payments by acting as intermediary between the customer and the merchant.
- They provide range of options to customers for payments. Example, Credit or Debit cards, e-wallets.
- They ensure security and reliability of payment transfers.
- The businesses can avoid the need to set up and manage their own payment processing systems, which can be complex and expensive. Eg – Paypal, Amazon Pay.

Significance of PA's:

- They use advanced security measures to ensure that transactions are safe and secure.
- They use algorithms and machine learning to detect and prevent fraud.
- Payment aggregators can integrate with a range of other systems, such as accounting software and inventory management systems, to streamline the payment process and make it easier to manage business operations.
- Payment aggregators provide detailed reports on payment transactions, making it easier for businesses to manage their finances and reconcile their accounts.

What are RBI's Criteria for Approving an Entity as Payment Aggregator?

- Under the payment aggregator framework, **only firms approved by the RBI** can acquire and offer payment services to merchants.
- A company applying for aggregator authorisation must have a **minimum net worth of Rs 15 crore** in the first year of application, and at least Rs 25 crore by the second year.
- It must also be **compliant with global payment security standards**.

Payment Aggregator	Payment Gateway
They are intermediaries that provide a single platform to connect multiple merchants to different payment processors.	It is a software application that connects an online store or merchant to a payment processor, allowing the merchant to accept payment from a customer
They handle Funds.	While Payment Gateways provide technology
They can offer Payment Gateway.	But, they cannot offer Payment aggregator.

49th GST Council Meeting

News: Recently, the Goods and Services Tax (GST) Council in its 49th Meeting has reached consensus on the constitution of the GST Appellate Tribunal to resolve the rising number of disputes under the old indirect tax regime.

About GST Council:

- It was set up by the President as per Article 279A (1) of the amended Constitution.
- The members of the Council include the Union Finance Minister (chairperson), the Union Minister of State (Finance) from the Centre while each state can nominate a minister in-charge of finance or taxation or any other minister as a member.
- According to Article 279 of the Constitution, the council can make recommendations to the Union and the states on important issues related to GST, like the goods and services that may be subjected or exempted from GST, model GST Laws.

Key Highlights:

GST Appellate Tribunal

- The council has approved the creation of a **national tribunal mechanism** with state benches for the redressal of disputes.

- The Tribunal will resolve the rising number of disputes under the GST regime that are now clogging High Courts and other judicial fora.

Compensation Dues Cleared

- It has cleared the balance of Rs 16,982 crore (for June 2022) and has finalized GST compensation of Rs 16,524 crore to six states/UTs including, Delhi, Karnataka, Odisha, Puducherry, Tamil Nadu, and Telangana.

Lower Penal Charges

- Approved for lower penal charges for delayed filing of annual returns by businesses with a turnover of up to Rs 20 crore a year.
- Approval has been given for Amnesty scheme for taxpayers unable to file statutory returns. The GST Amnesty Scheme was introduced to encourage non-filers to voluntarily come forward and file their GST returns by providing a one-time relief from late fees.

GST rate changes and exemptions

- The GST rate on several items has been changed, such as pencil sharpeners, rab (liquid jaggery).
- The Council also decided to extend the GST exemption to educational institutions and central and state educational boards from conducting entrance examinations through any authority, including the National Testing Agency.
- The Council has decided to switch the compensation cess levied on pan masala and gutkha commodities from an ad valorem basis to a specific tax-based levy.

What are issues with GST?

- **Complex and difficult to understand** - Owing to multiple tax rates, exemptions, compliance requirements.
- **High Tax rates** - Some industries and goods are subject to high GST rates, which can make them unaffordable for many consumers.
- **Technical issues** - Several reports of technical glitches in the GST network have come up, leading to delays in filing returns and claiming input tax credits.
- **Difficulty faced by Unorganized sector** - The unorganized sector in Indian economy is bigger and they face significant issues complying with new tax regime.
- **Increased compliance burden** - The GST regime has a lot of compliance requirements, including filing of returns, maintaining records, and regular audits. This can be a burden for businesses, especially small and medium enterprises.

Special Rupee Vostro Accounts

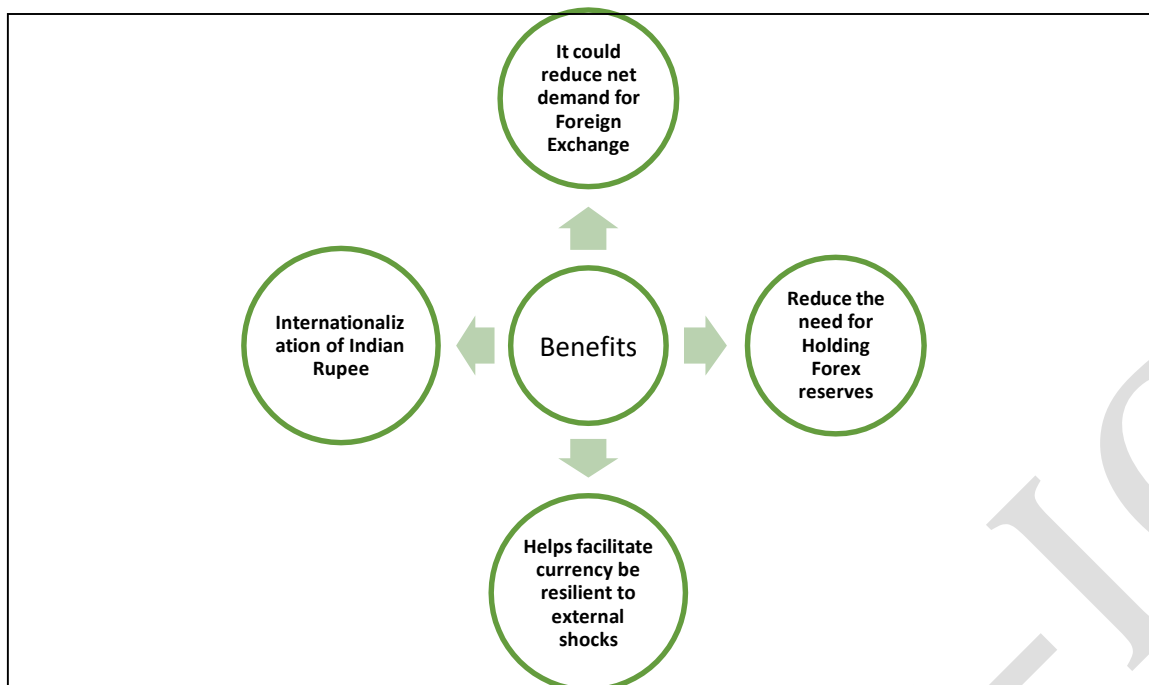
News: 20 Russian banks have opened Special Rupee Vostro Accounts (SRVA) with partner banks in India.

What are SRVA?

- SRVA is an account that domestic banks hold for foreign banks in the former's domestic currency, the rupee, which allows domestic banks to provide international banking services to their clients who have global banking needs without having to be physically present abroad.
- The SRVA is an additional arrangement to the existing system that uses freely convertible currencies and works as a complimentary system.
- It has 3 important components to it: I) All exports and imports must be denominated and invoiced in domestic currency (e.g. Rupee) II) The exchange rate between the currencies of the trading partner countries would be market-determined III) The final settlement also takes place in domestic currency (e.g. Rupee)

What are eligibility criteria?

- Banks include approval from the apex banking regulator (e.g. RBI)
- The correspondent bank is not from a country mentioned in the updated FATF Public Statement on High Risk & Non-Co-operative jurisdictions
- All reporting of cross-border transactions is to be done in accordance with the extant guidelines under the Foreign Exchange Management Act (FEMA), 1999.



SEBI's proposals on Listing

News: The Securities and Exchange Board of India (SEBI) has proposed to tweak disclosure norms to improve transparency and streamline processes.

Background:

- Amendments are connected to various aspects of SEBI Issue of Capital and Disclosure Requirements, or ICDR Regulations 2018.

What aspects are included?

- Underwriting public issues,
- The preconditions for announcing a bonus,
- The eligibility of pension funds to participate as anchor investors,
- Providing material documents and contracts for inspection in the case of a public issue.

What are proposed changes?

In case of Underwriters:

- First, presently, investors don't know, if appointment of underwriters is on a "soft" or "hard" basis. Soft basis means underwriter is only handling the technical rejections. Hard basis means underwriter will have to pick up a stake in the company, in case of under-subscription.
- A hard commitment means underwriter has a stake and believes that the share price valuations are fair.
- What are proposed changes? - Any agreement with the underwriters regarding under-subscription and few related information should be mentioned in Red Herring Prospectus (RHP). It would give investors an idea of the underwriters' commitment and fair valuation.

In case of Bonus shares:

- Bonus issues involve capitalisation of reserves or profits. However, it is seen sometimes that companies have not fulfilled the conditions of issuing bonus shares. For example, the company may have outstanding employee stock options or convertible debentures.
- What is proposed change? - The company should be allowed to issue a bonus only if it has received in-principal approval for all prior issues, including employee stock options and convertible debentures/warrants.

In case of Pension Fund:

- Pension funds that are associates of the lead manager (LM) or sponsored by an associate of the LM may not participate as anchor investors.

- What is proposed change? - If a pension fund holds a minimum corpus of Rs 25 crore, it should be allowed to participate as anchor investor.

In case of Documents and Reports:

- Presently, material documents and industry reports are available at the issuer's registered office only for a physical inspection.
- What is proposed change? - The papers should be available online, at the issuer's website.

Blue Food

News: A new study suggests that blue food sourced from aquatic environments can help reduce nutritional deficiencies and contribute to employment and export revenue in India.

What is Blue Food?

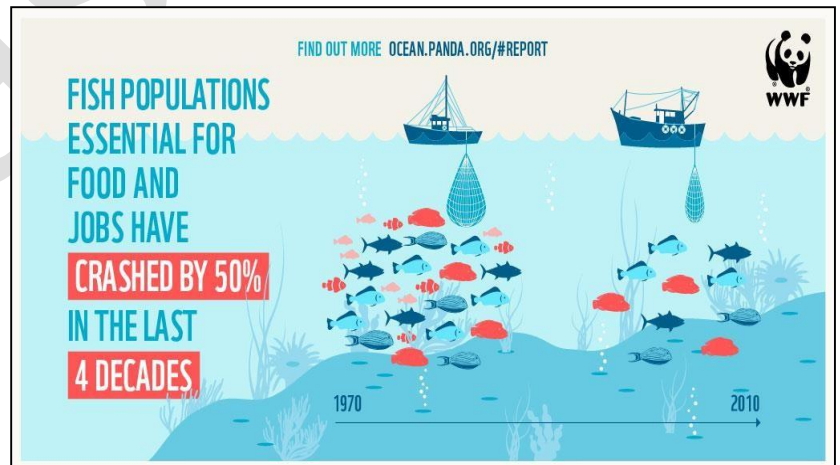
- Blue food is food derived from aquatic animals, plants or algae that are caught or cultivated in freshwater and marine environments.

Importance of Blue Food:

- Blue foods are important for the economies, livelihoods, nutritional security, and cultures of people in many countries.
- They supply protein to over 3.2 billion people, are a key source of nutrients in many coastal, rural and indigenous communities, and support the livelihoods of over 800 million people, the majority of whom work in small-scale systems.
- They generate lower emissions compared to terrestrial meat.
- Aquatic foods can also be used to address B12 and omega-3 deficiencies in India.
- Over 91% of countries with vitamin B12 deficiencies also show high levels of omega-3 deficiency
- It could help address risk from cardiovascular diseases.
- Blue foods can help improve nutrition, livelihoods or national revenue for the global south and indigenous communities in the global north.

Issues associated with Blue Food:

- Accidental capture of non-target species in fishing nets, which can lead to the death of these animals.
- Presence of pollutants such as heavy metals, microplastics in ocean can affect quality and safety of seafood.
- There have been instances of mislabeling of seafood products, where a cheaper fish is sold as a more expensive one.
- Almost 90% of global marine fish stocks are now fully exploited or overfished according to the World Bank, which is an issue with overfishing, illegal fishing, and other unsustainable aquatic food production.



Way Forward

- Governments, NGOs, and the private sector should work together to increase awareness about the benefits of blue food and its potential to address malnutrition, poverty, and environmental degradation.
- Fishing practices that are unsustainable, such as overfishing, destructive fishing methods, and bycatch, need to be addressed to ensure that fish stocks are not depleted and the marine ecosystem is protected.
- Aquaculture can be a sustainable way of producing blue food if it is done in an environmentally responsible manner.
- Governments can promote the development of sustainable aquaculture practices by providing technical assistance, training, and incentives.

IMF says India is a 'Bright Spot' in World Economy

News: According to the International Monetary Fund (IMF), India will alone contribute **15% of the global growth in 2023** and continues to remain a relative "**bright spot**" in the world economy.

Which factors will help India?

- India remains a bright spot at a time when the IMF is projecting 2023 to be difficult with global growth slowing down from 3.4% in 2022 to 2.9% in 2023.
- For FY 2023/24 (April 2023 to March 2024) India's growth rate is projected at 6.1% a bit slow like the rest of the world economy, but way above the global average and subsequently, India is providing about 15% of global growth in 2023.
- According to the IMF, India has turned **Digitalisation** into a driver of overcoming the pandemic and creating job opportunities, while the **country's fiscal policy** has been responsive to economic conditions.
- The country's fiscal responsibility has been translated into a medium-term framework, with a strong anchor to public finances.
- Also, India is investing in the **green economy**, including renewables with potential to shift the country towards clean energy.
- The **capital spending** has increased, which would amount to 3.3% of gross domestic product, and will be the biggest such jump after an increase of more than 37% between 2020-21 and 2021-22.
- India's relatively younger population. Close to 15 million people are added to the labour force every year.

What are concerns?

- Job Growth has not kept pace with Economic Growth of country.
- Emerging markets like India face the consequences of geo-political risks.
- As per the '**World Inequality Report 2022**', top 10% of India's population hold 57% of the total national income while the bottom 50% share has gone down to 13%. India's inequality is driven by limited upward mobility due to unequal opportunity.
- India's export trend has declined, with India's trade deficit reaching a record 31 billion dollars in July 2022 due to recessionary trends in developed economies (like the US) and higher commodity prices.
- The capital outflows and the rising current account deficit is putting pressure on the Indian rupee.

Science & Technology

Lab Grown Diamonds (LDGs)

News: During her Budget speech, Finance Minister Nirmala Sitharaman announced the government's move to focus on lab grown diamonds.

Background:

- Customs duty on the seeds used in lab-grown diamond manufacturing will be reduced. The FM also announced a grant to IITs to facilitate the growth of LDGs in India.

What are LDGs?

- Lab grown diamonds are diamonds that are produced using specific technology which mimics the geological processes that grow natural diamonds.
- They are not the same as “diamond simulants” – LDGs are chemically, physically and optically diamond and thus are difficult to identify as “lab grown.”

How are LDGs produced?

- The most common (and cheapest) is the “High pressure, high temperature” (HPHT) method. Usually graphite is used as the “diamond seed” and when subjected to these extreme conditions, the relatively inexpensive form of carbon turns into one of the most expensive carbon forms.
- Other processes include “Chemical Vapor Deposition” (CVD) and explosive formation that creates what are known as “detonation nanodiamonds”.



What are they used for?

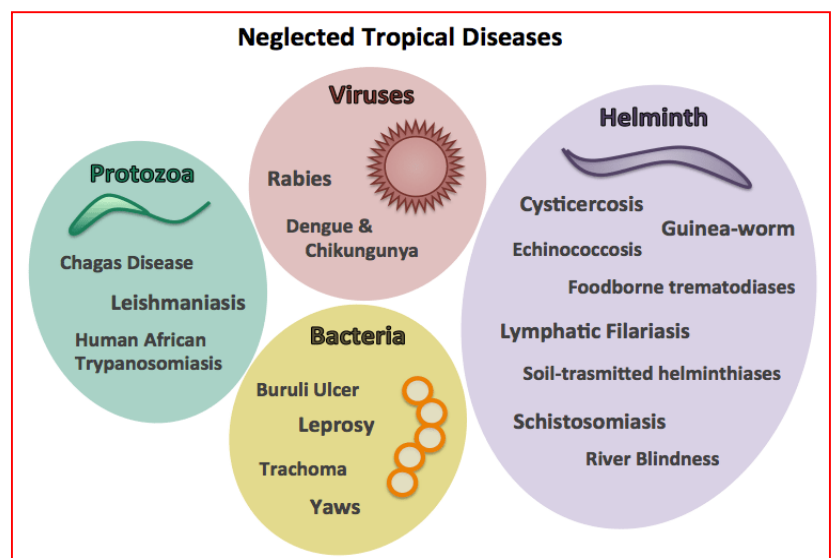
- LDGs are most often used for industrial purposes, in machines and tools. Their hardness and extra strength make them ideal for use as cutters.
- They can be used as a heat spreader for high-power laser diodes, laser arrays and high-power transistors.
- Lastly, as the Earth's reserves of natural diamonds are depleted, LDGs are slowly replacing the prized gemstone in the jewelry industry. Crucially, like natural diamonds, LDGs undergo similar processes of polishing and cutting that are required to provide diamonds their characteristic lustre.
- Thus, growth in the production of LDGs is unlikely to affect India's established diamond industry which undertakes these tasks.

Neglected Tropical Disease

News: According to the “Global report on neglected tropical diseases 2023” report published on World NTD Day — January 30, 2023, by World Health Organization (WHO), Neglected Tropical Diseases (NTD) continue to disproportionately impact the most impoverished members of the international community, living in areas with inadequate water safety, sanitation and access to health care.

Background:

- India carries the largest burden of at least 11 of these diseases, with parasitic



illnesses like kala-azar and lymphatic filariasis is affecting millions of people throughout the country – often the poorest and most vulnerable.

What are NTDs?

- NTDs are a group of 20 conditions mainly prevalent in tropical areas where people do not have access to clean water or safe ways to dispose of human waste.
- They are caused by various pathogens, including viruses, bacteria, parasites, fungi, and toxins.
- NTDs are most common among marginalized communities in the developing regions of Africa, Asia, and the Americas.

Key Findings:

- 16 countries accounted for 80 per cent of the global NTD burden. Globally, nearly 1.65 billion people were estimated to require treatment for at least one NTD.
- The document also highlighted the tremendous effects COVID-19 had on community-based initiatives, access to healthcare facilities, and healthcare goods supply chains. As a result, between 2019 and 2020, 34 per cent fewer persons received treatment for NTDs.

Initiatives taken to fight NTDs:

- WHO's NTD Roadmap 2021-2030
- London Declaration on NTDs was adopted on 30th January 2012 to recognize the global burden of NTDs.
- A WHO-supported regional alliance was established by the governments of India, Bangladesh, and Nepal in 2005 to expedite early diagnosis and treatment of the most vulnerable populations and improve disease surveillance and control of sandfly populations (Kala-azar).
- India has already eliminated several other NTDs, including guinea worm, trachoma, and yaws.

Macrosomia

News: A mother in Brazil recently gave birth to a two-foot-tall baby weighing 16lb (7.3kg).

What is Macrosomia?

- The term used to describe these giant babies is macrosomia (Greek for the large body). Any baby that weighs more than 4kg, regardless of its gestational age, is said to have macrosomia.

What contributes to Macrosomia?

- Obese mothers tend to have kids with Macrosomia.
- Being older when pregnant also increases the odds of having a baby with macrosomia.
- Previous pregnancies increase the risk of macrosomia because, with each successive pregnancy, birth weight increases.
- In mothers with gestational diabetes (high blood sugar that arises during pregnancy), this increases to between 15 per cent and 45 per cent of births.
- Having a boy increases the likelihood of macrosomia. Boys are three times more likely than girls to be born macrosomic.
- Overdue pregnancies those that run past the typical 40 weeks also increase the risk of a baby being macrosomic, particularly at 42 weeks or more.

Impacts:

- Babies with macrosomia are more likely to encounter difficulties moving through the birth canal because of their large size.
- "Shoulder dystocia" which may cause permanent harm to shoulders. While the baby is stuck, it cannot breathe and the umbilical cord may be squeezed.
- Mothers are also at increased risk of vaginal tears during delivery, which then increases the risk of postpartum haemorrhage (bleeding)

Albinism

News: Recently a partial **Albino Dhole** (*Cuon alpinus*) has been photo-documented in Cauvery Wildlife Sanctuary.

What is Albinism?

- Albinism is the result of cells that **can't produce melanin**, the pigment needed to colour skin, scales, eyes and hair. This genetic condition gets passed to offspring when both parents carry the recessive gene. When albinism is present, the animal can appear white or pink.
- The production of melanin occurs within melanocytes, specialized cells that are present but not fully functional in albino mammals.

About Dhole:

- Also known as Asiatic Wild Dog it is found in three clusters across India namely the Western and Eastern Ghats, the central Indian landscape and North East India.
- The Western and Eastern Ghats is a stronghold region for dholes.
- IUCN Red List - **Endangered**
- The Wildlife Protection Act 1972 - **Schedule II**
- CITES - **Appendix II**

NISAR (NASA-ISRO Synthetic Aperture Radar)

News: Jointly developed by NASA and ISRO, an **Earth-observation satellite**, called NISAR, got a send-off ceremony at the American space agency's Jet Propulsion Laboratory (JPL) in Southern California on February 3rd.

What is NISAR?

- NISAR has been built by space agencies of the US and India under a partnership agreement signed in 2014.
- The 2,800 kilograms satellite consists of both **L-band** and **S-band** synthetic aperture radar (SAR) instruments, which makes it a **dual-frequency imaging radar satellite**.
- While NASA has provided the L-band radar, GPS, a high-capacity solid-state recorder to store data, and a payload data subsystem, ISRO has provided the S-band radar, the GSLV launch system and spacecraft.
- Another important component of the satellite is its large 39-foot stationary antenna reflector.

Objectives of Mission:

- NISAR will observe subtle **changes in Earth's surfaces**, helping researchers better understand the causes and consequences of such phenomena.
- It will spot warning signs of natural disasters, such as **volcanic eruptions, earthquakes and landslides**.
- The satellite will also **measure groundwater levels**, track flow rates of glaciers and ice sheets, and monitor the planet's forest and agricultural regions, which can improve our understanding of carbon exchange.
- By using synthetic aperture radar (SAR), NISAR will produce high-resolution images. SAR is capable of penetrating clouds and can collect data day and night regardless of the weather conditions.
- NISAR is expected to be launched in January 2024 from Satish Dhawan Space Centre into a near-polar orbit. The satellite will operate for a minimum of three years.



Zero Draft of Pandemic Treaty

News: The **World Health Organization (WHO)** has published a 'Zero-Draft' of the Pandemic Treaty, aiming to bring in Global and National-Level Pandemic Preparedness.

Why was it prepared?

- The zero-draft of the pandemic treaty was prepared based on recognising the catastrophic failure of the international community in showing solidarity and equity in response to the novel coronavirus disease (COVID-19) pandemic.

- The draft recognizes common but differentiated responsibilities and capabilities in pandemic prevention, preparedness, response and recovery of health systems as one of its guiding principles.

Key Provisions:

- **Definition of Pandemic** - An outbreak is considered a pandemic when an infection spreads quickly globally with high morbidity and mortality. Other factors are — infecting immunologically naive human populations, pushing health systems to their capacity and beyond, and triggering social and economic disruptions, where mitigation measures require coordinated efforts across the geographical spectrum.
- The draft calls for **intellectual property rights to be waived off during pandemics** which advocates say would allow for wider access to life-saving drugs and vaccines more quickly.
- The draft proposes that **20% of pandemic-related products** – vaccines, diagnostics, personal protective equipment and therapeutics **should be allocated to the WHO** which will then ensure their equitable distribution. Half of these pandemic products allocated to WHO (10% of total global production) should be donated while the other half would be bought for an “accessible” price.
- The draft calls for setting up **WHO Global Pandemic Supply Chain and Logistics Network** to ensure a better and fairer distribution of counter-measures as well as a global compensation scheme for vaccine injuries.
- Constitution of a Pathogen Access and Benefit-Sharing system (PABS): PABS is another key element of the draft. Under this, genomic sequences of all pathogens with pandemic potential and the benefits that come with such information are to be shared on an “equal footing” in the system. The information is to be shared on a publicly accessible platform and in a time-bound manner.

ISRO’s SSLV-D2

News: Recently, in its second attempt, ISRO’s smallest vehicle, Small Satellite Launch Vehicle (SSLV-D2), was launched from the Satish Dhawan Space Centre, Sriharikota, Andhra Pradesh.

What is SSLV?

- SSLV is a 3 stage Launch Vehicle configured with three Solid Propulsion Stages and Liquid propulsion-based Velocity Trimming Module (VTM) as a terminal.
- It is 2 m in diameter and 34m in length with a lift off weight of 120 tonnes and is capable of launching a 10 to 500 kg satellite in 500 km planar orbit.
- The rocket can be assembled by a small team in only a few days, compared to the 6 months and around 600 people it takes for ISRO’s workhorse PSLV.
- It has been developed to capture the emerging small (nano-micro-mini) satellite commercial market, with launches offered on demand.
- It provides low-cost access to Space, offers low turn-around time, facilitates flexibility in accommodating multiple satellites and demands minimal launch infrastructure.

What is on-board SSLV-D2?

- EOS-07 - EOS-07 is a 156.3 kg satellite designed and developed by ISRO. Its mission objective is to design and develop payload instruments compatible with microsatellite buses and new technologies for future operational satellites.
- AzaadiSat2 - It is a Cubesat weighing around 8 kg and carries 75 different payloads. Girl students from rural regions across the country were provided guidance to build these payloads. The payloads are integrated by the student team of “Space Kidz India”.
- Janus-1 - It is a technology demonstrator satellite built by US-based Antaris and its Indian partners XDLinks and Ananth Technologies. It is a six-unit cube satellite with five payloads on board — two from Singapore, and one each from Kenya, Australia, and Indonesia.

Polar Vortex on Sun

News: Recently, several reports suggested that something broke off the Sun. Others blatantly claimed that a part of the Sun has broken off and that people should be worried. However, these reports are false and do not make any sense. Nothing has broken off the surface of the Sun.

What exactly happened?

- What happened was a polar vortex as material broke from a filament on the northern limb of the Sun and lingered overhead for hours.
- As tweeted by Space Weather Physicist, “Talk about Polar Vortex! Material from a **northern prominence** just broke away from the main filament & is now circulating in a massive polar vortex around the north pole of our Star.
- What actually happened was a bend of a long filament of plasma, which is a highly electrically charged gas, shot out of the surface. This event created a massive loop-like feature, which scientists call **prominence**. These likely have an origin in the magnetic field of the Sun's corona.
- What has surprised astronomers is the fact that the prominence suddenly broke off and then remained airborne for hours over the poles. This made the astronomers refer them as polar vortex, which is a phenomenon seen on Earth when a large area of low pressure and cold air surrounds both of the Earth's poles.
- This hot plasma was seen swirling around possibly due to the combined effect of **gravity, convection and Coriolis forces**. We often see polar vortices in other planets including Earth, where it can influence the weather significantly. Rarely do we see it in such detail on the Sun.

Does it possess any threat? What is India's mission to Sun?

- No, at the moment, it does not pose any threat to Earth.
- India is set to launch its solar mission **Aditya L-1** this year to better forecast eruptions from the Sun. The Aditya L-1 will be equipped with instruments that will **target the Sun's corona and unravel the science powering these massive eruptions** happening on our star.

Key Terms that you must remember – Prominence, Sun's magnetic field, Coriolis Force and few facts about Aditya L-1 mission.

Responsible use of AI in Military (REAIM 2023)

News: Recently, the world's First International Summit on the Responsible Use of Artificial intelligence in the Military (REAIM 2023) was held in The Hague, Netherlands.

Themes:

- Mythbusting AI - Breaking Down the Characteristics of AI
- Responsible deployment and use of AI
- Governance frameworks

Key Highlights:

- The conference, co-hosted by South Korea, hosted 80 government delegations (including those from the US and China), and over 100s of researchers and defense contractors. (India did not participate)
- REAIM 2023 brought together governments, corporations, academia, startups, and civil societies to raise awareness, discuss issues, and possibly, agree on common principles in deploying and using AI in armed conflicts.
- Appealed to the multi-stakeholder community to build common standards to mitigate risks arising from the use of AI.
- The US called for the responsible use of artificial intelligence (AI) in the military domain and proposed a declaration which would include 'human accountability'.
- The proposal said AI-weapons systems should involve “appropriate levels of human judgment”. The US and China signed the declaration alongside more than 60 nations.
- Key objectives – I) Putting the topic of 'responsible AI in the military domain' higher on the political agenda, II) Mobilising and activating a wide group of stakeholders to contribute to concrete next steps and III) Fostering and increasing knowledge by sharing experiences, best practices and solutions.

What is Explainable AI?

- In order to remove bias from AI systems, researchers have resorted to 'explainability'.

- Explainable AI seeks to address the lack of information around how decisions are made. This in turn will help remove biases and make the algorithm fairer. But, in the end, the call to make a final decision will rest with a human in the loop.

Dust as a Solar shield

News: Recently, a team of Researchers have published a study titled- “Dust as a Solar Shield”, proposing that launching Moon Dust into the stratosphere can slow down Global-Warming.

What were the proposals?

- The team proposed regular transport of moon dust to a gravity point (Lagrange Point) between Earth and Sun to temper the ravages of global warming. It was called as Solar Radiation Management (SRM) or Stratospheric Aerosol Injection, because by spraying aerosols in the stratosphere, it controls the Radiation of Sunlight reaching the Earth.
- Ideas for filtering solar radiation to keep Earth from overheating have been kicking around for decades, ranging from giant space-based screens to churning out reflective white clouds.
- Artificially spraying Moon Dust into the stratosphere has been motivated from the fact that a sufficiently powerful Volcanic Eruption can spew sulphates and other aerosols into the stratosphere and thus cool the air there.
- Aerosols in the stratosphere, especially radiation-scattering ones such as sulphates, do have a cooling effect. Dimming of the amount of incoming sunlight with stratospheric aerosols will have similar outcomes as compared to the Moon Dust.
- Blocking 1 or 2 % of the Sun's rays is all it would take to lower Earth's surface by a degree or two Celsius - roughly the amount it has warmed over the last century.

What will be the impact of this technique?

- Spraying dust in the Stratosphere may cool summer but can lead to widespread Drought across the earth, sending crop yields plummeting, leading to disease and starvation.
- Any projections related to changes in rainfall, as a result of throwing dust into the atmosphere or in space to block sunlight, will be highly uncertain.
- Other climate mitigation strategies, such as the use of Renewable Energy, emissions reductions schemes, Carbon-Capture Technologies, and bioenergy, are not expected to have any dangerous unintended consequences. On the other hand, spraying aerosols even in a small pocket of the stratosphere will have global consequences that can't fully be quantified at present.

ALMA Telescope

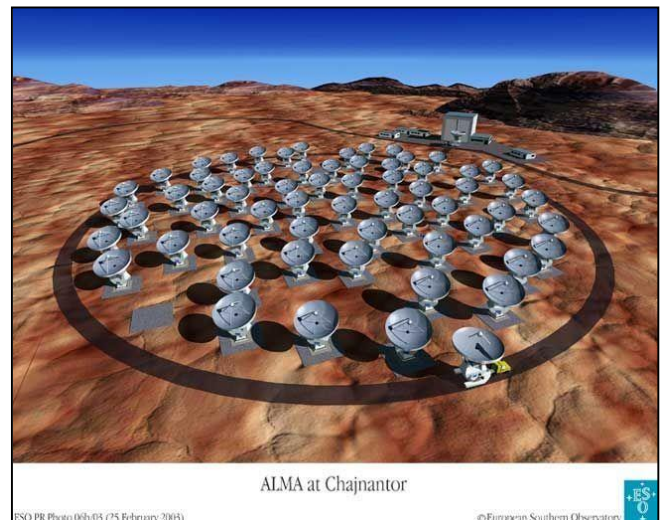
News: The Atacama Large Millimetre/submillimetre Array (ALMA) is a radio telescope comprising 66 antennas located in the Atacama Desert of northern Chile is set to get software and hardware upgrades that will help it collect much more data and produce sharper images than ever before.

What is ALMA?

- It is a state-of-the-art telescope that studies celestial objects at millimetre and submillimetre wavelengths — they can penetrate through dust clouds and help astronomers examine dim and distant galaxies and stars out there. It also has extraordinary sensitivity, which allows it to detect even extremely faint radio signals.

Why is it located in Chile?

- It is situated at an altitude of 5,050 metres above sea level on the **Chajnantor plateau** in Chile's



Atacama Desert as the millimetre and submillimetre waves observed by it are very susceptible to atmospheric water vapour absorption on Earth.

- Moreover, the desert is the **driest place** in the world, meaning most of the nights here are **clear of clouds** and **free of light-distorting moisture** — making it a perfect location for examining the universe.

What discoveries has it made?

- It provided detailed images of the protoplanetary disc surrounding **HL Tauri** — a very young T Tauri star in the constellation Taurus.
- In 2015, the telescope helped scientists observe a phenomenon known as the **Einstein ring**, which occurs when light from a galaxy or star passes by a massive object en route to the Earth.
- It provided the first image of the **supermassive black hole** at the centre of our own Milky Way galaxy.

Cure for HIV?

News: Recently, a man from Germany, known as Dusseldorf patient, has become at least the third person to have been “cured of HIV” with the virus not being detectable in his body even four years after stopping the medicine.

How did it happen?

- It was achieved through a bone-marrow transplant from people carrying a specific HIV-resistant genetic mutation.

What is HIV?

- HIV stands for Human Immunodeficiency Virus, which is a virus that attacks the immune system in the human body. It primarily targets and damages **CD4 immune cells**, which are essential for the body's ability to fight infections and diseases.
- Over time, HIV weakens the immune system, leaving the body vulnerable to opportunistic infections and cancers.
- HIV is primarily spread through the exchange of certain bodily fluids such as blood, semen, vaginal fluids, and breast milk.
- If left untreated, the virus destroys a person's immune system and they are said to be in the Acquired Immunodeficiency Syndrome stage (AIDS) where they get several opportunistic infections that may result in death.

Is there any cure for HIV?

- Although there are no cures for the infection at present, the disease can be managed using **antiretroviral therapy**. These medicines suppress the replication of the virus within the body, allowing the number of CD4 immune cells to bounce back.

What are other reported recoveries from HIV?

- A Berlin patient became the first person to overcome HIV after receiving two **stem cell transplants** for his blood cancer. The doctors selected a donor with a genetic mutation called CCR5-delta 32 that makes carriers almost immune to HIV.
- In 2019, similar results were replicated in the London patient. Two more cases of successful treatment were reported in 2022.

What is CCR5-delta mutation?

- **Cysteine-cysteine chemokine receptor 5 (CCR5)** is the main HIV co-receptor involved in the virus and cell-to-cell spread.
- The CCR5 receptors on CD4 cells are used as a doorway by HIV. The CCR5-delta 32 mutation prevents these receptors from forming on CD4 cells, which effectively removes the doorway.
- Only 1% of people worldwide have two copies of the mutation, and 20% carry one copy, mostly those of European descent. Those with the mutation are almost immune to HIV, although some cases have been reported.

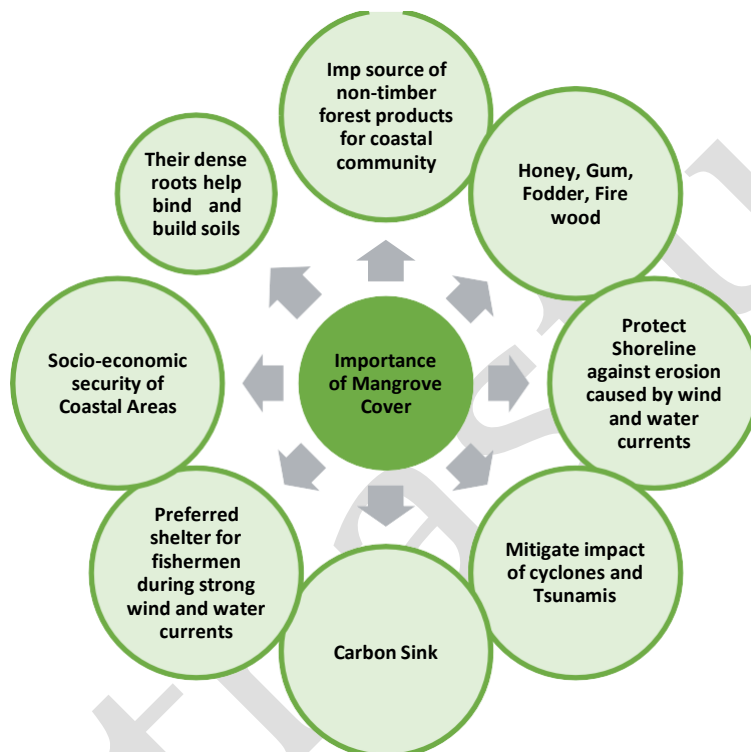
Environment & Bio-diversity

Mangroves gets a Budget push

News: Recently, Union Budget 2023-24 announced an initiative for Mangrove plantation under MISHTI (Mangroves Initiative for Shoreline Habitats and Tangible Incomes)

What are Mangroves?

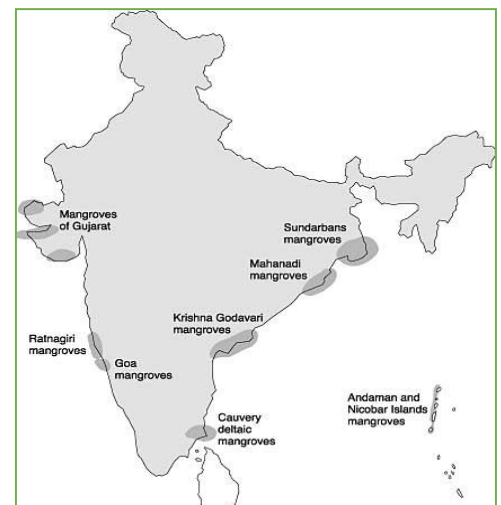
- They are salt tolerant trees and shrubs that flourish in intertidal areas of tropical and subtropical regions.
- According to India State of Forest Report (2021), Mangrove cover is 0.15% of country's total geographical area.
- Top states/UT with Mangrove cover are – WB > Gujarat > Andaman and Nicobar Islands > Andhra Pradesh
- The MISHTI scheme seeks to increase mangrove plantation along the coast lines and on salt pan fields.



Therefore, Significance of MISHTI scheme is in **line with India's NDC** of creation of additional sink of 2.5 – 3 Billion tonnes of CO₂. It will support our **Blue/Coastal economy** by providing valuable fishery resources as around 80% of Global fish catch is more or less dependent on thriving Mangrove ecosystems and they **provide habitat** to wide ranging species.

Challenges:

- **Rising demand for Land reclamation** for Industrialization and agriculture along the coastlines.
- Water and Soil pollution due to discharge of **untreated domestic sewage** and **industrial effluents**.
- **Climate change** – Increase in temperature, rising sea levels, increased frequency and velocity of Tropical storms along the Coastal regions.
- It appears there is **significant lack of awareness** around the importance of Mangrove ecosystem.



- **Population pressure** along the coastal areas.
- **Change in Ecological flow of the river** also impacts of health of mangroves.

Way Forward:

- Initiate programmes to raise people's awareness about Mangroves and involve Local community participation in its conservation efforts.
- Environmentally sustainable livelihood along the Coastal regions of the country.
- Land restoration and allowing for intertidal flow is critical for Mangrove's growth.

IMPAC5

News: Recently, the 5th International Marine Protected Areas Congress (IMPAC5) was held in Canada in order to discuss the solutions to address the Funding Gap of Marine Protected Areas (MPAs).

Background:

- This meeting is crucial since nations agreed to protect 30% of Earth's lands and oceans by 2030 at the 15th Conference of the Parties to the Convention on Biological Diversity held in 2022.

About IMPAC:

- IMPAC congresses are a collaborative effort between the International Union for the Conservation of Nature (IUCN) and the chosen host country.
- The congress brings together scientists, policy makers, practitioners, and stakeholders from around the world to discuss the latest scientific knowledge, best practices and challenges in the management of MPAs.
- The goal of IMPAC is to advance the conservation and sustainable use of the world's marine biodiversity and to support the implementation of the United Nations Convention on Biological Diversity's goals for marine conservation and management.

What are Marine Protected Areas?

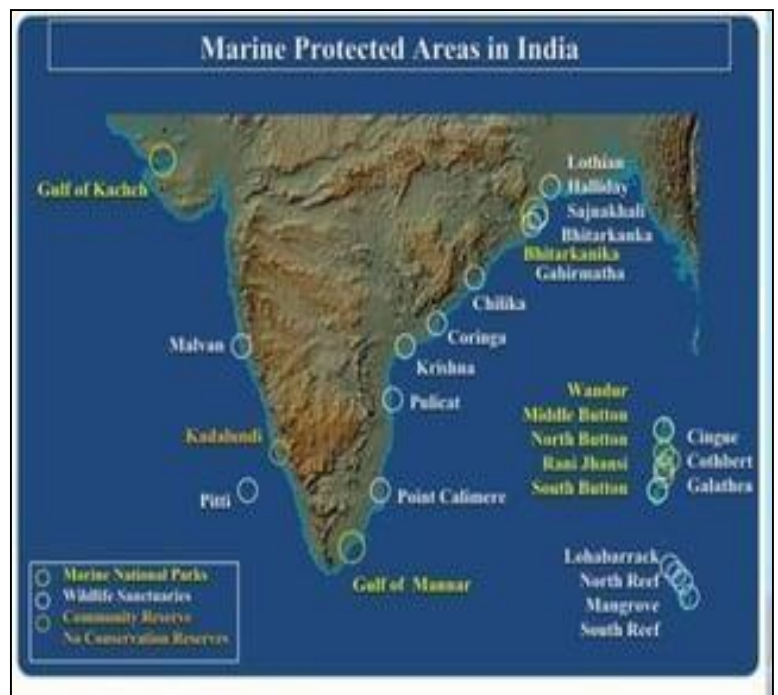
- MPAs are designated areas of the ocean that are set aside for the **protection** and **conservation of marine ecosystems** and **their biodiversity**. Within the region, certain activities are limited, or entirely prohibited, to meet specific conservation, habitat protection, ecosystem monitoring or fisheries management objectives.
- MPAs do not necessarily exclude fishing, research or other human activities; in fact, many MPAs are multi-purpose areas.
- MPAs can generate sustainable revenues for their own management.
- Revenue can be generated from statutory and non-statutory MPA fees for tourism programmes, blue carbon credits generated from mangrove conservation and avoided deforestation as well as seaweed farming and sustainable coastal fisheries.

What is the need for MPA's?

- Biodiversity Conservation
- To promote Sustainable Fisheries
- To minimize Climate Change impact as MPA's can serve as important Carbon Sink zones
- To promote research and education of important marine areas
- Help promote eco-tourism activities

Key Highlights of IMPAC5:

- As many as 70% of MPAs are underfunded. A well-managed and sufficiently funded



MPA can restore good health to vulnerable ecosystems.

- Achieving sustainable and resilient MPA networks depends on an overall commitment to protection, leadership, engagement from stakeholders, institutions, governments and organizations, Indigenous peoples, coastal communities, and individuals in an inclusive and equitable manner to advance ocean protection.
- IMPAC5 aims to provide a forum for sharing knowledge, successes and best practices in an open and respectful environment for the exchanging of ideas among a diversity of views.

Are there any MPA in India?

- In India, there are **33 national parks** and **wildlife sanctuaries** designated under the Wildlife (Protection) Act of 1972 that make up the country's MPAs.
- **Marine National Park** and **Marine Sanctuary** in the **Gulf of Kutch** form one unit and **Bhitarkanika National Park** and **Bhitarkanika Sanctuary** are an integral part of one MPA. Thus, there a total of 31 MPAs in India.
- MPAs cover less than 4.01% of the total area of all Protected Areas of India.

Climate Inequality Report 2023

News: According to the Climate Inequality Report 2023, low and middle-income countries are disproportionately impacted by climate change even though they emit less GHGs than their richer counterparts.

Key Findings:

- 48% of emissions are from the top 10% of emitters, having 76% capacity to finance and their relative loss is a mere 3% from climate change.
- The global bottom (50%) has only a 2% capacity to invest, with an emission of 12% and a massive relative loss of 75%.
- Climate change contributes to economic destitution in subtropical and tropical countries. For instance, it **reduces agricultural productivity in poorer nations** while increasing it in some temperate nations.
- Climate change also has adverse effects on **mental health**. For example, a 1-degree Celsius increase in monthly average temperatures increases suicide rates by 2.1% in Mexico.

Key Suggestions:

- The wealthiest individuals (0.001% of the world's adult population) with over \$100 million should pay a 'progressive tax' ranging from 1.5-3% of their fortune to help less fortunate people adapt to global warming and crisis.
- Combating global poverty need not overshoot global carbon budgets to meet the Paris Agreement
- Redistribution measures to combine poverty alleviation and climate change mitigation efforts.
- Emerging economies like China carry increased responsibility to produce transparent strategies for reaching Net Zero emissions.

Way Forward

- The need for a just transition to a low-carbon economy reflects unequal responsibility for causing the climate crisis and uneven capacity to help address it. Not only countries but also individuals have different toward combating climate change and ensuring climate justice.

E-Waste

News: Discarded laptops and smartphones contain valuable metals. However, extraction, usually performed by children, is a crude and hazardous process that goes unregulated.

Background:

- According to the **Global E-waste Monitor 2020**, the world dumped 53.6 million metric tons of e-waste in 2019. India produced **3.2 million metric tons of e-waste**, much of which is dumped for dismantling and recycling in Seelampur with no regulations.

What are E-Waste?

- The term electronic and electrical waste (e-waste) refers to “electrical or electronic equipment, which is waste, including all components, subassemblies, and consumables, which are part of the equipment at the time the equipment becomes waste”.
- E-waste includes large, discarded appliances, such as refrigerators, air conditioners, and washing machines, as well as small personal items, including computers, televisions, mobile phones, and many other devices that are operated by electrical currents or batteries.



What health risks are children exposed to?

- Toxic substances such as **lead**, **cadmium**, **mercury**, and **flame retardants**, can be harmful if not properly disposed of. **Serious skin diseases** and **chronic lung infections** due to continuous exposure to these chemical-laden toxins.
- Even relatively **low lead exposure** in children can result in a **reduction in total intelligence quotient (IQ)** and several **behavioral abnormalities**.
- Contaminated soil and water potentially affect the health of local populations, including children.
- In some developing countries, e-waste dumping has caused environmental degradation and health problems, leading to school closures and limiting children’s access to education.

What are India’s initiatives to tackle e-waste?

- Extended Producer Responsibility; Design for Environment; (3Rs) Reduce, Reuse, recycle technology platform for linking the market facilitating the circular economy aim to encourage consumers to correctly dispose of the e-waste.
- India has tried to tackle this unregulated industry and introduced a series of laws in 2011 and 2016 mandating the authorization and registration of all e-waste recycling facilities, along with directives for workers to use protective equipment while dismantling the waste. However, activists say these laws are not strongly enforced and the majority of the e-waste market in India remains unregulated.
- India’s First e-Waste clinic was setup in Bhopal, MP.

Global Sea-Level Rise and Implications

News: According to the World Meteorological Organization ‘s (WMO) Report “Global Sea-level Rise and Implications”, India, China, Bangladesh and the Netherlands face the highest threat of sea-level rise globally.

Which big cities are threatened by sea-level rise?

- Big cities in all continents are threatened by rise of sea-level which includes Shanghai, Dhaka, Bangkok, Jakarta, Mumbai, Maputo, Lagos, Cairo, London, Copenhagen, New York, Los Angeles, Buenos Aires and Santiago.

Key Findings:

Contributors to Sea-level Rise

- Thermal expansion contributed to 50% of sea level rise during 1971-2018, while ice loss from glaciers contributed to 22%, ice-sheet loss to 20% and changes in land-water storage 8%.
- The rate of ice-sheet loss increased by a factor of four between 1992-1999 and 2010-2019. Together, ice-sheet and glacier mass loss were the dominant contributors to global mean sea level rise during 2006-2018.

Key Trends and projections

- Between 2013 and 2022, Global mean sea-level was 4.5 mm/year and human influence was likely the main driver of these increases since at least 1971.
- Global mean sea-level increased by 0.20m between 1901 and 2018,
- 1.3 mm/ year between 1901 and 1971,

- 1.9 mm/year between 1971 and 2006
- 3.7 mm/year between 2006 and 2018.
- Even if global heating is limited to 1.5 degrees Celsius over pre-industrial levels, there will still be a sizable sea level rise.
- But every fraction of a degree counts. If temperatures rise by 2 degrees, that level rise could double, with further temperature increases bringing exponential sea level increases.

Impact

- At sustained warming levels between 2-3 degree Celcius, the Greenland and West Antarctic ice sheets will be almost completely and irreversibly lost over multiple millennia causing potentially multimeter sea-level rise.
- Consequences will result in losses of coastal ecosystems and ecosystem services, groundwater salinization, flooding and damage to coastal infrastructure that can further lead to risks to livelihoods, settlements, health, well-being, food, displacement and water security, and cultural values in the near to long-term.

What will be the impact on India?

- India is most vulnerable to compounding impacts of sea level rise.
- In the Indian ocean half of sea level rise is due to the volume of water expanding since the ocean is warming up rapidly The Indian Ocean is the **fastest warming ocean** in terms of surface warming.
- According to the Ministry of Earth Sciences, on average, the sea level along the Indian coast was observed to be rising at a rate of about 1.7 mm/year during the last century (1900-2000).
- A 3 cm sea level rise could cause the sea to intrude inland by about 17 meters. At future rates of 5 cm/decade, this could be 300 metres of land taken by the sea in a century.
- Cyclones are intensifying rapidly due to more moisture and heat from ocean warming. The amount of flooding also increases as storm surges are compounding sea level rise decade by decade.
- Cyclones are bringing more rain than earlier. Super Cyclone Amphan (2020) caused large-scale flooding and inundated tens of kms inland with saline water intruding.
- Over time, the Indus, Ganga and Brahmaputra rivers may shrink, intrusion of saltwater will make large areas inhabitable.

Rhododendron

News: Recently, the Botanical Survey of India has published a new report titled 'Rhododendrons of Sikkim and Darjeeling Himalaya- An Illustrated Account', which lists 45 taxa of rhododendrons.

What are Rhododendron?

- Rhododendron is a genus of flowering plants that includes about 1,000 species, primarily native to the temperate regions of Asia, North America, and Europe, as well as to the tropical regions of southeast Asia and northern Australia.
- They are known for their showy clusters of large, brightly colored flowers, and many species are popular ornamental plants in gardens and parks.
- Rhododendrons are evergreen or deciduous shrubs or small trees, with woody stems and broad, leathery leaves.
- In India, Pink Rhododendron is the state flower of Himachal Pradesh, while Rhododendron arboreum is the state flower of Nagaland and the official State Tree of Uttarakhand.



Key Findings:

- The report reveals that the Darjeeling and Sikkim Himalayas are home to more than one-third (34%) of all rhododendron types found in India, despite the region comprising only 0.3% of India's geographical area.
- There are 132 taxa (80 species, 25 subspecies and 27 varieties) of rhododendrons found in India.

- Of the 45 taxa listed in the report, five are facing high threats due to anthropological pressures and climate change. *Rhododendron edgeworthii*, *Rhododendron niveum*, *Rhododendron baileyi*, *Rhododendron lindleyi*, and *Rhododendron maddenii* are among the threatened species.
- *Rhododendron* is considered an indicator species for climate change as the flowering season for *Rhododendrons* has been found to begin as early as January for some species.

The environmental costs of Russia-Ukraine War

News: The environmental costs of the conflict are likely to far outlive the fighting itself with Ukraine's current claims of compensation for environmental damage standing at over \$ 50 billion.

Background:

- The machinations of modern war impact the environment in more ways than one. From sky-high fuel consumption and a ginormous carbon footprint to degradation of thriving ecosystems caused by the fighting, the conflict in Ukraine has racked up environmental costs that will far outlive the actual fighting.

How exactly has the war been deleterious to environment?

- Nuclear power plants and facilities, energy infrastructure, including oil storage tankers, oil refineries, drilling platforms and gas facilities and distribution pipelines, mines and industrial sites, and agro-processing facilities are getting destroyed.
- The result has been multiple air pollution incidents and potentially serious contamination of ground and surface waters.
- According to a Ukrainian MP, "more than 2 million hectares of forest have been destroyed".
- Ukraine estimates the emissions from Russia's invasion to be roughly around 33 million tonnes of CO₂ from the conflict and 23 million tonnes of CO₂ from fires caused by the conflict.
- Russian troops dug up deep trenches in the protected Chornobyl sanctuary, thereby releasing nuclear wastes and radiation.

What are possible solutions available for Ukraine?

- Agreement on ceasefire and pursue peace through dialogue and diplomacy.
- Restore damaged ecosystems through replanting forests, cleaning up polluted water sources, and rehabilitating habitats for wildlife.
- Governments should invest in renewable energy infrastructure, which will not only reduce carbon emissions but also create jobs and promote sustainable development.
- Improve access to clean water, health facilities and education to those most affected due to conflict.

Way Forward

- Overall, mitigating the environmental costs of the Russia-Ukraine War requires a concerted effort from all stakeholders involved. By prioritizing the environment and taking concrete actions, we can reduce the long-term impact of the conflict on the planet and its inhabitants.

Security & Disaster Management

Spy/Surveillance Balloon

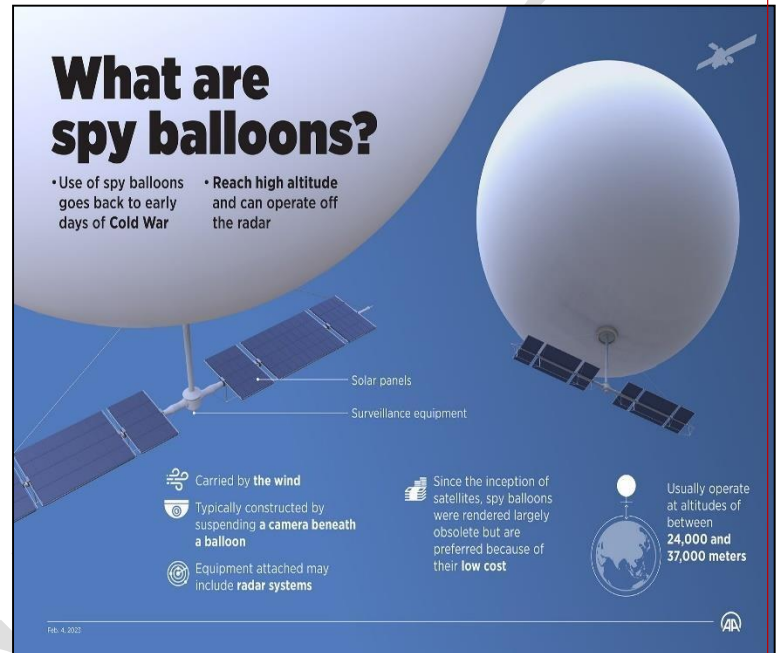
News: Recently, US shot down a Chinese Spy Balloon, that was spotted over US airspace.

What are Surveillance Balloon?

- They are high altitude dual use tools to gather intelligence and carry out other military missions. They are usually equipped with cameras and imaging devices.
- The practice became widespread during World War I and was used extensively during the Cold War when the US launched hundreds of balloons to gather intelligence on the Soviet Union and China. While their use has declined with the rise of unmanned drones and satellites, many countries still employ spy balloons.

Advantages of Spy Balloon:

- They provide wider coverage as they are in close proximity to the earth's surface.
- They help get closer and clearer images of their targets.
- They are also capable of "gathering electronic signals" and intercepting communications.
- They are cheaper and can be deployed for significant duration without possibility of being tracked (stealth feature)



What are other ways of Surveillance?

- Drone Technology - Drones, also known as unmanned aerial vehicles (UAVs) can be used for surveillance and espionage purposes. They can also be used to provide real-time data on farms and farmers can make informed choices based on data received from Drones. In addition, medical supplies can be carried out in high terrain regions and rescue operations can be carried out during Disaster management.
- Electronic Surveillance can be used in intercepting communication signals, tapping phone calls, and monitoring emails and other forms of digital communication.
- Satellites are sometimes used to gather information about foreign countries.

QRSAM

News: Indigenous Quick Reaction Surface to Air Missile (QRSAM) being developed by the **Defence Research and Development Organisation (DRDO)** is set to be tested again in April 2023.

About:

- QRSAM is a **canister-based system**, which means that it is stored and operated from specially designed compartments. In the canister, the inside environment is controlled, thus along with making its transport and storage easier, the shelf life of weapons also improves significantly.
- The system is capable of detecting and tracking targets on the move and engaging targets with



short halts.

- It is a **short-range surface-to-air missile** (SAM) system, primarily designed and developed by DRDO to provide a protective shield to moving armored columns of the Army from enemy aerial attacks.
- The entire weapon system has been configured on a mobile and maneuverable platform and is capable of providing air defense on the move.
- It has a range of **25 to 30 km**.
- The QRSAM weapon ensemble consists of a fully automated command and control system. It also consists of two radars - **Active Array Battery Surveillance Radar** and **Active Array Battery Multifunction Radar** - with one launcher.
- Both radars have **360-degree coverage** with “search on move” and “track on move” capabilities. The system is compact, uses a single stage solid propelled missile and has a mid-course inertial navigation system with two-way data link and terminal active seeker developed indigenously by DRDO.

How is Government working on Border Infrastructure?

News: Recently, the Minister of External Affairs provided a briefing to the parliament regarding the government's projects on border infrastructure and connectivity.

Background:

- The report was released in the wake of an official Security Conference report that said Indian forces have lost access to 26 of 65 patrolling points along the LAC since 2020.

What are recent Border Infra developments?

- **Improving connectivity to the Line of Actual Control (LAC)** through roads, bridges and tunnels. For instance, the length of roads constructed in the China border areas in the period from 2014 to 2022 (6,806 km) is almost double the length constructed from 2008-2014 (3,610 km).
- **Improving cross-border connectivity** to neighboring countries via highways, bridges, inland waterways, railroads, electricity lines and fuel pipelines.
- Modernizing and constructing **Integrated Check Posts (ICPs)** at all the border crossings to smooth trade, and funding and constructing infrastructure projects in neighboring countries.
- **Projects with Nepal** - South Asia's first cross-border petroleum products pipeline **Motihari - Amlekhgunj Pipeline**. The **Mahakali motorable bridge** over the Mahakali River connecting Dharcula (India) with Darchula (Nepal), under Indian grant assistance.
- **Projects with Myanmar** - Development of Sittwe port, Kaladan Multi Modal Transport Project.
- **Projects with Bangladesh** - Maitri Setu Bridge, High Speed Diesel pipeline with Bangladesh.



What is importance of improving Border infrastructure?

- For Strategic reasons - Successive skirmishes with the Chinese PLA in Chumar in 2014, Doklam in 2017, and the Galwan clashes in 2020.
- Border preparedness - To update the quality of structures, the technology involved and their maintenance.
- Smugglers, drug traffickers, and terrorists often take advantage of poor surveillance and infrastructure at borders.
- Despite border wars and conflicts, the state of infrastructure at India's borders is inadequate and borders are manned by different military, para-military, and police forces, lacking in coordination.

Indian Air Force

News: Recently, AeroIndia 2023 is conducted in Bengaluru. It is not just restricted to the biggest exhibition of India's air power push for Indian defense manufacturing but also displays IAF's revised doctrine.

Background:

- Despite the commitment of the IAF to national security, the history of India's use of air power is one of restraint (except during the 1971 war).
- It is primarily due to 2 factors – I) lack of understanding of the rapid technological changes in the features of air power on a global scale and II) India's traditional surface-dominant security outlook and looking at air power as a only that as support service.

What is the need for revised doctrine?

- Addressing India's security concerns will require a multidisciplinary approach due to the fact that - Asia is the focal point of the geopolitical turmoil and India's two adversaries have capable air forces.
- External (terrorism, border stand-offs) and internal security, Sovereignty protection, deterrence, air diplomacy and nation-building remain peace-time imperatives.
- To ensure SAGAR, as well as the Indo-Pacific construct.

What is IAF's revised doctrine?

- Focus on the criticality of controlling the skies to provide a clearer understanding of the redefined characteristics of aerospace power and its expanded capabilities and ot address contemporary and future warfare.
- Acknowledges that future aerospace and defence capabilities are national force multipliers.
- Offensive air operations and air defence.
- Holistic application of combat power, comprising the IAF's coordinated operations along with army-naval operations, civil aviation and space agencies. The recent test landing of the naval variant of the Light Combat Aircraft (LCA) on board INS Vikrant is a good example.

Way Forward

- A novel air strategy covers the entire spectrum from peace and war to the unique no-war-no-peace condition confronting the country.
- Concepts of human resources, training and operational testing and evaluation remains a priority.
- The expansion of battle spaces (cyber and electronic warfare, information warfare), the necessity of India's future joint military strategy, constitute the foundation of IAF's future air strategy.

Key Takeaways from Aero India 2023

News: Aero India 2023 was recently concluded.

Key Takeaways:

- Over 200 agreements worth around Rs 80,000 crore were signed during the 2023 edition of Aero India, India's biggest aviation exhibition.
- Over 800 companies participated, 700 of which were Indian.
- Russian participation was measured however USA, by contrast, had a high voltage presence.



- The large US presence has geo-political significance as they look to woo India away from Russian dependence. The bulk of India's military equipment come from Russia and Russia is under Western sanctions.
- With India pushing its self-reliance plans, including earmarking **75 per cent of the capital budget for 2023-24 for domestic procurements**, almost all foreign companies spoke about the Make in India programme, and joint development and co-production in India.
- During the inaugural ceremony, Prime Minister Narendra Modi said India will target an **increase in defence exports to \$5 billion by 2024-25** from the \$1.5 billion at present.

Some of important Fighter jets, helicopters, guns from different countries that you must know:

- USA - The supersonic **F-35A** Lightning II and F-35A Joint Strike Fighter multirole jets, **Lockheed Martin** presented the **F-21 fighter, C-130J** transport aircraft, MH-60R "**Romeo**" multi-mission helicopter, **JAVELIN** weapon system, and S-92 multirole helicopter.
- Russia - Fifth-generation Su-57E multirole fighter, **Checkmate light tactical aircraft**, IL-76MD-90A(E) military transport aircraft, and Su-35, Su-30, and MiG-35D fighter aircraft. However, none of them were flown in to participate in aerial demonstration.
- UK - UK delegates brought with them manufacturing giants such as Rolls Royce, BAE Systems, MBDA UK, and Collins Aerospace.
- Israel - They showcased models of the **Heron Mk 2** and **Heron TP UAVs** — the former is already in use with the Indian armed forces.
- France - Among the French firms present at the event were Dassault Aviation — which showcased the Rafale and its marine version, and the Falcon 2000 aircraft — and Safran.
- Sweden - Advanced fighter aircraft Gripen E.

What did India showcase?

- The 2023 Edition of the Air Show saw heavy emphasis placed on Indian designs, with displays of large formations of Indian helicopter designs such as the "Advanced Light Helicopter" (ALH), "Light Utility Helicopter" (LUH) and "Light Combat Helicopter" (LCH).
- The Light Combat Aircraft - Tejas also appeared as the crown jewel of India's Aerospace industry.
- HAL's Advanced Medium Combat Aircraft, Hindustan Lead-in Fighter Trainer 42 (HLFT-42)
- By displaying India's defense innovations, the event will allow local MSMEs and startups to increase their footprint in the global supply chain.
- An analysis of the latest edition of Aero India shows mixed results. While the attendance of the PM himself shows the increasing importance to the Air Force, the fact remains that the Indian Air Force remains woefully under-strength, with just 31 operational squadrons as opposed to a sanctioned strength of 42.

Conclusion

- The Indian Government has made significant efforts to get private investments and private players into the aerospace industry. This policy has now begun to lay the foundation of a competitive aerospace industry.

ITBP Battalions

News: With the Line of Actual Control remaining tense, India is raising seven new battalions of the famed patrol force ITBP, for 'effective monitoring' of the border region.

Background:

- The battalions are expected to be raised by 2025-26, increasing the strength of the ITBP from the current 88,000 to 97,000, making it the fourth largest CAPF.

About:

- The Indo-Tibetan Border Police (ITBP) is a border patrol organization of India deployed along its borders with Tibet Autonomous Region.
- It is **one of the seven Central Armed Police Forces**, established in 1962 in the aftermath of the Sino-Indian War of 1962.
- The ITBP guards 3,488 km long **India-China borders** ranging from the Karakoram Pass in Ladakh to Jachep La in Arunachal Pradesh.

- Apart from this, the Force also has important roles in many internal security duties and operations against Left Wing Extremism in the state of Chhattisgarh.
- ITBP is a specialized Armed Police Force of the Nation, which trains its personnel in various disciplines including mountaineering and skiing apart from intensive tactical training.
- ITBP also conducts relief and rescue operations as 'First Responders' for natural calamities in the Himalayan region.

About CAPF:

- CAPF falls under responsibility of Ministry of Home affairs.
- The Central Reserve Police Force (CRPF), assists in internal security and counterinsurgency.
- The Central Industrial Security Force (CISF), protects vital installations (like airports) and public sector undertakings.
- The National Security Guards (NSG), is a special counterterrorism force.
- Four border guarding forces, which are the Border Security Force (BSF), Indo-Tibetan Border Police (ITBP), Sashastra Seema Bal (SSB), and Assam Rifles (AR).



LCA Tejas Mk2

News: According to a senior official from the Aeronautical Development Agency (ADA), the Indigenous Light Combat Aircraft (LCA) Tejas Mk2 will be integrated with heavy standoff weapons like SCALP, an air-to-ground, long-range deep strike missile.

About:

- The Indigenous LCATEjas Mk2 is a fighter aircraft developed in India that can carry eight Beyond-Visual-Range (BVR) missiles simultaneously, along with integrating all native weapons and advanced weapons from other countries.
- The LCA Mk2 is an upgraded version of the LCA Tejas Mk1, which has improved range and mission endurance. The mission endurance for fighting a war was 57 minutes for LCA Tejas Mk1, but it is 120 minutes for LCA Tejas Mk2.
- The critical design review of the aircraft is ready and the manufacturing initiated, and the aircraft should be rolled out by 2024.
- LCA Mk2 will have a weapon carrying capacity of 6.5 tonnes. The **General Electric GE-414 engine** will power the LCA Mk2.

What are Light Combat Aircrafts?

- The LCA programme was started by the Government of India in 1984 when they established the Aeronautical Development Agency (ADA) to manage the LCA programme.
- Designed to carry a range of air-to-air, air-to-surface, precision-guided, weapons.
- Air to air refueling capability.

General Studies – 4

Ethics, Integrity & Aptitude

1. Ethics and Human Interface: Essence, determinants and consequences of Ethics in-human actions; dimensions of ethics; ethics - in private and public relationships. Human Values - lessons from the lives and teachings of great leaders, reformers and administrators; role of family society and educational institutions in inculcating values.
2. Attitude: content, structure, function; its influence and relation with thought and behaviour; moral and political attitudes; social influence and persuasion.
3. Aptitude and foundational values for Civil Service, integrity, impartiality and non-partisanship, objectivity, dedication to public service, empathy, tolerance and compassion towards the weaker-sections.
4. Emotional intelligence-concepts, and their utilities and application in administration and governance.
5. Contributions of moral thinkers and philosophers from India and world.
6. Public/Civil service values and Ethics in Public administration: Status and problems; ethical concerns and dilemmas in government and private institutions; laws, rules, regulations and conscience as sources of ethical guidance; accountability and ethical governance; strengthening of ethical and moral values in governance; ethical issues in international relations and funding; corporate governance.
7. Probity in Governance: Concept of public service; Philosophical basis of governance and probity; Information sharing and transparency in government, Right to Information, Codes of Ethics, Codes of Conduct, Citizen's Charters, Work culture, Quality of service delivery, Utilization of public funds, challenges of corruption.
8. Case Studies on above issues

Ethical Lessons from Recent events

Background: Some of the recent events that have taken place in the country can be useful from GS-Paper IV perspective and can be taken note of.

Case 1 – Torture of Domestic help by Gurgaon couple

What are ethical issues around the case?

- The minor girl was subjected to torture, physical abuse, and exploitation by her employers.
- Discrimination based on Gender, Caste (as the girl belonged to Schedule Tribe) and Child abuse.
- Failure of the system and society that such barbaric acts continue to occur in modern day society.

Case 2 – Justice S. Abdul Nazeer

What are life lessons that we can learn from him?

- Justice Nazeer is a retired Supreme Court judge who was recently appointed as Governor of Andhra Pradesh.
- He had a very difficult childhood as he used to scavenge for fishes to bring additional income and support to his family. In spite of adversity and challenges, he went on to become a successful lawyer and judge showcasing the importance of hard work, strong determination and grit.

- Justice Nazeer has spoken about the sacrifices of his mother for the family and has shown respect for his elders. Thereby, respecting and remembering the elderly and their hustle.
- Justice Nazeer has learned Sanskrit, demonstrates a diversity of interests and has an open mind. It teaches us the importance of being open to different cultures, traditions and perspectives.
- As a judge, Justice Nazeer stood for what is right and placed the nation first.

Note – You can quote these examples in your ethics answers and essay papers. Take notes about these events.

Uttarakhand's Anti Cheating Law

News: On February 11 2023, a protest in Dehradun over paper leaks and scams in government recruitment tests turned violent. On the following day, the Uttarakhand Governor gave his assent to the Uttarakhand Competitive Examination (Measures for Control and Prevention of Unfair Means in Recruitment) Ordinance, 2023 to prevent the use of unfair means in exams.

Key Provisions:

- The ordinance has provisions for fines up to Rs 10 crore and life imprisonment for the guilty. It is aimed at preventing offences related to obstructing the sanctity of examinations, use of unfair means, leakage of question papers, and other irregularities.
- It covers public examinations for recruitment to posts under the state government, autonomous bodies run by the government, and authorities, corporations, and institutions operated with grants of the state government.
- The offences are cognizable, non-bailable, and non-compoundable. The law is expected to prevent irregularities in recruitment exams and ensure that they are conducted transparently and fairly.

What are other concerns regarding unfair practices in examinations?

- Misuse of technology, impersonation, hacking and use of electronic devices during exams.
- The use of generative AI (artificial intelligence) has also raised concerns about its potential to create fake identities, images, and even written content that can be used to cheat.
- With evolving technology, it is important for authorities and governments to also keep up with the latest developments and implement measures to prevent its misuse.

Short News for Prelims

Reverse Flipping

News: The term Reverse Flipping was observed in Economic Survey 2022-23.

What is Flipping and Reverse Flipping?

- Flipping refers to the process of transferring the entire ownership of an Indian company to an overseas entity, accompanied by a transfer of intellectual property (IP) and all data hitherto owned by the Indian company.
- This effectively transforms an Indian company into a 100 per cent subsidiary of a foreign entity, with the founders and investors retaining the same ownership via the foreign entity, having swapped all shares.
- Whereas 'reverse flipping' is shifting their domicile back to India due to factors such as easy access to capital from private equity and venture capital, changes in rules regarding round-tripping, and the growing maturity of India's capital markets.

Why Startups were flipping before?

- Challenges faced by start-ups such as funding hurdles, revenue generation struggles, lack of easy access to supportive infrastructure, and a complex regulatory tax environment.
- Start-ups have been headquartered overseas, especially in destinations with favorable legal environments and taxation policies.

D4 Drone System

News: The D4 anti-drone system which was used for security during the Republic Day parade is one of the products to be showcased at Aero India 2023.

About:

- The Drone Detect, Deter and Destroy system (D4S) is the first indigenously developed anti-drone system to be inducted into the Indian Armed Forces.
- It is developed by **Defence Research and Development Organisation (DRDO)** and

manufactured by **Bharat Electronics Limited (BEL)**.

- To detect rogue drones that are likely to attack most vulnerable places.

Key Features:

- D4 system can instantly detect and jam micro drones (Soft kill) and use a laser-based kill mechanism to terminate targets (Hard kill).
- It uses DRDO's RF/Global Navigation Satellite System (GNSS) to detect the frequency which is being used by the controller and the signals are then jammed.

Bar-Headed Goose



News: A bar-headed goose, which was tagged in Mongolia in July 2014 has recently been spotted in Koonthankulam - Kadankulam Bird Sanctuary in Tirunelveli district, Tamil Nadu.

About:

- They are large pale grey birds which are considered one of the world's highest flying birds.
- They are known for their migration spanning distances of over 1,600 km in a day. They are also known for reaching extreme altitudes of 29,500 feet during their twice-yearly migrations across the Himalayas.
- Native to central Asia, where the species breeds, they are found in India, Pakistan,

Nepal, Kazakhstan, Bangladesh, Myanmar, Japan and other nearby regions.

- Scientific Name – *Anser Indicus*
- IUCN Status – **Least concern**

Exercise Trishakti Prahar

News: The Indian military recently concluded exercise Trishakti Prahar a joint training exercise in North Bengal (close to the strategic 'Siliguri' corridor).



About:

- The aim of the exercise was to practise battle preparedness of the security forces, using latest weapons and equipment in a networked, integrated environment, involving the **Army**, the **IAF** and **CAPFs**.
- The exercise concluded with an Integrated Fire Power Exercise at the Teesta Field Firing Ranges, aimed at synergising the firepower assets of the Indian Armed Forces and CAPFs to orchestrate an integrated battle.
- The Siliguri corridor or Chicken's neck (West Bengal) is a stretch of land bordering Bangladesh, Bhutan and Nepal.

World Wetlands Day



News: Recently, the State Governments and Union Territory administrations in India celebrated World Wetlands Day (WWD).

About:

- It is observed on **2nd February** every year all over the world to commemorate the signing of the Ramsar Convention on Wetlands of International Importance in 1971.
- India is a party to the Convention since 1982 and has so far declared 75 wetlands as Ramsar sites covering 23 states and Union Territories.
- At present, the state of Tamil Nadu has a maximum number of Ramsar sites (14), followed by UP which has 10.
- India has the largest network of Ramsar Sites in Asia, making these sites a critical ecological network for the conservation of global biological diversity and supporting human well-being.

Visva Bharati University

News: Visva-Bharati University will soon get the 'heritage' tag from UNESCO to take the distinction of **world's first living heritage university**.

About:

- It is one of India's major Central Government funded autonomous university located in Santiniketan, West Bengal.
- It is well-known as a distinguished centre for Visual Art practice and research in India.
- The university was established in 1921 by Nobel Prize Laureate, Rabindranath Tagore.
- Its first vice-chancellor was Rathindranath Tagore, the son of Rabindranath Tagore, and the second vice-chancellor was grandfather of another Nobel Laureate economist Amartya Sen.
- The President of India appoints the Vice-chancellor of the University.
- Visva Bharati University is renowned for its cultural festivals called Poush Mela and the Basanta Utsab which attracts a number of artisans from all across the country.



PM-KUSUM

News: Recently, the deadline of the PM-KUSUM (Pradhan Mantri Kisan Urja Suraksha Evam Uttham Mahabhiyan) to install 30,000 MW solar power capacity in rural India by 2022, has been pushed to **March 2026**.



About:

- The scheme was **launched in 2019** and it envisages **income generation** for farmers from their infertile land with the **establishment of solar power plants**.
- It intends to help farmers access reliable daytime solar power for irrigation, reduce power subsidies, and de-carbonize agriculture.
- The Scheme consists of three components
- Component A - 10,000 MW of solar capacity through the installation of small Solar Power Plants of individual plants of capacity up to 2 MW.
- Component B - Installation of 20 lakhs standalone Solar Powered Agriculture Pumps.
- Component C - Solarisation of 15 Lakh Grid-connected Agriculture Pumps
- Ministry of New and Renewable Energy (MNRE) is implementing agency.

Cytotoxins

News: Recently, scientists have traced the mechanisms of the toxic action of cobra venom.

About:

- The Cytotoxins (CTXs) are an essential class of the non-enzymatic three-finger toxin family and are ubiquitously present in cobra venoms.
- These low-molecular-mass toxins, contributing to about 40 to 60% of the cobra venom proteome, play a significant role in cobra venom-induced toxicity, more prominently in dermonecrosis (local effects).
- Some CTXs are also responsible for depolarizing neurons and heart muscle membranes, thereby contributing to cardiac

failures frequently observed in cobra-venommed victims. Consequently, they are also known as cardiotoxins (CdTx).

Wolf 1069 b

News: Astronomers have recently discovered Wolf 1069 b, an Earth-mass exoplanet that could potentially be habitable.

About:

- It is a potentially habitable exoplanet 31 light-years away from Earth.
- It orbits a red dwarf star, Wolf 1069.
- Wolf 1069 b lies within its star's habitable zone and it receives approximately 65% of the solar radiance that Earth receives.
- Wolf 1069 b is tidally locked to its parent star, meaning one side is always in daylight, and the opposite side is always in darkness.
- It orbits the star within 15.6 days at a distance equivalent to one-15th of the separation between the Earth and the sun.

Yuva Sangam Portal

News: The "Yuva Sangam" registration portal was recently launched at Indira Gandhi National Centre for the Arts (IGNCA), New Delhi.

About:

- It is an initiative to build close ties between the youth of the Northeast Region and the rest of India under the spirit of Ek Bharat Shreshtha Bharat. Under this initiative, over 20000 youth will travel across India and gain a unique opportunity of cross-cultural learning.

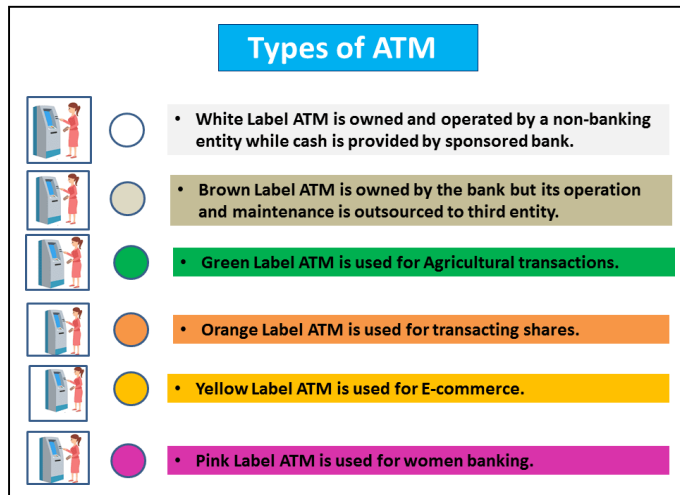
White Label ATM

News: Recently, the Reserve Bank of India has extended the validity of authorization issued to Vakrangee to set up, own and operate White Label ATMs in India.

About:

- Automated Teller Machines (ATMs) set up, owned and operated by **non-banks** are called White Label ATMs.
- Non-bank ATM operators are authorized under the Payment & Settlement Systems Act, 2007 by the Reserve Bank of India (RBI).

- Such non-bank entities should have a minimum net worth of Rs 100 crore as per the latest financial year's audited balance sheet, which is to be maintained at all times.
- Foreign Direct Investment (FDI), up to 100 per cent, is allowed under the automatic route in the activity of White Label ATM Operations.



Groundwater declines in Ganga Basin

News: According to new estimates, groundwater storage levels have been declining by **2.6 centimetres per year** in the Ganga basin.

Key Findings:

- The average groundwater levels have been declining at a rate of 2.6 cm year-1 between 1996-2017.
- The analysis of satellite data from the Gravity Recovery and Climate Experiment (GRACE), yielded an average loss of 1.7 cm per year-1. GRACE satellites, launched in 2002, assess Earth's water reservoirs over land, ice and ocean.
- The average storage decline in Uttar Pradesh, Bihar and West Bengal was estimated to be roughly 2 cm year-1, 1 cm year-1 and 0.6 cm year-1, respectively.
- The impacts were more pronounced in Rajasthan, Haryana and Delhi, with average storage declines of roughly 14 cm year-1, 7.5 cm year-1 and 7.2 cm year-1, respectively.
- West and southwest areas, including agriculturally intensive regions and urban areas like Delhi and Agra, took the biggest hit. Delhi and Haryana have high groundwater

abstraction rates, which explains the steep decline.

- The Brahmaputra basin shows more groundwater level reduction than the Ganga and Indus basins.

E20



News: Petrol blended with 20% ethanol (E20) was rolled out at select petrol pumps in 11 states and UTs as part of a programme to increase the use of biofuels to cut emissions as well as dependence on foreign exchange-draining imports.

About:

- At present, 10% ethanol is blended in petrol (10% ethanol, 90% petrol) and the government is looking to double this quantity by 2025.
- Ethanol blending in petrol increased from 5% (in 2014) to 10% and is now progressing towards 20% blending.
- The PM launched the higher 20% ethanol-blended petrol (E20) at the India Energy Week (IEW) 2023, two months ahead of the planned rollout.

How will it help?

- India currently is 85% (the world's third-largest oil consumer and importer) dependent on imports for meeting its oil needs.
- The use of ethanol will cut its imports and save forex. India spent USD 120.7 billion on the import of crude oil in the 2021-22 fiscal. In the current fiscal, USD 125 billion have been spent in the first nine months (April to December) alone.
- The use of ethanol, extracted from sugarcane as well as broken rice and other agri produce, will also be a boost for farmers' incomes.
- It reduces carbon emissions.

Skye UTM

News: Union Minister for Road Transport and Highways recently unveiled Skye UTM (Unmanned Traffic Management), touted as the world's most cutting-edge unmanned traffic management system.



About:

- It is a **Cloud-based aerial traffic management system** that integrates unmanned air traffic with manned aviation airspace.
- It has been built towards providing situational awareness, autonomous navigation, risk assessment, and traffic management to all drone/other aerial mobility operators across the airspace.
- It connects and communicates with all types of drones, from survey drones to delivery drones to aerial taxis. It can handle more than 4000 flights per hour.
- The platform offers regulatory access to Air Traffic Controllers and other regulatory authorities, allowing them to have real-time drone traffic movement information, pilot information, and other necessary data for evaluation and coordination.

Vikas Engine

News: The Indian Space Research Organisation (ISRO) has successfully tested the throttling of Vikas, its workhorse launch-vehicle engine.

About:

- VIKAS (an acronym for Vikram Ambalal Sarabhai) engine is a family of **liquid-fuelled rocket engines** conceptualized and designed by the Liquid Propulsion Systems Centre of ISRO in the 1970s.
- The early productions involved imported French components, which were later replaced by domestically produced equivalents.

- These engines are deployed for ISRO's PSLV and the GSLV series of expendable launch vehicles for space launch use.

What are Liquid Propulsion Systems Centre?

- It is the center for the design, development, and realization of liquid propulsion stages for ISRO's Launch Vehicles.
- LPSC Facilities spread across LPSC, Valiamala, Thiruvananthapuram, and LPSC, Bengaluru, Karnataka.

Sarna Religious Code

News: West Bengal Government said that it will table two motions in the Assembly one against "attempts to divide West Bengal" and the other to "recognize Sarna religion of the tribals".

About:

- Followers of the Sarna faith are nature worshippers. The holy grail of the Sarna faith is "Jal (water), Jungle (forest), Zameen (land)."
- Its followers pray to the trees and hills while believing in protecting the forest areas.
- Believers of the Sarna faith do not practice idol worship, nor do they adhere to the concept of the Varna system, heaven-hell, etc.
- They are concentrated mainly in the tribal belt states of **Odisha, Jharkhand, Bihar, West Bengal, and Assam.**
- Several surveys and reports have indicated that **over 50 lakh tribal people** in the entire country put their religion as 'Sarna' in the **2011 census**, although it was not a code.

Quasicrystals

News: Recently, Scientists have discovered a third natural source of quasicrystals.

About:

- Quasicrystal, also called quasi-periodic crystal, is a matter formed atomically in a manner somewhere between the amorphous solids of glasses and the precise pattern of crystals. In quasicrystals, the atoms are arranged in a pattern that repeats itself at irregular, yet predictable, intervals.
- The first natural quasicrystal found was as microscopic grains in a fragment of the Khatyrka meteorite lying in the **Koryak mountains of Russia.**

- The second time scientists found natural quasicrystals in the remains of the Trinity test of the Manhattan Project.
- Recently in the **Sand Hills dunes in northern Nebraska**, where scientists found silicate glass which is a dodecagonal quasicrystal, rare even for quasicrystals.

Where can they be used?

- Surgical instruments, LED lights and non-stick frying pans, solar absorbers for power conversion, bone repair and prostheses applications.

Operation Dost

News: India's assistance to Earthquake hit Syria and Turkey was named as 'Operation Dost'



About:

- Under Operation Dost, India has sent search and rescue teams, mainly three teams of the National Disaster Response Force (NDRF), a field hospital, materials, medicines, and equipment to Turkey and Syria.
- At present, there are four teams of the NDRF of more than 150 specially trained personnel, along with dog squads, specialized equipment, vehicles, and other supplies. "Their equipment allows for detection, location, access, and rescue of people trapped under collapsed structures," the MEA said.
- In addition, personnel and equipment have been sent to set up a 30-bed self-sustained field hospital of the Indian Army. This includes a team of 99 specially-trained personnel with essential medicines, advanced equipment, vehicles, and ambulances.
- The message is loud and clear "We Care"

BHASHINI mission & UPI 123 Pay

News: Union minister for electronics and information technology recently said that Mission Bhashini's capabilities have been integrated with the Unified Payments Interface (UPI) to make digital payments through the UPI 123 Pay available in more than 20 local Indian languages.

What is BHASHINI mission?

- It is a local language translation mission that aims to break the barrier between various Indian languages by using available technology.
- BHASHINI4 aims to build a National Public Digital Platform for languages.
- This government platform aims to make Artificial Intelligence and Natural Language Processing (NLP) resources available in the public domain to be used by Indian MSMEs, startups and individual innovators. This will help developers to offer all Indians easy access to the internet and digital services in their native languages.

What is UPI 123?

- It is an instant payment system which will allow users to make UPI transactions without an internet connection. It was launched by the National Payments Corporation of India (NPCI)
- Transactions through UPI 123Pay can be done through IVR (interactive voice response) based payment solution, missed call, sound-based technology, and payment app.

Indian White Backed Vulture

News: The third phase of the reintroduction programme of the critically endangered oriental white-backed vultures was launched recently.

About:

- White-rumped vultures are medium-sized, dark vultures. Adults are 75 to 85 cm tall, their wing span is 180 to 210 cm, and their weight ranges from 3.5 to 7.5 kg.
- Scientific name – **Gyps Bengalensis**
- It regularly occurs in Pakistan, India, Bangladesh, Nepal, Bhutan, Myanmar (Burma), Thailand, Laos, Cambodia, and southern Vietnam.
- IUCN status – **Critically Endangered**

Cholera

News: According to the World Health Organization, the African continent is likely to see its worst cholera crisis this decade, driven by extreme weather events and poor water supply and sanitation infrastructure.



About:

- It is a life-threatening infectious disease and a public health hazard.
- It is an acute, diarrheal illness caused by infection of the intestine with the **bacterium Vibrio cholera**.
- Symptoms - Profuse watery diarrhea, Vomiting, Leg cramps.
- It is transmitted to humans through water or food which is contaminated with the cholera bacterium.
- The disease can spread rapidly in areas with inadequate treatment of sewage and drinking water.
- Currently, there are three WHO pre-qualified oral cholera vaccines (OCV), Dukoral, Shanchol, and Euvichol-Plus. All three vaccines require two doses for full protection.

Yanomani People

News: The Brazilian government has recently taken action to remove illegal miners from the largest Indigenous reserve in the Amazon where the Yanomami people live.

About:

- The Yanomami tribe is a group of indigenous people who live in an area spanning the border region between Venezuela (Orinoco River basin) and Brazil.
- They are also called South American Indians.
- They speak the Xirianá language.

- They are foraging horticulturists who depend on shifting cultivation, the gathering of fruits, banana cultivation, hunting, etc., for their livelihood.

President's Colour Award

News: Union Home Minister will present the President's Colour Award to the state police at a ceremony at the **Haryana Police Academy**.

About:

- The President's Colour is one of the highest honour that can be awarded to any military unit, military training establishments, and state/UT Police Forces of India.
- It is bestowed upon in recognition of exceptional service rendered to the Nation, both in peace and in war.
- **Indian Navy** was the first Indian Armed Force to be awarded the President's Colour by Dr. Rajendra Prasad on 27 May 1951.
- A special flag, also known as 'Nishaan,' is given to a unit as part of the award.
- The flag consists of a golden border in the middle; it has insignia of a respective military unit, training establishments, and police forces in the center.

AMRITPEX 2023

News: The Minister for Communications recently inaugurated AMRITPEX 2023 in New Delhi.

About:

- It is a National Philatelic Exhibition organized by the Department of Posts under the Ministry of Communications.
- Stakeholders of AMRITPEX 2023 - Ministry of Culture, Government of India and Philatelic Congress of India.
- Objective - National Philately Exhibition aims to introduce the new generation of Philately. This exhibition will include India's History, Culture, Art and Heritage through stamps. This exhibition will also include digital exhibits.
- Some of the attractions are the Wall of Philately, Mascot - VR Rooms, and Digital Charkha. Digital Kiosks - digital postcard, quiz and design are also a highlight.
- Themes of AMRITPEX 2023 - Azadi ka Amrit Mahotsav, Women Power, Youth Power, Nature and Wildlife and Culture and History.

Arunachal's Apatani Tribe

News: The Apatanis, one of the major ethnic groups of the eastern Himalayas, practise a distinctive form of agriculture where rice and fish are grown together. These farmers have been practising **integrated rice-fish farming** in their mountain terraces of Arunachal Pradesh since the 1960s.

About:

- They are small tribal group residing in Ziro Valley of Arunachal Pradesh.
- They speak a local language called **Tani** and worship the sun and the moon.
- Major festivals - Dree, Myoko, Yapung and Murung.
- The potential areas of rice-fish culture in the Apatani plateau are Napping, Yachuli, Ziro-II, Palin and Koloriang.
- Apatanis principally use three rice varieties - **Emeo, Pyape and Mypia**.

Omorgus Khandesh

News: Recently, a scientist from the Zoological Survey of India, Western Regional Centre (WRC), Pune discovered a new beetle species.



About:

- It is a **necrophagous** and also called a keratin beetle.
- This species belongs to the Trogidae family. With the addition of this new species, now there are a total of 14 extant species of this family in India.
- The beetles of this group are sometimes called hide beetles as they tend to cover their body under the soil and hide. It is mainly associated with bird and mammal nests or burrows.

Mammatus Clouds

News: NASA has released pictures of Mammatus clouds that appear like bubbles from the bottom hovering over Nebraska, a state in the Midwestern region of the United States.



What are Mammatus clouds?

- Mammatus clouds are some of the most unusual and distinctive cloud formations with a series of bulges or pouches emerging from the base of a cloud.
- The shape of mammatus formations can vary widely from the classic protruding shape to a more elongated tube hanging from the cloud above.
- They generally form in the most unstable cumulonimbus, meaning that there is also a chance of hail, heavy rain and lightning in the vicinity, and if the air is cold enough during winter they can produce snow.

How are they formed?

- Mammatus clouds are usually formed in association with large cumulonimbus clouds. Typically, turbulence within the cumulonimbus cloud will cause mammatus to form, especially on the underside of the projecting anvil as it rapidly descends to lower levels.
- This reverses the usual cloud-forming process of upward growth, making for an uneven cloud base.

Services Trade Restrictiveness Index

News: In the recent services trade restrictiveness index (STRI), India's rank improved a notch to 47 from 48 among 50 countries surveyed by the Organization for Economic Co-operation and Development (OECD).

Key Findings:

- The 2022 STRI of India is above the OECD average and high compared to all countries in the STRI sample.
- India had been progressively introducing reforms over the past years, contributing to a slight liberalization of services trade in some sectors, most notably between 2018 and 2021.
- The index takes values between zero and one, one representing a totally closed and zeros a fully open sector.

Dustlik 2023

News: Military exercise DUSTLIK (2023) will be conducted from February 20th to 5th March 2023 in Pithoragarh, Uttarakhand.

About:

- It is a military-to-military exchange program between the **Indian Army** and **Uzbekistan**. It is the fourth edition of the biennial training Exercise.
- This joint exercise is aimed at enhancing military capability to undertake multi-domain operations in a Sub Conventional scenario under United Nations Mandate.

Udyam Portal

News: According to Government data, retail and wholesale traders are topping the table of top 10 segments or sub-sectors in the Micro, Small and Medium Enterprises (MSME) sector based on the number of registrations on the Udyam portal.

About:

- Launched by Union MSME ministry, it is the only government portal for registration of MSME's and it provides free-of-cost and paperless MSME registration.

Eligibility for MSME registration:

- All entities classified as Micro, Small, and Medium enterprises as per the MSME classification are eligible to apply for MSME registration.
- An individual cannot apply for MSME registration.
- A proprietorship, partnership firm, company, trust, or society with an investment below Rs.50 crore and annual turnover below Rs.250 crore is eligible for MSME registration.

- The portal provides instructions for the registration process. No enterprise shall have more than one Udyam Registration.
- It is also integrated with the Central Board of Direct Tax (CBDT) and Goods and Services Tax (GST) networks.

World Pangolin Day

News: On the eve of World Pangolin Day observed on February 18, TRAFFIC (a not-for-profit organisation working on the international trade of animals and plants), has reported that 1,203 pangolins have been found in illegal wildlife trade in India from 2018 to 2022.

About:

- Pangolins are among the most trafficked wild mammals globally.
- India is home to two species - Indian Pangolin (Endangered), found across the subcontinent and Chinese Pangolin (Critically Endangered), is found across a larger area in south Asia.
- Both species are included under India's Schedule I of the Wildlife Protection Act (Jail term for those hunting animals listed here)
- Appendix I of CITES (meaning they are most endangered)
- They play a vital role in ecosystem management, mostly in aerating and adding moisture to the soil as well as the succession of plant communities through burrowing.

Marine Spatial Planning Framework

News: Puducherry has launched the country's first Marine Spatial Planning (MSP) framework as part of a pact under the **Indo-Norway Integrated Ocean Initiative**.

What is MSP?

- Marine Spatial Planning(MSP) is a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that have been specified through a political process.
- MSP is a practical way to create and establish a more rational use of marine space and the interactions among its uses, to balance demands for development with the need to protect the environment, and to deliver social and economic outcomes in an open and planned way.

- MSP will be implemented by the **Ministry of Earth Sciences**(MoES) through **National Centre for Coastal Research**(NCCR) for India.

Feathering

News: A preliminary report by the Aircraft Accident Investigation Commission of Nepal on the crash of a Yeti Airlines ATR 72-500 brought to light that the propellers of the plane were found in an unusual “feathered” position.

About:

- Sometimes an aeroplane’s engine stops working while it’s flying. In an aeroplane with a propeller, the pilot can change the angle of the propeller blades so they cut through the air more efficiently. This is called “feathering” the propellers.
- Feathering helps the aeroplane glide farther and stay at a safe speed. When pilots have to make an emergency landing, they often use feathering to help them. If the propellers keep spinning even when the engine is off, it can be dangerous if the aeroplane is flying low, but it can actually help restart the engine if the aeroplane is flying high.

Bokang-Baling Hydroelectric Project

News: Residents of Pithoragarh district’s Dharchula town recently staged a protest against the proposed Bokang-Baling Hydroelectric Project.

About:

- It is a proposed hydroelectric project on **river Dhauliganga** in the Pithoragarh district in Uttarakhand.
- It has a proposed installed capacity of 165 MW.
- The project involves the construction of a concrete gravity dam of 65 m from river bed level and an underground Power House.

About Dhauliganga River:

- It rises in the vicinity of the Niti Pass in the border regions between Garhwal region of Uttarakhand and southwestern Tibet and is one of the important tributaries of Alaknanda.
- It meets the Alaknanda River at Vishnuprayag in Uttarakhand.
- **Tapovan**, which is famous for its hot springs, is located on the banks of Dhauliganga.

- the water that immobilize or kill zooplankton and other phytoplankton to increase available food sources.
- It is mixotrophic, supporting its growth with autotrophy (photosynthesis) or heterotrophy if nutrients are scarce.

Kendu Leaf

News: The GST council meeting recently rejected Odisha’s demand for tax exemption on kendu leaf.

About:

- Kendu leaf is called the **green gold** of Odisha and it is a nationalized product like Bamboo and Sal seed.
- It is one of the most important non-wood forest products of Odisha.
- It is also referred to as tendu leaf in some parts of the country and is used to roll tobacco into bidis (local cigarettes).
- Odisha is the third-largest producer of kendu leaf after Madhya Pradesh and Chhattisgarh.

World Day of Social Justice

News: Every year, **February 20** marks the World Day of Social Justice across the globe.

About:

- The General Assembly determined that in 2007, February 20 will be observed annually as World Day of Social Justice.
- This day promotes awareness of social injustice and breaking down barriers based on gender, age, race, ethnicity, religion, culture, or handicap. Several schools, colleges, and universities hold numerous activities and events on this particular day. So that people across the world understand the need to uphold social justice values.
- The theme for this year focuses on the recommendations available on the common agenda prepared to strengthen global solidarity and to rebuild trust in government by "Overcoming Barriers and Unleashing Opportunities for Social Justice".

Jute Packaging Act, 1987

News: Recently, the Government of India approved Reservation norms for the mandatory use of jute in the packaging of rice, wheat and sugar for the Year 2022-23.

About:

- The reservation norms under JPM Act provide for direct employment to 3.70 lakh workers and protect the interest of approximately 40 lakh farm families in the jute sector.
- It protects the interest of Jute farmers, workers and persons engaged in jute goods' production
- The Mandatory norms for **full reservation for packaging of food grains** and **20% reservation for packaging of sugar in jute bags** will be a big boost for West Bengal.

Few Facts about Jute:

- Jute is one of the most important natural fibres after cotton in terms of cultivation and usage
- Climatic conditions required for its growth
- Temperature - Between 25-35°C
- Rainfall - 150-250 cm
- Soil - Well-drained alluvial soil.
- India is the largest producer of jute followed by Bangladesh and China.
- It is mainly grown in eastern India because of the rich alluvial soil of the Ganga-Brahmaputra delta. In India, major jute-producing states include West Bengal, Bihar, Odisha, Assam, Andhra Pradesh, Meghalaya and Tripura.

Borthekera

News: A medicinal plant commonly called 'Bor Thekera' in the Assamese language, traditionally forbidden for raw consumption, has been found to protect from heart diseases.

About:

- *Garcinia pedunculata*, popularly known as Bor Thekera in Assamese, is an evergreen tree related to the more familiar purple mangosteen (*Garcinia mangostana*).
- The tree is endemic to the south-eastern regions of Asia such as parts of Bangladesh and north-eastern parts of India.
- The sun-dried slices of the ripe fruit are used for culinary and medicinal purposes and are known to have therapeutic properties like anti-inflammatory, anthelmintic, antibacterial, antifungal, antidiabetic, hypolipidemic, nephroprotective, and even neuroprotective activity.

Chicago Convention

News: The Union government cleared three protocols related to amendments in Chicago Convention.

What is Chicago Convention?

- Convention on **International Civil Aviation** (also known as Chicago Convention), was signed on 7 December 1944 by 52 States.

About ICAO:

- The International Civil Aviation Organization (est. 1944, HQ: Montreal, Canada) is a specialized agency of the United Nations (linked to ECOSOC) that coordinates the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth.
- It has 193 state parties including all UN members except Liechtenstein.
- Chicago Convention led to the creation of ICAO.
- India is a founding member of ICAO.
- It is not a global regulator; its standards never supersede the primacy of national regulatory requirements.

What are ratified protocols?

- Amend Article 3 (refrain member States from use of weapons against civil aircraft in flight)
- Amend Article 50 (a) for raising the strength of the International Civil Aviation Organization (ICAO) Council)
- Amend Article 56 (for raising the strength of the Air Navigation Commission)

Mulethi

News: For the first time, Himachal Pradesh (HP) has begun the commercial cultivation of liquorice (Mulethi) with the distribution of planting material among the farmers by the Council of Scientific and Industrial Research (CSIR)- Institute of Himalayan Bioresource Technology (IHBT)

About:

- Mulethi is a sweet-tasting perennial shrub (roots have a sweet taste due to the presence of glycyrrhizin, which is 50 times sweeter than sucrose) that has been used as medicine in Ayurveda (known in Ayurveda as 'Yashtimadhu') for rejuvenation.

- It thrives in a dry and sunny climate and is cultivated in subtropical and warm temperate regions.

About CSIR:

- It is an autonomous body that has emerged as the largest research and development organisation in India. CSIR is also among the world's largest publicly funded R&D organisations. It comes under the Ministry of Science and Technology.
- The Prime Minister of India heads CSIR.
- Its founders are Arcot Ramasamy Mudaliar and Shanti Swaroop Bhatnagar.

Exercise Desert Flag VIII

News: Indian Air Force is participating in Exercise Desert Flag VIII which is hosted by the United Arab Emirates.

About:

- It is an annual multinational large-force employment warfare exercise hosted by the UAE Air Force.
- The IAF would be participating with five Light Combat Aircraft, LCA Tejas and two C-17 Globemaster III aircraft.
- Air Forces from UAE, France, Kuwait, Australia, the UK, Bahrain, Morocco, Spain, the Republic of Korea, and the USA would also be participating.

Mad Cow Disease

News: Brazil has halted its beef exports to China after a case of mad cow disease was confirmed in the northern state of Para.

About:

- It is also known as **bovine spongiform encephalopathy (BSE)**.
- It is a transmissible, slowly progressive, degenerative, and fatal disease which affects the central nervous system of adult cattle.
- It is caused by a protein called a **prion**. When this protein gets altered, it destroys the nervous system tissue- the brain and spinal cord.
- A cow gets BSE by eating feed contaminated with parts that came from another cow that was sick with BSE.

Symptoms:

- A common sign of BSE in cows is incoordination. A sick cow has trouble walking and getting up. It usually takes four to six years from the time a cow is infected with the abnormal prion to when it first shows symptoms of BSE.
- There are no vaccines available for this disease.

International Intellectual Property Index

News: India ranks **42nd** among 55 leading global economies on the recently released International IP Index.

About:

- It is released annually by the **US Chamber of Commerce**.
- The index evaluates IP rights in 55 global economies across 50 unique indicators.
- The indicators include patent and copyright policies to commercialization of IP assets, and ratification of international treaties.
- The index aims to help nations navigate toward a brighter economic future marked by greater innovation, creativity, and competitiveness.
- The United States is ranked first, followed by the UK and France.

Chip 4 Alliance

News: The "Chip 4" semiconductor alliance recently held its first meeting of senior officials.

About:

- The "Chip 4" or "Fab 4" alliance includes four of the world's top producers of semiconductors - The U.S.A, Japan, Taiwan, and Korea. It represents more than 70 percent of the value of the global semiconductor industry.
- It was first proposed by the US in March 2022 as part of wider plans aimed at enhancing the "security" and "resilience" of semiconductor supply chains, including by reducing the world's reliance on chips made in China.
- It is intended to cooperate on policy implementation that would support sustainable semiconductor manufacturing in the member states' home countries.

Places in News

Yaya Tso Lake

News: Recently, Yaya Tso Lake was declared Ladakh's first biodiversity heritage site under the Biological Diversity Act.

Background:

- The Biodiversity Management Committee, the panchayat of Chumathang village, along with the **SECURE Himalaya Project** recently resolved the issue and declared Yaya Tso Lake a biodiversity heritage site.
- SECURE Himalaya Project is funded by the **Global Environment Facility**. It supports the government's efforts for the conservation of snow leopard and its habitat by developing and implementing a landscape-based approach for Himalayan ecosystems, and addresses key issues of habitat degradation, threatened livelihoods and illegal trade in wildlife.



About Yaya Tso Lake:

- Lake Yaya Tso is known as a bird's paradise for its beautiful lake located at an altitude of 4,820 metres in Ladakh. It is a nesting habitat for a large number of birds and animals, such as the bar-headed goose, black-necked crane and brahminy duck
- It is also one of the highest breeding sites of the black-necked crane in India.

Orang National Park

News: Recently, a Royal Bengal tiger was found dead in Assam's Orang National Park due to age-related problems.

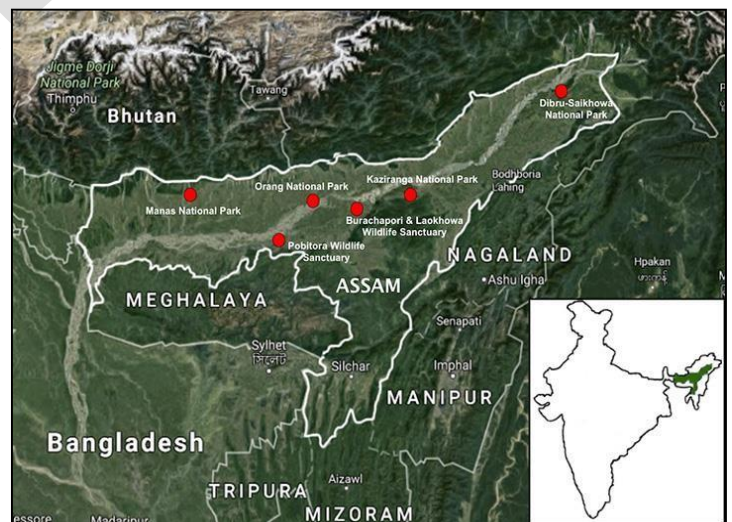
About:

- It is located on the **north bank** of the **Brahmaputra River** in the state of Assam. It is also a Tiger reserve.
- It is also known as the **mini Kaziranga National Park** since the two parks have a similar landscape made up of marshes, streams and grasslands and are inhabited by the Great Indian One-Horned Rhinoceros.

Fauna: Rhinoceros, Tiger, Elephants, Hog Deer, Wild Pig, Civet Cat, One-Horned Rhinoceros

Other National Parks in Assam:

- Kaziranga National Park, Manas National Park, Dibru - Saikhowa National Park, Nameri National Park, Dehing Patkai National Park and Raimona National Park.

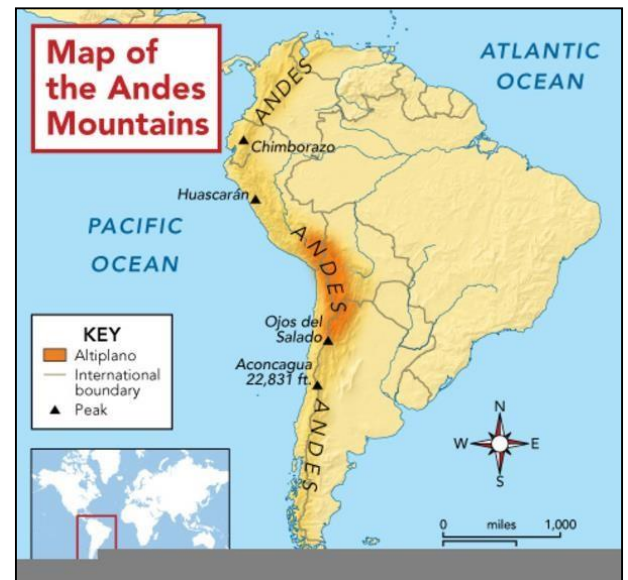


Andes Mountains

News: The United Nations refugee agency recently reported that seven Haitian migrants have died in the Andean highlands of Peru as anti-government protests have prevented them from crossing into Bolivia.

About:

- The Andes is the **longest above-water mountain range** in the world.
- They extend over **seven countries** – Argentina, Bolivia, Chile, Colombia, Ecuador, Peru, and Venezuela, known as Andean States.
- It is about 8,900 km long and second only to the Himalayas in average elevation.
- It consists of a succession of parallel and transverse mountain ranges, or **cordilleras**, and of intervening plateaus and depressions.
- The highest elevation in the Andes is Mount Aconcagua in Argentina, which is 6,962 m above sea level.
- The Andes are also home to the **world's highest volcano** when measured above sea level, the **Ojos del Salado** on the Chile-Argentina border.
- The Andes Mountains are over 50 million years old, they were created when the South American and Pacific tectonic plates collided.



Tansa Wildlife Sanctuary

News: The first-ever bird survey in Tansa Wildlife Sanctuary was conducted recently, and the volunteers recorded 186 species of birds.

About:

- Found in Thane District of Maharashtra, 90 km northeast of Mumbai in the foothills of the Western Ghats. It is known to be a paradise for birdwatchers.
- The Sanctuary has Southern Tropical Moist Deciduous Forest, with a few patches of Evergreen forest.
- It consists of trees like Kalamb, Bibla, Khair, Hed, Teak, and Bamboo.
- At least 54 species of animals and 200 species of birds exist in the sanctuary.
- Major wild animals are Panther, Barking deer, Mouse deer, Hyena, Wild boar,
- Two Critically Endangered Gyps species of vultures, the Vulnerable Pallas's Fish-Eagle *Haliaeetus leucoryphus*, is also seen here.

Hydroelectric Projects

News: Joshimath's land subsidence and its consequences have been attributed to Hydroelectric projects in the area. In that context it is important to recollect some of Hydropower projects that are in news especially in our neighboring countries.

Important projects:

- **India - Subansiri** Lower Hydroelectric Project in Arunachal Pradesh and the **Teesta** Low Dam Hydroelectric Project in Sikkim.
- **Nepal - Arun III** Hydroelectric Project and the West Seti Hydroelectric Project.
- In **Bhutan**, hydropower is the main source of revenue, and the government has set a target to **export surplus electricity to India**. The country has built several hydropower projects, including the **Chukha** Hydropower Project and the **Tala** Hydropower Project. **Mangdechhu** Hydropower project is another project where India has assisted Bhutan.
- Afghanistan - Formerly **Salma Dam**, **Afghan-India Friendship Dam** (AIFD) is a hydroelectric and irrigation dam project located on the Hari River in Herat Province of western Afghanistan.

Debrigarh Tiger Reserve

News: Recently, the National Tiger Conservation Authority (NTCA) approved Odisha's Proposal to declare Debrigarh a Tiger Reserve.

About:

- Located near the Hirakud dam at Sambalpur, spread over an area of 347 sq km Debrigarh Wildlife Sanctuary is one of the famous tourist destinations of western Odisha.
- It will become the **third tiger reserve** in Odisha after **Similipal** and **Satkosia**.
- It finds a special mention because of noted freedom fighter Veer Surendra Sai. During his rebellion against the British Veer Surendra Sai made his base at '**Barapathara**' located within the sanctuary.
- A wide varieties of animals including leopard, wild boar, bison, sambar, chital and Four-horned antelope are sighted in the sanctuary.

River Oder

News: Recently, it was confirmed that the destruction of fish in the **River Oder** in Poland was caused by the toxic algal bloom **Prymnesium parvum** made possible by anthropogenic factors.

About Prymnesium Parvum:

- It is a microscopic, single-celled alga with four morphologically distinct forms.
- It inhabits a variety of water bodies including rivers, lakes, estuaries, fjords, coastal oceans, and ponds, including eutrophic, alkaline, and brackish waters.
- It can reproduce rapidly and form a nearly monocultural bloom by releasing toxins into the water that immobilize or kill zooplankton and other phytoplankton to increase available food sources.
- It is mixotrophic, supporting its growth with autotrophy (photosynthesis) or heterotrophy if nutrients are scarce.

About River Oder:

- It originates in the Czech Republic and flows through western Poland.
- It constitutes the boundary between Poland and Germany before reaching the Baltic Sea via a lagoon north of the Polish city of Szczecin.



Nord Stream Pipeline

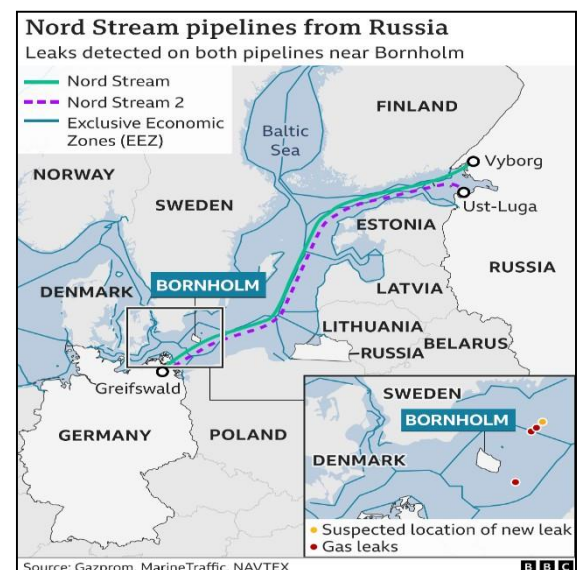
News: The recent claims made by investigative journalists regarding the bombing of the Nord Stream gas pipelines (September 2022) have ignited intense discussions and controversies.

Background:

- A series of underwater explosions in the Baltic Sea ruptured the Nord Stream 1 and 2 pipelines in September 2022. Seismologists detected the cause for the leak to be explosions under the sea in the same area.

About:

- The Nord Stream pipeline is a natural gas pipeline that runs under the Baltic Sea, connecting Russia and Germany. The pipeline was built with the aim of transporting natural gas from Russia to Europe, bypassing traditional transit countries such as Ukraine.



- There are 2 Nord Stream Pipelines.
- Nord Stream 1 is a 1,224 km underwater gas pipeline running from Vyborg in northwest Russia to Lubmin in northeastern Germany via the Baltic Sea.
- Nord Stream 2, which runs from Ust-Luga in Leningrad (Russia) to Lubmin, has the capacity to handle 55 billion cubic metres of gas per year once it becomes fully operational.

Importance of Pipeline:

- For EU – Reliable and cost-effective source of Natural Gas.
- For Russia – It has largest natural gas reserves in the world and around 40% of its budget is financed from sales of Oil and Natural gas.

Port of Haifa

News: Last month, a consortium led by the Adani Group completed the acquisition of the Haifa port, one of the largest in the eastern Mediterranean region, for \$1.2 billion.

About:

- The Haifa port handles a major chunk of Israel's container cargo traffic and is the country's principal port for passenger traffic and cruise ships. Positioned as Israel's gateway to the rest of the world, it is one of the country's three major international seaports. Other seaports include **Port of Ashdod** and **Port of Eilat**.
- It is also the only port in Israel for tourists departing for Mediterranean cruises.
- It has a natural deep-water harbor, which operates all year long, and serves both passenger and merchant ships.



Vaigai River

News: The river is in news in context to recent report on Keeladi findings.

About:

- The Vaigai, also known as the Tamiraparani, is a river in the Tamil Nadu state of India, flowing through Nanguneri Taluk of Tirunelveli District and Madurai District.
- It originates in Varusanadu Hills, the Periyar Plateau of the Western Ghats range, and flows northeast through the Kambam Valley, which lies between the Palani Hills to the north and the Varushanad Hills to the south.
- The **Vattaparai Falls** are located on this river.
- The region is drought-prone with unreliable rainfall. It is also vulnerable to sudden floods caused by heavy rainfall in catchment areas of these rivers.
- The main tributaries of the river Vaigai are **Suruliyaru, Mullaiyaaru, Varaganadi, Manjalaru, and Kridhumaal**.
- The river empties into the **Palk Bay** near Alagankulam, close to Pamban Bridge in Ramanathapuram District



Tathastu-ICS