

CURRENT AFFAIRS MAGAZINE



APRIL, 2024



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- ▶ **India's fall in fertility rate**
- ▶ **Is transparency lacking in candidate disclosure?**
- ▶ **Right of the Voters in India**
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Mains Daily Analysis

General Studies-I

1. Study analysed deaths caused by lightning in Bihar

Why in news?

A new study of lightning-related deaths in Bihar has revealed that **various districts of Bihar were vulnerable to this natural hazard, recording the highest casualty rate per million population.**

The study examined data from the 2017-2022 period and found that **1,624 people died and 286 were injured due to lightning.**

What is lightning?

• About

- Scientifically, **lightning is a rapid and massive discharge of electricity in the atmosphere some of which is directed towards earth.**
- The discharges are generated in giant moisture-bearing clouds that are 10-12 km tall.
- The base of these clouds typically lie within 1-2 km of the Earth's surface, while the top is 12-13 km away. Temperatures in the top of these clouds are in the range of -35° to -45°C .

• Mechanism

- **Smaller ice crystals are moving up while bigger crystals are coming down**
 - As water vapour moves upward in the cloud, the falling temperature causes it to condense.
 - **As they move to temperatures below 0°C , the water droplets change into small ice crystals.**
 - They continue to move up, gathering mass until they are so heavy that they start to fall to Earth.
 - This leads to a system in which, simultaneously, smaller ice crystals are moving up and bigger crystals are coming down.
- **Collision between these crystals and release of electrons**
 - Collisions follow and trigger the release of electrons, a process that is very similar to the generation of sparks of electricity.
 - As the moving free electrons cause more collisions and more electrons, a chain reaction ensues.
- **Potential difference between top layer and middle layer of the cloud**
 - **This collision results in a situation in which the top layer of the cloud gets positively charged, while the middle layer is negatively charged.**
 - The electrical potential difference between the two layers is huge, of the order of a billion to 10 billion volts.
 - In very little time, a massive current, of the order of 100,000 to a million amperes, starts to flow between the layers.
- **Earth - a good conductor of electricity**
 - **While the Earth is a good conductor of electricity, it is electrically neutral.**
 - However, in comparison to the middle layer of the cloud, it becomes positively charged.
 - As a result, about **15%-20% of the current gets directed towards the Earth as well.**
 - It is this flow of current that results in damage to life and property on Earth.
 -

Areas which are lightning-prone

- As per the report released by the **Climate Resilient Observing Systems Promotion Council (CROPC) in 2022, following states are more vulnerable to lightning strikes:**
 - Madhya Pradesh followed by **Chhatisgarh, Maharashtra, Odisha and West Bengal.**
 - Other states with high strike rate include **Bihar, UP, Karnataka, Jharkhand and Tamil Nadu.**
- Lightning is fairly common, though it is not often realised in the urban centres.

- In India, well over one crore lightning strikes have been recorded in recent years.
- It is only over the last few years that lightning records have begun to be maintained, due to the efforts of CROPC and India Meteorological Department.

Mitigating the effects of lightning strikes

- **Lightning – not classified as a natural disaster in India**
 - As of now, **lightning is not classified as a natural disaster in India.**
 - As per the Centre, deaths caused by it can be avoided through education and awareness.
- **Setting up of an early warning system**
 - India has set up of an early warning system, that is already saving many lives.
 - **India is among the only five countries in the world with an early warning system for lightning and the forecast is available from five days to up to 3 hours.**
- **Most deaths happening in rural areas**
 - More than **96% of lightning deaths happen in rural areas.** As such, most of the mitigation and public awareness programmes need to focus on these communities.
 - Lightning protection devices are fairly unsophisticated and low-cost. Yet, their deployment in the rural areas, as of now, is extremely low.
- **States are encouraged to prepare and implement lightning action plans**
 - States are being encouraged to prepare and implement lightning action plans, on the lines of heat action plans.
 - An international centre for excellence on lightning research to boost detection and early warning systems is also in the process of being set up.

Reports on deaths caused by lightning in Bihar

- **Annual casualty rate per million is highest in Bihar**
 - Bihar's annual casualty rate per million of 2.65 was higher than the national average of 2.55.
- **Period between May to September was the peak for lightning strikes**
 - The **period between May to September was the peak for lightning strikes** with June and July accounting for 58.8 per cent of lightning-linked deaths.
 - Researchers explained that **lightning strikes reach a record high in June and July with the monsoonal current setting in**, mainly due to the interplay of easterly and westerly winds.
- **The plains area is prone to thunderstorms and lightning activity**
 - The plains area is prone to thunderstorms and lightning activity as warm, dry air from north-west India converges with moist air emanating from the Bay of Bengal.
 - This creates conditions that are favourable for the formation of deep convective clouds.
- **Higher population density and socio-economic factors also play a role**
 - In **North West Bihar, the lightning strikes are lower but casualties are higher.**
 - These parts of Bihar are not urbanised and may be having poor shelter density around farm areas.
 - Socio-economic factors play an important role in mitigating the impact of such natural hazards.
- **Threat potential of lightning strikes is not uniform**
 - **Topography, elevation, and local meteorological factors** determine the spatial distribution of lightning strikes.
 - A higher lightning frequency is seen in the eastern region owing to higher moisture incursion.

2. For Future Ready Seniors: How to Care for An Ageing Population

Context

- **India's demographic landscape is undergoing a significant shift**, with the elderly population quietly rising amidst the debate around its demographic dividend.
- Therefore, it is **important to delve into the intricacies of this demographic transition to understand the challenges and opportunities associated with the growing elderly population**, particularly in the domain of home-based care.

Demographic Trends and Drivers

- The exponential growth of India's elderly population is **projected to more than double from 100 million in 2011 to 230 million in 2036.**
- It will further grow to **319 million by 2050**, constituting nearly one-fifth of the total population.
- This **demographic shift is propelled by declining fertility rates and increasing life expectancy**, culminating in smaller household sizes and a higher prevalence of chronic illnesses among the elderly.

Challenges in Home-Based Care

- **Lack of Standardisation and Defined Practices**
 - Home-based care practices in India **lack standardisation and well-defined protocols.**
 - Unlike institutional settings such as hospitals or nursing homes, where care standards are more structured, **home-based care often operates in a less regulated environment.**
 - This **variability in practices can lead to inconsistencies** in the quality of care provided to elderly individuals at home.
- **Shortage of Trained Caregivers**
 - A significant challenge in home-based care is the **shortage of adequately trained caregivers.**
 - **Providing care for elderly individuals**, especially those with chronic illnesses or disabilities, **requires specialised skills and knowledge.**
 - However, **there is a scarcity of caregivers who possess the necessary training and expertise** to address the diverse needs of elderly clients.
 - This **shortage exacerbates the quality of care** provided and may contribute to caregiver burnout.
- **Mistreatment of Caregivers**
 - **Caregivers in home-based settings often report instances of mistreatment** or abuse by the families they serve.
 - This **mistreatment can take various forms, including verbal abuse, exploitation, or inadequate compensation** for their services.
 - **The lack of legal protections and support mechanisms for caregivers leaves them vulnerable** to exploitation and diminishes the quality of care they can provide.
- **Financial Barrier**
 - The **cost of hiring a caregiver for home-based care can be prohibitively high for many families**, particularly those from lower socio-economic backgrounds.
 - The **fees charged by private home care agencies may be unaffordable**, leading some families to forego professional care altogether or rely on informal caregiving arrangements within the family.
 - This **financial barrier limits access to quality home-based care services for elderly individuals** who need them the most.
- **Dominance of Private Sector**
 - The provision of home-based care services in India **is largely dominated by the private, for-profit sector.**
 - While private agencies may offer a range of services, including medical and non-medical care, **their services often come at a premium cost.**
 - **The dominance of the private sector in home-based care exacerbates inequalities in access to care**, as those who can afford it may receive better quality services compared to those who cannot.
- **Fragmented Regulatory Framework**
 - The **regulatory framework governing home-based care in India is fragmented** and lacks comprehensive oversight.
 - There are **no standardised regulations or licensing requirements for home care agencies or individual caregivers**, leading to inconsistencies in the quality and safety of care provided.
 - This **fragmented regulatory landscape hampers efforts to ensure accountability** and quality improvement in home-based care services.

Opportunities and Policy Interventions to Address the Challenges

- **Recognising Home as a Viable Care Setting**

- One of the primary opportunities in home-based care lies in **recognising the home environment as a viable setting for providing care** to elderly individuals.
- By acknowledging the significance of home as a place for both care provision and employment for caregivers.
- **Policymakers can lay the groundwork for developing policies** and regulations tailored to the unique needs of home-based care.
- **Tailoring Treatment Protocols to Home Environment**
 - Unlike institutional settings such as hospitals or nursing homes, home-based care presents distinct challenges and opportunities.
 - **Policy interventions should focus on tailoring treatment protocols** and care plans to the home environment, **considering factors such as limited space, lack of medical equipment**, and the presence of family members.
 - This **customisation can optimise the delivery of care** and enhance the overall experience for both caregivers and care recipients.
- **Strengthening Caregiver Training and Support**
 - **Enhancing the training and support available to caregivers is essential** to meet the growing demand for home-based care services.
 - **Policy interventions should prioritise streamlining vocational training programs** for caregivers, standardizing their roles and responsibilities, and facilitating career progression opportunities.
 - **By investing in caregiver education** and professional development, **policymakers can improve the quality of care provided and mitigate caregiver shortages.**
- **Gender Considerations**
 - **The gender dimension of aging in India**, with women typically outliving men, **necessitates special attention to vulnerable elderly women**, particularly widows.
 - Policies should strive to empower them to lead dignified and independent lives in their later years.

Role of Government and Legislative Efforts to Enhance Home-Based Care

- **Policy Formulation and Implementation**
 - **The government plays a crucial role** in formulating and implementing policies related to home-based care for the elderly population.
 - **Government ministries**, including the Ministry of Health and Family Welfare, Ministry of Social Justice and Empowerment, and Ministry of Skill Development and Entrepreneurship, **are responsible for developing and implementing initiatives to address the challenges** and opportunities in home-based care.
- **Coordination and Collaboration**
 - **Effective coordination and collaboration** between government ministries **are essential for driving policy reforms** in home-based care.
 - **Inter-ministerial collaboration facilitates** the pooling of resources, expertise, and stakeholders' perspectives **to develop holistic solutions that address the diverse needs** of the elderly population and their caregivers.
- **Legislative Framework**
 - **Legislative efforts are instrumental in formalising** and regulating home-based care services.
 - The **Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill, 2019**, is an example of legislative efforts aimed at regulating home care services and establishing minimum standards for providers.
 - **Legislative frameworks provide a legal basis** for ensuring the rights, safety, and well-being of elderly individuals receiving home-based care.
- **Regulatory Oversight**
 - Government agencies, such as the Insurance **Regulatory and Development Authority of India (IRDAI)**, **play a role in providing regulatory oversight** for home-based care services.
 - **Regulatory bodies can establish guidelines, standards, and licensing requirements for home care agencies** and individual caregivers to ensure compliance with quality and safety standards.

Conclusion

- While India's focus on preparing its youth for the future is commendable, **it is imperative not to overlook the needs of its growing elderly population.**
- **A robust system of home-based care not only facilitates economic participation but also fulfils society's moral obligation** to care for its aging citizens.
- **By addressing the challenges** and seizing the opportunities in home-based care, **India can ensure the well-being and dignity of its elderly population**, creating an inclusive and compassionate society for generations to come.

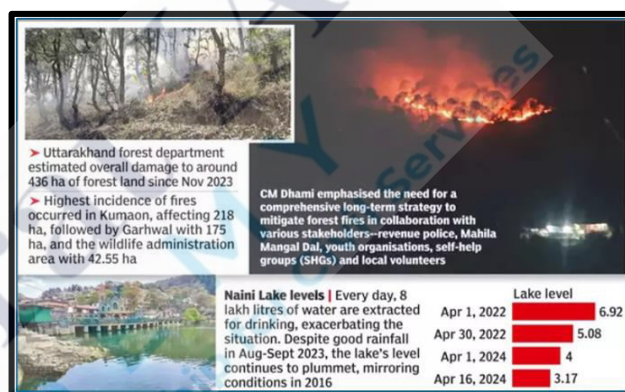
3. Uttarakhand forest fires

Why in news?

A massive fire is spreading through the forests near **Nainital in Uttarakhand**. It has **been burning for 60 hours, leading to the deployment of Indian Air Force personnel and Mi-17 choppers** in an effort to quell the raging fire. According to the officials, these forest fires have gutted over 142 hectares of forest land in the State in the State.

What are Forest Fires/Wildfires?

- It is an **unplanned, uncontrolled & unpredictable fire** in an area of combustible vegetation.
- **Causes:**
 - These include natural (lightning, high atmospheric temperatures and low humidity (dryness) and man-made (agricultural practices like Jhum, a source of fire (cigarette, bidi, etc)).
 - Three conditions must be present in order for any fire to exist: fuel, oxygen and a heat source. This is often referred to as the **fire triangle**.
 - In the case of a forest, oxygen is in ample supply, and fuel is supplied in the form of dry trees, shrubs, grasses and litter - particularly in the dry, hot summer months.
 - **Dry weather, drought and dry vegetation can offer easy kindling for a fire.** Strong winds further help the spread of a forest fire.
 - **As per a 2019 report from the Forest Research Institute, 95% of forest fires are caused by humans.**
 - Often, grazers set fire to dry grass in the hopes of encouraging the cultivation of new grass.
 - **Slash and burn and shifting cultivation also use fire.** Unattended campfires, burning of waste, lit cigarette stubs as well as intentional lighting of fires with criminal intent are some other man-made causes.
 - Natural causes included the rubbing of dry trees or bamboo, sparks set off by stones, or lightning.
- **Types of forest fire:**



Why is Uttarakhand an easy target for forest fire?

- **Vulnerability of Indian forests**

- According to the report of the Forest Survey of India, over 54% of the forest cover in India is exposed to occasional fire.
- There are four forest-fire clusters in India- the **North-Western Himalayas, North-East India, Central Ghats, and Western and Eastern Ghats.**
- **Situation in North-Western Himalayas**
 - Fires in the North-Western Himalayas are attributed to the **preponderance of pine trees and the accumulation of thick flammable litter.**
 - In the summer, there is a large quantity of pine needles that gathers on the forest floor, which is highly susceptible to fire.
 - The occurrence of high fire intensity at the low altitude Himalayan hilly regions may also be due to the proximity to villages.
 - Villages make forests susceptible to anthropogenic activities like forest cover clearance, grazing and so on.
 - Sharp increase in average and maximum air temperature, decline in precipitation, and change in land-use patterns have also caused increasing episodes of forest fires in this region.
 - Local community patterns are also responsible for instances of forest fire.

How can forest fires be tackled?

- **Awareness and controlled burning**
 - Besides spreading awareness, there are certain measures that can be undertaken to reduce the incidence of forest fire.
 - **This includes the removal of biomass through controlled or prescribed burning.**
 - **Limited and controlled forest burns have been shown to be useful in promoting healthy forest growth,** getting rid of undergrowth, dead trees and litter. Fresh healthy plants replace such areas.
 - Once a patch of land is burned or cleared of dried biomass by a ground-fire, it is difficult for another fire to occur there.
 - This process is usually done by taking 5.2-metre-wide fire-lines or fire-belts in forested areas to which people have access.
- **Other preventive steps**
 - **Engaging temporary fire watchers, desilting of water sources within the forest, and having fire safety equipment at hand.**
 - Increase surveillance of forests using drones
- **Steps taken by the govt**
 - A **satellite-based fire alert system introduced by the Forest Survey of India.** This makes it easy for staff to find out whether there are fires inside the forest.
 - Forest staff use methods like beating the fire with green, leafy boughs, and counter-fires. They also carry fire beaters and blowers.

4. A Collective Responsibility: How SC Verdict on Childcare Leave Opens Up Possibilities for Women

Context

- In a landmark judgment, **the Supreme Court of India, led by Chief Justice, affirmed the constitutional entitlement of women to participate in the workforce.**
- The **judgement emphasised the significance of Article 15's protection** against discrimination based on gender.
- This **ruling emerged from a case where a government employee was denied childcare leave,** shedding light on broader issues of gender equality and workforce participation in India.

Constitutional Protection and Employer Responsibility Regarding Women's Workforce Participation

- **Constitutional Protection**

- **Article 15 of the Indian Constitution** serves as a cornerstone for ensuring gender equality and non-discrimination.
- It **not only prohibits discrimination based on sex but also empowers the state to make special provisions for women** to address historical injustices and systemic inequalities.
- The **Supreme Court's acknowledgment of Article 15 in the context of women's workforce participation reaffirms the constitutional mandate** to create an inclusive and equitable society.
- **By recognising participation in the workforce as a constitutional entitlement, the court emphasises the fundamental rights of women** to pursue employment free from discrimination and barriers.
- **Employer Responsibility**
 - Employers, particularly the state as a model employer, bear a significant responsibility in fostering an enabling environment for women employees.
 - **This responsibility extends beyond mere compliance** with labour laws to actively accommodating the unique needs and challenges faced by women in balancing work and caregiving responsibilities.
 - **Denying childcare leave to a female employee**, as seen in the case before the Supreme Court, **reflects a failure on the part of the employer** to recognise and respect women's rights in the workplace.
 - **The court's assertion that employers cannot be oblivious to the special concerns of women** in the workforce **underscores the need for employers to adopt proactive measures** such as providing childcare support, flexible work arrangements, and gender-sensitive policies.
 - By fulfilling their responsibility, employers not only promote gender equality but also enhance productivity, retention, and overall well-being of their workforce.

Challenges to Women's Workforce Participation

- **Unpaid Domestic and Care Work Burden**
 - Women in India bear a **disproportionate burden of unpaid domestic and care work**, including household chores and caregiving responsibilities for children, elderly family members, and other dependents.
 - The **unequal distribution of these responsibilities places significant time and energy demands** on women, often limiting their ability to participate in paid employment outside the home.
- **"Marriage Penalties" and "Motherhood Penalties"**
 - **Women frequently face penalties in their careers** due to **societal expectations surrounding marriage and motherhood**.
 - Marriage may result in relocation, career interruptions, or increased household responsibilities, impacting women's career progression and earning potential.
 - **Similarly, motherhood often leads to temporary withdrawals from the workforce** or reduced working hours to accommodate childcare responsibilities, resulting in diminished opportunities for career advancement and economic independence.
- **Low Availability of Supportive Infrastructure**
 - **The lack of affordable and accessible childcare facilities**, as well as other support services such as paid parental leave and flexible work arrangements, **further impedes women's ability to balance work and family responsibilities**.
 - Without adequate support infrastructure, women may be compelled to prioritise caregiving over paid employment, particularly in the absence of alternative care options.

Legal Framework Surrounding Women's Workforce Participation

- **Legislative Reforms**
 - **India has made significant strides in enacting laws aimed at promoting women's rights** and gender equality in the workplace.
 - These include **provisions for maternity benefits, childcare services, and protections against gender discrimination** in employment.
 - **Recent legislative reforms have expanded maternity leave entitlements and mandated childcare facilities at worksites**, reflecting a commitment to supporting women's workforce participation.

- **Gender-Neutral Provisions**

- **Efforts to make legal provisions gender-neutral represent a positive step** towards recognising caregiving responsibilities as a shared responsibility between parents.
- **By extending childcare benefits to all employees, regardless of gender, these reforms seek to challenge traditional gender roles** and promote greater equality in caregiving responsibilities within households.

Implementation Challenges of Legal Frameworks Surrounding Women's Workforce Participation

- **Coverage Limitations**

- The scope of existing laws **may be limited in terms of coverage**, with certain provisions applying only to formal sector establishments or workplaces with a minimum number of employees.
- This **exclusionary approach leaves out a significant portion of women** working in the informal sector or in smaller enterprises, where access to maternity benefits and childcare support may be limited or non-existent.

- **Underfunded Welfare Schemes**

- **Government-led welfare schemes** aimed at providing childcare services, such as the National Crèches Scheme, **often suffer from underfunding and inadequate infrastructure**, limiting their effectiveness in reaching marginalised communities and addressing the childcare needs of working women.
- **Without sufficient financial resources** and institutional support, **these schemes may fail to meet the demand for affordable and quality childcare services**, particularly in underserved regions.

- **Lack of Enforcement and Monitoring**

- **Effective enforcement mechanisms and regular monitoring of compliance are essential** for ensuring that employers adhere to legal requirements related to women's workforce participation.
- However, **enforcement agencies may face challenges such as limited resources, bureaucratic inefficiencies, and lack of coordination** between government departments, hindering their ability to effectively enforce labour laws and address violations in a timely manner.

Way Forward to Enable Women's Full Participation in Workforce

- **A Collective Responsibility of State, Employer and Communities**

- **The state plays a crucial role in setting the legal and policy frameworks** that govern women's workforce participation.
 - This **includes enacting laws that promote gender equality, providing incentives for employers to adopt family-friendly policies**, and investing in social infrastructure such as childcare facilities and education programs.
- **Employers have a direct impact on women's workforce participation** through their employment practices and policies.
 - They can **contribute to gender equality by adopting inclusive hiring practices, providing equal opportunities for career advancement, offering flexible work arrangements**, and implementing family-friendly policies such as paid parental leave and on-site childcare facilities.
- **Communities play a critical role in challenging traditional gender norms** and stereotypes that perpetuate inequalities in the workforce.
 - **Community-based organisations, educational institutions, and grassroots initiatives can raise awareness about women's rights**, provide support services for working mothers, and advocate for policy changes that promote gender equality.

- **Policy Integration**

- Integrating gender considerations into broader policy frameworks is essential for mainstreaming gender equality across all sectors of society.
- This includes incorporating gender-responsive budgeting, conducting gender impact assessments of policies and programs, and ensuring women's voices are heard in decision-making processes.

Conclusion

- **To realise the full potential of women's participation, concerted efforts are needed to bridge implementation gaps,** reform legal frameworks, and promote societal change towards equitable distribution of caregiving responsibilities.
- By embracing these measures, **India can pave the way for inclusive growth and sustainable development.**

5. Why are Sugary Processed Foods Harmful?

Why in the News?

- Over the past week, the **spotlight has returned on high sugar content in flavoured malt-based milk powders and baby food.**
- Government authorities are warning against branding such items as “healthy” and have called out the allegedly misleading promotion and marketing tactics while loading products with added sugar.

Background:

- A drink like **Bournvita has 86.7g of carbohydrates per 100g, with 49.8g being sugar. Out of this sugar, 37.4g is added sugar.**
- So, for every 20g serving of Bournvita, you're consuming about 10g of sugar.
- The process used to make Bournvita involves malting, which turns grains into sugar.
- **Malting is a technique used to make things like whiskey and malt-based milk drinks.**
- When grains germinate, enzymes turn their starch into sugar. Roasting them adds flavour by caramelizing this sugar.

FSSAI's Stand on Sugar Content:

- The Food Standards and Safety Authority of India (FSSAI)
- According to the Food Safety and Standards Authority of India (FSSAI) regulations (2018), **a product can only claim to be 'low on sugar' if it has less than 5g of sugar per 100g.** If a product meets this criteria, it can be considered 'healthy.'
- However, if **products don't meet this standard but still market themselves as 'health drinks' then it's a concern.**
- For example, if a child drinks four servings of such a product, they would consume 40 grams of sugar.
- This is more than the **World Health Organization's recommended daily limit of 25 grams or six teaspoons of sugar.**
- Additionally, many households in India add extra sugar to chocolate-powder drinks, making the sugar intake even higher.

How Processed Sugar is Harmful for Body?

- Sugar can be harmful to the body for several reasons:
- **Weight Gain:** Consuming too much sugar can lead to weight gain. Sugary foods and drinks are often **high in calories but low in nutrients,** leading to excess calorie intake.
- **Increased Risk of Chronic Diseases:** High sugar intake has been linked to an increased risk of chronic diseases such as **type 2 diabetes, heart disease, and certain cancers.**
- **Tooth Decay:** Sugar promotes the growth of harmful bacteria in the mouth, which can lead to **tooth decay and cavities.**
- **Insulin Resistance:** Overconsumption of sugar can lead to insulin resistance, where the body's cells become less responsive to insulin, increasing the risk of developing type 2 diabetes.
- **Elevated Blood Sugar Levels:** Consuming large amounts of sugar can **cause rapid spikes in blood sugar levels, followed by sharp drops, leading to fluctuations in energy levels and mood swings.**
- **Liver Overload:** When consumed in excess, fructose, a type of sugar, can overload the liver, leading to fatty liver disease and other liver-related problems.
- **Addictive Nature:** Sugar can be addictive, leading to cravings and overconsumption, making it difficult for individuals to control their intake.

- **Nutrient Imbalance:** Foods high in sugar often **displace nutrient-dense foods in the diet, leading to nutrient imbalances and deficiencies.**
- **Inflammation:** Excessive sugar intake can contribute to inflammation in the body, which is associated with various health problems, including inflammatory conditions and autoimmune diseases.
- **Mental Health:** Some studies suggest that high sugar intake may be linked to an increased risk of **depression, anxiety, and other mental health disorders.**
- Overall, while sugar can be enjoyed in moderation as part of a balanced diet, excessive consumption can have detrimental effects on health. It's essential to be mindful of sugar intake and opt for healthier alternatives whenever possible.

Way Forward:

- FSSAI's regulations allow sugar in **milk cereal-based foods for infants, but only certain types like lactose and glucose polymers are preferred.**
- Sucrose and fructose can only be added if needed, and their total should not exceed 20% of the total carbohydrate content.
 - **These regulations need to be reviewed because they allow sugar in infant foods.**
- There should be clear regulations defining what is considered 'healthy' and 'unhealthy' for all food and beverage products.

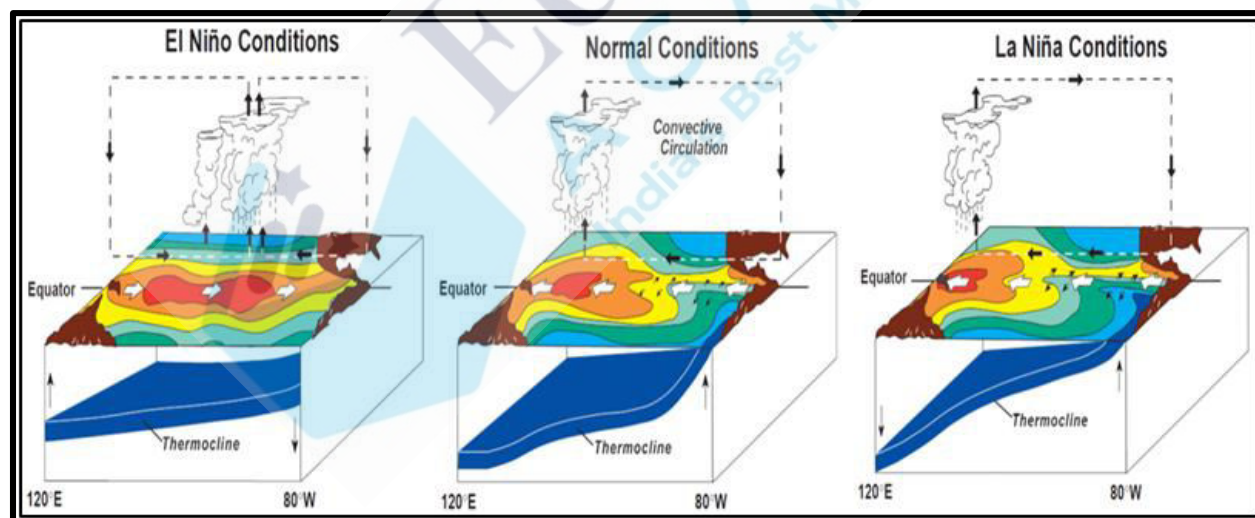
6. Monsoon to be above normal, predicts IMD

Why in news?

India is likely to experience an “above normal” monsoon rainfall between June and September this year. This was predicted by the India Meteorological Department (IMD) in its long-range forecast.

This is the **first time in a decade that the IMD has predicted “above normal” rainfall at the first stage itself, nearly 45 days ahead of the beginning of the four-month monsoon season.**

El Nino and La Nina



- **El Nino:**
 - **A warming of the ocean surface, or above-average sea surface temperatures (SST), in the central and eastern tropical Pacific Ocean.**
 - It is **associated with lower than normal monsoon rainfall in India.**
- **La Nina:**
 - A cooling of the ocean surface, or below-average SSTs, in the central and eastern tropical Pacific Ocean.
 - It is associated with a comparatively better monsoon rainfall in India.
- **Neutral:**

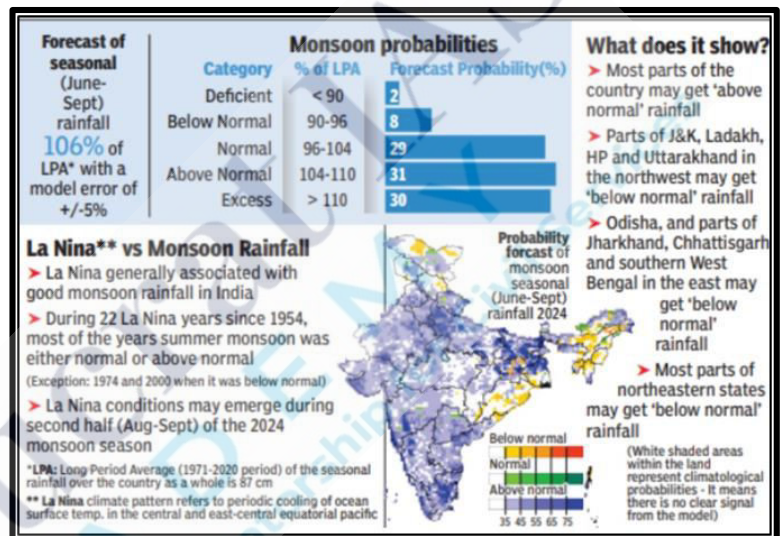
- Neither El Nino nor La Nina.
- Often tropical Pacific SSTs are generally close to average.

Indian Ocean Dipole (IOD)

- The Indian Ocean Dipole (IOD) is defined by the **difference in sea surface temperature between two areas (or poles, hence a dipole) – a western pole in the Arabian Sea (western Indian Ocean) and an eastern pole in the eastern Indian Ocean south of Indonesia.**
- In scientific terms, the IOD is a **coupled ocean and atmosphere phenomenon**, similar to ENSO but in the **equatorial Indian Ocean.**
- A **'positive IOD'** — or simply 'IOD' — is associated with **cooler than normal sea-surface** temperatures in the eastern equatorial Indian Ocean and warmer than normal sea-surface temperatures in the western tropical Indian Ocean.
- The opposite phenomenon is called a **'negative IOD'**, and is characterised by **warmer than normal SSTs** in the eastern equatorial Indian Ocean and cooler than normal SSTs in the western tropical Indian Ocean.
- The IOD was identified as an independent system only in 1999.

Prediction by IMD

- **Above normal rainfall in 2024**
 - The country as a whole is expected to get **106% of long period average (LPA) rainfall.**
 - All forecasts are percentages of LPA. **LPA is the average rainfall received in the past 50 years (currently, the average of 1971-2020 period).**
 - The rainfall between 96 per cent and 104 per cent of this 50-year average is considered **normal**; less than 90 per cent is considered **deficient**; 90-95 per cent is **below normal**; and 105-110 per cent is **above normal.**
 - Nearly the entire country, except some pockets in the northwest, east and northeast, was likely to get good rainfall.
- **India's normal rainfall**
 - India, as a whole, normally receives **870 mm of rainfall during the monsoon season.**



Factors indicating above normal rainfall

- Forecast of 'good rainfall' is attributed to weakening of El Nino, eventual development of the **La Nina conditions during the second half of the season (Aug-Sep) and a positive Indian Ocean Dipole (IOD).**

1 El Niño Likely To Transition To La Niña | La Niña conditions, likely to develop by July-Aug, generally favour good monsoon. In 22 La Niña years since 1951, only 3 led to below normal or deficient monsoon. 2024 is likely to be the 4th La Niña year since 2019

2 Positive Indian Ocean Conditions | Indian Ocean

Dipole (IOD) expected to turn positive, which usually favours good rains, by July this year

3 Snow Cover in Northern Hemisphere | Area under snow cover in northern hemisphere, including Eurasia, has been below normal this winter (Dec-March). Low snow cover is a positive indicator for monsoon rainfall later in the year

7. What is the Significance of the Mahad Satyagraha?

Why in News?

As the nation celebrates the 133rd birth anniversary of Babasaheb Ambedkar, one of his most significant contributions - **the Mahad Satyagraha of 1927**, is worth recalling.

What is the Background of the Satyagraha?

The Bombay Legislative Council passed a resolution (in 1923), which allowed Untouchables to use all public places maintained out of public funds. However, **the situation on the ground remained unchanged**. A Mahad political leader - **Ramchandra Babaji More**, approached Ambedkar to preside over a conference of the Untouchables in Mahad town (Raigad district) on **20 March 1927**.

What Happened at the Mahad Satyagraha?

Labelled as a conference (not Satyagraha) at the time, it was attended by around 2,500 delegates from almost all the districts of Maharashtra and Gujarat. At the conference, it was decided that Ambedkar and other organisers would **march to the nearby Chavadar tank**, to implement the resolution of 1923. **Dr Ambedkar entered the Chavadar Tank** and picked up its water with his cupped hands.

How the Upper Caste Hindus Reacted and its Impact?

Upper caste Hindus conducted a purification ritual of the tank. **Ambedkar announced another conference** on a much bigger scale (at the same venue in Dec 1927), to showcase the resolve of the Dalit community. This time, he consciously called it a **Satyagraha**.

What is the Significance of Mahad Satyagraha?

It is considered to be the **“foundational event”** of the Dalit movement. As a result, the day (20 March) is observed as **Social Empowerment Day** in India. This was the **first time** that the **community collectively displayed** its resolve to reject the caste system and assert their human rights under the **organisation and leadership of Dr Ambedkar**. The Satyagraha was **to become the blueprint for organising future movements** against the caste system and its practices. It marked **an important point in Ambedkar’s political journey**, catapulting him to the leadership of the downtrodden and oppressed classes in the country.

8. Data for Better Education, A Brighter Future for Students

Context

- It has almost been a tradition since 2005, except during the COVID-19 years, **the Annual Status of Education Report (ASER) 2023** was released in mid-January this year.
- This **data offers an insightful examination of the educational landscape for 14-18-year-olds** in rural districts across India.
- The **report presents a concerning overview of the foundational learning skills among adolescents and youth**, drawing attention to critical gaps in education and opportunities for improvement.

The Foundational Learning Trajectories as per ASER Report 2023

- **Early Learning Gaps**
 - ASER 2023 reveals that **26% of 14-18-year-olds cannot read a standard two-level text** in their regional language.
 - This **indicates a persistent gap in foundational literacy skills** that likely began in the early years of schooling.
 - In 2018, **around 32% of standard seven and 27% of standard eight children could not read a standard two-level text**.
- **Flat Learning Trajectories**
 - Foundational learning trajectories often remain flat, **meaning that once students fall behind in acquiring basic skills, their progress slows or stagnates**.
 - This pattern becomes more pronounced in the upper grades, where the opportunity for remediation decreases without targeted interventions.
- **Challenges in Upper Grades**

- When students reach secondary grades without acquiring foundational skills, they are less likely to catch up without additional support.
- A lack of foundational skills can hinder students' ability to engage with more complex academic material in later grades.

Measures to Correct Past Mistakes Pertaining to Foundation Learning Strategies

- **Understanding the Root Causes**
 - To correct past failures, it is essential to understand the root causes of learning deficits.
 - This includes examining factors such as insufficient resources, inadequate teacher training, and socio-economic barriers.
 - Identifying these causes helps in developing targeted strategies to address specific challenges.
- **Re-engaging Students**
 - Many adolescents who struggle with foundational skills are enrolled in school but may not be attending regularly, or they may have dropped out entirely.
 - Re-engaging these students through outreach programs, community involvement, and support services can help bring them back into the educational system.
- **Targeted Interventions**
 - Targeted interventions in reading and literacy programs can help students catch up and build essential skills.
 - These interventions may include specialized classes, tutoring, or remedial instruction tailored to the needs of individual students.
- **Teacher Training and Support**
 - Educators play a crucial role in correcting past failures. Providing teachers with training in effective literacy instruction and support can empower them to address students' learning gaps.
 - Ongoing professional development helps teachers stay updated on best practices and new teaching methods.
- **Parental and Community Involvement**
 - Engaging parents and communities in students' education can create a supportive environment for learning.
 - Encouraging parents to be involved in their children's education and providing them with resources to support learning at home can be beneficial.

Aspirations and Vocational Education Perspectives of 14-18-year-olds According to ASER 2023 Report

- **Career Aspirations**
 - The report highlights that more than 60% of surveyed 14-18-year-olds aspire to obtain a college education, with a higher percentage of girls (65%) than boys (59%) aiming for higher education.
 - Common career aspirations include joining the police or defence forces for boys and becoming a teacher or doctor for girls.
 - Developing realistic and informed career aspirations is important for students' future success.
- **Lack of Role Models**
 - ASER points out that nearly half of the surveyed youth who have work aspirations do not know anyone working in their desired profession.
 - This gap in knowledge and exposure can hinder students' ability to make informed decisions about their career paths.
- **Negative Perceptions of Vocational Education**
 - In some regions, vocational education is viewed negatively as a fallback option for those unable to secure white-collar jobs.
 - This stigma can discourage students from pursuing vocational training and limit their career opportunities.
- **Positive Examples of Vocational Education**
 - In contrast, certain areas like Solan in Himachal Pradesh offer context-driven vocational courses such as tourism and hotel management starting in standard nine.
 - These courses provide on-the-job training, certification, and clear information about career prospects, making vocational education more appealing and valuable.

Potential Impact of the Integration of Technology into Education

- **Increasing Access to Smartphones**
 - The report highlights the **increasing access of youth to smartphones**, which are primarily used for **entertainment and social media rather than educational purposes**.
 - This widespread availability presents an opportunity to leverage smartphones for educational initiatives.
- **Digital Learning Resources**
 - **Technology provides access to a vast array of online educational resources, including e-books, videos, courses, and interactive learning platforms.**
 - **By utilising these resources, students can supplement their classroom learning and gain a deeper understanding of various subjects.**
- **Online Courses and Training**
 - Online courses and training programs **allow students to explore a range of subjects and vocational skills at their own pace.**
 - These courses can be tailored to meet students' interests and career aspirations, providing them with practical skills and knowledge.
- **Bridging the Gap Between Education and Careers**
 - **Digital technology can connect students with professionals and experts** in their fields of interest through webinars, virtual internships, and online mentoring.
 - These connections can help students gain insights into potential career paths and the skills required for success.
- **Interactive and Engaging Learning**
 - **Technology can make learning more interactive and engaging** through educational apps, games, and simulations.
 - These **tools can cater to different learning styles and help students grasp complex concepts** more effectively.
- **Remote Learning and Accessibility**
 - **Technology facilitates remote learning**, allowing students to access educational content from anywhere, which is particularly beneficial for those in rural or underserved areas.
 - **This increased accessibility can help bridge educational disparities** and provide more equitable learning opportunities.

Collaboration with Ed-Tech Agencies

- **Collaborations** between educational institutions and ed-tech agencies **can lead to the development of innovative educational tools and resources** tailored to students' needs.
- These partnerships can also help bridge the gap between traditional education and the digital world.

Conclusion

- **ASER 2023 emphasises the importance of addressing foundational learning gaps** among India's adolescents and youth.
- **By focusing on early interventions, engaging students in education, and leveraging technology, policymakers and educators can work towards improving outcomes** and providing a brighter future for young people.
- **Data-driven insights can guide targeted actions** and collaborations across educational institutions, industries, and professional groups to support **the aspirations and development of India's youth.**

9. Why is there a High Suicide Rate Among Indian Youths?

Why in News? Suicide in the young is a major public health problem in India, and is a loss to family, society, the economy and future of the country.

What does the Data Show?

Suicide is the tragic and untimely loss of human life, all the more devastating and perplexing because it is a **conscious deliberate act**. India has the dubious distinction of having the **highest number of suicides in the world**. The NCRB reports that 1.71 lakh people died by suicide in 2022, recording a **highest ever rate of 12.4 per 1,00,000**.

What are the Main Concerns about the Above Data?

The figures are underestimated. Unfortunately, **41% of all suicides are by young people** below the age of 30 (this means, a youth suicide every 8 minutes in India). Suicide is the **leading cause of mortality for young women** in India.

What are the Factors Responsible for Suicides Among Indian Youths?

Suicide in young people is the result of **interaction between biological, psychological, familial, and social cultural factors**. The most commonly reported risk factor is mental health problems (54%). **Competitive examinations**, parental pressure/over expectation, academic stress, alcohol and substance use are known risk factors in youth suicides.

What are the Sociocultural Factors for Suicide Among Young Girls and Women?

Arranged and early marriages, young motherhood, low social status, domestic violence and economic dependence are well documented factors.

What is the Role Played by Media/Social Media in Youth Suicides?

The last two decades have witnessed a **marked increase in internet use among the young**. The media has a strong influence on vulnerable young people. **Sensational reporting of suicide**, particularly by a celebrity, is followed by **increased suicidal behaviour**.

What are the Solutions to Prevent Youth Suicides in India?

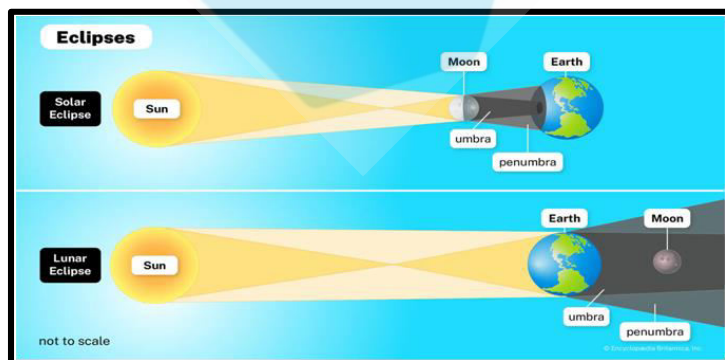
Problem solving lessons for youths, early identification of mental distress and adopting a healthy lifestyle (appropriate use of the internet) reduces suicide in the young. **Educational reforms** (such as alternative assessment methods) and **societal changes** (to reduce stigma and discrimination) need to be addressed.

What is the National Suicide Prevention Strategy for India?

It was launched by the **Ministry of Health & Family Welfare in 2022 with the objective of reducing suicide by 10% by 2030**. The strategy has recognised leveraging educational institutions/ youth clubs/ school health ambassadors to promote mental health and reduce substance and behavioural addictions.

10. What Makes a Total Solar Eclipse so Rare?

Why in News? On April 8, a total solar eclipse will cross North America, passing over Mexico, the United States, and Canada.



What is a Solar Eclipse?

It takes place when the **Moon moves in the middle of Earth and the Sun** and blocks the light of the Sun (fully or partially), which casts a huge shadow on some parts of the world. A solar eclipse is witnessed **only during the new moon** (occurs about 29.5 days) - when the Moon and Sun are aligned on the same side of Earth.

Does a Solar Eclipse Happens Every Month?

No. It is because the Moon does not orbit Earth in the same plane as the Earth orbits the Sun. However, there will be two points/nodes (on the Moon's orbit) at which the intersection occurs and whenever the new moon crosses one of these nodes, there is an opportunity for solar eclipses.

What is a Total Solar Eclipse?

There are **four different types of solar eclipses**, including total, annular (periphery of the Sun is visible), partial (crescent shaped sun) and hybrid (some parts see a total, while others see an annular solar eclipse) solar eclipses. **When the Moon blocks the Sun entirely**, the areas in the centre of the Moon's shadow at the time witness a total solar eclipse.

Why is a Total Solar Eclipse so Rare?

While there can be between two and five solar eclipses every year, **total eclipses only happen about once every 18 months or so**. A particular spot-on Earth witnesses a total solar eclipse **only once in 400 years**, because a total eclipse is only visible if one is standing in the **umbra** shadow, which will only cover less than 1% of the globe. Hence, only very few people will get to see a total eclipse at a time.

10. India's Fall in Fertility Rate May Be a Boon in Disguise

Context

- **India's population dynamics have long been a topic of discussion**, with projections indicating a staggering increase in population size.
- However, **recent reports, notably from The Lancet, suggest a significant decline** in India's total fertility rate (TFR) by 2051.
- This **shift in demographic trends prompts a deeper analysis of its implications on various aspects of Indian society**, including economic growth, workforce dynamics, and healthcare demands.

Demographic Projections and Trends

- The UN Population Division projects **India's population to reach close to 1.7 billion by 2065 before stabilising**, while The Lancet report **suggests a decline in the total fertility rate (TFR) to 1.29 by 2051**.
- These estimates indicate a shift in India's population dynamics, with potential implications beyond sheer size.
- **Government projections and data from NFHS 5 also reveal a declining TFR trajectory**, suggesting that population stabilization might occur sooner than anticipated.

Implications of Declining Total Fertility Rate (TFR)

- **Economic Impact**
 - **The decline in TFR leads to changes in the age structure of the population**, with fewer children and a larger proportion of working-age adults.
 - Initially, **this demographic dividend presents an opportunity for economic growth** as there are more productive individuals contributing to the workforce than dependents.
 - **The surplus income generated by a larger working-age population can accelerate economic development** through increased consumption, savings, and investments.
- **Dependency Ratio**
 - A declining TFR results in a lower dependency ratio, which is the ratio of dependents (children and elderly) to the working-age population.
 - **A lower dependency ratio signifies a smaller burden on the working-age population to support dependents**, allowing for greater economic productivity and resource allocation towards development initiatives.
 - **However, as the population ages, the dependency ratio may increase again** due to a larger elderly population, necessitating adjustments in healthcare and social welfare policies.

- **Labour Market Dynamics**
 - **The demographic transition influences labour market dynamics**, including employment patterns and wage structures.
 - With a larger working-age population relative to dependents, there may be increased labour supply, which could drive down wages in certain sectors.
 - Conversely, **industries experiencing labour shortages may need to offer higher wages** to attract workers.
 - Additionally, **the transition from agricultural to industrial and service sectors may lead to structural shifts** in employment opportunities and skill requirements.
- **Social Welfare and Healthcare Needs**
 - As the population ages due to declining fertility rates and increased life expectancy, **there is a growing demand for social welfare and healthcare services** tailored to the needs of the elderly.
 - This includes pension schemes, long-term care facilities, and healthcare programs addressing age-related ailments.
 - **Adequate provision of these services becomes essential to ensure the well-being and quality of life** for the aging population and to mitigate potential strains on healthcare systems.
- **Implications for Education and Human Capital**
 - With fewer children entering the school-age population, **there may be a decrease in demand for educational infrastructure and resources** at the primary and secondary levels.
 - **However, investments in higher education and skill development become increasingly important to equip the smaller cohort of young adults** with the knowledge and skills needed for a competitive workforce.

How India's Declining Fertility Rate May Be a Boon?

- **Increased Labor Productivity**
 - A declining total fertility rate (TFR) **leads to a demographic dividend, characterised by a larger share of the working-age population** relative to dependents.
 - This surplus labour force can drive higher levels of productivity across various sectors of the economy.
 - **With more individuals actively contributing to the workforce, there is greater potential for innovation, specialisation, and overall economic output.**
- **Capital Accumulation and Investment**
 - As fertility rates decline, **households tend to allocate more resources towards the education and well-being of fewer children.**
 - This translates into increased savings and investment at the household level, as families prioritise long-term financial security and asset accumulation over immediate consumption.
 - **Higher savings rates contribute to capital formation, fostering investment in physical infrastructure, technology, and human capital,** which are essential drivers of economic growth.
- **Resource Reallocation**
 - **A declining TFR necessitates a reallocation of resources away from expenditures associated with childcare and education** for larger families towards investments in education, skill development, and healthcare for a smaller cohort of children.
 - **This shift in resource allocation enables the efficient utilisation of public funds and private investments,** leading to improvements in human capital development and productivity gains in the long run.
- **Regional Development and Urbanisation**
 - Declining fertility rates are often accompanied by urbanisation and regional development.
 - **Urban centres become hubs of economic activity, attracting investment, talent, and innovation.**
 - As populations concentrate in urban areas, **there is greater potential for economies of scale, knowledge spillovers,** and networking opportunities, fostering entrepreneurship and industry clustering.
 - Additionally, urbanisation promotes infrastructure development, connectivity, and access to essential services, enhancing overall productivity and competitiveness.
- **International Competitiveness**

- A demographic transition towards lower fertility rates **can enhance a country's international competitiveness.**
- A younger, **more educated workforce is better equipped to adapt to technological advancements**, compete in global markets, and attract foreign investment.
- Moreover, **a favourable demographic profile, characterised by a higher ratio of working-age adults to dependents, can bolster a nation's creditworthiness**, investor confidence, and long-term economic stability.

Way Forward

- **Empowering Women and Underprivileged Groups**
 - **Addressing demographic shifts requires a focus on skill development**, especially for women and marginalized communities.
 - **Lower fertility rates may alleviate pressure on educational infrastructure but demand attention towards reducing dropout rates** in higher education and facilitating women's participation in the workforce.
- **Sectoral and Spatial Redistribution of Workforce**
 - **The transition prompts a shift in the workforce from agriculture to industries and services, necessitating skill development initiatives**, particularly among disadvantaged groups.
 - Additionally, the north-south migration of labour contributes to spatial balance in the labour market, potentially improving working conditions and wage equality.
- **Preparedness in Healthcare**
 - As life expectancy increases, **India faces challenges related to an aging population and increased healthcare demand.**
 - Adequate healthcare infrastructure and policies addressing the needs of the elderly are imperative to harness the demographic dividend effectively.

Conclusion

- India's demographic transition **signifies a pivotal juncture in its socio-economic trajectory.**
- While challenges abound, strategic policies **focusing on skill development, women's empowerment, labour redistribution, and healthcare preparedness can unlock the nation's potential** for sustained growth and development.
- **Embracing this transition with foresight and adaptability is crucial** for India to realise its aspirations on the global stage.



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General Studies-II

1. Mind the Gap: EC's Model Code Needs Reform and India Needs Model Leadership

Context

- **The Model Code of Conduct (MCC)**, a cornerstone of India's electoral process, **has undergone a significant evolution since its inception.**
- Initially designed to ensure fair conduct during elections, **it has encountered challenges in recent years due to the changing political landscape.**
- Therefore, it is **important to analyse the historical development of the MCC, assess its current shortcomings, and propose measures** to strengthen its enforcement.

Evolution of the Model Code of Conduct (MCC)

- **The MCC originated in the 1960s** as a modest set of guidelines for election conduct, primarily focused on Kerala's Assembly elections.
- Over the years, **under different Chief Election Commissioners (CECs), it expanded in scope and applicability.**
- Notably, **in 1979, under S L Shakhdar's tenure, the MCC was circulated before every General Election,** reflecting its growing importance.
- Subsequent revisions, **particularly under T N Seshan, instilled the MCC with greater potency,** making it a vital tool for ensuring electoral integrity.

MCC Challenges and Need for Strengthening the Enforcement

- **Escalating Violations**
 - Political parties and candidates **frequently flout the MCC's provisions with impunity,** engaging in activities such as hate speech, vote-buying, and misinformation campaigns.
 - The **prevalence of such violations erodes public trust in the electoral process** and undermines the principles of fairness and transparency.
- **Exploitation of Loopholes**
 - In the contemporary political landscape, **there is a visible trend of political actors exploiting loopholes** in the MCC to circumvent its regulations.
 - With the advent of technology and social media, **parties have found new avenues to disseminate propaganda and target voters,** often skirting the MCC's traditional constraints.
 - This exploitation of loopholes diminishes the MCC's effectiveness and necessitates revisions to address emerging challenges.
- **Inadequate Deterrents**
 - While the MCC outlines ethical guidelines and principles, it often **fails to prescribe meaningful consequences for violations.**
 - As a result, **politicians perceive little risk in flouting the MCC,** emboldening them to prioritise electoral gains over ethical conduct.
 - **Strengthening the MCC requires the imposition of clear and proportional penalties** for infringements, thereby instilling a culture of accountability.
- **Complexity of Enforcement**
 - **The vast and diverse nature of India's electoral landscape,** coupled with the sheer volume of violations reported, **strains the EC's enforcement capabilities.**
 - Moreover, **the process of adjudicating MCC violations can be protracted and resource-intensive,** leading to delays in accountability.
 - **Streamlining enforcement procedures and enhancing the EC's capacity are essential** for ensuring the timely and effective implementation of the MCC.
- **Erosion of Public Trust**

- **When citizens witness widespread disregard for ethical norms and regulations, they may become disillusioned with the democratic system,** leading to voter apathy and disenchantment.
- **Restoring public trust in elections requires robust measures to strengthen the MCC** and demonstrate the EC's commitment to upholding electoral integrity.

Proposed Reforms to Strengthen the Enforcement of MCC

- **Clear and Comprehensive Guidelines**
 - The first step in reforming the MCC involves establishing clear and comprehensive guidelines outlining permissible and impermissible conduct during electoral campaigns.
 - **These guidelines should be updated regularly** to adapt to evolving challenges and technological advancements.
 - By **providing clarity on expected behaviour, political parties and candidates will be better equipped** to adhere to ethical standards and avoid inadvertent violations.
- **Strict Enforcement Mechanisms**
 - This includes **the imposition of proportional penalties for infringements**, such as fines, bans on campaigning, and withdrawal of electoral symbols.
 - Additionally, **the Election Commission (EC) should streamline enforcement procedures to ensure swift adjudication of cases**, thereby enhancing the MCC's credibility and deterrent effect.
- **Indirect Liability for Political Parties**
 - By **imposing penalties on parties found guilty of MCC violations, regardless of individual culpability**, the reform aims to incentivise parties to exercise greater oversight over their members' conduct.
 - **This measure not only enhances accountability but also nurtures a culture of collective responsibility** within political organisations.
- **Transparency and Public Accountability**
 - **The EC should maintain a publicly accessible database** documenting all reported MCC violations, along with their respective dispositions.
 - This **transparency enables citizens to monitor compliance with electoral regulations** and hold political actors accountable for their actions, thereby bolstering public trust in the electoral process.
- **Timely and Credible Adjudication**
 - **Delays in addressing violations undermine the MCC's deterrent effect** and erode public confidence in the EC's ability to enforce electoral regulations.
 - By **prioritising timely resolution of cases and ensuring impartiality** in decision-making, the EC can **demonstrate its commitment to upholding electoral integrity** and fairness.
- **Continuous Evaluation and Revision**
 - As new challenges emerge and electoral dynamics evolve, **policymakers must remain vigilant in identifying areas for improvement** and updating the MCC accordingly.
 - **This iterative approach ensures that the MCC remains relevant and effective** in safeguarding the integrity of India's electoral process.

The Role of Political Parties and Election Commission in Upholding the Integrity of Electoral Process

- **The Role of Political Leadership**
 - **Political leaders play a pivotal role** in upholding the integrity of elections **by adhering to ethical standards and promoting responsible conduct** within their parties.
 - By setting an example of ethical leadership, **politicians can cultivate a culture of integrity and accountability** among their supporters and party members.
 - **Effective self-regulation within political parties is essential** for minimising MCC violations and maintaining the integrity of electoral campaigns.
 - **And by demonstrating a commitment to fairness, transparency, and respect** for democratic principles, **leaders can inspire confidence in the integrity of elections** and foster civic engagement among voters.
- **The Role of Election Commission**

- As the custodian of electoral integrity, **the Election Commission plays a crucial role in impartially adjudicating MCC violations** and enforcing electoral regulations.
- **Prompt and decisive enforcement of the MCC is essential** for deterring violations and maintaining the integrity of electoral campaigns.
- **The EC must uphold public accountability** by maintaining transparency in its actions and decisions related to MCC enforcement.
- **By providing regular updates on reported violations**, adjudication outcomes, and enforcement measures, **the EC creates public trust** in its ability to safeguard the integrity of elections.
- **Enhancing the EC's capacity for MCC enforcement is crucial** for effectively addressing emerging challenges and ensuring the integrity of electoral processes. This includes
 - **Investing in training programs,**
 - **Technological infrastructure, and**
 - **Human resources to enable the EC to adapt to evolving electoral dynamics** and enforce regulations effectively.

Conclusion

- **The MCC represents a vital safeguard against electoral malpractice**, but its efficacy is contingent on robust enforcement and continuous adaptation to changing circumstances.
- **By implementing the proposed reforms** and fostering a culture of ethical leadership, **India can reinforce the integrity of its democratic processes**, ensuring free and fair elections for all citizens.

2. Geneva-based UN-related body to review India's human rights accreditation status

Why in news?

The **National Human Rights Commission (NHRC)** is preparing to defend its human rights processes at a meeting to be held in Geneva. In this meeting a **decision on whether India's human rights body will retain its "A status"** is expected to be made.

The meeting of the Sub-Committee on Accreditation (SCA) of the UN-recognised Global Alliance of National Human Rights Institutions (GANHRI) worldwide will be held on May 1.

National Human Rights Commission (NHRC):

- **About**
 - It is a **statutory body** established under **Protection of Human Rights Act, 1993**.
 - The Commission is the **watchdog of human rights in India**.
- **Composition of NHRC**
 - The Commission is a **multi-member body** consisting of a chairperson and five members.
 - The **chairperson should be a retired chief justice of India or a judge of the Supreme Court**.
 - Members should be a serving or retired judge of the Supreme Court, a serving or retired chief justice of a high court and three persons (out of which at least one should be a woman) having knowledge or practical experience with respect to human rights.
- **Appointment & Tenure**
 - The **chairperson and members are appointed by the President on the recommendations of a six-member committee consisting of:**
 - Prime Minister as its head; Speaker of the Lok Sabha; Deputy Chairman of the Rajya Sabha; Leaders of the Opposition in both the Houses of Parliament; Central Home Minister
 - The chairperson and members are appointed for the **term of 3 years or till the age of 70 years**, whichever is earlier.
 - The chairperson and members are **eligible for reappointment**.

Global Alliance for National Human Rights Institutions (GANHRI)

- **About**

- It is an **organisation affiliated to the UN High Commissioner for Human Rights.**
- It is a global network of national human rights institutions (NHRIs) that works to promote and protect human rights.
 - **GANHRI represents 120 NHRIs from around the world.**
- GANHRI's mission is to **unite, promote, and strengthen NHRIs** to operate in line with the UN Paris Principles.

- **Accreditation by the GANHRI**

- **Sub-Committee on Accreditation (SCA) reviews NHRIs every five years**, and there is an appeal process for NHRIs to ensure greater transparency and due process.
 - In a unique peer-review-based accreditation process. GANHRI ensures individual NHRIs' compliance with **the Paris Principles** – to ensure their independence, pluralism and accountability.
 - The **Paris Principles** set out internationally agreed minimum standards that NHRIs must meet to be considered credible.
 - The six principles require a country's human rights agency to be independent from the government in its structure, composition, decision-making and method of operation.
 - **An NHRI is reviewed by the SCA when –**
 - It applies for initial accreditation
 - It applies for re-accreditation every five years
 - The circumstances of the NHRI change in any way that may affect its compliance with the Paris Principles.
 - **NHRIs that are assessed as complying with the Paris Principles are accredited with 'A status', while those that partially comply are accredited with 'B status'.**
 - This accreditation status affects a country's ability to vote at the UN Human Rights Council and some UNGA bodies.
- **India's accreditation**
 - **India's NHRC got 'A' status of accreditation for the first time in 1999, which it retained in 2006, 2011, and in 2017 after it was deferred for a year.**

India's accreditation status under review

- **Background**

- **The NHRC's ratings were put on hold in 2023 over concerns on:**
 - composition procedure,
 - presence of police personnel in human rights investigations, and
 - lack of gender and minority representation.
- Now, on **May 1, 2024, NHRC's performance will again be reviewed in order to decide on the accreditation status.**

- **Observations made by the review committee in 2023**

- According to a six-point submission by the SCA in March 2023, the **NHRC has failed to create conditions required to be able to operate independent of government interference.**
- In the submission, the **committee had slammed India for the involvement of police officers in its investigative process, calling it a conflict of interest.**
- It also cited the **lack of pluralism and gender representation**, given the **NHRC had only one woman in its top body**, an institutional ex-officio representative of the National Commission for Women.
- The SCA had also pointed out that the **composition of the committee should reflect the diversity of the society it operated in.**
 - It indicated the **lack of any member representing India's largest minority religions.**

3. Supreme Court Rejects Demand for 100% Verification of VVPAT Slips

Why in News?

- The Supreme Court **rejected the demand for 100% verification** of Voter Verified Paper Audit Trails (VVPATs) in Indian elections.
- The SC **also rejected a return to the earlier ballot paper system for elections** - something which opposition parties demanded in recent years.

A Timeline of Introduction of VVPATs in India:

- **Introduction and field trials**
 - The idea of the VVPAT machine first emerged in **2010**, when the Election Commission of India (ECI), held a meeting with political parties to discuss **how to make the EVM-based polling process more transparent**.
 - After a prototype was prepared, **field trials** were held in Ladakh, Thiruvananthapuram, Cherrapunjee, East Delhi, and Jaisalmer in **2011**.
- **Approval of design**
 - After fine-tuning the design, holding more trials, and taking feedback from political parties, **an ECI expert committee approved the design in 2013**.
 - In 2013, the **Conduct of Elections Rules 1961** were amended to allow for a printer with a drop box to be attached to the EVM.
- **Introduction of VVPAT**
 - **The VVPAT was used for the first time** in all 21 polling stations of the Noksen Assembly constituency of Nagaland in **2013**.
 - After this, the ECI decided to introduce VVPATs in a phased manner and by (June) **2017**, there was **100% adoption of VVPATs**.
- **Internal audit of VVPAT Slips**
 - In 2018, the ECI asked the **Indian Statistical Institute (ISI)** to come up with a mathematically sound and practically cogent sample size for the **internal audit** of the VVPAT slips with electronic result of EVMs.
 - On the basis of which, the ECI mandated the counting of VVPAT slips of one randomly selected polling station per Assembly constituency.
 - **This was increased to five polling stations per Assembly seat**, following a SC judgement in 2019.
 - The five polling stations are **selected by a draw of lots** by the Returning Officer concerned, in the presence of candidates/ their agents.

What Have Been the Legal Cases Surrounding the VVPAT?

- **Subramanian Swamy vs ECI (2013)**: The SC ruled that a paper trail was indispensable for free and fair elections, and ordered the government to provide funding for the roll-out of VVPATs.
- **Chandrababu Naidu Case (2019)**:
 - He moved the SC asking for a minimum 50% randomised VVPAT slips to be counted.
 - However, the ECI argued that this would **delay the election results by five to six days**, as it takes about an hour for election officers to match VVPAT slips with the EVM count in one polling station.
 - **The EC has also highlighted infrastructure challenges**, including the availability of manpower, as obstacles to increasing the number of polling booths where VVPAT slips are counted.
 - **Opposition parties argue** that the sanctity of a fair election outweighs the concern of delay in the declaration of results.
 - The court ordered the EC to count VVPATs in **five polling stations instead**.

What was the Recent VVPAT-EVM Tally Case?

- In 2023, the ADR had filed a **petition before the apex court** saying that to ensure free and fair elections, the tally from Electronic Voting Machines (EVMs)/ data on votes cast, should be cross-verified with the VVPATs.
 - The petition (along with other petitions) seeks **100% verification** of votes cast on EVMs using the VVPAT.
- To make sure that this process is carried out as fast as possible, **ADR suggested the use of barcodes on VVPAT slips**.

What has SC Ruled in the VVPAT-EVM Tally Case?

- The SC rejected the demand for 100% verification of VVPATs in Indian elections and also rejected a return to the earlier ballot paper system for elections, thus reposing faith in the electoral process.
- However, the court issued **two directions and some suggestions** to the ECI in this regard, attempting to ensure that India's electoral process remains full proof.
- **First direction:**
 - In a first, the court gave directions to the ECI to **seal and store the symbol loading units (SLUs)** for 45 days after declaration of results.
 - **SLUs are memory units that are first connected to a computer to load election symbols onto it**, and then used to enter symbols of the candidates on the VVPAT machines.
- **Second direction:**
 - The SC has **enabled candidates to seek verification of the EVMs** - again a first.
 - The burnt memory in the EVM microcontroller must be checked by a team of engineers - after results are declared - if candidates (placed 2nd and 3rd in the election) make such a request **within 7 days of declaration of results**.
 - **The expenses for this verification will have to be borne by the candidate** and which would be refunded in case the EVM is found to be tampered with.
- **Suggestion on VVPAT:**
 - The ECI may examine the suggestion that **VVPAT slips can be counted using a counting machine**, rather than by humans.
 - VVPAT slips could have a **barcode** printed on them, making it easier for machine counting.

What the top court said

ON INTEGRITY OF THE ELECTORAL PROCESS
"The credibility of the ECI (Election Commission of India) and integrity of the electoral process earned over years cannot be chaffed and over-ridden by baroque contemplations and speculations."

ON CITIZEN PARTICIPATION
"Repeated and persistent doubts and despair, even without supporting evidence, can have the contrarian impact of creating distrust. This can reduce citizen participation and confidence in elections, essential for a healthy and robust democracy."

ON MANIPULATION CLAIMS
"The suspicion that the EVMs can be configured or manipulated for repeated or wrong recording of vote(s) to favour a particular candidate should be rejected."

4. Reversing the Global Democratic Recession

Context

- **India is amid its most significant electoral exercise** and it might be worthwhile to scrutinise people's changing perceptions about their political ecosystems.
- **India, as the world's largest democracy, provides a fascinating case study for examining evolving perceptions of democracy**, both within its borders and in smaller democratic spaces globally.
- **Through a detailed analysis of a Pew Research Centre survey** conducted across 24 countries and the shifting attitudes towards democratic governance, **it is important to explore the global situation and potential future courses of action**.

Global Disenchantment with Democracy

- **The Pew Research Centre's global survey** conducted in 2023, encompassing 30,861 respondents, **reveals a significant erosion of trust in democratic systems worldwide**.
- While **77% of respondents express optimism** about representative democracy, **there is a worrisome receptivity to alternative governance models**.
- Notably, **support for representative democracy has diminished since 2017**, contrasting with robust endorsements of direct democracy, rule by experts, and authoritarian government models.

Regional Variations and Trends Observed in the Evolving Perceptions of Democracy

- **Shift towards Rule by Experts and Authoritarianism**

- Across regions, **there is a discernible trend towards favouring rule by experts and authoritarian governance models.**
- **This shift is particularly pronounced in countries facing challenges such as economic instability, political unrest, or perceived inefficiencies in democratic processes.**
- **Citizens in these regions often perceive democracies as slow-moving and ineffective** in addressing pressing issues, leading to a growing acceptance of concentrated power and decisive leadership.
- **Socioeconomic Factors Influence Preferences**
 - **Socioeconomic factors play a crucial role** in shaping governance preferences.
 - **Respondents from lower-income countries** with limited access to education **tend to endorse 'strong' leaders and military rule.**
 - These **preferences may stem from a desire for stability and economic development**, as authoritarian regimes are often perceived as more capable of delivering immediate solutions to complex problems.
- **Cultural and Historical Context**
 - Regional variations in perceptions of democracy are **also influenced by cultural and historical factors.**
 - **Countries with a history of authoritarianism** or centralised governance structures **may exhibit greater receptivity to authoritarian models.**
 - Similarly, cultural norms regarding leadership, hierarchy, and decision-making processes can shape attitudes towards democracy and alternative governance systems.
- **Resistance to Authoritarianism in Some Regions**
 - While support for authoritarianism is on the rise in certain regions, **it faces resistance in others.**
 - **Countries with a strong tradition of liberal democracy**, such as Canada, Europe, the Scandinavian nations, and the United States, **continue to prioritise democratic values and institutions.**
 - In these regions, there is a robust commitment to democratic norms, civil liberties, and the rule of law, which serves as a bulwark against the erosion of democratic principles.

Indian Perception of Democracy

- **Shift in Preference for a Powerful Leader**
 - Indian perceptions of democracy have **witnessed a notable shift in recent years, marked by a declining favourability towards representative democracy** and a growing inclination towards authoritarian leadership.
 - **While in 2017, 44% of Indians favoured representative democracy**, this figure decreased to 36% by 2023.
 - Conversely, **the preference for a powerful leader with significant authority increased from 55% in 2017 to 67% in 2023.**
- **Rising Support for Rule by Experts**
 - Similar to global trends, **Indian attitudes towards governance have shown an upward trajectory in support for rule by experts** and authoritarian models.
 - The endorsement of rule by experts soared from 65% to an impressive 82% over the same period.
 - Notably, the most striking shift is the overwhelming preference for military rule or governance by an authoritarian leader, with a staggering 85% of Indians expressing support for such models by 2023.
- **Diverse Regional Perspectives**
 - It is essential to recognise that **perceptions of democracy may vary across different regions and demographic groups within India.**
 - While certain segments of the population may express support for authoritarian leadership, **others may remain committed to democratic values and institutions.**
 - Factors such as education, socioeconomic status, and cultural background can influence individuals' attitudes towards governance.

Ways Ahead to Strengthen the Democratic Foundations

- **Participatory Governance**
 - **At the heart of a strong democracy lies active citizen participation** in the decision-making process.

- Governments must create mechanisms and platforms that enable meaningful engagement and involvement of citizens in policymaking, governance, and public affairs.
- **This can include initiatives such as town hall meetings, participatory budgeting, citizen assemblies, and digital platforms for feedback and consultation.**
- **Free and Equal Access to Information**
 - **Transparency and access to information are fundamental** to democratic governance.
 - **Governments should ensure that citizens have unrestricted access to accurate and reliable information** about government actions, policies, and decision-making processes.
 - **This may involve strengthening freedom of information laws, enhancing government transparency and accountability mechanisms, and promoting investigative journalism and media literacy.**
- **Accountable and Just Governance**
 - Democratic governance requires institutions that are accountable to the people they serve and uphold the rule of law.
 - **Governments should establish robust checks and balances, independent judiciary, and effective oversight mechanisms** to prevent abuse of power and ensure accountability.
 - Furthermore, efforts should be made to promote equality before the law and protect the rights of marginalized and vulnerable groups.
- **Promotion of Civic Engagement and Civil Society**
 - **Civil society organisations play a vital role in promoting democratic values, advocating for citizen rights, and holding governments accountable.**
 - **Governments should create an enabling environment for civil society to operate freely, including protecting freedom of association, expression, and assembly.**
 - **Collaboration between government and civil society can foster dialogue, cooperation, and mutual understanding, strengthening democratic governance.**
- **Ethical Leadership and Public Service**
 - Ethical leadership and public service are essential for the integrity and legitimacy of democratic institutions.
 - **Governments should promote a culture of public service and ethical conduct among elected officials, bureaucrats, and other public servants.**
 - This includes measures to prevent corruption, promote transparency and integrity in government, and hold individuals accountable for misconduct.
- **Responsive and Inclusive Policies and Mechanism of Dialogue**
 - Democratic governments **must prioritise policies that address the needs and concerns of all citizens**, particularly marginalised and underrepresented groups.
 - This **requires proactive efforts to promote social justice, economic equality, and inclusivity** in decision-making processes.
 - Governments should engage with diverse stakeholders, listen to their voices, and tailor policies to ensure that no one is left behind.

Conclusion

- **The evolving perceptions of democracy, as evidenced by the Pew Research Centre survey and India's democratic landscape, underscore the need for a critical examination of democratic systems worldwide.**
- **By addressing regional variations, understanding shifting attitudes, and prioritising foundational strengthening efforts, nations can navigate the challenges and opportunities of democratic governance in the 21st century.**

5. Iran-Israel tensions

Why in news?

On April 14, Iran launched hundreds of drones and missiles towards Israel. This attack was in retaliation for an Israeli attack on its consulate that occurred in Damascus, Syria, two weeks ago. Several senior Iranian generals were killed and Iran had vowed to respond.

Iran's attack on Israel

- While Israel is not believed to have suffered any major damage early on, Iran warned that a military move from Israel would be met with a much larger response.

India's stand in Iran-Israel tension

- **India called for de-escalation in the aftermath of Iran's retaliatory strike against Israel.**
- This approach is in contrast to India's instant expression of solidarity with Israel at the highest political level immediately after the October 7 terror attack by Hamas.

What does India's approach on recent Iran-Israel tension signify?

- **Difference between terrorism perpetrated by non-state actors and direct confrontation between two states**
 - India's call to show restraint in the region **highlights the contrast** between dealing with terrorism from a non-government group and managing a conflict between two big countries with a history of rivalry.
 - **Delhi has a lot at stake in its relationships with both Tehran and Tel Aviv**, and it's never been about picking one over the other.
 - If India was seen as taking Israel's side on October 7 (Hamas attack), its position today urging restraint will be viewed as balanced and in favour of regional peace.
- **Complexity of the region's politics**
 - **India's call for de-escalation between Israel and Iran is about recognising the complexity of the region's politics.**
 - Inter-state and intra-state conflicts in the Middle East are deep and pervasive.
 - India will have to forever balance its engagement with key regional actors — **Egypt, Iran, Israel, Qatar, Turkey, Saudi Arabia, and the UAE.**
 - Orientation and interests of these countries are different and often in conflict.
- **Shift in India's approach towards this region**
 - In the past, India's regional policy was framed in terms of contradictions between the West and the Middle East.
 - E.g., **India's steps to manage the fallout of US-Iran tensions.**
 - Today, Delhi pays attention to the region's internal contradictions.
 - E.g., **India's stand on Iran – Israel issue, Israel-Palestine issue etc.**
- **Religion can't be the dominant factor in dealing with the Middle East**
 - India's call for de-escalation also underlines that **religion and associated vote-bank politics can't be the dominant factor in dealing with the Middle East.**
 - India's response must be based on the merits of the issue at hand.
- **India's expanding footprints in the Middle East**
 - India's interests in the region are no longer limited to oil imports and labour exports.
 - **The Gulf Arab states — especially Saudi Arabia and the UAE— have emerged as major economic and political partners for India.**
 - Partnerships with Gulf Arab countries go beyond just two-way relationships and now have a broader impact across the Indian Ocean region.
 - These partnerships are crucial for making the India Middle East Europe Corridor (IMEC) a reality, which is currently a top priority for India's trans-regional agenda.

Conclusion

The Middle East is a demanding region and dealing with it is not for the simple-minded or the faint-hearted. As a large neighbour with growing stakes in the Middle East, Delhi is fast learning to navigate the region's unending conflict.

6. Is transparency lacking in candidate disclosure?

Context- The Supreme Court (SC) recently held that candidates need not disclose every piece of information and possession in their election affidavit unless it is substantial in nature.

What does the Law Say?

Section 33 of the Representation of the People Act, 1951 (RP Act) read with rule 4A of election rules, mandates every contesting candidate to file their nomination paper for elections along with an affidavit in a prescribed format containing details regarding their bank accounts, income, movable/immovable assets, criminal antecedents, loans etc.

Section 125A of the RP Act prescribes upto six months of imprisonment or fine or both for failure to furnish required information; giving false information or concealing any information in the nomination paper or affidavit.

What are the issues?

- **Educrat IAS Academy, 2nd floor, North Block, Park Plaza Building, 71, Park Street, Kolkata- 700016**
- that can have a potential impact on the decision of the voters.
- Candidates with serious criminal charges contesting elections circumvent the requirement of **rule 4A** by filing incomplete affidavits.
- According to a report by Association of Democratic Reforms (ADR), **19% of candidates in the 2019 Lok Sabha election faced charges of rape, murder or kidnapping.**

Recommendations- Law Commission in its 244th report of 2014 on 'Electoral Disqualifications' and EC in its 2016 'Electoral reforms' recommended-

1. Conviction for false affidavit should attract minimum two years of imprisonment and disqualification.
2. Trials for false affidavits must be conducted on a day-to-day basis.
3. **Persons charged for offences punishable by imprisonment of at least five years should be debarred from contesting in the elections if the case is filed at least 6 months before the election in question.**

The **SC in Public Interest Foundation Vs Union of India (2018)** directed candidates and political parties to issue a declaration about criminal antecedents, at least three times before the election, in a newspaper in the locality and electronic media.

Way Forward- Increasing punishment for filing false affidavits and making it a ground for disqualification need to be implemented. **The Supreme Court's order to provide wide publicity of criminal records should also be strictly implemented to enable a discerning voter to exercise a well-informed choice.**

7. The Advent of a Holistic Approach to 'One Health'

Context

- **The relationship between humans, animals, and the environment has become increasingly interdependent,** particularly evident with the emergence of pandemics such as COVID-19.
- This **interdependence also extends to livestock and wild animals,** with diseases such as lumpy skin disease affecting both animal productivity and trade.
- Recognising these challenges, **the Indian government has initiated the 'National One Health Mission' to address the interconnectedness** of human, animal, and environmental health.

The National One Health Mission

- It is a **comprehensive initiative endorsed by Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC) in July 2022.**
- This mission **involves 13 ministries and departments,** including the Department of Science and Technology, the Department of Biotechnology (DBT), the Council of Scientific and Industrial Research (CSIR), and others, to take a holistic approach to One Health and pandemic preparedness.
- The **establishment of a National Institute for One Health in Nagpur** is a key milestone in the mission.
- The **institute will act as the coordinating body for national and international activities in the field of One Health.**
- **The foundation stone of this institute was laid by the Prime Minister on December 11, 2022.**

Goals and Strategies of The National One Health Mission

- **Integrated Disease Surveillance**
 - The mission aims to establish a seamless and cohesive surveillance system that monitors health indicators across human, animal, and environmental sectors.
 - By integrating data from these areas, the mission can detect potential health threats early and respond more effectively.
- **Joint Outbreak Response**
 - A coordinated approach to outbreak response is essential for managing and controlling diseases that can affect humans, animals, and the environment.
 - The mission seeks to establish protocols and frameworks that enable different sectors to work together during outbreaks, sharing resources and information to minimize the impact.
- **Coordinated Research and Development (R&D)**
 - The mission promotes collaboration across various scientific research institutions and government departments to foster the development of innovative solutions for emerging health threats.
 - This includes the creation of vaccines, therapeutics, and diagnostics that are essential for pandemic preparedness and response.
- **Information Sharing and Communication**
 - Effective communication and information sharing are crucial for a coordinated One Health approach.
 - The mission aims to facilitate seamless data exchange between different sectors and stakeholders, ensuring that all parties are well-informed and can take timely action when necessary.
- **Preparedness for Future Pandemics**
 - Building on the lessons learned from past pandemics, the mission strives to develop strategies and frameworks that will enable the country to be better prepared for future health crises.
 - This includes planning for potential pandemics and emerging diseases such as avian influenza or Nipah virus.
- **Resource Optimisation**
 - By leveraging the resources and expertise of multiple sectors and stakeholders, the mission aims to optimise the use of available resources, including laboratory infrastructure, healthcare facilities, and scientific research capabilities.
 - This collaboration helps in addressing health threats more efficiently and cost-effectively.
- **Public Health Education and Awareness**
 - The mission includes educating the public about the interconnectedness of human, animal, and environmental health.
 - Raising awareness about One Health principles can promote healthier behaviours and better preparedness for health emergencies.

A Key Aspect of the National One Health Mission: Laboratory Network and Technological Integration

- **High-Risk Pathogen Laboratories**
 - The mission aims to establish a national network of laboratories equipped to handle high-risk pathogens (Biosafety Level 3 and Biosafety Level 4).
 - These laboratories are designed to work with dangerous infectious agents, providing a secure environment for studying pathogens that could potentially cause pandemics.
- **Collaboration Among Departments**
 - By bringing together laboratories managed by different departments, the mission aims to create a cohesive network that can coordinate and share resources across sectors.
 - This integration helps improve disease outbreak response, regardless of whether the threat originates in human, animal, or environmental populations.
- **Resource Optimisation**
 - Combining laboratory resources under one network ensures efficient utilization of infrastructure and personnel.

- This **collaboration allows the network to quickly respond to outbreaks and other health emergencies**, making the best use of available resources.
- **Interdisciplinary Research and Analysis**
 - The mission **encourages collaboration between experts from different fields such as medicine, veterinary science, environmental science**, and public health.
 - This **interdisciplinary approach enables more thorough research and analysis of health threats** and their impact across various sectors.
- **Application of Artificial Intelligence (AI) and Machine Learning**
 - AI and machine learning are key technologies that **the mission integrates to enhance epidemiological capabilities**.
 - **These technologies can analyse large datasets to identify patterns, trends, and potential health threats**, enabling timely interventions and better preparedness.
- **Disease Modelling**
 - **Advanced modelling techniques are used to predict disease spread and potential outbreaks**.
 - These **models help in planning and implementing targeted measures** to control the spread of infectious diseases.
- **Genomic Surveillance**
 - The **mission expands genomic surveillance efforts beyond COVID-19** to include other diseases.
 - **By analysing genetic material** from wastewater and other sentinels such as livestock and wildlife congregations, **scientists can monitor disease prevalence and identify new threats**.
- **Capacity Building**
 - The **mission focuses on building the capacity of professionals across sectors** in epidemiology, data analytics, and laboratory management.
 - **Training and development programs ensure that personnel have the skills needed to effectively use new technologies** and methodologies.

The Global Perspective of The National One Health Mission

- **One Health** is a global topic and was endorsed during India's presidency of the G-20.
- The **mission focuses on building surveillance capacity, analytic capability, and an international network of One Health institutes**.
- One Health **extends beyond diseases to include issues like antimicrobial resistance, food safety, plant diseases**, and climate change's impact on health.

Conclusion

- One Health is not just limited to diseases rather **it concerns wider aspects such as antimicrobial resistance, food safety, plant diseases** and the impact of climate change on all of these.
- Intersectoral topics such as **One Health require close engagement of not just different governmental agencies but also non-governmental organisations, academia, the private sector** and also citizens.
- Such an approach focused on an **actionable framework will further the goal of moving closer to the clarion call of 'One Earth, One Health' and 'Health for All.'**

8. Rights of the Voters' in India

Why in News?

The SC held that an election candidate has a right to privacy from voters and need not lay out every bit of his or her personal life and possessions, for the electorate to examine with a magnifying glass.

What is the Background of the Judgement?

- The **judgement came in a petition filed by an Arunachal Pradesh MLA (Karikho Kri) challenging a Gauhati HC decision**. He won the elections as an independent candidate.

- Last year, the HC declared his election (to the 44-Tezu Assembly Constituency) **void for not declaring 3 vehicles as his assets** in his affidavit filed in Form No 26 appended to the Conduct of Elections Rules, 1961.
- The vehicles in question were a **Kinetic Zing Scooty, a Maruti Omni van used as an ambulance and a TVS Star City motorcycle**. The scooter was sold as scrap in 2009. The other two vehicles were also sold.
- **The Gauhati HC did not examine the statements of the buyers.**

What has the Supreme Court Ruled?

- According to the apex court,
 - **Voters' Right to Know is not absolute.**
 - **A candidate's choice to retain his privacy** on matters which were of no concern to the voters or were irrelevant to his candidature for public office,
 - **Did not amount to a 'corrupt practice'** under Section 123 of the Representation of People Act (RPA), 1951.
- Such non-disclosure **would not amount to a "defect of a substantial nature"** under Section 36(4) of the RPA 1951.
- There was no obligation for a candidate to lay his life exposed for the electorate to probe and scrutinise.
- **It is not necessary that a candidate declare every item of movable property** that he or his dependent family members own, such as clothing, shoes, crockery, stationery and furniture, etc.
- But the Court said **every case would turn on its own peculiarities** on what would amount to a non-disclosure of assets of a substantial nature.
 - **For example**, suppressing information about a collection of expensive watches from voters would be a substantial defect.
 - However, if a candidate and his family members each own a simple watch, suppression of the value of such watches may not amount to a defect at all.

Rights of the Voters' in India:

- The voter's have **certain rights that are bestowed on them by the Election Commission of India (ECI)**.
- These rights are **safeguarded by the Constitution of the country** and are provided to all the citizens of the country. Such Voter rights are -
- **Right to Know:**
 - The **voter has the right to know about the candidates contesting the elections.**
 - The voters have the right to get the details of the past records of the candidate (criminal records, if any), financial position of the candidate, their election manifesto, etc.
- **Voting rights of NRIs:**
 - **The NRIs are those citizens of the country** that are not present at their place of residence for reasons of employment or any other reasons but are still eligible to vote in the elections of the country.
 - **NRIs were not initially allowed to vote in the elections of the country. However, a subsequent amendment allowed the NRIs to vote for elections in India.**
- **Voting rights of Prisoners:** The constitution of India and the guidelines of the ECI do not permit a person who is imprisoned to vote in the upcoming elections of the country.
- **NOTA (Right Not to Vote):**
 - **None of The Above (NOTA) is another right of the voter where the voter participates in the electoral process but does not vote or choose any of the contesting candidates.**
 - This right is exercised when the voter feels that none of the contesting candidates are worthy of his/her vote.
- **Tendered Voting Rights:**
 - This right can be exercised by a voter **when he/she realises that another person has wrongly voted on their behalf.**
 - Such a person will need to provide a valid identity proof to authenticate their voting right and vote on a separate ballot paper as per ECI.
- **Voting rights of Disabled or Infirm Citizens:** The ECI will provide assistance to such voters to cast their votes by taking their vote with the help of an Electoral Officer.

9. Parliaments Past, A Mirror to Changing Dynamics

Context

- In an atypical departure from its usual five-day working schedule, the 17th Lok Sabha (2019-2024) concluded its proceedings on a Saturday, **marking the culmination of a journey with unexpected twists and turns.**
- This prompts a reflection **at the recent parliamentary performance, highlighting trends, challenges, and prospects for the upcoming 18th Lok Sabha.**

Parliamentary Trends and How Ministries Fared

- **Decline in Notices Directed at the PMO**
 - The **PMO faced 1,146 questions from Rajya Sabha Members of Parliament**, of which only 28 were answered.
 - Interestingly, **just as in the House of Elders, the notices directed at the Prime Minister's Office witnessed a sharp decline** also in the House of the People.
 - From 5,000 during the 15th and 16th Lok Sabhas to a mere 1,700 in the 17th Lok Sabha underscoring waning interest in seeking answers from the apex executive office.
- **Shifting Parliamentary Focus**
 - Over the past Lok Sabhas, there has been a **noticeable shift in the focus of parliamentary discussions and debates.**
 - This **shift reflects the changing interests and priorities of elected representatives** as they respond to evolving societal, economic, and political dynamics.
- **Rise of Health and Agriculture Ministries**
 - **Ministries related to health and agriculture have gained prominence** in parliamentary discourse, indicating increased scrutiny and attention on these critical sectors.
 - The significant number of questions directed towards the Ministries of Health and Family Welfare and Agriculture and Farmers' Welfare suggests a heightened awareness and concern about issues related to public health, healthcare infrastructure, agricultural productivity and farmer welfare.
 - **The increased focus on these ministries may be attributed to various factors such as public health crises, agrarian distress, and the need for policy interventions to address related challenges.**
- **Decline in National Security Interest**
 - On the other hand, **there has been a decline in parliamentary interest in matters of national security and internal affairs.**
 - The reduced number of questions directed towards the Ministry of Home Affairs, which was previously a key focus area, raises questions about the shifting priorities of lawmakers and the perceived urgency of security-related issues.
 - **This decline in interest may reflect a perception among lawmakers that other pressing issues, such as healthcare, agriculture, and economic revival, warrant greater attention and resources.**
- **Decline in Parliamentary Interest in Finance Ministry**
 - As India aims for economic resurgence and growth, the Ministry of Finance plays a crucial role in steering the nation's fiscal policies and economic trajectory.
 - However, **there has been a decline in parliamentary interest in the Finance Ministry, particularly in terms of the number of questions raised.**
 - Despite this decline, there are signs of increasing transparency and accountability efforts within the Ministry, as indicated by the rising rate of questions admitted for deliberation.
 - This suggests a renewed commitment to fiscal oversight and governance in financial matters.

An Analysis of Parliamentary Interventions

- **Rising Usage of Zero Hour**
 - **Zero Hour refers to a period during parliamentary proceedings where Members of Parliament can raise urgent matters** of public importance without prior notice.

- The significant surge in the usage of Zero Hour interventions in both the Rajya Sabha and the Lok Sabha indicates an increased focus on addressing pressing issues and seeking clarifications from the government.
- **Zero Hour allows MPs to draw attention to emerging issues, crises, or public concerns that require immediate attention**, thereby serving as a platform for responsive governance and accountability.
- The rise in Zero Hour interventions **reflects a proactive approach by parliamentarians in engaging with critical issues** and holding the government accountable for its actions.
- **Dwindling Usage of Other Interventions**
 - On the other hand, **there has been a decline in the usage of other parliamentary interventions such as 'Half-an-Hour Discussions', 'Short Notice Questions', 'Calling Attention', 'Short Duration Discussions', and 'Special Mentions'**.
 - These interventions provide avenues for in-depth discussions, seeking specific information, drawing attention to important matters, and highlighting specific grievances or concerns.
 - **The dwindling usage of these interventions may suggest a shifting parliamentary focus towards more immediate and urgent matters**, as reflected in the increased reliance on Zero Hour interventions.

Systematic Challenges and Missed Opportunities for Legislative Engagement

- **Systemic Challenges in Oversight**
 - Despite the importance of parliamentary oversight in holding the government accountable, **there are systemic challenges that hinder its effectiveness**.
 - One significant challenge is the **increase in the number of disallowed questions**, particularly in the Rajya Sabha.
 - **This trend indicates obstacles in obtaining necessary information** and accountability from the government.
 - The **high percentage of disallowed questions in key ministries such as Health and Family Welfare, Home Affairs, Defence, Agriculture and Farmers' Welfare, and Finance** raises concerns about transparency and responsiveness within these sectors.
 - **These challenges highlight the need for reforms to streamline the oversight process, ensure greater access to information**, and strengthen mechanisms for holding the government accountable for its actions.
- **Missed Opportunities for Legislative Engagement**
 - Instances of oversight, **such as the failure to raise privilege motions against misleading remarks and missed discussions on critical issues**, underscore missed opportunities for legislative engagement.
 - **For example, the failure to address sensitive issues like student suicides due to competitive exams during the Winter Session, 2023** of the Rajya Sabha highlights a gap in addressing societal concerns through parliamentary channels.
 - **Missed opportunities for legislative engagement diminish the effectiveness of Parliament in addressing pressing issues**, fostering constructive debate, and enacting policies that prioritize the welfare of the nation and its citizens.

Way Forward

- **Revitalising Legislative Engagement**
 - There is a **pressing need to revitalise legislative engagement to ensure that Parliament effectively addresses pressing issues**, fosters constructive debate, and enacts policies that prioritize the welfare of the nation and its citizens.
 - **This can be achieved by encouraging active participation of MPs in parliamentary proceedings, promoting informed discussions on key issues**, and ensuring that every opportunity is seized to hold the government accountable for its actions.
- **Enhancing Transparency and Accountability**
 - Parliament **must prioritise enhancing transparency and accountability in governance by strengthening mechanisms for parliamentary oversight** and scrutiny of government actions.
 - This could involve introducing reforms to streamline the processing of questions, ensuring timely responses from the government, and reducing the number of disallowed questions.
- **Strengthening Parliamentary Committees**

- **Parliamentary committees play a crucial role in scrutinising government policies and expenditures**, conducting inquiries, and making recommendations for legislative action.
- There is a **need to strengthen the capacity and effectiveness of parliamentary committees** by providing adequate resources, training, and support to members.

Conclusion

- **The analysis of the 17th Lok Sabha's performance unveils both promising trends and challenges** in parliamentary functioning.
- As the nation anticipates the 18th Lok Sabha, **it is imperative to address systemic challenges, revitalise legislative engagement, and ensure balanced utilisation of parliamentary interventions** to foster constructive debate and enact policies for the nation's welfare.



General Studies-III

1. Why are 'Unclassed' Forests Missing

Why in News?

In compliance with a Supreme Court order, the **Ministry of Environment, Forests and Climate Change (MoEFCC)** uploaded the various **State Expert Committee (SEC)** reports on its website.

This interim order was in response to a PIL challenging the constitutionality of the **Forest (Conservation) Act**

Amendment (FCAA) 2023.

A key concern in the petition was the **status of unclassified forests** (either not known or not identified at all), which were to be identified by the state SEC reports.

What are Unclassed Forests?

- **Unclassed or deemed forests** may belong to forests, revenue, railways and other government entities, community forests or those under private ownership, but are **not notified**.
- The unclassified forests had **legal protection** under the landmark case - **N. GodavarmanThirumalpad (1996)**.
 - It specified that 'forests' as per their dictionary meaning and **all categories of forests** irrespective of ownership and notification status **would be included under the ambit of the Forest (Conservation) Act 1980**.
- **The SEC reports were to be prepared in pursuance of the order**. SECs were to identify all such forests across the country through
 - Available records i.e. **Forest Working Plans, Revenue land records, etc., and**
 - By physical identification of any land patch having the nature of forests as per dictionary meaning regardless of its ownership.
- As a result, unclassified forests would also **require the Central government approval** in case a project proponent sought to divert that land for non-forest use, after multiple other layers scrutiny.

What does the FCAA Stipulate wrt Unclassed Forests?

- **The FCAA amends the Forest (Conservation) Act 1980 (FCA), which provides that**
 - The dereservation of reserved forests,
 - Use of forest land for non-forest purpose,
 - Assigning forest land by way of lease or otherwise to private entity and
 - Clearing of naturally grown trees for the purpose of reforestation **requires prior permission of the Central Government**.
- **The FCAA amends the FCA to make it applicable to certain types of land**. These include land notified as a forest under the Indian Forest Act, 1927 or in government records after the 1980 Act came into effect.
- **However, the FCAA excludes two categories of land** from its purview:
 - Land recorded as forest before October 25, 1980 but not notified as a forest, and
 - Land which changed from forest-use to non-forest-use before December 12, 1996.
- This provision may go against the 1996 SC judgement on preventing deforestation.
- Hence, with the enactment of FCAA, **the unclassified forest would lose protection provided after the SC's 1996 verdict**, leading to their inevitable diversion.

Why are 'Unclassed' Forests Missing?

- According to the SEC reports uploaded on the website of MoEFCC, **no state has provided verifiable data** on the identification, status, and location of unclassified Forests.
- In fact, 7 states and UTs - Goa, Haryana, Jammu & Kashmir, Ladakh, Lakshadweep, Tamil Nadu, and West Bengal - **appear not to have constituted the SEC at all**.

- Most states have either used existing forest and revenue department data, some (like Manipur and Sikkim) have **merely quoted figures from the Forest Survey of India (FSI)**.
 - The SEC reports also question the veracity of the reports of the FSI, the only government agency to survey and assess forests.
 - A striking example comes from **Gujarat**, whose SEC report says its unclassified forests cover 192.24 sq. km while the Survey has reported the significantly higher 4,577 sq. km (1995-1999).
- Also, almost **no state or UT specified the geographic locations of forests**.

Consequences of Missing Forests and Way Ahead:

- **The treatment of SECs without on-ground verification** is likely to have resulted in the **large-scale destruction of forests**, which ought to have been identified, demarcated and protected 27 years ago (after 1996 verdict).
- Promulgating the FCAA without examining the SEC reports **displays a lack of diligence on the MoEFCC's part** and will have terrible consequences for India's ecosystems and **ecological security**.
- **Those responsible need to be held to account** and the national government needs to take ameliorative action to re-identify, retrieve and protect forest areas as per the 1996 judgement.
- **The failure to do this is a lost opportunity** to achieve the requirements of the Indian Forest Policy, which envisages 33.3% forest cover in plains and 66.6% in the hills.

2. The Indian Seafarer Deserves Better in Choppy High Seas

Context

- The **safety and security of Indian seafarers have become increasingly concerning** due to recent attacks on commercial ships in sensitive regions.
- **India has proactively addressed these issues by submitting three papers to the International Maritime Organisation's Legal Committee**, emphasising the need for comprehensive maritime security and improved contractual conditions for seafarers.
- While acknowledging the IMO's efforts to combat maritime fraud, **India has called for broader international cooperation to tackle various maritime threats**.

Maritime Security Challenges

- **Resurgence of Piracy and Armed Robbery**
 - **Recent incidents off the coast of Somalia**, including hijackings of vessels like the MV Ruen and MV Lila Norfolk, indicate a resurgence of piracy.
 - These acts **pose significant threats to the safety and security of seafarers** and disrupt maritime trade routes.
- **Extremist Attacks and Regional Conflicts**
 - The **maritime domain has become increasingly susceptible to extremist attacks** and regional conflicts, posing grave risks to seafarers and maritime security.
 - **With geopolitical tensions** rising in sensitive regions such as the Red Sea and the Strait of Hormuz, **the safety of commercial vessels and seafarers navigating through these areas is of paramount concern**.
- **Unlawful Recruitment Practices**
 - **The exploitation of seafarers through unlawful recruitment practices exacerbates maritime security challenges** and jeopardises the well-being of seafarers.
 - India highlights the impact of such practices on seafarers' rights and stresses the need for international coordination to address these issues.
 - **Over 200 cases of seafarer exploitation have been reported to the Indian Maritime Administration since 2020**, underscoring the urgency of addressing this issue to protect the rights and safety of seafarers globally.

The Vulnerabilities of Indian Seafarers

- **Vulnerability to Incidents**
 - **India, with 9.35% of global seafarers and ranking third globally**, confronts such incidents.

- Indian seafarers face significant vulnerabilities due to incidents such as vessel seizures and detentions, as exemplified by the cases of MSC Aries and MT Heroic Idun.
- **These incidents not only endanger the safety of seafarers but also disrupt their livelihoods** and cause distress to their families.
- **Lack of Legal Representation and Awareness**
 - A survey reveals that **most Indian seafarers lack legal representation** and are unaware of their rights.
 - **This leaves them vulnerable to exploitation and unfair treatment**, as they may not be equipped to navigate complex legal processes or assert their rights effectively.
- **Unfair Treatment and Exploitation**
 - **Many Indian seafarers report feeling unfairly treated and exploited**, particularly in cases of unlawful recruitment practices and contract violations.
 - **This not only affects their physical and mental well-being but also erodes trust in the maritime industry** and undermines their confidence in their careers at sea.
- **Disruption to Employment and Livelihoods**
 - **Incidents such as vessel seizures and detentions can lead to prolonged disruptions to seafarers' employment and livelihoods**, causing financial hardship and uncertainty for them and their families.
 - These **disruptions can have long-term consequences** for seafarers' careers and overall well-being.
- **Psychological Impact**
 - **The constant threat of piracy, armed robbery, and other maritime security challenges can have a profound psychological impact on seafarers**, leading to increased stress, anxiety, and trauma.
 - Three years ago, the **Maritime Union of India highlighted a 40% increase in kidnappings in the Gulf of Guinea**, with 134 cases of assault, injury, and threats reported.
 - Incidents such as the **kidnapping of 20 Indian nationals from the MT Duke (off the western coast of Africa) and the ship owners paying hefty ransoms** highlight the dangers faced by seafarers.

Indian Initiatives to Protect Seafarers' Rights: 'Human Rights at Sea' Initiative

- In response to the challenges faced by Indian seafarers, **the Indian government and the National Human Rights Commission (NHRC) launched the 'Human Rights at Sea' initiative.**
- This initiative aims to raise awareness of human rights issues in the maritime industry and advocate for the protection of seafarers' rights.
- By highlighting cases of abuse, exploitation, and illegal detention, **the initiative seeks to hold ship owners and other stakeholders accountable** for violations against seafarers.
- The initiative **involves documenting cases of seafarer abuse, exploitation, and illegal detention to provide evidence** of human rights violations in the maritime industry.
- The **initiative engages in advocacy and awareness campaigns to educate stakeholders, including seafarers, ship owners, maritime authorities, and the general public, about seafarers' rights** and the importance of upholding human rights standards in the maritime industry.
- The **initiative advocates for the establishment of mechanisms to protect seafarers' rights, including grievance mechanisms, legal aid services, and whistleblower protection programs.**

Ways Ahead to Address Seafarers' Rights

- **Comprehensive Approach to Address Piracy**
 - Addressing piracy requires a multifaceted and comprehensive approach that **encompasses both land-based and maritime strategies.**
 - While maritime security measures such as **deploying private guards on merchant navy ships can help deter piracy** to some extent, addressing the root causes and underlying conditions that enable piracy is essential for long-term effectiveness.
 - **Regional cooperation and information sharing mechanisms, such as joint patrols, intelligence sharing, and coordinated responses to pirate attacks, are essential** for enhancing maritime security and deterring piracy in piracy-prone regions.

- **Government Support**
 - Indian seafarers require **robust government support to ensure their safety, security, and well-being at sea.**
 - This support may include diplomatic efforts to address piracy and maritime security threats through international cooperation and engagement with relevant stakeholders.
 - **Governments can also provide assistance and resources for initiatives aimed at protecting seafarers' rights,** enhancing maritime security, and promoting safe navigation.
- **Enhanced Protection Measures**
 - The **maritime industry and relevant authorities must implement enhanced protection measures to safeguard Indian seafarers** from security threats, exploitation, and unfair treatment.
 - This **may involve strengthening security protocols, improving contractual conditions, providing legal representation and support services,** and raising awareness of seafarers' rights and responsibilities.
 - **Companies and employers should also prioritise the safety and well-being of their seafaring employees** by investing in training, equipment, and risk mitigation strategies.
- **Financial and Social Support**
 - **Seafarers and their families may require financial and social support to cope with the challenges** and disruptions caused by security threats, incidents at sea, and prolonged periods away from home.
 - This **support may include financial assistance for affected seafarers and their families, access to counselling and mental health services,** and initiatives to address the social and psychological impact of maritime security challenges on seafarers and their loved ones.

Conclusion

- **Ensuring the safety and security of Indian seafarers is paramount** in maintaining the vitality of the maritime industry and safeguarding international trade.
- **Initiatives such as the 'Human Rights at Sea' initiative and India's submissions to the IMO's Legal Committee demonstrate a proactive approach** to addressing the challenges faced by Indian seafarers.
- However, **sustained international cooperation and government support are essential to effectively protect the rights and well-being of Indian seafarers** in an increasingly complex maritime environment.

3. On the National Clean Air Programme

Context:

When the Indian govt launched the **National Clean Air Programme (NCAP) in 2019, it was to cut the concentration of atmospheric Particulate Matter (PM) by 20-30% by 2024, from 2017 levels.** This was later revised to 40% by 2026.

National Clean Air Programme (NCAP)

- **About**
 - NCAP was launched in January 2019 to improve air quality through a **city-specific action plan.**
 - Under NCAP, cities continuously violating **annual PM** levels in India need to prepare and implement annual **Clean Air Action Plans (CAAPs).**
- **Objectives**
 - Stringently implementing mitigation measures **to prevent, control, and abate air pollution**
 - Strengthening an air quality monitoring network across the country
 - Increasing public awareness and capacity building measures
- **Funding**
 - **Ministry of Environment, Forest, & Climate Change has allocated ₹10,422.73 crore.**

Performance of NCAP

- **Air Information Centers and Pollution Forecasting**

- NCAP aimed to establish **air information centres** at central and regional levels by 2020. However, as of December 2023, only the central '**Portal for Regulation of Air Pollution in Non-Attainment Cities (PRANA)**' portal by Central Pollution Control Board (CPCB) is functional.
- Despite **NCAP's goal for air pollution forecasting systems in non-attainment cities by 2022, only Delhi has a functional system by December 2023.**
- **Committee Setup and Utilization of Funds**
 - Committees at various levels were proposed by NCAP, but their functionality, transparency, and public availability of information remain challenging.
 - **Out of total allocations of 1253 crore to 82 non-attainment cities, only 498 crores (40%) was utilized till November 2023.**
 - The trend reflects significant underutilization of the allocated funds.
- **Monitoring Stations and Continuous Ambient Air Quality Monitoring Stations:**
 - NCAP envisaged augmenting the manual monitoring stations under the National Air Quality Monitoring Programme (NAMP) from the existing 703 stations to 1,500 stations by 2024.
 - However, as of December 2023, **only 931 manual stations were operational, with a minimal increase from the previous year, showing critical shortfall against the target.**
 - **NCAP aimed for 150 Continuous Ambient Air Quality Monitoring Stations (CAAQMS), but 531 stations are currently operational, indicating very good progress.**
 - The rural monitoring network consists of 26 manual stations covering limited areas.
 - Efforts to set up 100 monitoring stations by 2024 in rural areas are yet to be fully realized and seem difficult to achieve.

Challenges faced by NCAP

- **Implementation by States has been inconsistent**
 - Most cities proactively submitted their CAAPs yet their implementation has been inconsistent. Implementation delays hinder NCAP's success.
- **Lack of standard operating procedures for the implementation process**
 - Time-consuming tasks required to implement control measures and the absence of well-defined timelines create further delays.
- **Other Challenges**
 - Bureaucratic red-tape and lingering doubts regarding the effectiveness of proposed mitigation measures.

Way forward

- **Emissions Inventory (EI) and Source Apportionment (SA) studies are critical**
 - EI and SA studies are critical to identify and understand the origins of pollution.
 - EIs provide insights into local pollution sources and their contributions. **EIs also help shape targeted pollution control strategies.**
 - SA studies offer a detailed analysis of contributions from various pollution sources, including those located afar.
- **Important role of Air Quality (AQ) modelling**
 - EIs and SA studies have limitations.
 - EIs have limitations in assessing the impact of transboundary pollution sources — such as when determining the effect of stubble-burning outside Delhi on the city's air quality.
 - Similarly, SA studies can't distinguish between the **origins of pollution**, like, say, emissions from diesel trucks 200 m away and 20 km away, because diesel emissions have similar chemical signatures.
 - **These gaps can be bridged through AQ modelling, which informs our understanding of pollution dispersion, including from distant sources.**
- **Swift implementation on the ground**
 - Beyond the need for data and models, swift implementation on the ground is essential.
 - For this, implementation agencies should seek to reduce bureaucratic red tape by utilising shared, standardised technical evaluations.

Conclusion

The journey towards cleaner air in India, as charted by NCAP, will be difficult but is necessary. NCAP's success hinges on a multifaceted approach that combines rigorous scientific studies, strategic funds, and swift and effective implementation of mitigation measures.

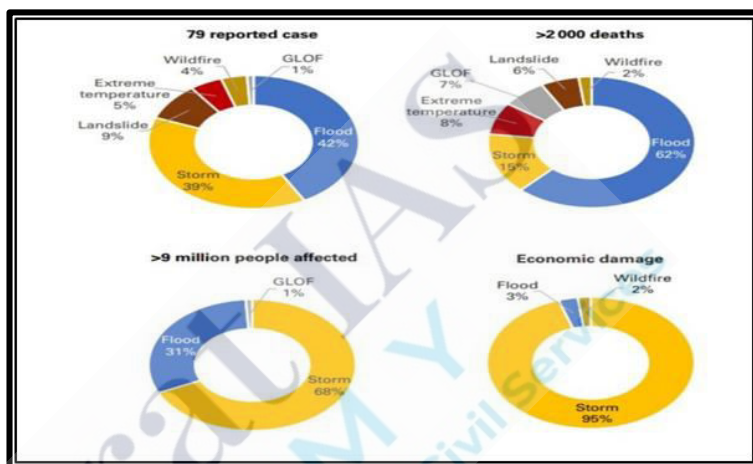
4. State of the Climate in Asia 2023

Why in News?

According to a **World Meteorological Organisation's (WMO) report ('State of the Climate in Asia 2023')**, Asia faced the most disasters in the world in 2023.

Key Highlights of the 'State of the Climate in Asia 2023' Report:

- **Number of extreme weather events in Asia: 79 events associated with extreme weather, climate and water-related hazards in 2023** affected over 9 million people in the region, directly killing over 2,000 people.
 - Compared to 2022, the **reported disaster events in the region were lesser by only two in 2023.**
 - The number of people impacted in 2023 was lower as the 2022 Pakistan floods had alone affected over 30 million people.
- **The mean temperature over Asia:** In 2023, it was **0.91°C above the 1991–2020 reference period, the second highest on record.**
 - Many parts of the region experienced extreme heat events in 2023. **Japan** experienced its hottest summer on record.
- **Glaciers in High-Mountain Asia:** They have lost significant mass over the past 40 years, at an accelerating rate.
 - In 2023, record-breaking high temperatures and drier conditions in the **Eastern Himalayas and the Tien Shan** (mountain range) exacerbated mass loss.
- **The ocean around Asia:** Has shown an **overall warming trend** since the time series began in 1982.
 - In 2023, sea-surface temperature anomalies in the north-west Pacific Ocean were the highest on record.
- **South-west China suffered from a drought:** This was because of the below-normal precipitation levels nearly every month of 2023.
- **Floods and storms accounted for 80% of hydrometeorological hazards:** For instance, **Yemen** suffered heavy rainfall and resulting widespread floods.



What the 'State of the Climate in Asia 2023' Report Highlighted About India?

- **In India**, the impacts of extreme weather events were felt strongly as the country experienced **severe heat waves, rainfall-induced floods, glacial lake outbursts and tropical cyclones.**
- **Severe heat waves** (in April and June 2023) resulted in about 110 deaths due to heatstroke.
 - **For example**, the Ballia and Deoria districts in Uttar Pradesh saw the deaths of over 100 people, many of them senior citizens with co-morbidities.
 - Temperatures were in the 42-43 degrees Celsius range in the region during these heat-related deaths.



- **Flood events** occurred in India during August 2023 and **Himachal Pradesh and Uttarakhand recorded 25 deaths as well as extensive damage to infrastructure and agriculture.**
 - The Indian government declared a **state of emergency in the worst-affected areas**, initiating rescue and relief operations.
- **The Indian sub-continent experienced six tropical cyclones in 2023** which formed in the North Indian Ocean. The cyclone activity was slightly above the average of 5.4 cyclones.
 - Four out of the six cyclones - **Mocha, Hamoon, Midhili and Michaung** - formed over the Bay of Bengal and two - **Biparjoy and Tej** - formed over the Arabian Sea.
- **A significant glacial lake outburst flood** in South Lhonak Lake in Sikkim on October 4 last year, breached the Chungthang dam downstream on the Teesta River and killed over 40 people.

What Needs to be Done?

- **Disaster risk reduction in the Asia region is facing an alarming gap** in climate projections and tailored products that are needed to inform long-term interventions such as adaptation to and mitigation of climate change and its impacts.
- Currently, **less than 50% of WMO Members are providing tailored products**, indicating a significant inadequacy in view of the region's high vulnerability to climate-related disasters.
- **By 2030**, annual losses in Asia (due to extreme weather events) are expected to be over USD 160 billion, which is close to 0.6% of the region's GDP, up from 0.1% in the 1970s.
- Therefore, there is **an urgent need to advance these efforts and provide more tailored support products** to address long-term strategies as well as medium and short-term activities and interventions to effectively mitigate disaster risks.

5. Restoring Earth's Right to Good Health

Context

- In recent years, **courts around the world have been increasingly called upon to address the intersection of climate change and human rights.**
- Two landmark decisions, one by the **European Court of Human Rights in Switzerland** and another by the **Supreme Court of India**, have underscored the urgency of **recognising climate change as a human rights crisis.**
- These rulings **set important precedents for legal accountability and policy action to address the adverse impacts of climate change** on individuals and communities.

Legal Recognition of Climate Change Impacts on Human Rights

- **The European Court of Human Rights' decision against the Government of Switzerland** highlights the failure to protect women senior citizens from the impacts of climate change.
- **The Supreme Court of India's ruling affirms the right to be free from adverse climate impacts** under constitutional provisions.
 - It ruled that people have a right 'to be free from the adverse impacts of climate change,' citing **Articles 14 (equality before law and the equal protection of laws) and 21 (right to life and personal liberty)** of the Indian Constitution as the sources.
- These **decisions mark a significant shift towards recognising climate change as a fundamental human rights issue.**

Global Climate Crisis: A Threat to Human Rights

- The global climate crisis **poses an existential threat to human rights, affecting individuals and communities across the world.**
- The State of the Global Climate Report released by the World Meteorological Organisation provides compelling evidence of the escalating impacts of climate change.
- **In 2023, numerous climate change indicators reached record levels, confirming it as the hottest year on record.**

- This unprecedented heat was accompanied by other alarming trends, including ocean heat accumulation, sea level rise, Antarctic Sea ice loss, and glacier retreat.
- **These trends signify the profound stress that the planet is under**, with far-reaching consequences for human well-being.

India's Climate Action and Vulnerability

- **Highly Vulnerable Despite Significant Progress**
 - India, as one of the world's fastest-growing economies, has made significant strides in addressing climate change.
 - **India has already achieved two of its Nationally Determined Contribution (NDC) targets**, reducing the emissions intensity of its GDP by 33% to 35% from 2005 level.
 - India has also achieved 40% cumulative electric power installed capacity from non-fossil fuel sources, well ahead of the target year of 2030.
 - However, **despite these efforts, the country remains highly vulnerable** to the adverse impacts of climate change.
- **Population Vulnerability to Climate-Induced Disasters**
 - One of the key factors contributing to India's vulnerability is **the geographical distribution of its population**.
 - **More than 80% of India's population resides in districts that are at high risk of climate-induced disasters**, including floods, cyclones, droughts, and heatwaves.
 - These extreme weather events not only disrupt livelihoods but also exacerbate existing socio-economic inequalities, disproportionately affecting vulnerable communities, such as smallholder farmers, rural populations, and marginalised groups.
- **Intersection of Climate Change with Socio-economic and Environmental Challenges**
 - Moreover, **the impacts of climate change intersect with other socio-economic and environmental challenges** in India, amplifying their effects.
 - For example, rapid urbanisation and unplanned development exacerbate the vulnerability of urban populations to climate-related disasters, such as flooding and landslides.

Plausible Legal Frameworks for India's Climate Action

- **Adoption of an Overreaching Regulation**
 - One approach to enhancing India's climate governance is the **adoption of an overarching regulation specifically focused on climate change**.
 - Such a regulation would **provide a consolidated and coherent framework for addressing various aspects of climate action**, including mitigation, adaptation, finance, and capacity-building.
 - **By codifying climate-related objectives, targets, and strategies into law, an overarching regulation can provide legal certainty and stability**, guiding long-term planning and investment decisions.
- **Lessons from Global Climate Framework Laws**
 - A study by the London School of Economics and Political Science analysed climate change framework laws across 60 countries, highlighting their role in establishing the strategic direction for national climate policies.
 - **Countries such as Germany, Ireland, New Zealand, Finland, South Korea, South Africa, and the Philippines have enacted comprehensive climate laws** that go beyond meeting international commitments and conventions.
 - These laws have facilitated the mobilisation of public sector resources, increased capacity for climate action, and promoted cross-sectoral collaboration.

Some Other Measures to Enhance India's Climate Governance

- **Holistic Approach to Climate Policies**
 - Furthermore, **India's climate policies should adopt a holistic approach** that integrates climate considerations into broader development planning and decision-making processes.

- This entails **mainstreaming climate adaptation and mitigation measures across sectors, such as agriculture, water resources, energy, transportation, and urban planning**, to ensure a coordinated and synergistic response to climate change.
- **Localised Approaches and Inter-sectoral Collaboration**
 - Localised approaches to climate action, coupled with inter-sectoral collaboration, are **essential for addressing the diverse and context-specific challenges** posed by climate change.
 - **By engaging stakeholders at the local level** and fostering collaboration across sectors, **governments can develop targeted and effective strategies** to build resilience, reduce vulnerabilities, and promote sustainable development.
- **Integration of Sustainable Development Goals (SDGs)**
 - Localised approaches to climate action often intersect with broader SDGs, such as poverty alleviation, food security, access to clean water and sanitation, and gender equality.
 - **By integrating climate considerations into local-level planning and implementation of the SDGs, governments can promote synergies and co-benefits across sectors**, maximise resource efficiency, and enhance the overall resilience and sustainability of communities.
- **Empowering Civil Society**
 - Civil society plays a critical role in advocating for climate action, promoting environmental justice, and holding governments and corporations accountable for their actions.
 - **Empowering civil society organizations (CSOs) and promoting rights-based dialogue on climate change are essential for promoting inclusive decision-making processes**, ensuring transparency, and advancing environmental and social justice.
- **Ensuring Inclusivity and Representation**
 - **Promoting inclusivity and diversity within civil society is crucial** for ensuring that the voices and perspectives of marginalised and vulnerable communities are heard and integrated into climate policies and programs.
 - **CSOs should strive to represent the interests of diverse stakeholders**, including women, indigenous peoples, youth, persons with disabilities, and other marginalised groups, in climate decision-making processes.
- **Promoting Rights-Based Dialogue**
 - A rights-based approach to climate action recognises that **climate change disproportionately impacts vulnerable and marginalised communities**.
 - It violates their fundamental human rights, including the rights to life, health, food, water, and livelihoods.
 - **By framing climate change as a human rights issue, CSOs can advocate for policies and initiatives** that prioritise the needs and interests of affected communities and promote environmental justice.

Conclusion

- The convergence of **legal decisions, scientific evidence, and policy imperatives underscores the urgent need to address climate change** as a human rights crisis.
- **By recognising the interdependence of environmental sustainability and human well-being**, nations can chart a path towards climate resilience and justice.
- **Empowering communities, strengthening legal frameworks, and fostering inter-sectoral collaboration are essential steps** towards realising a future free from the adverse impacts of climate change.

6. Fourth global mass coral bleaching triggered

Why in news?

As per the US National Oceanic and Atmospheric Administration (NOAA), the **fourth global mass coral bleaching event has been triggered by extraordinary ocean temperatures**.

Corals and coral reefs

- **Corals**

- **Corals are like underwater animals that stay in one place on the ocean floor.** They have small tentacles to grab food from the water and bring it into their mouths.
- Each individual coral animal is known as a **polyp** and it lives in groups of hundreds to thousands of genetically identical polyps that form a colony.
- **Types of corals**
 - Corals are largely classified as **either hard coral or soft coral.**
 - Unlike soft corals, **hard corals have stony skeletons made out of limestone** that are produced by coral polyps.
 - When polyps die, their skeletons are left behind and used as foundations for new polyps.
- **Coral reefs**
 - It is the **hard corals that are the architects of coral reefs** — complex three-dimensional structures built up over thousands of years.
 - **Coral reefs, also referred to as rainforests of the sea,** have existed on the Earth for nearly 450 million years.
 - **Australia's Great Barrier Reef is the largest in the world, stretching ~2300 kilometres.**

Significance of corals

- **Biodiversity Hotspots**
 - E.g., the **Great Barrier Reef contains over 400 coral species, 1,500 fish species, 4,000 mollusc species** and six of the world's seven sea turtle species.
- **Protection**
 - **Coral reefs can absorb up to 97% of the energy from waves, storms, and floods,** which prevents loss of life, property damage, and soil erosion.
- **Economic Value**
 - **Coral reefs support industries like fishing and tourism,** providing livelihoods for many people around the world.
 - Tourists love to snorkel and dive among vibrant coral reefs.
- **Medicine and Science**
 - Corals hold potential for new medicines and scientific discoveries. They have **already contributed to treatments for diseases like cancer and arthritis.**
- **Carbon Cycling**
 - They help to regulate the Earth's climate by absorbing carbon dioxide from the atmosphere.

Coral bleaching

CORAL BLEACHING
Have you ever wondered how a coral becomes bleached?

1 HEALTHY CORAL
Coral and algae depend on each other to survive.

2 STRESSED CORAL
If stressed, algae leaves the coral.

3 BLEACHED CORAL
Coral is left bleached and vulnerable.

WHAT CAUSES CORAL BLEACHING?

- Change in ocean temperature**
Increased ocean temperature caused by climate change is the leading cause of coral bleaching.
- Runoff and pollution**
Storm generated precipitation can rapidly dilute ocean water and runoff can carry pollutants — these can bleach near-shore corals.
- Overexposure to sunlight**
When temperatures are high, high solar irradiance contributes to bleaching in shallow-water corals.
- Extreme low tides**
Exposure to the air during extreme low tides can cause bleaching in shallow corals.

Corals have a symbiotic relationship with microscopic algae called zooxanthellae that live in their tissues. These algae are the coral's primary food source and give them their color.

When the symbiotic relationship becomes stressed due to increased ocean temperature or pollution, the algae leave the coral's tissue.

Without the algae, the coral loses its major source of food, turns white or very pale, and is more susceptible to disease.

NORWAY Coral Reef Conservation Program
<http://coralreef.noaa.gov/>

- **Symbiotic relationship between corals and zooxanthellae**
 - Most corals contain algae called zooxanthellae (plant like organisms) in their tissues.
 - Corals and zooxanthellae have a symbiotic relationship.
 - Corals provide zooxanthellae a safe place to live.
 - On the other hand, zooxanthellae provide oxygen and organic products of photosynthesis that help corals to grow and thrive.
 - Zooxanthellae also give bright and unique colours to corals.
- **Coral bleaching**
 - Corals are very sensitive to light and temperature and even a small change in their living conditions can stress them.
 - When stressed, they expel zooxanthellae and turn entirely white. This is called coral bleaching.
 - Coral bleaching doesn't immediately lead to the death of corals. They rather go under more stress and are subject to mortality.
 - Coral bleaching reduces the reproductivity of corals and makes them more vulnerable to fatal diseases.
 - If the bleaching is not too severe, corals have been known to recover.
- **Global mass bleaching of coral reefs**
 - Global mass bleaching of coral reefs is when significant coral bleaching is confirmed in the Atlantic, Indian and Pacific oceans.
 - Such events are a relatively new phenomenon.
 - The first one took place in 1998 in which 20% of the world's reef areas suffered bleaching-level heat stress.
 - The next two global bleaching events occurred in 2010 (35% of reefs affected) and between 2014 and 2017 (56% of reefs affected).

Fourth global bleaching event

- **About**
 - NOAA has confirmed that the fourth global bleaching event is currently underway.
 - Nearly 54 countries, territories and local economies — from Florida, the US, Saudi Arabia to Fiji — have confirmed bleaching.
 - The Great Barrier Reef is witnessing its most severe bleaching event.
- **Key driver**
 - Higher ocean temperatures.
 - However, the situation has been exacerbated by El Niño, a weather pattern which is associated with warmer oceans.
- **Impact of the event**
 - As per the IPCC, the world may lose the vast majority of its coral reefs at 1.5 degree Celsius of warming, and virtually all at 2 degree.

7. How Can India Revive Its Investment Cycle?

Context

- The revival of the investment cycle has been a pressing concern for policymakers in India.
- While the central government has met its targets on capital expenditure (capex) in recent years, the trajectory of private sector and state government investments remains uncertain.
- Therefore, it is crucial to delve into the current state of investment in India, analysing various indicators and trends to understand the challenges and opportunities in reviving the investment cycle.

Aggregate Investment Trends

- **Fluctuating Investment Rates**
 - Firstly, the investment rate, which measures the proportion of gross fixed capital formation to GDP, has exhibited fluctuating trends over the past few years.

- After experiencing a decline to 27.2% in 2020-21, there has been a modest improvement, with the investment rate rising to 31.3% in 2023-24 from 30.8% in the previous fiscal year.
- **This uptick signals a potential revival in investment sentiment** and activity, albeit from a relatively low base.
- **Composition of Investments: A Closer Look**
 - However, a **closer examination of the composition of investments** reveals nuances that warrant attention.
 - **A significant portion of the recent increase in capital formation has been driven by the construction of dwellings, buoyed by government initiatives** aimed at boosting the housing sector.
 - While investments in housing contribute to economic growth and employment generation, **there is a need for diversification to ensure sustainable and balanced development.**
- **Declining Investment in Plant and Machinery**
 - **One particular concern is the declining share of investments in plant and machinery**, which are critical for enhancing productivity, innovation, and competitiveness across industries.
 - **The proportion of investment allocated to plant and machinery decreased from 36% in 2017-18 to 30.7% in 2022-23**, indicating a potential shift in investment priorities or challenges in attracting investments in manufacturing and industrial sectors.

An Analysis of Private Sector Investments

- **Data Insights from CMIE**
 - One valuable source of information on private sector investment trends is the data provided by the **Centre for Monitoring Indian Economy (CMIE)**.
 - This data offers insights into the intentions and activities of private enterprises regarding investment projects.
- **Mixed Signals and Investment Intentions**
 - Recent data from CMIE **indicates mixed signals regarding private sector investment** in India.
 - While new investment announcements totalled Rs 27.1 lakh crore in 2023-24, **a decrease from the previous fiscal year's Rs 39 lakh crore, it was still the second-highest** in a decade.
 - However, **it is crucial to note that these announcements represent intentions rather than actual investments**, and there may be discrepancies between planned projects and realised investments.
- **Dominance of Private Sector Intentions**
 - **Most investment intentions, approximately 85%, originated from the private sector**, highlighting the significant role that private enterprises play in driving investment activity.
 - Moreover, **foreign companies contributed 11% of the total investment intentions**, indicating a level of confidence in India's business environment among international investors.

Sectoral Analysis of Investment Patterns

- **Power Sector**
 - **The power sector emerged as a significant recipient of investment announcements**, reflecting heightened interest and activity in this critical area of infrastructure development.
 - The **emphasis on renewable energy, bolstered by government schemes like the Production Linked Investment (PLI) scheme, has likely spurred investment** in renewable energy projects such as solar and wind power.
 - The expansion of renewable energy capacity not only contributes to energy security and environmental sustainability but also creates opportunities for job creation and technological innovation.
- **Transport Services**
 - **Investment intentions in transport services, particularly in the aviation sector, have witnessed a notable uptick**, driven by ambitious expansion plans by major airlines.
 - While increased investment in aviation infrastructure and fleet expansion promises to enhance connectivity and facilitate economic growth, there are concerns about the reliance on imports for aircraft procurement.
 - **The lack of domestic manufacturing capabilities limits the potential for backward linkages to domestic industries**, underscoring the need for initiatives to promote indigenous manufacturing and technology development.
- **Other Key Industries**

- **Several other industries have also attracted significant investment announcements**, including chemicals, machinery, metals, and automotive sectors.
- Together, **these industries account for a substantial share of all investment intentions**, indicating diverse areas of interest and opportunity for private sector investment.
- However, **notable absence of consumer-oriented industries in the list of major investment recipients raises questions** about the depth and breadth of investment across sectors.
- **Consumer Goods Segment**
 - **The lack of significant investment in consumer goods industries**, despite government incentives such as the PLI scheme, points to underlying challenges in this segment.
 - **Excess capacity in consumer goods industries, coupled with subdued consumer demand and high inflation, has likely deterred companies** from investing in capacity expansion.
 - Persistent challenges in job creation, particularly in higher-paying sectors, and sluggish rural demand further contribute to the subdued investment outlook in consumer-oriented industries.
- **State Government Capex**
 - **State governments' reduced capital expenditure in 2022-23**, aimed at meeting fiscal targets, poses another challenge to the investment cycle.
 - Given the significant contribution of state government spending to overall investments, their budgetary constraints impact the broader investment environment in the country.

Way Forward

- **Need for Sustainability and Sectoral Balance**
 - While the increase in capital formation is a positive development, its sustainability and impact on long-term growth depend on the breadth and depth of investments across sectors.
 - **A narrow focus on certain industries or segments, such as construction, may limit the economy's resilience** and capacity for innovation and technological advancement.
- **Effective Policy Interventions**
 - **Effective policy interventions are essential** to catalyse private sector investment and foster a conducive investment climate.
 - **Measures to streamline regulatory processes**, enhance infrastructure, promote innovation and entrepreneurship, and address sector-specific challenges can incentivise private enterprises to invest in **key areas critical for economic growth and development.**

Conclusion

- **The revival of the investment cycle in India requires concerted efforts** from both public and private sectors.
- **While certain sectors show promise**, challenges such as sectoral imbalances, subdued consumer demand, and **fiscal constraints at the state level hinder a broad-based recovery.**
- **Addressing these challenges** through targeted policies to stimulate demand, promote sectoral diversification, and enhance investment climate **will be crucial for sustaining long-term economic growth and development.**

8. Clash of Aspirations: India's Youth Can Give the Country an Edge If They Get the Jobs, They Desire

Context

- **India is at an inflection point**, with rapid economic growth positioning it as a potential counterweight to China on the global stage.
- However, **there are numerous headwinds to India's ambitions, particularly in terms of employment** and the labour market.

- Therefore, it is important to examine the current economic situation in India, highlighting both its potential as an economic powerhouse and the significant challenges it faces in achieving this status.

India's Labour Market Challenges

- **High Unemployment Rates**
 - India has a relatively high overall unemployment rate of around 8%, which is concerning for a country with a large young population entering the workforce annually.
 - Unemployment rates are particularly high among younger workers, especially those aged 20-24 years, with a reported rate of 44%.
 - This suggests a substantial mismatch between the skills young people possess and the jobs available to them.
 - Unemployment rates are also high among graduates (29%) and those with secondary or higher education (18%). This is indicative of a disconnect between the education system and the labour market.
- **Small and Low-Productivity Firms**
 - Indian firms tend to be smaller and grow more slowly compared to firms in other emerging economies like China and Mexico. Small firms often struggle with limited resources and face challenges in scaling up their operations.
 - The low productivity of many Indian firms limits their ability to demand a large workforce and offer competitive wages. This, in turn, affects overall employment rates and economic growth.
- **Skill Deficit**
 - Employers, especially in the white-collar service sector, often struggle to find workers with the requisite skills.
 - This is due to gaps in the education system and vocational training.
 - The quality of education in India has been a longstanding issue, with students often lacking the necessary training and practical experience needed for the modern workforce.
 - The Annual Status of Education Report (ASER) highlights issues in student learning and skill acquisition.
- **Geographic Mismatch**
 - Many employment opportunities are concentrated in urban areas, far from the rural regions where a large portion of the population resides.
 - This geographic mismatch presents challenges for workers who must migrate to urban centres for work.
 - Migration can be costly both financially and socially, and may lead to a disconnect between the aspirations of workers and the opportunities available to them.
- **Gig Economy and Job Security**
 - The rise of the gig economy has provided some opportunities, but these jobs often lack stability and security, leading to uncertain incomes and limited benefits.
 - The quality of available jobs is a concern, with many positions offering low pay, inadequate benefits, and limited opportunities for career advancement.
- **Policy and Regulatory Challenges**
 - Policy and regulatory challenges can hinder the growth of firms and the creation of new jobs. Complex regulations and bureaucratic hurdles can stifle entrepreneurship and business expansion.
 - India's labour laws can be restrictive and may not align with modern employment practices, creating challenges for firms seeking to hire and manage workers efficiently.

Clash of Aspirations in India's Labour Market

- **Worker Aspirations**
 - **Education and Skills**
 - India's young workforce is more educated than previous generations, with many holding high school or college degrees.
 - This increased educational attainment leads to higher aspirations for career opportunities and job quality.
 - **High Expectations**
 - Young workers expect jobs that offer good salaries, stability, career growth, and opportunities for skill development.

- They are also influenced by India's overall economic growth and its potential as a global economic power.
- **Mismatch with Available Jobs**
 - **Despite their education and skills, young workers often find that the jobs available to them do not match their expectations** in terms of pay, job security, and career prospects.
 - This can lead to frustration and disillusionment.
- **Entrepreneur and Firm Aspirations**
 - **Limited Growth Ambitions**
 - **Many Indian entrepreneurs and firms have limited ambitions for growth**, often choosing to remain small.
 - This may be due to a variety of factors, including regulatory and tax challenges, risk aversion, and a lack of resources.
 - **Risk-Averse Behaviour**
 - **Small entrepreneurs may prioritise stability over expansion**, choosing to avoid the risks associated with scaling up their operations.
 - This can limit their ability to compete in global markets and create high-quality jobs.
 - **Domestic Market Focus**
 - **Some firms focus primarily on serving the domestic market**, which can limit their growth potential and competitiveness compared to firms that export.
 - This domestic focus may also discourage innovation and productivity improvements.
- **Diverging Paths**
 - **Lack of Suitable Employment Opportunities**
 - The **limited ambitions of firms and entrepreneurs result in fewer suitable employment opportunities for young workers** with high aspirations.
 - This mismatch can lead to underemployment and dissatisfaction among the workforce.
 - **Impact on Economic Growth**
 - The clash of aspirations can hinder India's economic growth by creating a labour market that fails to fully harness the potential of its young, educated population.

Ways Ahead to Address the Challenges in India's Labour Market and Unlock its Full Potential

- **Demographic Dividend: Enhancing Education and Skills Development**
 - Aligning educational curriculum with industry needs can help **ensure that students acquire relevant skills and knowledge for the job market.**
 - Expanding vocational training and apprenticeship programs can provide hands-on experience and job-specific skills to young workers.
 - **Encouraging continuous skill development** and retraining throughout workers' careers **can help them adapt to changing job market demands.**
- **Promoting Firm Growth and Productivity**
 - Providing **easier access to credit and financial resources can help small and medium-sized enterprises (SMEs)** expand and hire more workers.
 - Encouraging firms to adopt new technologies and innovate can increase productivity and competitiveness, leading to job creation and economic growth.
 - Simplifying business regulations and reducing bureaucratic hurdles can facilitate firm growth and encourage entrepreneurship.
- **Reforming Labor Laws and Job Protections**
 - Implementing **more flexible labour policies can help firms adjust their workforce according to market demands**, promoting job creation and economic resilience.
 - Ensuring fair and adequate job protections for workers can increase job satisfaction and stability.

Conclusion

- While India's demographic dividend offers significant potential, **the country must address the challenges in its labour market to fully capitalise on this opportunity.**
- By creating a more ambitious and competitive entrepreneurial environment and ensuring a skilled workforce, **India can transform its demographic dividend into sustained economic growth and establish itself as a major global economic player.**

9. India's heat action plans

Context:

Every summer, we're used to getting heat alerts from the India Meteorological Department (IMD) for different parts of India. But this year, the alerts started as early as February.

Some areas in the northeast and western India have already experienced much warmer temperatures (3.1-5 degrees Celsius above normal) even before summer officially began.

The IMD also says that the maximum temperature will increase, and heatwave conditions will happen more often in the coming days over eastern and southern India. This raises concerns about whether India is ready to deal with this danger.

Heat waves

- **A Heat Wave is a period of abnormally high temperatures, more than the normal maximum temperature.**
 - In India, **Heat waves typically occur from March to June**, and in some rare cases, even extend till July.
 - On an average, five-six heat wave events occur every year over the northern parts of the country.
- **Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions.**
 - **Based on Departure from Normal Heat Wave:** Heat wave: Departure from normal is 4.50°C to 6.40°C; Severe Heat Wave: Departure from normal is >6.40degree C
 - **Based on Actual Maximum Temperature Heat Wave:** Heat wave: When actual maximum temperature ≥ 45°C; Severe Heat Wave: When actual maximum temperature ≥47
- Rapid rises in heat gain compromises the body's ability to regulate temperature.
 - It can result in a **cascade of illnesses, including heat cramps, heat exhaustion, heatstroke, and hyperthermia.**

How are we tackling heatwaves?

- **Heat action plans (HAPs)**
 - Governments at various levels — State, district, and city — have prepared heat action plans (HAPs).
 - **HAPs aim to increase preparedness and lower the adverse impacts of extreme heat by outlining strategies and measures to prepare for, address, and recover from heatwaves.**
 - There is no centralised database on HAPs, but at least 23 HAPs exist at the State and city level, with a few States, such as Odisha and Maharashtra, laying out district-level HAPs.
- **How does HAPs work?**
 - HAPs in India follow a general pattern.
 - **HAPs provide a snapshot of regions' heat profile, including information on the number of past heatwave events.**
 - It also provides yearly trends in the summer maximum temperature, land surface temperature, and so on, followed by a vulnerability assessment.
 - vulnerability assessment maps out regions that require immediate attention and a response plan.
 - This plan presents recommendations for mitigating and addressing heatwave impacts before, during, and after a heatwave.
 - It also outlines the roles and responsibilities of various line departments, such as the **disaster management authority, labour department, and police.**

What do the HAPs recommend?

- **HAPs typically suggest a combination of measures such as using forecasts and early warning systems to:**
 - alert the public and relevant authorities about heatwaves,
 - **educating the public through campaigns** that provide information on risks associated with heatwaves,
 - **building heat shelters and cooling centres**, and
 - providing clean drinking water to avoid dehydration.
- HAPs provide directives for hospitals to be well equipped with supplies and an adequate number of trained healthcare workers to recognise and treat a large influx of patients with heat-related illnesses.
- **HAPs also suggest long-term measures such as:**
 - **adopting urban planning strategies** that promote tree planting,
 - using **heat-resistant building materials** to reduce urban heat island effect, and
 - using **cool roofing technologies to reduce solar absorption**, thereby decreasing indoor temperatures.

What makes it hard for HAPs to solve the problem effectively?

- **The local context**
 - A national threshold is what determines a heatwave today.
 - However, **heatwaves will have to be determined at disaggregated scales such as States, districts, and cities.**
 - Many cities have been reeling under extreme temperatures, although no heatwave has been declared.
- **Inconsistent methods**
 - While most HAPs have conducted vulnerability assessments during the development of the plans, the methods adopted are inconsistent.
- **Vulnerable populations**
 - All **HAPs prioritise the protection of vulnerable populations such as low-income communities, children, and the elderly.**
 - But what is missing are targeted interventions that account for the varying needs of populations based on local social and demographic factors.
- **Resource allocation**
 - The implementation of HAPs can vary significantly depending on the priorities of local governments and the capacities available.
 - Hence, there is a need to allocate dedicated budgets for HAPs.
- **Breaking down silos**
 - **HAPs currently are stand-alone plans with limited finance.**
 - Pooling in resources would be possible if they are integrated with broader action plans promoting urban resilience and climate adaptation.

Conclusion

While HAPs mention long-term measures, they are limited to building infrastructure (especially cool roofs), with a cursory mention of green and blue spaces. **For HAPs to be effective, focused planning on including nature-based solutions to address extreme heat in hotspots is a must.**

10. Green Credit Programme (GCP)

Why in News?

- Amid concerns that the GCP may encourage tree planting for financial gains, **the Union Environment Ministry (MoEFCC) has issued guidelines that States must rely on to calculate what it would cost to restore a degraded forest landscape.**

What is the Green Credit Programme (GCP)?

- **Green Credit Initiative was launched by the Indian PM on the side-lines of COP 28** (held in 2023 at Expo City, Dubai, United Arab Emirates).
- It is an initiative within the government's **Lifestyle for Environment (LiFE) movement**.
 - The **concept of LiFE was introduced by the Indian PM at COP26 (Glasgow) in 2021**, to drive an international mass movement towards “**mindful and deliberate utilisation**” to protect and preserve the environment.
- **The GCP introduces a market-based approach** to incentivise 8 identified environmental activities.
- The main objective was to establish a mechanism where **participants could earn incentives in the form of ‘Green Credits’**.
- The proposed GCP will be implemented in phases, with the **initial phase** focusing on **water management and afforestation**.
- **Subsequent phases** will cover activities such as
 - Sustainable agriculture,
 - Waste management,
 - Air pollution reduction,
 - Mangrove conservation and restoration,
 - Eco mark label development, and
 - Sustainable building and infrastructure.

What are the Green Credit Rules, 2023?

- These rules were notified on 12th October 2023 under **the Environment Protection Act 1986**.
- These rules **put in place a mechanism to encourage voluntary environmental positive actions** resulting in issuance of green credits.
- **In its initial phase**, voluntary tree plantation is envisaged on degraded land, waste land, watershed area, etc., under the control and management of Forest departments.

Implementation of the GCP:

- So far, **forest departments of 13 States have offered 387 land parcels of degraded forest land - worth nearly 10,983 hectares**.
- **Individuals and companies can apply** to the Indian Council of Forestry Research and Education (ICFRE) - an autonomous body of the MoEFCC, **to pay to restore these forests**.
 - **The actual afforestation will be carried out by State Forest departments**.
- Two years after planting and following an evaluation by the ICFRE, each such planted tree could be worth **one ‘green credit.’**
- These credits can be claimed by the financing organisation and **used in two ways**:
 - **Either using it to comply with existing forest laws** that require organisations, which divert forest land for non-forestry purposes, to recompense by providing an equivalent amount of land elsewhere.
 - Or be used **for reporting** under environmental, social and governance leadership norms or to meet corporate social responsibility requirements.

Concerns Regarding the GCP and Changes Made by the Latest Guidelines:

- According to sources, **the green credits were not tradeable**.
 - However, the notified 2023 rules of the GCP says that the programme aims to **incentivise environmental positive actions through market-based mechanisms**.
 - **The green credit shall be tradable** and made available for trading on a domestic market platform.
 - It adds that if generating green credits led to measurably reducing or removing carbon emissions, it could also be used to get **carbon credits**, which are currently traded via several other independent markets.
- According to the latest guidelines, States must rely on to calculate what it would cost to restore a degraded forest landscape.
 - **The Ministry has changed the earlier requirement** that there be a minimum of 1,100 trees per hectare to qualify as reforested landscape and left it to States to specify them.

11. Why is Bengaluru's Water Crisis Compared to Cape Town's?

Why in News?

With Bengaluru facing severe water shortage, many have compared the city's predicament to Cape Town's in 2015-18.

What Exactly Happened During the Cape Town Water Crisis?

In Cape Town, the water scarcity was such that the prospect of "**Day Zero**" (municipal authorities would cut water supply and residents would queue up for a daily ration of water) defined life in the city. **This would have made Cape Town the first major city in the world to "run out" of water.**

What was the Reason Behind the Cape Town Water Crisis?

A prolonged period of **below-average rainfall**, resulted in the water levels in Cape Town's reservoirs dropping significantly. A rapidly **growing population, unplanned urbanisation, and inefficient water-use practices** further strained the city's water supply.

How Severe is Bengaluru's Water Crisis?

According to Karnataka Deputy CM, of the city's 13,900 public bore-wells, 6,900 have gone dry. If Bengaluru continues to "mismanage" its water supply, it can soon face a situation worse than South Africa's legislative capital a few years ago.

What is Behind the Bengaluru Water Crisis?

The crisis in Bengaluru is caused by **scanty rainfall in the Cauvery basin** (accounts for 60% of the city's water supply) and the **depletion of its groundwater reserves**. Beyond low rainfall, **rapid, unplanned urbanisation** has played a significant role in the crisis in Bengaluru.

Why is Unplanned Urbanisation the Main Culprit in Both Cape Town and Bengaluru?

As the **cities expanded, existing water infrastructure** (reservoirs, pipelines) **struggled to keep up with demand, resulting in leaks and inefficient water use**. Also, as concrete covered larger areas of land, groundwater levels plummeted, with replenishment failing to keep up with demand.



PRELIMS BOOSTER-THE HINDU & INDIAN EXPRESS

2ND APRIL

1. 100 years of Vaikom Satyagraha:

- It started in the princely state of Travancore (now in Kerala), and marked a pivotal moment in temple entry movements across India.
- It was against the exclusion of "lower caste" Hindus from accessing the Vaikom Mahadeva temple and its surrounding roads.

Background:

- The issue was first highlighted by Ezhava leader T.K. Madhavan in a 1917 editorial in his paper, Deshabhimani.
- In the 1923 Indian National Congress session in Kakinada, Kerala Provincial Congress Committee passed a resolution to prioritize the anti-untouchability cause.

Course of Satyagraha:

- The movement advocated non-violent protests to ensure equal access to public spaces for all castes.
- Groups of three Satyagrahis, representing different communities (Nair, Ezhava, and Pulaya), would peacefully approach the restricted areas.
- The first group was led by Kesava Menon.
- Key leaders: T.K. Madhavan, K. Kelappan (also known as Kerala Gandhi), K.P. Kesava Menon, and George Joseph.
- Mahatma Gandhi, C. Rajagopalachari, and E.V. Ramasamy (Periyar) visited Vaikom to express their support.

Impact:

- It persisted for 603 days, fostering unity across caste lines.
- Three of the four roads encircling the temples were opened to all in 1925.
- In 1936, the Maharaja of Travancore issued a Temple Entry Proclamation, granting access to marginalized castes.

2. About Spice Board of India

- **Genesis:** constituted in 1987 under the Spices Board Act 1986.
- **Headquarter:** Cochin, Kerala
- **Role:** Autonomous body responsible for the export promotion of the 52 scheduled spices and development of Cardamom.
- **Ministry:** Ministry of Commerce & Industry.

3. **Zero FIR:** A Zero FIR case filed against a former minister for allegedly making objectionable comments against the Telangana Chief Minister.

About Zero FIR:

- It refers to an FIR that is registered irrespective of the area where the offense is committed.
- Once registered, it is transferred to the appropriate police station for investigation.
- No regular FIR number is provided initially, the relevant police station registers a new FIR for investigation.
- The provision for Zero FIR is under Section 154 of the CrPC 1973, based on the Justice Verma Committee's recommendation established after the 2012 Nirbhaya case.

3RD APRIL

1. **Butterfly cicada:** A new species of cicada discovered in Meghalaya

About Cicada:

- It belongs to genus **Becquartina** and marks the first-ever record of this genus in the country
- The species in this genus are often called "Butterfly cicadas" because of their colourful wings.
- The present discovery extends the distributional range of the genus **Becquartina** from Southeast Asia into Northeast India.
- It increases the total number of known **Becquartina** species to seven.

2. Braille signage:

- The Election Department of Puducherry will provide Braille signage in English and Tamil in

Electronic Voting Machines (EVMs) in all 967 polling stations.

- It will **enable visually impaired or blind voters to participate independently** and confidentially in the electoral process.
- However, if the elector desires, he/she will still be allowed to bring a companion as provided in **Rule 49N of the Conduct of Elections Rules, 1961**.
- Braille signage is a type of sign that includes braille, a tactile writing system used by blind and visually impaired people.

3. Hypersonic Missile: Russian President confirmed that the 3M22 Zircon hypersonic missile had been used in battle.

Hypersonic Missile:

- Missile that can travel at **Mach-5 or faster, or at least five times the speed of sound**.
- They fly at lower altitudes than ballistic missiles, making them harder to track.
- Their extreme speed and manoeuvrability make them very difficult to defend against.
- Hypersonic Glide Vehicles (HGV) and Hypersonic Cruise Missiles are two types of hypersonic weapons systems.

4. Cyber Slavery: Over 3 months, the Indian Embassy rescued 75 Indians trapped in cyber-slavery in Cambodia.

About Cyber-slavery:

- It is a **modern form of human trafficking that exploits people in the digital world**.
- Victims are lured with employment opportunities and forced to work as online scammers.
- It is **emerging as a form of organized crime of unprecedented severity and scale**.

4 APRIL

1. One Vehicle One FasTag: National Highways Authority of India (NHAI's) norms of 'One Vehicle, One FASTag' has come into force.

About One Vehicle, One FASTag:

- **Aims to discourage use of single FASTag for multiple vehicles** or linking multiple FASTags to a particular vehicle.

- This will **enhance efficiency of electronic toll collection system** and provide seamless movement at toll plazas.

About FASTag:

- It is a **device that employs Radio Frequency Identification technology for making toll payments directly while vehicle is in motion**.
- Flagship programme of Ministry of Road Transport and Highways & NHAI.

2. Snow Leopard: Experts had pushed for **Conservation of Snow leopards, citing them as important "Indicator Species"**.

- Indicator species is an **organism whose presence or absence will reflect specific condition in its ecosystem**.
- **Protection Status:** IUCN: Vulnerable CITES: Appendix I
- **Habitat:** There are 12 snow leopard range countries namely Afghanistan, Bhutan, China, India, Kazakhstan etc.
- Currently, **there are around 718 snow leopards in India**
- **Characteristics:** live in high-altitude mountainous terrain, usually at elevations of 3,000-4,500m.
- Have short forelimbs and long hind limbs for traversing in rugged environments

3. National Information System for Climate and Environment Studies (NICES) Programme: NICES programme has invited Indian researchers to join in combating climate change.

About NICES Programme:

- Conceptualized in 2012, it is **operated by Indian Space Research Organisation (ISRO) and Department of Space** along with other ministries under framework of National Action Plan on Climate Change.

5 APRIL

1. S.A.R.A.H.: World Health Organization unveils a digital health promoter prototype S.A.R.A.H harnessing generative Artificial Intelligence (AI) for public health.

About S.A.R.A.H.:

- It is a **Smart AI Resource Assistant for Health** which uses new language models and cutting-edge technology.
- It can provide information across major health topics, including healthy habits and mental health.
- It **aims to provide an additional tool for people to realize their rights to health**. It can support people in developing better understanding of risk factors for some leading causes of death in world E.g., **cancer, heart disease, lung disease, and diabetes**.

2. Article 293 (Borrowing of States):

SC has referred to constitution Bench questions raised in the petition on the interpretation of Article 293.

Article 293:

- **Article 293(1)**, executive power of State extends to borrowing within territory of India upon security of Consolidated Fund of State.
- **Article 293(2)**, empowers central Government to make loans to any State and give guarantees for State loans.
- **Article 293(3)**, restricts states from borrowing without consent of Central Government if they have outstanding loans or guarantees from Central Government.

3. Paira cropping system:

This conservation agricultural practice in Odisha is dwindling in recent years.

About Paira cropping system:

- It is a **relay method of sowing in which short-duration pulses/ oilseeds are broadcast in standing crop of rice ~2 weeks before its harvest**.
- It does not allow interventions such as tillage, weeding, irrigation, and fertilizer application.
- **Benefits:** maximize land use efficiency, boost farmers income, etc.
- **Areas of Practise:** Bihar, Eastern Uttar Pradesh, West Bengal, Chattisgarh and Odisha.

4. Indian Ocean Geoid Low:

- According to researchers, **Indian Ocean hosts a phenomenon known as 'gravity hole' or 'Indian Ocean Geoid Low (IOGL)'**, where the Earth's gravitational pull is weaker and the sea level dips

by around 100 meters.

- This **creates a gravitational/geoid anomaly with depression in the ocean** and a lowest point in geoid.
- Technically, Earth is not a sphere but a geoid, with its middle part bulging outward, flattening poles and uneven surface.
- This uneven surface results from non-uniform gravity due to unequal distribution of matter within the planet's interior.

9 APRIL

1. Eco-Sensitive Zone (ESZ):

- They are ecologically important and fragile areas around protected areas.
- Notified by central government under the **Environment (Protection) Act, 1986**.
- ESZ Guidelines classify activities under three categories:
 - **Prohibited:** Commercial Mining, Setting of industries causing pollution, etc.
 - **Regulated:** Felling of Trees, Establishment of hotels and resorts, etc.
 - **Permitted:** Ongoing agriculture and horticulture practices by local communities, dairyfarming, etc

2. Chital (Spotted Deer): Netaji Subhash Chandra Bose Island (formerly Ross Island) is facing an invasion of chital deer.

About Chital Distribution:

- **Bangladesh, India, Nepal, Pakistan and Sri Lanka** up to the geographical barrier of the Himalayas.
- Native to the Indian subcontinent
- **Habitats:** Riverine forest during the hot dry season while Sal forest during the monsoon season.
- **Features:**
 - **Gestation period:** Around 231 - 235 days.
 - **Food and Feeding:** Grasses, but also forbs, leaves, flowers, and fruits.
 - Antlers are present only in males.
 - **Status:** Least Concern(IUCN)
 - **Threats:** Illegal hunting, habitat loss and degradation due to human encroachment and spreadof invasive alien plant species.

3. Per- and polyfluoroalkyl substances (PFAS): A study by IIT Madras reveals the pervasive presence of PFAS (also known as 'Forever Chemicals') in

Buckingham Canal, Adyar River, and Chembarambakkam Lake.

About PFAS:

- **PFAS are a vast family of synthetic chemicals found in everyday products such as non-stick cookware, upholstery, food packaging, water or stain resistant coatings, and industrial materials.**
- They do not degrade easily in the environment.
- **Concerns:** Could lead to adverse health effects such as liver damage, low infant birth weights, hormonal imbalance, fertility issues, immune system effects, and even cancer.

4. Damodar River:

- **Origin:** Khamarpat Hill on Chotanagpur Plateau in Palamau district of Jharkhand.
- It is a sub-basin and part of the Ganges River System.
- **Tributaries:** Barakar, Konar, Bokaro, Haharo, Jamnia, Ghari, etc.
- It was earlier known as the "River of Sorrows".
- As it flows through the mineral-rich areas, it is severely affected by the pollution due to industries

10 APRIL

1. India's Space economy:

- **Current size:** Around \$8.4 billion (around 2-3% of global space economy).
- **Target:** About 44 billion USD by 2033.
- **FDI:** 100% allowed.

Recent initiatives:

- Indian Space Policy 2023 was announced.
- **Indian National Space Promotion and Authorization Centre (IN-SPACe) was created as independent nodal agency under Department of Space.**
- New Space India Limited was created, for private sector participation.

2. Credit Deposit Ratio (CDR): Indian banks are battling the worst deposit crunch in 20 years and at 80%, the credit-deposit ratio is at its highest since 2005.

About CDR:

- It is the **ratio of how much a bank lends out of the**

deposits it has mobilised.

- **A higher CDR suggests that a significant portion of the bank's resources are allocated to loans.**
- It could potentially stimulate economic growth but also implies higher risk.
- Regulators often monitor CDR to ensure banks maintain a prudent balance between lending and risk management.

3. UN Membership Procedure: UN Security Council refers Palestinian application to become full UN member to committee.

About UN Membership procedure:

- **State accepts Charter commitments by submitting an application to Secretary-General UNSC requiring affirmative votes from 9 out of 15 members and no vetoes by 5 permanent members.**
- If recommended, it's presented to General Assembly, which requires a two-thirds majority vote.
- Membership becomes effective upon resolution adoption

4. National Pharmaceutical Pricing Authority (NPPA): NPPA revises ceiling prices of over 900 scheduled drug formulations.

NPPA: About:

- It was **constituted in 1997, as an independent Regulator for pricing of drugs.**
- **Ministry:** Attached office of Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers.
- **Role:** It fixes/ revises prices of controlled bulk drugs and formulations.
- **Enforce prices and availability of the medicines under Drugs (Prices Control) Order, 2013.** Monitors prices of decontrolled drugs in order to keep them at reasonable levels

11 APRIL

1. C- Dome: Israel deployed C-Dome defense system for the first time.

About C-Dome:

- It is a **naval version of the Iron Dome air defense system** used to shield against advanced ballistic, aerial, and surface-to-surface threats.
- **Iron Dome is a missile defense system that can protect deployed and maneuvering forces, as well**

as civilian areas against a wide range of indirect and aerial threats.

- Handles saturation attacks by engaging multiple targets simultaneously, with short reaction time.
- Unlike Iron Dome which has its own radar, **C-Dome is integrated into the ship's radar to detect incoming targets.**

2. Karen Ethnic Community: Guerrilla fighters from Myanmar's Karen ethnic minority claimed to be close to seizing control of a major trading town bordering Thailand.

About Karen Ethnic minority:

- Karen people are **indigenous to the Thailand-Burma border region** in Southeast Asia, primarily in Karen State of Myanmar.
- They trace their **origins to the Gobi Desert, Mongolia, or Tibet.**

3. Disclosure of assets by Election Candidates: Supreme Court, while hearing an appeal on election petition, held that election candidates have right to privacy as regards to matters which are of no concern to voters or are irrelevant to candidature of public life.

Statutory provisions regarding declarations by Election candidates:

- **Section 33 of the Representation of People's Act (RPA), 1951:** Deals with nominations for election of candidates and presentation of valid information.
- **Section 36 of RPA, 1951:** Provides for scrutiny of nomination and empowers returning officer to reject nominations on grounds of any defect of 'substantial character'.

4. Mangal Pandey (1827 - 1857): Legendary Sepoy Mangal Pandey was remembered on his death anniversary.

About Mangal Pandey:

- He was a resident of Ballia (Uttar Pradesh).
- He joined 34th Bengal Native Infantry of the British East India Company.

Key Contributions:

- Influenced by example of his compatriots in Behrampur, he refused to use **greased cartridges** **Broke into open mutiny on March 29, 1857, at**

Barrackpore near Calcutta, which also ignited fire of Revolt of 1857.

- Later, he was court-martialed and hanged at Barrackpore on April 8, 1857

12 APRIL

1. Piezoelectricity: Command Hospital, Pune became the first government hospital in India to conduct successful piezoelectric Bone Conduction Hearing Implants (BCI).

- Piezoelectric BCI system is an **implantable medical electronic device for hearing impaired patients.**

About Piezoelectricity:

- It is the appearance of positive electric charge on one side of certain non-conducting crystals and negative charge on the opposite side when the crystals are subjected to mechanical pressure/.
- It is utilized in various applications, like, **microphones, sensors, Piezoelectric Motors** etc.

2. Section 127A of Representation of the People Act (RPA), 1951: The Election Commission said that anonymous political posters, hoardings are not allowed.

- **Section 127A of RPA, 51: Unequivocally prohibits the printing or publishing of election pamphlets, posters, placards, or banners.**
- If the name and address of the printer and publisher are not prominently displayed.
- This requirement of disclosing the identity of publishers serves to: **Fix responsibility in case content is found unbecoming of the framework of the Model Code of Conduct or the statutory provision.**

3. New formulations by ICAR: ICAR has developed the following 3 new microbial formulations:

- **Bactolime integrates:** It contains **PGPRs (Plant Growth Promoting Rhizobacteria)** with liming material.
- Bacteria ensure the availability of essential nutrients to plants and help enhance nutrient use efficiency.
- **Bactogypsum:** Ameliorates high pH soils and ensures simultaneous delivery of plant-beneficial bacteria.

- **Trichogypsum:** Ameliorates high pH soils and ensures delivery of Trichoderma (a fungal biocontrol agent).
- **Gypsum:** It is a **compound containing Calcium and Sulphate**. It is used to counteract soil salinity/sodicity.

4. **Methanol:** USA recalls various hand sanitisers containing methanol. **FDA has warned that methanol exposure could lead to nausea, coma, seizures, permanent blindness, permanent damage to the Central Nervous System, or death**

Methanol (CH₃OH):

Also known as wood alcohol.

Characteristic:

- A **colorless and fairly volatile liquid with a faintly sweet pungent odor**.
- Completely mixable with water.
- Considered as an alternative fuel.
- **Uses:** synthetic dyestuffs, pharmaceuticals, perfumes
- Treatment of methanol poisoning: administer ethanol or an antidote called fomepizole

15 APRIL

1. **Kuchipudi Dance:** Reports highlighted that artists of Kuchipudi dance struggling for survival.

About Kuchipudi:

- Classical Indian dance form, originated in the **Kuchipudi village of Andhra Pradesh**.
- **Key Features:**
 - Known for its quick moves, lively eye expressions, etc.
 - **Trangam (dance move performed on the edge of a brass plate with the help of feet)**.
 - Has 2 forms- **traditional musical dance-drama and the solo dance**.
 - Siddhendra Yogi, a Vaishnava poet and visionary, conceived the Kuchipudi style of Yakshagaana (folk dance of Karnataka) in the 17th century

2. **Doxxing:** Incidents of Doxxing are increasing over internet.

About Doxxing:

- The term "**doxxing**" is derived from phrase "**dropping dox (documents)**".
- It refers to **collection of a user's private information, across multiple platforms (including social media) by an unauthorized individual** and then publishing the information in an attempt to shame or embarrass user.
- Conducted by researching public databases, hacking, or through social engineering.
- **Prevention:** Adjust social media settings, use strong passwords, report through National Cyber Crime Reporting Portal, etc.

3. **Plankton, Aerosol, Climate, ocean Ecosystem (PACE) Satellite:** NASA's PACE data on ocean, atmosphere, and climate is now available to the public.

About PACE:

- Placed in a **Sun-synchronous orbit, which means that it will always be synced to the same position relative to the Sun**.
- **Sensors:** OCI (Ocean Colour Instrument), HARP-2 (Hyper-Angular Rainbow Polarimeter-2) and SPEXone (Spectro-Polarimeter for Planetary Exploration).
- **Key Objectives**
 - Understanding how the ocean and atmosphere exchange carbon dioxide.
 - Revealing how aerosols might fuel phytoplankton growth in the surface ocean.

4. **Whooping cough:** Number of cases of whooping cough have been rising in China.

About Whooping Cough:

- It is **highly contagious respiratory tract infection**.
- **Caused by:** Bordetella pertussis bacteria.
- The bacteria attaches to cilia (tiny, hair-like extensions), part of upper respiratory system.
- It is **only found in humans**.
- Spread easily from person to person through the air.
- **Symptoms:** Runny nose, Nasal congestion Red watery eyes, Fever etc.
- In India, **Mission Indradhanush provides immunization protection against Whooping Cough**

16 APRIL

1. **Food Safety and Standards Authority (FSSAI):** FSSAI has clarified that currently there are **no standards for the term "health drink" in the country.**

About FSSAI:

- **Established:** Under the Food Safety and Standards Act, 2006
- **Ministry:** Ministry of Health and Family Welfare
- **Role:** Laying down science-based standards for articles of food and regulating their manufacture, store, distribution, and sale.
- **Organizational Structure:** It consists of a **Chairperson** appointed by the Centre along with **twenty-two members out of which one-third shall be women.**

2. **Shrinkflation:** Rising input costs have made the fast-moving consumer goods (FMCG) segment to adopt shrinkflation.

About Shrinkflation:

- It is the **practice of reducing the size of a product while maintaining its current retail price.** e.g., **reducing the number of biscuits or chips in a packet for the same price.**
- It is a **form of hidden inflation**, which companies adopt to reduce fall in customers due to price rise.
- **Causes:** Higher production cost, intense market competition, etc

3. **Special Rupee Vostro Account (SRVA):** The government simplified the **payment mechanism for pulses import from Myanmar through the utilization of Vostro Accounts**

About Vostro Account:

- A **Vostro account is a bank account that other foreign banks hold with "our" bank in the domestic currency i.e rupees.**
- SRVA is an additional arrangement to the existing system that uses freely convertible currencies and works as a complimentary system.
- Prior RBI approval is required for opening of SRVA
- **These accounts reduce the need for holding foreign exchange reserves and dependence on foreign currencies for bilateral transactions.**

4. **Ringwoodite:** Researchers have uncovered a vast reservoir of water, dubbed the "Ringwoodite Ocean," concealed within the Earth's mantle, over 700 kms beneath the surface.

- "Ringwoodite Ocean" is a **vast reservoir of water trapped within the mineral ringwoodite in the Earth's mantle.**

About Ringwoodite:

- It is a **vivid blue mineral formed under high temperatures and pressures in Earth's mantle.**
- It is one of the most typical high-pressure mineral in meteorites.
- Named after Australian earth scientist Alfred E. Ringwood who studied polymorphic phase transitions in common mantle minerals, olivine and pyroxene

18 APRIL

1. **Nitroplast:** Researchers have discovered a type of organelle, called **nitroplast, in a marine algae Braarudosphaera bigelowii, that can fix nitrogen.**

- Nitrogen fixation is a **biological process in which nitrogen gas is converted into a usable form for cell growth.**
- It is generally believed that **nitrogen fixation only occurs in bacteria and archaea but Braarudosphaera bigelowii** marks the first known nitrogen-fixing eukaryote.
- **Implications:** The nitroplast discovery opens doors for sustainable agriculture, improved crop yields, reduction in need of fertilizers and environmental stewardship

2. **Rogue Waves:** A University of Melbourne expedition to Antarctica has discovered that wind drives the formation of colossal rogue waves.

Rogue waves:

- **Rogues, also called 'extreme storm waves',** are those waves which are greater than twice the size of surrounding waves.
- Rogue waves can form in **large bodies of freshwater as well as the ocean.**
- They are often steep-sided with unusually deep troughs.
- Rogue waves are unusually **large, unpredictable, dangerous and can cause damage to ships or coastal infrastructure.**

3. **Bumblebees:** Recent research highlights that the Bumblebees are resilient to pesticides.

- Bumblebees **Belongs to the genus Bombus** and are important pollinator for many wildflowers.
- They are fuzzy insects with short, stubby wings.
- They are **larger than honeybees, but they don't produce as much honey.**
- They are **known for buzz pollination.**
- Their wings beating with high speed combined with their large bodies vibrate flowers until they release pollen.
- They **use dance as a means of communicating 'food alert'** signals to other members of their colony.
- **Threat:** Habitat fragmentation, disease transmission, etc.

4. Noyyal River:

- **Origin:** From the **Velliangiri hills (called as South-Kailash), a division of the Nilgiri Biosphere Reserve**
- **River basin:** Flows through Coimbatore, Tiruppur, Karur and Erode districts before joining the Cauvery River.
- **Historical significance:** Excavated remains of storage tanks, and check dams of the Chalukya and Chola periods have been discovered across the river.
- **Restoration efforts:** Central Government provided financial assistance from the National River Restoration Fund for its restoration.
- This **fund is managed by the Ministry of Jal Shakti**

22 APRIL

1. Vasuki indicus: Paleontologists have unearthed a **giant predator snake in Gujarat's Panandhro Lignite Mine in Kutch named Vasuki indicus.**

About Vasuki indicus:

- Likely lived 47 million years ago during the Middle Eocene Period. Length range: 36-49 feet.
- It's a **member of the Madtsoiidae snake family** that appeared roughly 90 million years ago but went extinct about 12,000 years ago.
- It **spread from India through southern Eurasia and into north Africa** after the Indian subcontinent collided with Eurasia around 50 million years ago.

2. Shompen Tribe: Shompen cast their vote for the first time in Lok Sabha Election.

About Shompen Tribe:

- One of the **Particularly Vulnerable Tribal Groups.** Reside in dense tropical rain forests of Great Nicobar island.
- Belong to the **Mongoloid group.** According to Census (2011), estimated **population of Shompen is 229.**
- They are **hunters and gatherers.**
- They used to hunt wild pig, python, monitor Lizard, crocodile, etc.
- Live a **semi-nomadic life** and have not been colonised at one place in a defined reserve forest.

3. Euvichol-S:

- World Health Organization (WHO) has prequalified the **Euvichol-S vaccine for Cholera.**
- It's a simplified formulation of the **oral cholera vaccine (OCV) Euvichol-Plus.**
- Uses fewer ingredients, is cheaper, and can be made more quickly than old version.

About Cholera:

- It's an **acute diarrheal illness** caused by infection of the intestine with *Vibrio cholerae* bacteria.
- It's transmitted through ingestion of contaminated food or water.
- Highest numbers of cases are reported in the **Middle East and Africa India reported 132 cases in 2023 (till July).**

4. Asiatic Wild Dogs (Dhole): Mange outbreak reported among Asiatic wild dogs in Mudumalai. **Mange is a skin disease that affects mammals caused by microscopic mites that burrow into skin.**

About Dhole (Cuon alpinus):

- **Distribution:** India, Cambodia, Nepal, Bhutan, Thailand etc.
- In India, it inhabits Eastern and Western Ghats, Assam, Meghalaya, West Bengal, Ladakh etc.
- Characteristics
- Carnivores that **resemble a small wolf or domestic dog in size.**
- Hunt mainly in early morning or late evening.
- **Threat:** Habitat loss, disease threat etc.
- Conservation status:

- ◆ **IUCN:** Endangered
- ◆ **Wildlife Protection Act 1972:** Schedule I and II
- ◆ **CITES:** Appendix II

23 APRIL

1. Genomic accordion: A recent study shows that mpox virus uses a 'genomic accordion' to evolve and infect humans.

Genomic Accordions:

- Used to describe **evolution of Poxviruses**, which is a multistep process of **gene amplification, mutation, and reduction**.
- Gene amplification is a **natural or artificial process that increases number of copies of a gene**.
- It allows viruses to adapt rapidly against host antiviral defences.

Mpox Virus:

- It is a **double-stranded DNA virus**.
- Belongs to **orthopoxvirus genus in Poxviridae family**, which includes variola, cowpox, vaccinia, and other viruses.

2. Ethylene Oxide: Singapore Food Agency (SFA) has ordered a recall of India's Spice product due to the presence of ethylene oxide.

About Ethylene Oxide:

- It is a **colourless, flammable gas with a sweet odor**.
- It is used to make other chemicals, including **antifreeze, textiles, plastics, detergents, and adhesives**.
- It is also used as a pesticide and sterilizing agent for medical equipment.
- **Health Impact:** Long-term exposure can result in irritation of eyes, skin, and respiratory passages and affects nervous system.
- Also, it is **carcinogenic to humans**.

3. Mahanadi River:

- **Origin:** Originates from a pool in Dhamtari district of Chhattisgarh and drains into Bay of Bengal.
- **States:** Basin spread over Chhattisgarh, Odisha, Jharkhand, Maharashtra, and Madhya Pradesh.
- **Important tributaries:** Seonath, Hasdeo, Mand, Ib, Ong, Tel, Jonk, etc.
- **Important Projects:** Hirakud dam, Mahanadi

Reservoir Project, etc.

- **Protected areas:** Satkosia Tiger Reserve, Baisipalli Wildlife Sanctuary, etc.

4. Pink Hydrogen:

- It is generated through electrolysis powered by nuclear energy.
- It can also be referred to as **purple hydrogen or red hydrogen**
- Also, the very high temperatures from nuclear reactors could be used in other hydrogen productions by producing steam for more efficient **electrolysis or fossil gas-based steam methane reforming**.
- **Other key Hydrogen type:** Green Hydrogen (from renewable energy); Blue Hydrogen (from natural gas), etc.

25 APRIL

1. WHO Sodium Benchmarks: World Health Organization (WHO) has released the 2nd edition of its global sodium benchmarks for different food categories.

About Sodium Benchmarks:

- **Part of a broader WHO initiative** to reduce sodium consumption and prevent chronic conditions related to high blood pressure and obesity.
- Benchmarks provide reference values for sodium content to assess progress in reducing sodium consumption.
- For adults, WHO recommends less than 2000 mg/day of sodium (equivalent to less than 5 g/day salt).

2. Miyawaki Method: Embassy of Israel in India joined 'Million Miyawaki' project, a community-led initiative aimed at improving air quality in Indian cities through mass afforestation urban spaces.

About Miyawaki Method:

- Based on **work of Japanese botanist Akira Miyawaki**, it enhances green cover within a limited area.
- It involves cultivating multi-layered forests that exhibit rapid growth and replicate natural biodiversity found in native forests.
- Such forests lack some qualities of natural forests, like medicinal properties and ability to bring rain.

- **Benefits:** Mitigate ecological impact of mining activities, creating carbon sinks, etc.

3. Compulsory Convertible Debentures (CCD):

Competition Commission of India approved subscription to CCD of Napino Auto and Electronics Limited by International Finance Corporation (IFC).

About CCD:

- CCDs are **debt instruments that are convertible into equity** at a specified time or on happening of specified event(s).
- These are hybrid securities as they initially behave like debt instruments but eventually convert into equity shares.
- It is often used by companies for **raising long-term funds** without immediately diluting equity shareholding of existing investors.

4. ASEAN Future Forum:

- It was **proposed by Vietnam at the 43rd ASEAN Summit in 2023.**
- It is a common platform for ASEAN member states as well as partner countries to share new ideas and policy recommendations.
- It **aims to contribute to promoting and shaping ASEAN's development path.**

26 APRIL

1. Payment aggregator (PA): PayU has received an in-principle approval from the Reserve Bank of India (RBI) to operate as a PA.

About PA:

- It is a **financial technology company that simplifies the process of accepting electronic payments for businesses.**
- It acts as an intermediary between the business and the financial institutions.
- It is incorporated as a company under the **Companies Act, 1956 / 2013.**
- Non-bank PAs require authorisation from RBI under the Payment and Settlement Systems Act, 2007.

2. Sympathetic Solar flares: Four sympathetic solar flares erupted simultaneously was captured by NASA.

About Sympathetic Solar Flares:

- They are **caused by multiple eruptions across the**

Sun's magnetic field, linked by massive magnetic field loops that lie above the solar surface.

- When one spot detonates, others follow suit.
- This leads to coronal mass ejections (CMEs) and massive bursts of plasma.
- Such solar activity is likely an **indication of the Sun reaching the peak of its 11-year solar cycle known as solar maximum.**

3. Crystal Maze 2: The Indian Air Force has successfully tested a new version of a medium-range ballistic missile Missile known as Crystal Maze 2

About Crystal Maze 2 (aka ROCKS):

- **Origin:** medium-range ballistic missile developed by Israel.
- **Range:** strike range of over 250 km
- **Type:** Air-to-surface missile
- **Aim:** designed to strike high-value stationary and relocatable targets in GPS-denied environments
- Missile can target **long-range radar and air defense systems.**

4. Nomination in Election: Recently a candidate was elected unopposed to the lok sabha as the nomination papers of the opposite candidate was rejected by the returning officer.

Nominations in election:

- **Section 33 of the Representation of the People Act, 1951 (RoPA)** contains the requirements for a valid nomination.
- **For filing of nomination in a constituency:**
 - Candidate from recognised political party should have one proposer
 - Candidates from independent and unrecognised parties should be subscribed by ten proposers.
 - The proposers should be electors from that respective constituency.

Section 36 of the RoPA, provides that the Returning Officer can reject a nomination based on signature of the candidate or proposer found not genuine

29 APRIL

1. Histamine:

- It is **one of the earliest identified mediators of allergy.**

- It plays a key role in the inflammatory response of the body and is also responsible for **autoimmune conditions, gastric acid secretion, and hematopoiesis**.
- They can be released in our body due to different factors, including:
 - Factors related to the immune system (example contact with allergens, snake venom, etc.),
 - Other factors that are not related to the immune system (example physical injury).
- Most of the histamine is stored in the **secretory granules of mast cells and basophils (types of whiteblood cells)**.
- **Antihistamines**: These are drugs that act to treat histaminemediated conditions by binding to histamine receptors and blocking the effect of histamines

2. Government Securities (G-Sec Bonds): RBI kept the Foreign Portfolio Investment limit in G-secunchanged **at 6% of outstanding stocks of securities for 2024-25.**

About G-Secs:

- They are **tradable instruments** issued by Governments through auctions conducted by RBI. Types
- **Short-term:** Usually called treasury bills, have maturities of less than one year.
- **Long term:** Usually called Government bonds or dated securities, have maturities of one year or more.
- Central Government can issue both (treasury bills and government bonds) while State Governments issue only government bonds (they are called the State Development Loans or SDLs).

3. Authorised Economic Operator (AEO) Status: The Centre has extended AEO status to the gem and jewellery sector.

About AEO program:

- It is under the aegis of the **World Customs Organization (WCO) SAFE Framework**.
- **Aims to enhance international supply chain security** and facilitate movement of legitimate goods.
- It is in sync with the commitments made under the World Trade Organisation trade facilitation agreement.
- It **enables Indian Customs to enhance and streamline cargo security through close cooperation with the principle stakeholders of the**

international supply chain.

4. Avars:

- They are nomadic people who survived in eastern central Asia between 6th-9th century.
- Considered as **successors of the Huns by their way of life and warfare**.
- They followed strict patrilineal descent (father's line)
- They were **hired by the Byzantine Empire to subdue other tribes**
- They avoided inbreeding and practised limited intermarriage with non-Avar neighbours.
- They are **renowned among archaeologists for their distinctive belt garnitures**.

30 APRIL

1. Salmonella:

- It is a group of **anaerobic bacteria**.
- These can be found in a variety of foods, including chicken, beef, pork, etc.
- Humans become infected by bacteria most frequently through contaminated water or food.
- They live in **animal and human intestines**.
- **Health Impacts:** Food Poisoning, Diarrhea, etc.

2. Star Campaigners:

- **Section 77 of the Representation of the People Act, 1951**, deals with expenditure incurred by 'leaders of a political party', also known as 'star campaigners'.
- A recognised political party can appoint a maximum of 40 star campaigners while a registeredunrecognized political party can appoint up to 20.
- Expenditure incurred by star campaigners on account of travel is not deemed to be part of the electionexpenditure of a candidate of such party.

3. Bisphenol A (BPA): Negotiations are being under the aegis of UNEP to address plastic pollution across the life cycle including the issue of harmful chemicals such as BPA used in plastic packaging.

About BPA:

- Chemical used primarily in production of polycarbonate plastics and epoxy resins.
- Polycarbonate plastics are often used in containers

that store food and beverages.

- **Epoxy resins are used to coat the inside of metal products**, such as food cans, bottle tops, etc.
- Exposure to BPA can have health effects on brain and prostate gland of fetuses, infants and children.

4. Rampage Missile:

- Long-range, supersonic, Air-to-Surface, precision strike missile.
- Developed by Israel Aerospace Industries and Israeli Military Industries Systems.
- **Range:**~250 kms.
- **Guidance:** GPS/ Inertial Navigation System (INS) navigation with anti-jamming capabilities.
- INS is an electronic system that is able to detect and measure change in motion of an object.
- Integrated into Russian-origin aircraft fleet, including **Su-30 MKI, MiG-29, and Jaguar fighters**, and also into Indian Navy's MiG-29K fleet.



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PRESS INFORMATION BUREAU (PIB)

1ST APRIL

1. Atal Tunnel: Atal Tunnel, formerly known as Rohtang Tunnel, is the world's longest high-altitude tunnel, situated at an elevation of approximately 3,100 meters above sea level. It is located in the Pir Panjal Range of the Himalayas, in Himachal Pradesh.

- It passes through Rohtang pass. It stretches 9.02 km, connecting Manali to Lahaul and Spiti Valley throughout the year, previously cut off for about six months each year due to heavy snowfall.
- The tunnel is a horseshoe-shaped, single tube, double lane tunnel. The tunnel features a semi-transverse ventilation system, emergency exits every 500 meters, evacuation lighting, broadcasting systems and fire hydrants for safety.

2. Central Administrative Tribunal (CAT): It had been established under Article 323-A of the Constitution. The mandate is to adjudicate disputes and complaints with respect to the recruitment and conditions of service of persons appointed to public services and posts in connection with the affairs of the Union or other authorities under the control of the Government.

In addition to the Ministries and Departments of Central Government, the Government has notified about 214 organizations under the jurisdiction of the CAT from time to time.

- A bench consists of one Judicial Member and one Administrative Member. There are 17 Benches and 21 Circuit Benches in the CAT all over India.
- The conditions of service of the Chairman and Members of CAT are the same as applicable to a Judge of High Court.
- Salaries, Allowances and Conditions of Service of the officers and other employees of the Tribunal are specified by the Central Government.
- It exercises jurisdiction only in relation to the service matters of the parties covered by the Administrative Tribunals Act 1985.
- The Tribunal is guided by the principles of natural

justice in deciding cases and is not bound by the procedure prescribed by the Civil Procedure Code.

- It is empowered to frame its own rules of procedure and practice.
- It has been conferred with the power to exercise the same jurisdiction and authority in respect of contempt of itself as a High Court.

3. Clean Energy Transitions Programme: Recently, the International Energy Agency (IEA) published the Clean Energy Transitions Programme annual report 2023. It is the IEA's flagship initiative launched in 2017 for accelerating progress toward a global net zero energy system.

- It leverages the insights and influence of the world's leading energy authority to accelerate clean energy transitions, particularly in emerging and developing economies
- Its goals are in line with the objectives of the 2015 Paris Agreement and the Sustainable Development Goals established by the United Nations.

4. Hume AI: Recently, a New York-based research lab and technology company Hume, has introduced what can be called the 'first conversational AI with emotional intelligence'. It is the world's first emotionally intelligent voice AI.

- It accepts live audio input and returns both generated audio and transcripts augmented with measures of vocal expression.
- It is essentially an API that is powered by its proprietary empathic large language model (eLLM). This eLLM reportedly understands and emulates tones of voices and word emphasis to optimise human-AI conversations.
- It is trained on human reactions to optimize for positive expressions like happiness and satisfaction. EVI will continue to learn from users' reactions.
- By processing the tune, rhythm and timbre of speech, EVI unlocks a variety of new capabilities, like knowing when to speak and generating more

empathic language with the right tone of voice.

2ND APRIL

1. Digital India Trust Agency: The Reserve Bank of India is considering establishing a Digital India Trust Agency (DIGITA) to combat cyber fraud and illegal lending apps. It will be **responsible for stopping illegal lending apps from popping up. It will enable the verification of these digital lending apps and will maintain a public register of these verified applications.** Any app which will not carry the “verified” tag of DIGITA, will be considered unauthorised.

Digital lending: It is a remote and automated lending process, largely by use of seamless digital technologies. **It generally involves three parties – a lender, a lending service provider (including a digital lending platform) and a borrower.** It involves lending through web platforms or mobile apps, utilising technology in customer acquisition, credit assessment, loan approval, disbursement, recovery and associated customer service. **It includes products like Buy Now, Pay Later (BNPL), which is a financing option (or simply a short-term loan product). It allows one to buy a product or avail a service without having to worry about paying for it immediately.**

2. Voter Verifiable Paper Audit Trail (VVPAT): It was first introduced in India in the 2014 Lok Sabha elections. It is an independent system that consists of two parts, namely, a VVPAT Printer and VVPAT Status Display Unit (VSDU) attached to the Electronic Voting Machines (EVMs), that allow the voters to verify that their votes are cast as intended. **When a vote is cast, a slip is printed containing the serial number, name, and symbol of the candidate and remains exposed through a transparent window for 7 seconds. Thereafter, this printed slip automatically gets cut and falls into the sealed drop box of the VVPAT.** The results of EVMs can be verified using the slips kept in the drop boxes of VVPAT machines. It can be **accessed by the polling officials, but not by the voters.**

The paper slips are deemed to be more authoritative than EVM tallies in cases where VVPAT slips are utilised

to verify votes. Voter verification, however, is only done in extreme circumstances, such as when there are accusations of fraud or miscalculation.

The ECI has the authority to request that votes be verified using VVPAT slips in response to such complaints. At present, the **VVPAT slips are counted in a randomly-selected polling station in each Assembly constituency or Parliamentary constituency, depending upon the nature of the elections being held.** The ECI has clarified that EVMs and VVPATs are separate entities and are not connected to any network. These machines are developed by the Electronics Corporation of India Limited (ECIL) and Bharat Electronics Ltd (BEL).

3. SEBI Complaint Redress System (SCORES 2.0): SEBI recently launched the new version of the SEBI Complaint Redress System (SCORES 2.0). SCORES is a web-based centralized grievance redress system of SEBI launched in 2011. It **enables investors to lodge and follow up on their complaints and track the status of redressal of such complaints online from anywhere.** It enables market intermediaries and listed companies to receive complaints online from investors, redress such complaints, and report redressal online.

Complaints can be lodged on SCORES for any issues covered under the SEBI Act, Securities Contract Regulation Act, Depositories Act, and rules and regulations and provisions of the Companies Act, 2013. Entities against which complaints are handled by SEBI include: Listed companies / registrar & transfer agents, Brokers / stock exchanges, Depository participants / depository, Mutual funds, Portfolio Managers, Other entities (KYC Collective investment scheme, Merchant banker, Credit rating, Foreign institutional investor etc)

Key Features of SCORES 2.0: It will feature reduced and uniform timelines for redressal of investor complaints, which is 21 calendar days from the date of receipt of the complaint.

There will be two levels of review. The first review will be by the ‘designated body’ if the investor is dissatisfied with the resolution provided by the concerned regulated entity. The second review will be by SEBI if the investor is still dissatisfied after the first review. If there is non-adherence to the prescribed timelines by the regulated entity, then there would be auto-escalation of the complaint to the next level.

3RD APRIL

1. White Rabbit Collaboration (WR): CERN, the European Organization for Nuclear Research, recently launched White Rabbit Collaboration. It is a technology developed at CERN, in collaboration with institutes and companies, to synchronize devices in the accelerators down to sub-nanoseconds and solve the challenge of establishing a common notion of time across a network. It achieves sub-nanosecond accuracy in Ethernet based networks.

A White Rabbit network may be used solely to provide timing and synchronization to a distributed electronic system, or to provide both timing and real-time data transfer. A key distinctive feature of White Rabbit, is that it is open source and based on standards. Companies and institutes can therefore adapt it to their needs and incorporate it in their products and systems. The technology could also play a key role in the future landscape of global time dissemination technologies, which currently rely heavily on satellites.

2. Lumpy Skin Disease: It is an infectious viral disease of cattle. It is caused by the lumpy skin disease virus (LSDV), which belongs to the genus capripoxvirus, a part of the poxviridae family (smallpox and monkeypox viruses are also a part of the same family). LSDV is not a zoonotic virus. LSD is currently endemic in most of Africa, parts of the Middle East and Turkey. Since 2019, several outbreaks of LSD have been reported by countries in Asia. It is transmitted by blood-feeding insects, such as certain species of flies, mosquitoes or ticks. Infected animals shed the virus through oral and nasal secretions, which may contaminate common feeding and water troughs. Thus, the disease can either spread through direct contact with the vectors or through contaminated fodder and water. It can also lead to death, especially in animals that have not previously been exposed to the virus or have low immunity. It is a highly host-specific disease. It primarily affects cows and to a lesser extent, buffalo. Morbidity rate is higher in cattle than buffalo. It has no direct antiviral treatment but involves the use of antibiotics, painkillers and wound care sprays to treat symptoms. As there's no treatment, vaccines are used to control disease transmission.

3. OptiDrop Platform: The Centre for Cellular and Molecular Platforms (C-CAMP) in Bengaluru has developed a new platform called OptiDrop. It is an innovative microfluidic chip-based platform that simplifies and reduces the cost of studying single cells. It employs a novel approach that enables precise and cost-effective analysis of single cells encapsulated in droplets. The platform's unique features include live data visualisation, a smaller data footprint, and a 'closed' system design that prevents external contamination. This research was supported by the Biotechnology Industry Research Council (BIRAC), the Department of Science and Technology (DST) and the Ministry of Human Resource Development (MHRD). It helps in studying the impact on individual cells during a drug screen, environment control (water contamination counter), detection and sorting of CAR-T cells in immuno-oncoterapeutics, selection of CRISPR-modified single cells and selection of high-efficiency clones in single-cell genomics

C-CAMP: It is an initiative supported by the Department of Biotechnology and has been a catalyst of cutting-edge research and innovation in the life sciences since 2009. It is mandated to promote entrepreneurship and innovation.

4 APRIL

1. PRATUSH Telescope: Probing Reionization of the Universe using Signal from Hydrogen (PRATUSH) is a radio telescope to be sited on the moon's far side. It is being built by the Raman Research Institute (RRI) in Bengaluru with active collaboration from the Indian Space Research Organisation (ISRO).

- Initially, ISRO will place PRATUSH into orbit around the earth. After some fine-tuning, the space agency will launch it moonwards.
- It will be to detect signals from the first stars and galaxies, reveal the cosmic dawn of the universe, answering the question when the first stars formed, the nature of the first stars and what was the light from the first stars.
- It will carry a wideband frequency-independent antenna, a self-calibrating analog receiver and a

digital correlator to catch radio noise in the all-important signal from the Dark Ages.

- The target instrument sensitivity is at the level of a few millikelvin without being limited by any systematic features.

2. Sainik Schools: These are residential schools for students, providing Public School Education which are affiliated to Central Board of Secondary Education (CBSE), New Delhi.

- These schools are funded by Central and State governments. **The scheme to establish Sainik Schools was introduced in 1961 with the primary aim of preparing students academically, physically and mentally for entry into the National Defence Academy.**
- These schools are under the overall governance of **Sainik Schools Society (registered under Societies Registration Act XXI of 1860) Ministry of Defence.** It is established with the primary aim of preparing boys academically, physically and mentally for entry into the National Defence Academy.
- At present, there are **33 Sainik Schools located in various parts of the country.** Girls cadets have also been given admission in Sainik School, from the academic session 2021-22.
- Government of India has approved an initiative for setting up of 100 new Sainik Schools under Sainik Schools Society, Ministry of Defence in partnership with NGOs/Private Schools and State Govt. **It aims to create an academically strong, culturally aware, intellectually adept, confident, highly skilled, multi-dimensional, patriotic self-reliant youth community with leadership qualities focused on providing utmost priority to the nation.**

3. Marine Products Export Development Authority: It is a statutory body entrusted with the primary task of promotion of export of marine products. The **erstwhile Marine Products Export Promotion Council established by the Government of India in September, 1961 was converged into MPEDA in 1972.**

Functions:

- Developing and regulating off-shore and deep-sea fishing and undertaking measures for the conservation and management of off-shore and deep-sea fisheries;
- **Registering fishing vessels, processing plants or storage premises for marine products and conveyances used for the transport of marine products;** fixing of standards and specifications for marine products for purposes of export;
- Regulating the export of marine products; registering of exporters of marine products on payment of such fees as may be prescribed;
- **Headquarter:** Kochi, Kerala. It has Trade Promotion offices at New Delhi, Tokyo and New York.
- **Nodal Ministry:** Ministry of Commerce and Industry

6 APRIL

1. Nimmu-Padum-Darcha Road: It serves as a vital link between the Indian Union territory of Ladakh and the state of Himachal Pradesh, traversing through the picturesque region of Zaskar, Ladakh.

- It is an **all-weather road from Manali (Himachal Pradesh) to Leh (Ladakh) through Darcha and Nimmu on the Kargil-Leh Highway.** It was constructed by the Border Roads Organisation (BRO).
- It **crosses only one pass—Shinkun La** on which tunnel work is about to commence by the BRO. It will be the first all-weather road connecting Ladakh to the rest of the country.
- The **connectivity will strengthen defence preparedness** and provide a boost to economic development in the Zaskar valley.

2. World Health Day: It is aimed at raising awareness about global health issues and encourage people to live healthier.

- The origin of World Health Day goes back to 1948 when First Health Assembly was held by the organisation, where it was decided to **commemorate April 7 as World Health Day and it came into effect in 1950.**

- Over the years, the celebrations have aimed to create awareness around a specific health theme to highlight a priority area of concern for the World Health Organization.
- **The theme of 2024 World Health Day is 'My health, my right'. This theme was chosen to champion the right of everyone, everywhere to have access to quality health services, education and information,** as well as safe drinking water, clean air, good nutrition, quality housing, decent working and environmental conditions and freedom from discrimination.

3. Phanigiri: Recently, the Department of Archaeology and Museums have unearthed a coin hoard at the Phanigiri in Suryapet district, Telangana.

- It is a **famous Buddhist site located 110 km away from Hyderabad.** It derived its name from the shape of the hillock, which appears to be like a snake hood. **The word Phani in Sanskrit means snake and Giri means hillock.**
- It is believed to be one of the important Buddhist monasteries strategically located on the ancient trade route (Dakshinapatha) connecting the west and the east coast of the Deccan.
- **Coins:** Lead coins with elephant symbol on one side and Ujjain symbol on the other side are found. **According to the archaeologists, the coins belong to the Ikshvaku period dated between 3rd century and 4th century Common Era.**
- Also, stone beads, glass beads, shell bangle fragments, stucco motifs, broken limestone sculptures, a wheel of a toy cart, iron nails and pottery are excavated.
- Mahastupa, apsidal Chaityagrihas, Votive stupas, pillared congregation halls, Viharas, platforms with staircases at various levels, octagonal stupa chaitya, 24-pillared mandapam, circular chaitya and cultural materials that included terracotta beads, semi-precious beads, iron objects, Brahmi label inscriptions and holy relic casket are also excavated.
- **All the cultural material is datable from the 1st century BCE to 4th century CE.**

7 APRIL

1. Suvidha Portal: It is developed by the Election Commission of India (ECI) to ensure a level playingfield upholding the democratic principles of free, fair and transparent elections. It streamlined the process of obtaining and acting upon requests for permissions and facilities from political parties and candidates during the election period. **It caters to a diverse range of permission requests transparently on the First in First Out principle.** Political parties and candidates can seamlessly submit permission requests online from anywhere, at any time. Offline submission options are available. It caters to permissions for organising rallies, opening temporary party offices, door-to-door canvassing, video vans, helicopters, obtaining vehicle permits, distributing pamphlets. It is **supported by a robust IT platform, managed by nodal officers across various state departments.** It also has a companion app that enables applicants to track the status of their requests in real time. Furthermore, the permission data available on the portal serves as a valuable resource for scrutinising election expenditures, contributing to greater accountability and integrity in the electoral process.

2. Windfall Profit: It refers to a sudden increase in profits, typically caused by an unexpected event or circumstance. Such profits are generally well above historical norms and may occur due to factors such as a price spike or supply shortage that are either temporary in nature or longer-lasting. **Windfall profits are generally reaped by an entire industry sector but can also find their way to an individual company or individual.** Among the reasons that windfall profits can arise are a sudden change in market structure, an executive order from the government, a court ruling, or a dramatic shift in trade policy. **In terms of an individual, a windfall profit/gain could be a spike in income as a result of a specific, one-time event, such as winning the lottery or inheriting a valuable property.** Businesses typically use these profits in part to increase dividends, buy back shares, reinvest in the business for future growth, or reduce debt.

3. Lab-grown minibrains: These are scientifically known as brain organoids, but often called "minibrains" and serve as miniature, simplified models of full-size human brains.

How are minibrains made?

Scientists typically grow brain organoids from stem cells, a type of immature cell that can give rise to any cell type, whether blood, skin, bowel or brain. The stem cells used to grow organoids can either come from adult human cells or more rarely, human embryonic tissue. Scientists collect adult cells and then expose them to chemicals in order to revert them into a stem cell-like state. **The resulting stem cells are called "induced pluripotent stem cells" (iPSC), which can be made to grow into any kind of tissue.** To give rise to a minibrain, scientists embed these stem cells in a protein-rich matrix, a substance that supports the cells as they divide and form a 3D shape. Alternatively, the cells may be grown atop a physical, 3D scaffold.

Application: These organoids can potentially be useful in basic research, drug development and even computer science

4. Satpula dam: Delhi's oldest surviving Satpula dam, which was built during 14th-century still stands strong. **Satpula ('sat' means seven and 'pull' means openings of a bridge) was constructed during the reign of Sultan Muhammad Shah Tughlaq (1325-1351).** It was built using Delhi quartz — a stone found in the Aravallis.

It was **developed as an integral component of defence wall of the fourth city of Delhi, Jahanpanah.** The dam served two purposes: Providing a reliable source of water for irrigation, and acting as a defence against possible intruders.

9 APRIL

1. TSAT-1A: It is an optical sub-metre-resolution Earth observation satellite. It was **built by Tata Advanced Systems Limited (TASL) in collaboration with Latin American company Satellogic Inc,** following a collaboration agreement between the two companies in late 2023. TSAT-1A was assembled in TASL's Assembly, Integration, and Testing (AIT) plant at its

Vemagal facility in Karnataka. It was **launched by SpaceX's Falcon 9 rocket from the Kennedy Space Center, Florida,** in the US. TSAT-1A's core strength lies in its ability to capture military grade imagery of Earth's surface with sub-metre resolution. It is **equipped with both multispectral and hyperspectral imaging capabilities.** This technology allows TSAT-1A to collect data across a wide range of wavelengths within the electromagnetic spectrum, providing a deeper and more nuanced understanding of land, water, and various natural resources. **TSAT-1A boasts greater collection capacity, a wider dynamic range (the ability to capture detail in both very bright and very dark areas), and low-latency delivery of data.**

2. Consumer Confidence Survey (CCS): The latest bi-monthly survey, called Consumer Confidence Survey, conducted by the Reserve Bank of India (RBI) unveiled a remarkable surge in consumer confidence, reaching its peak since mid-2019. The Reserve Bank of India (RBI) conducts a Consumer Confidence Survey to measure consumers' perceptions of the prevailing economic situation. The survey is conducted across various cities and measures consumer confidence on parameters such as **the economy, employment, price, income, and spending.** The survey consists of questions regarding consumers' sentiments over various factors in the current situation and future.

3. Mangal Pandey: He is considered the hero of the first war of Independence, also known as the Sepoy Mutiny of 1857. He was born on July 19, 1827 near Faizabad in Uttar Pradesh. In 1849, Pandey joined the army of the British East India Company and served as a sepoy in the 6th Company of the 34th Bengal Native Infantry in Barrackpore.

Rebellion against East India Company:

He revolted against the East India Company for introducing cartridges that were greased with animal fat as it hurt the religious sentiments of the soldiers. This movement of rebels reached other parts of India and led to a mass revolt against the colonial rulers. Common people too came out and opposed anti-India laws. **On March 29, 1857, Pandey mutinied and fired at his Senior Sergeant Major. He was overpowered and hanged on April 8, 1857, by**

the order of a Court Martial at Lal Bagan in Barrackpore.

4. Nimmu-Padum-Darcha Road: The Border Roads Organisation (BRO) has accomplished a significant milestone by establishing connectivity on the Nimmu-Padam-Darcha Road in Ladakh. It **serves as a vital link between the Indian Union territory of Ladakh and the state of Himachal Pradesh**, traversing through the picturesque region of Zaskar, Ladakh. It is **an all-weather road from Manali (Himachal Pradesh) to Leh (Ladakh) through Darcha and Nimmu on the Kargil–Leh Highway. It was constructed by the Border Roads Organisation (BRO).** It crosses only one pass—Shinkun La—on which tunnel work is about to commence by the BRO. It will be the first all-weather road connecting Ladakh to the rest of the country. **The connectivity will strengthen defence preparedness and provide a boost to economic development in the Zaskar valley.**

10 APRIL

1. International Narcotics Control Board: India's Jagjit Pavadia was re-elected for a third term for five years from March 2025-2030 to the International Narcotics Control Board. It was established in 1968 and is the independent and quasi-judicial monitoring body for the implementation of the United Nations international drug control conventions. It was **established by the Single Convention on Narcotic Drugs of 1961 by merging two bodies: the Permanent Central Narcotics Board, created by the 1925 International Opium Convention; and the Drug Supervisory Body, created by the 1931 Convention for Limiting the Manufacture and Regulating the Distribution of Narcotic Drugs.** It **consists of 13 members who are elected by the Economic and Social Council and who serve in their personal capacity, not as government representatives.**

Three members with medical, pharmacological or pharmaceutical experience are elected from a list of persons nominated by the World Health Organization (WHO) and 10 members are elected from a list of persons nominated by Governments.

INCB endeavours in cooperation with Governments, to ensure that adequate supplies of drugs are available for medical and scientific uses and that the diversion of drugs from licit sources to illicit channels does not occur. It also monitors Governments' control over chemicals used in the illicit manufacture of drugs and assists them in preventing the diversion of those chemicals into illicit traffic.

2. Jenu Kuruba community: Jenu in Kannada means honey and kuruba is the caste. As the name suggest Jenu Kurubas are honey gatherers. They are traditional honey gathering tribe and are among the original inhabitants of the forests of the Western Ghats that stretch over three States – **Karnataka, Kerala and TamilNadu. They live in small settlements called Hadi.** The main occupation used to be food gathering in the forests, collection of minor forest produce in the forests, collection of minor forest produce including honey **They practice shifting cultivation, leading to a nomadic lifestyle.** People of this community live a semi-nomadic lifestyle which is not maintained by rulers, police, centralized visible forces or religious monasteries; but by the technique of its own discipline and diffused power. **The pattern is that it is maintained at each settlement level with a head-man (yajamana) and a ritual head / shaman (gudda).**

3. Classification of Hepatitis Virus:

Hepatitis A: Hepatitis A is the result of an **infection with the hepatitis A virus (HAV).** This type of hepatitis is an acute, short-term disease. Since it is a short-term illness, it may not require treatment.

Hepatitis B: The **hepatitis B virus (HBV) causes hepatitis B.** This is often an ongoing, chronic condition There is no specific treatment program for acute hepatitis B.

Hepatitis C: Hepatitis C comes from the hepatitis C virus (HCV).

HCV is among the most common bloodborne viral infections and typically presents as a long-term condition. Antiviral medications can treat both acute / chronic forms of hepatitis C.

Hepatitis D: This is a rare form of hepatitis that only occurs in conjunction with hepatitis B infection. The hepatitis D virus (HDV) causes liver inflammation like other strains, but a person cannot contract HDV without an existing hepatitis B infection. **The WHO lists pegylated interferon alpha as a treatment for hepatitis D.** However, this medication can have severe side effects. As a result, it's not recommended for people with cirrhosis liver damage.

Hepatitis E: Hepatitis E is a waterborne disease that results from exposure to the hepatitis E virus (HEV).

Hepatitis E is mainly found in areas with poor sanitation and typically results from ingesting fecal matter that contaminates the water supply. Currently, no specific medical therapies are available to treat hepatitis E. Because the infection is often acute, it typically resolves on its own.

11 APRIL

1. Fiscal Monitor Report: Recently, in its **Fiscal Monitor the International Monetary Fund said industrial policy initiatives pursued by the United States, Europe and other countries** to steer innovation in certain sectors were no panacea to boost economic growth. It provides an overview of latest public finance developments, updates the medium-term fiscal outlook, and assesses fiscal implications of policies relevant to the global economy. It is **prepared twice a year by the IMF's Fiscal Affairs Department.** Its projections are based on the **same database used for the World Economic Outlook (WEO) and the Global Financial Stability Report (GFSR).** The fiscal projections for individual countries have been prepared by IMF desk economists, and, in line with the WEO guidelines.

2. CDP-SURAKSHA Platform: Government of India has come up with a new digital platform called CDP-SURAKSHA to disburse subsidies to horticulture farmers under the Cluster Development Programme (CDP). System for Unified Resource Allocation, Knowledge, and Secure Horticulture Assistance (SURAKSHA) is a platform which will allow an instant disbursement of subsidies to farmers in their bank account by utilising the e-RUPI voucher from the National Payments Corporation of India (NPCI).

Features include: Database integration with PM-KISAN, cloud-based server space from NIC, UIDAI validation, eRUPI integration, local government directory (LGD), content management system, geotagging, and geo-fencing. **The platform allows access to farmers, vendors, implementing agencies (IA), and cluster development agencies (CDAs), and officials of the National Horticulture Board (NHB).**

A farmer can login using their mobile number and place an order for planting material such as seeds, seedlings and plants based on their requirement. Once the demand has been raised by the farmer, the system will ask them to contribute their share of the cost of planting material. The subsidy amount paid by the government will appear on the screen automatically. After the farmer pays their contribution, an e-RUPI voucher will be generated. This voucher will then be received by a vendor, who will provide the required planting material to the farmer.

3. Defence Attache (DA): A DA is a **member of the armed forces who serves in an embassy as a representative of his/her country's defence establishment abroad.** DA is a **generic term that covers personnel from all branches of the armed services,** although some larger countries may appoint a DA to represent an individual service branch, such as an air force or naval attaché. It is the **DAs job to protect, develop, and promote the defence interests of their country in the nation they are assigned, as well as in bilateral military and defence relations.** Some DAs are deployed to work on specific issues, like migration, and they can also serve as part of a military mission with organisations such as NATO, the EU, or the UN. If serving on such military deployments, DAs usually operate as the head of the mission or a military adviser, with these assignments usually multilateral. The **Vienna Convention on Diplomatic Relations, 1961, provides immunity to persons according to their rank in a diplomatic mission. It defines the legal status of the DA.** Under the Convention, DAs are considered members of the diplomatic staff, enjoying full immunity.

12 APRIL

1. World Cybercrime Index: It identifies the globe's major cybercrime hotspots by ranking the most significant sources of cybercrime at a national level. It has been developed as a joint partnership between the University of Oxford and UNSW Canberra. **The data that underpins the index was gathered through a survey of 92 leading cybercrime experts from around the world** who are involved in cybercrime intelligence gathering and investigations. It **ranks roughly 100 countries and identifies key hotspots according to various categories of cybercrime, including ransomware, credit card theft, and scams.** Russia tops the list, followed by Ukraine, China, the USA, Nigeria and Romania. **India captured the number 10 spot in the rankings.** The researchers also found that certain kinds of cybercrime were associated with particular countries. For example, the United States was associated with data and identity theft, while those related to technical products or services seemed to often originate from China.

2. Adjudicating Authority under the PMLA: Under PMLA, an adjudicating authority determines within 180 days whether the properties attached by the Enforcement Directorate (ED) are involved in money laundering or not. It provides for the attachment of any property that is suspected to have been acquired with the proceeds of crime in a case of any offence that is listed in the schedule of the law. It must be confirmed within this time by an adjudicating authority appointed by the central government, failing which the property is automatically released from attachment. Because the initial attachment is provisional, the accused can continue to enjoy the property until the adjudicating authority confirms the attachment, after which the ED has the power to claim possession. **The accused has the right to challenge the adjudicating authority's confirmation order at the PMLA's Appellate Tribunal within 45 days.** If the Appellate Tribunal too confirms the order, the accused can file a plea in the High Court, and so on. Unless the property is released along the way, it shall remain out of bounds for the owner until the trial is completed. Following final confirmation, in the case of a residential property, the ED will ask the owner to vacate the premises along with his belongings, and will take over possession. In case of a conviction, the trial court may order confiscation of the attached

property, and vest the rights to the property with the central government.

3. Methanol: It appears as a colorless fairly volatile liquid with a faintly sweet pungent odor like that of ethylalcohol. It is **also known as wood alcohol. It can completely mix with water.** Preparing methanol is based on the direct combination of carbon monoxide gas and hydrogen in the presence of a catalyst. **Increasingly, syngas, a mixture of hydrogen and carbon monoxide derived from biomass, is used for methanol production.**

Benefits:

- **Lower production costs**—Methanol is cheap to produce relative to other alternative fuels.
- Improved safety—**Methanol has a lower risk of flammability compared to gasoline.**
- **Increased energy security**—Methanol can be manufactured from a variety of domestic carbon-based feedstocks, such as biomass, natural gas and coal.
- Used to make chemicals, to remove water from automotive and aviation fuels, as a solvent for paints and plastics, and as an ingredient in a wide variety of products.

13 APRIL

1. Khavda Renewable Energy Park: Adani Green Energy Ltd (AGEL) recently established the world's largest renewable energy park in Gujarat's Khavda region. It is boasting an impressive 45 GW capacity predominantly fueled by solar energy. **The region has the second-best solar radiation in the country after Ladakh and wind speeds five times that of the plains.** Situated just one kilometer from the international border with Pakistan, the energy park maintains a buffer zone manned by the Border Security Force (BSF). The Khavda Park, at its peak, is projected to generate 81 billion units of electricity, a quantity capable of powering entire nations such as **Belgium, Chile and Switzerland.**

2. Global Forest Watch (GFW): It is an **open-source web application to monitor global forests in near**

real-time using satellite data and other sources. It is a project of the Washington-based nonprofit research organization, the World Resources Institute (WRI). It is free and simple to use, enabling anyone to create custom maps, analyze forest trends, subscribe to alerts, or download data for their local area or the entire world. It **refers to tree cover when talking about forest extent, loss, and gain.** Tree cover is a convenient metric for monitoring forest change because it is easily measurable from space using freely available, medium-resolution satellite imagery.

Highlights of the GFW's annual forest loss data:

The **loss of primary forests—those untouched by people and sometimes known as old-growth forests** – in the tropics declined 9% last year compared to 2022.

Brazil, the Democratic Republic of Congo, and Bolivia topped the ranking of tropical countries with the most primary forest losses. Deforestation globally rose by 3.2% in 2023. The GFW data showed that five states in India accounted for 60 percent of all tree cover losses between 2001 and 2023. **Assam had the maximum tree cover loss, followed by Mizoram, Arunachal Pradesh, Nagaland and Manipur.**

3. PACE Satellite: NASA is now publicly distributing science-quality data from its newest Earth-observing PACE satellite. The **Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) satellite is placed in Sun-synchronous orbit.** The primary science instrument for PACE is the **Ocean Colour Instrument (OCI)** which is designed to measure the ocean's colour across a spectrum from ultraviolet to shortwave infrared. It features two polarimeters – the **Spectro-polarimeter for Planetary Exploration (SPEXone) and the Hyper Angular Research Polarimeter (HARP2).** It aims to provide improved atmospheric correction and a comprehensive range of aerosol and cloud science data beyond what the OCI alone could achieve. The OCI observes the ocean, land and atmosphere across a spectrum of ultraviolet, visible, and near infrared light.

4. Micro plastic: It is tiny plastic debris smaller than 5 mm in length. **There are two types of microplastics as follows**

Primary microplastics: These are tiny particles (solid plastic particles of less than one millimeter in their largest dimension) intentionally designed for commercial use, such as **cosmetics, nurdles i.e., plastic pellets used in industrial manufacturing and fibers from synthetic fabrics such as nylon.**

Secondary microplastics: These are formed from the degradation of large plastic objects such as **bottles, fishing nets and plastic bags.** It is caused by exposure to the environment, such as **radiation from the sun, wind and ocean waves.**

15 APRIL

1. Operation Meghdoot: It was the code-name for the **Indian Armed Forces operation to capture the Siachen Glacier,** a strategically crucial region dominating Northern Ladakh. Siachen has been a bone of contention between India and Pakistan ever since the Karachi Agreement of 1949. **Operation Meghdoot was India's bold military response to what New Delhi calls Pakistan's "cartographic aggression"** in the uncharted territory of Ladakh. The primary objective behind this operation was to **pre-empt the seizure of Sia La and Bilafond La passes by the Pakistan Army.** Launched on **April 13, 1984, this military operation was unique as the first assault launched on the world's highest battlefield.** The military action resulted in Indian troops gaining control of the entire Siachen Glacier. Located at a height of around 20,000 feet in the Karakoram Mountain range, the Siachen Glacier is known as the highest militarised zone around the world. It is **located so strategically that while it dominates Shaksgam Valley (ceded to China by Pakistan in 1963) in the north, controls the routes coming from Gilgit Baltistan to Leh from the west, and at the same time, it dominates the ancient Karakoram Pass in the eastern side too.** Further, towards the west, it observes nearly the entire of the Gilgit Baltistan, which too is an Indian territory illegally occupied by Pakistan in 1948.

2. Exo-Atmospheric missiles: These are also known as **anti-ballistic missiles (ABMs).** These are **surface-to-air missiles designed to counter incoming ballistic missiles.** They are designed to intercept and destroy any type of ballistic threat during the mid-course or terminal phase of their trajectory. However, they are specifically designed to counter intercontinental ballistic missiles (ICBMs). The anti-ballistic missiles

operate beyond the Earth's atmosphere. These missiles travel at a hypersonic speed advanced and sophisticated guidance missile systems to accurately manoeuvre and intercept targets travelling at very high speeds. These missiles are guided by an inertial navigation system that is updated during flight using contour maps stored in the system's computerized memory. The anti-ballistic missiles use a three-stage solid rocket booster to propel itself out of Earth's atmosphere at near-hypersonic speed.

3. Special Olympics Bharat: It is a National Sports Federation registered under the Indian Trust Act 1882 in 2001 and is accredited by Special Olympics International to conduct Special Olympics Programs in India. It is recognized by the Ministry of Youth Affairs & Sports, Government of India as a National Sports Federation in the Priority Category, for development of Sports for Persons with Intellectual Disabilities. It is a designated Nodal Agency for all disabilities on account of its national presence and experience, especially in rural areas which account for nearly 75 per cent of the disabled population in India. It is a social inclusion movement using sports, health and education and leadership programs to empower people with intellectual disabilities. Intellectual disability is characterized by significantly below-average intellectual functioning (generally regarded as IQ below 70) combined with impairment in carrying out varying aspects of daily life and adapting to the normal social environment.

16 APRIL

1. UN Permanent Forum on Indigenous Issues (UNPFII): It was created in 2000 as an advisory body to the United Nations Economic and Social Council (ECOSOC) with a mandate to discuss indigenous issues related to economic and social development, culture, environment, education, health and human rights.

According to its mandate, the Permanent Forum will:

- Provide expert advice and recommendations to the Council, as well as to programmes, funds and agencies of the United Nations, through the Council.
- Raise awareness and promote the integration and coordination of activities related to indigenous issues within the UN system.

- Prepare and disseminate information on indigenous issues.

It is one of three UN bodies that is mandated to deal specifically with Indigenous Peoples' issues. The others are the Expert Mechanism on the Rights of Indigenous Peoples and the Special Rapporteur on the Rights of Indigenous Peoples. It is comprised of sixteen independent experts, functioning in their personal capacity, who serve for a term of three years as members and may be re-elected or re-appointed for one additional term. Eight of the members are nominated by governments and eight are nominated directly by indigenous organisations in their regions. It prepares a report of the session containing recommendations and draft decisions, which is submitted to the ECOSOC.

2. Bumblebees: They are large, hairy, social bees belonging to the family Apidae. The family Apidae includes the well-known honey bees and bumble bees, as well as carpenter bees, cuckoo bees, digger bees, stingless bees, and orchid bees. They occur throughout much of the world but are most common in temperate climates. There are over 250 known species, existing primarily in the Northern Hemisphere. They are known for their ability to collect nectar from flowers and pollinate plants. They are large, yellow and black flying insects with a distinct buzz. There is variation in coloration among bumblebees and some species have bands of red, yellow and black. They have stocky bodies that are covered with many hairs to which pollen adheres. Unlike the honeybee, bumblebees do not make honey, as they do not need to store food for winter. Instead, the season's new queens hibernate and emerge to find their own nests in the spring.

3. Exercise Dustlik: It is an annual joint military exercise between the Indian Army and the Uzbekistan Army. It is conducted alternately in India and Uzbekistan. The last edition was conducted in Pithoragarh in February 2023. Dustlik-2024 will be conducted at Termez in Uzbekistan.

4. Scope of Right to Sleep: The right to sleep is encompassed as a fundamental right under Article 21. This means, nobody can infringe on others' right to sleep in a peaceful atmosphere at night. However, the right to

sleep is an implied right, it has some restrictions like place of sleep, time of sleep, and manner of sleep. Nobody can do any unreasonable acts, like sleeping during the day, sleeping naked, sleeping in public places, etc.

Landmark Cases:

- **Sayed Maqsood Ali vs. State of Madhya Pradesh (2001):** The Madhya Pradesh HC ruled that every citizen is entitled under Article 21 of the Constitution to live in a **decent environment and has the right to sleep peacefully at night.**
- **Re-Ramlila Maidan Incident vs. Home Secretary (2012):** The SC ruled that **sound sleep is associated with sound health, which is an inseparable facet of Article 21.** It is an unavoidable right of the Indian Constitution.

17 APRIL

1. Jhelum river: It is a **tributary of the Indus River that flows in India and Pakistan.** It is the main waterway of the Kashmir valley. It constitutes the westernmost of the five rivers of the Punjab region that merge with the Indus River in eastern Pakistan. **Mangla Dam has been built on the river.** It rises from its chief source Verinag at the foothills of Pir Panjal ranges in Jammu and Kashmir. It **then flows via Dal Lake, Srinagar and Wular Lake prior to entering Pakistan.** The river makes a deep, narrow gorge on its way to Pakistan. It **joins the Chenab River near Trimmu, Pakistan.** The **largest tributary of the Jhelum is the Kishenganga (Neelum) River,** which joins near Muzaffarabad and enters the Punjab province, Pakistan. **Other tributaries-** Sandran River, Bringi River, Arapath River, Lidder River, Veshaw River, Rambiara River, Dudhganga River.

2. Veeranam Lake: **Veeranam Lake serves as a crucial drinking water source for Chennai.** It was considered one of the longest man-made lakes in the world with a length of 14 km. It was **built during the period of Greater Cholas between 907-955 AD, by the Chola Prince- Rajaditya Chola who was the son of Parantaka the 1st.** He'd named this waterbody after his father's title-Veeranarayanan. This lake was used as a

reference, in the famous Historical novel Ponniyin Selvan, written by Kalki. **The source of Veeranam is the river of Kollidam;** which is the Northern distributary of the Cauvery River, where the Vadavaru River links both the Veeranam and Kollidam.

3. Stellar black hole vs Supermassive black hole: **Stellar-mass black holes are formed from the gravitational collapse of a single star** or from the merger of two neutron stars. Therefore, they have masses similar to the masses of stars. More specifically, **stellar-mass black holes have masses ranging from about 3 times the mass of our sun to about 50 times the mass of our sun.** In contrast, **supermassive black holes have a mass greater than about 50,000 times the mass of our sun and are typically millions to billions of times the mass of our sun.** They are far too large to have formed from the gravitational collapse of a single star. However, scientists do not currently know how they form. **Supermassive black holes are always found at the center of a galaxy and almost all galaxies have a supermassive black hole at its center.** This seems to suggest that each supermassive black hole is formed as part of the formation of its galaxy.

4. Combined Maritime Forces (CMF): It is a **multi-national naval partnership based in Bahrain which exists to promote security, stability and prosperity across international waters,** which encompass some of the world's most important shipping lanes. Its **main focus areas are defeating terrorism, preventing piracy, encouraging regional cooperation and promoting a safe maritime environment.**

Member Nations: Australia, Bahrain, Belgium, Brazil, Canada, Colombia, Denmark, Ecuador, Egypt, France, Germany, Greece, India, Iraq, Italy, Japan, Jordan, Kenya, Republic of Korea, Kuwait, Malaysia, the Netherlands, New Zealand, Norway, Pakistan, the Philippines, Poland, Portugal, Qatar, Saudi Arabia, Seychelles, Singapore, Spain, Thailand, Türkiye, UAE, United Kingdom, United States and Yemen.

Participation is purely voluntary. No nation is asked to carry out any duty that it is unwilling to conduct. The member nations are not bound by either a political or military mandate.

CMF is a flexible organisation. Contributions can vary from the provision of a liaison officer at CMF HQ in Bahrain to the supply of warships or support vessels in task forces, and maritime reconnaissance aircraft based on land. **Headquarters are co-located with US Naval Central Command and US Navy Fifth Fleet at Naval Support Activity (NSA) Bahrain.**

CMF is commanded by a U.S. Navy Vice Admiral. **CMF's Deputy Commander is a United Kingdom Royal Navy Commodore.** Other senior staff roles at CMF's headquarters are filled by personnel from member nations.

18 APRIL

1. Submersible Platform for Acoustic Characterisation and Evaluation: A state-of-the-art Submersible Platform for Acoustic Characterisation and Evaluation (SPACE) was inaugurated. It is **set up by the Naval Physical & Oceanographic Laboratory of the Defence Research and Development Organisation (DRDO).** It has been designed as a premier testing and evaluation hub for sonar systems destined for the Indian Navy onboard various platforms including ships, submarines and helicopters.

Features: It will consist of **two distinct assemblages** - a platform which floats on the water surface, and a submersible platform which can be lowered to any depth up to 100 m using winch systems.

Uses: It will mainly be **utilised for the evaluation of a complete sonar system, allowing for quick deployment and easy recovery of scientific packages such as sensors and transducers.** It will be suitable for survey, sampling and data collection of air, surface, mid-water, and reservoir floor parameters using modern scientific instrumentation.

2. Men5CV Vaccine: Nigeria has taken a historic step in the fight against meningitis, becoming the first country in the world to introduce a new, highly effective vaccine called Men5CV. It protects against strains A, C, W, Y and X of the meningococcus bacteria, all of which can cause meningitis and blood poisoning. It is **recommended by the World Health Organization (WHO).** **The vaccine and emergency vaccination activities are funded by Gavi, the Vaccine Alliance.**

Meningitis: It is a serious infection that leads to the inflammation of the membranes (meninges) that surround and protect the brain and spinal cord. There are multiple causes of meningitis, including viral, bacterial, fungal and parasitic pathogens. Bacterial meningitis, specifically caused by the meningococcus bacteria, is a particular concern in Africa and can also result in blood poisoning and can seriously disable or kill within 24 hours those that contract it. It often includes headache, fever and stiff neck. **A region of 26 countries known as the "African meningitis belt" stretches across the continent, including Nigeria.**

3. UN Women: It is the United Nations (UN) entity dedicated to gender equality and the empowerment of women. In 2010, the UN General Assembly created UN Women.

The main roles of UN Women are:

- To support inter-governmental bodies, such as the **Commission on the Status of Women**, in their formulation of policies, global standards, and norms.
- To **help member states implement these standards**, standing ready to provide suitable technical and financial support to those countries that request it, and to forge effective partnerships with civil society.
- To lead and coordinate the UN system's work on gender equality as well as promote accountability, including through regular monitoring of system-wide progress.
- **Grant-making Funds:** Two funds—the Fund for Gender Equality and the UN Trust Fund to End Violence against Women.

4. Commission on the Status of Women (CSW): A global policy-making body, the **CSW is a functional commission of the United Nations Economic and Social Council (ECOSOC), dedicated exclusively to gender equality and the advancement of women.** Aside from the CSW, UN Women offers regular information on women's rights issues to the General Assembly, the ECOSOC, and the Security Council. It **maintains the UN Secretary-General's database on**

violence against women, which tracks measures to end violence taken by UN Member States and UN organizations.

19 APRIL

1. Global Alliance for Incinerator Alternatives (GAIA):

It is a **worldwide alliance of more than 1,000 grassroots groups, non-governmental organizations and individuals**. It aims to power a transition away from our current linear and extractive economy and towards a circular system that supports people's right to a safe and healthy environment. It **envisions a just, zero-waste world built on respect for ecological limits and community rights, where people are free from the burden of toxic pollution and resources are sustainably conserved, not burned or dumped**. This entails fighting pollution and building regenerative solutions in cities through local campaigns, shifts in policy and finance, research and communication initiatives, and movement building. **They work on four primary points of intervention: incineration, zero waste, plastic, and climate.**

2. Dragonfly Mission: It is a "dual quadcopter" designed to fly across the surface of Titan, Saturn's largest moon. It will explore a variety of locations on Saturn's moon Titan. **It will spend most of its time on the moon's surface making science measurements. It will use a radioisotope power system like the Curiosity rover on Mars.** Its flights, data transmission and most science operations will happen during the day, and it will have a lot of time to recharge during night on Titan. **It is a rotorcraft, targeted to arrive at Titan in 2034. It marks the first time NASA will fly a vehicle for science on another planetary body.** The rotorcraft has eight rotors and flies like a large drone.

3. National Consumer Disputes Redressal Commission (NCDRC): It is a quasi-judicial commission in India which was set up in 1988 under the Consumer Protection Act of 1986. **The mandate is to provide inexpensive, speedy and summary redressal of consumer disputes. Its head office is in New Delhi.** The Commission is headed by a sitting or a retired Judge of the SC or a sitting or a retired Chief Justice of a High Court. **NCDRC shall have jurisdiction to entertain a complaint valued more than two crore**

and also have appellate and revisional jurisdiction from the orders of State Commissions or the District fora as the case may be.

The provisions of this act cover 'goods' as well as 'services'. Who can lodge complaint:

- Any person who Has bought goods for consideration and finds any defect in the quality, quantity, potency, purity, or standard of the goods, or
- Has hired or availed any service for consideration and finds any fault, imperfection, shortcoming, or inadequacy in the quality, nature, and manner of performance in relation to the service.

However, if a person has bought the goods for resale or for a commercial purpose, he is not a consumer. No complaint can be filed for alleged deficiency in any service that is rendered free of charge or under a contract of personal service.

A consumer, any voluntary consumer association registered under the Companies Act 1956, The Central Government or any State Government, one or more consumers where there are numerous consumers can file.

Appeal: Any person aggrieved by an order of NCDRC, may prefer an appeal against such an order to SC within a period of 30 days.

21 APRIL

1. Bitcoin halving: The halving refers to an alteration in the foundational blockchain technology of Bitcoin, aimed at decreasing the pace of generating new bitcoins. Since its creation by the pseudonymous figure Satoshi Nakamoto, Bitcoin has been structured to possess a finite supply of 21 million tokens. The process of halving will persist until 2041, by which time all Bitcoins will have been mined. **Blockchain technology involves creating records of information - called 'blocks' - which are added to the chain in a process called 'mining'.** Miners use computing power to solve complex mathematical puzzles to build the blockchain and earn rewards in the form of new bitcoin. **The blockchain is designed so that a halving occurs every time 210,000 blocks are added to the chain,**

roughly every four years. At the halving, the amount of bitcoin available as rewards for miners is cut in half. This makes mining less profitable and slows the production of new bitcoins.

2. World Heritage Day: It is also referred to as **International Day for Monuments and it is observed on April 18.**

Objective: To raise awareness about monuments and other sites which form a part of our history and culture. In 1982, The International Council on Monuments and Sites (ICOMOS) proposed the idea of observing World Heritage Day on April 18 every year. The following year, the proposal was approved at UNESCO's General Conference.

Theme of 2024: The theme for this year's World Heritage Day is - Discover and experience diversity.

3. Longevity India Initiative: Indian Institute of Science (IISc) launched the Longevity India Initiative. It is a project focused on efforts to extend human 'healthspan' and tackle ageing-related challenges. It has also started a large-scale clinical study that will involve researchers from multiple IISc departments, clinicians, industry, philanthropists and civil society. It seeks to enhance the understanding of ageing through both fundamental and applied research, and to develop solutions that can improve quality of life.

Funding: It has received initial grant funding support from Prashanth Prakash, Founding Partner, Accel India. **India's elderly population projected to surge to 347 million by 2050, it is imperative that there is a need to leverage technology to provide accessible geriatric healthcare, nurture the silver economy and invest in digital systems that support ageing populations**

4. Global Financial Stability Report: It is a semiannual report by the International Monetary Fund (IMF) that assesses the stability of global financial markets and emerging-market financing. It is released twice per year, in April and October. It focuses on current conditions, especially financial and structural imbalances, that could risk an upset in global financial stability and access to financing by emerging-market countries.

Highlight:

- It has warned about the risks to the global financial system from persistent high inflation, rising lending in the unregulated credit market, and increasing cyber-attacks on financial institutions.
- **Geopolitical risks such as the ongoing war in West Asia and Ukraine could affect aggregate supply and lead to higher prices.** This, it believes, might stop central banks from lowering rates anytime soon.
- **In calendar year 2023, India was the second-largest recipient of foreign capital after the U.S.** But things could change quickly if western central banks signal that they could keep interest rates high for a long time.

22 APRIL

1. Exercise Poorvi Lehar (XPOL): It is a maritime exercise conducted by the Indian Navy along the East Coast, under the operational direction of the Flag Officer Commanding-in-Chief, Eastern Naval Command. It aimed at validation of procedures towards assessment of Indian Navy's preparedness to meet Maritime Security challenges in the region.

2. Rampage Missile: It is a long-range, supersonic, air-to-ground, seekerless, precision strike missile. It was developed by Israel Aerospace Industries and Israeli Military Industries Systems. It has been developed for use in missions aimed at destroying high-quality, well-protected targets, such as communication and command centers, air force bases, maintenance centers, and infrastructure. It may travel at supersonic speeds, making it difficult to identify and intercept with air defense systems. It has a range of over 190 miles. It can carry 150 kg of explosives. It has a blast fragmentation or general-purpose warhead. It can be fired from an aircraft or as a stand-alone system and uses GPS/INS guidance navigation and anti-jamming capabilities. It can also adjust its path mid-flight, to precisely hit the target it was programmed to hit. It can operate in any weather conditions, day or night.

3. Artemis Accords: Sweden is the newest nation to sign onto NASA's Artemis Accords for peaceful and

responsible exploration. They are a non-binding set of principles designed to guide civil space exploration and use in the 21st century. **These principles will help to ensure the maintenance of a safe and predictable outer space environment.** Co-led by NASA and the U.S. Department of State, the Artemis Accords was established in 2020, together with seven other founding member nations (Australia, Canada, Italy, Japan, Luxembourg, the United Arab Emirates and the United Kingdom). As of April 2024, there were 38 signatories, including India.

Principles include Peaceful uses, Transparency, Interoperability, Emergency Assistance, Registration of Objects, Release of Scientific Data, Preserving Outer Space Heritage, Space Resources and Deconfliction of Space Activities which means to undertake exploration with due consideration to the United Nations guidelines for the long-term sustainability of outer space activities as adopted by the UN Committee for Peaceful Uses of Outer Space (COPUOS) in 2019. Activities, where potential harmful interference could occur, should be restricted to pre-identified 'Safety Zones'. The size, location, and nature of operations in a Safety Zone should be notified to all signatories and the UN Secretary-General.

Orbital Debris: signatories agree to limit harmful debris in orbit through mission planning that includes selecting flight orbital profiles that minimise conjunction risk, minimising debris release during the operational phase, timely passivation, and end-of-life disposal.

4. Zero Shadow Day: It is a **sub-solar point where the sun is directly overhead at a particular latitude.** When the sun is at the zenith (the highest point in the sky) its rays will be hitting a particular point exactly perpendicular to the surface. This will make the shadow of a person exactly under him, making it look like there are no shadows. **There are two zero shadow days every year in May and July/August, observed in places that lie between the tropic of Cancer and the tropic of Capricorn.** One falls during the **Uttarayan (when the Sun moves northwards), and the other is during Dakshinayan (when the Sun moves southwards).** It lasts for a small part of a

second, but the effect can be seen for a minute to a minute- and-a-half.

23 APRIL

1. Rashtriya Arogya Nidhi scheme: It was set up in 1997 and it is a central sector scheme. It provides one-time financial assistance to poor patients living below State/UT wise threshold poverty line and suffering from life threatening diseases relating to heart, kidney, liver, cancer, etc. for treatment at any of Super Specialty Government hospitals/institutes.

The Umbrella Scheme of RAN has three components as under:

- **Rashtriya Arogya Nidhi (RAN)** - Financial assistance for treatment of life-threatening diseases relating to heart, kidney, liver, etc. at Government hospitals/institutes having Super Specialty facilities; (Maximum financial assistance is 15 lakhs)
- **Health Minister's Cancer Patient Fund (HMCPF)** - Financial assistance for treatment of cancer at Regional Cancer Centres (RCCs)/ Tertiary Care Cancer Centres (TCCC) and State Cancer Institutes (SCIs); (Maximum financial assistance is Rs. 15 lakhs)
- **Financial assistance for poor patients suffering from rare diseases** - for specified rare diseases for treatment at Government hospitals/institutes having Super Specialty facilities; (Maximum financial assistance is Rs. 20 lakhs)

2. National Service Scheme: It was launched during 1969, the birth centenary year of Mahatma Gandhi. It is a **Central Sector Scheme of the Government of India.** It provides an opportunity to the student youth of the 11th & 12th Class of schools at +2 Board level and student youth of Technical Institution, Graduate & Post Graduate at colleges and University level of India to take part in various Government led community service activities & programmes.

The NSS symbol: It is based on the "Rath" wheel of the Konark Sun Temple situated in Odisha. The navy blue colour indicates the cosmos of which the NSS is a tiny part, ready to contribute its share for the welfare of the mankind. **The Red colour in the badge**

indicates that the NSS volunteers are full of blood i.e. lively, active, energetic and full of high spirit. The giant wheels of the Sun Temple portray the cycle of creation, preservation and release and signify the movement in life across time and space.

Motto: The motto of National Service Scheme is NOT ME BUT YOU

Nodal Ministry: Ministry of Youth Affairs & Sports.

3. Star Campaigners in election: A star campaigner is a famous person with a huge fan following chosen by a political party to contest or campaign during elections. The Representation of the People Act, 1951 (RP Act) provides for law relating to expenditure incurred by 'leaders of a political party'. These 'leaders of a political party' are popularly known as 'star campaigners'. These are usually the top leaders of the party but can include other celebrities as well. The RP Act provides that a recognised political party (National or State) can appoint a maximum of 40 star campaigners while a registered unrecognised political party can appoint up to 20. These names are to be communicated to the Election Commission (EC) and Chief Electoral Officer (CEO) of the States as applicable within seven days from the date of notification of such election. In case of a multi-phase election, a political party can submit separate list of star campaigners for different phases.

The working:

- If in any rally/meeting organised, the star campaigner seeks votes in the name of contesting candidate(s) or shares the dais with them, then the rally/meeting expense shall be apportioned to the election expenditure of such candidate(s).
- If the star campaigner incurs boarding/lodging expenses while campaigning for any candidate(s), it shall be included in the expenditure account of such candidate(s) irrespective of whether it is paid for by the candidate(s).
- Further, if any candidate(s) travel with the star campaigner, then 50% of the travel expenditure of the star campaigner shall also be apportioned to such candidate(s).
- When a Prime Minister or a former Prime Minister

is a star campaigner, the expenditure on security including on bullet-proof vehicles will be borne by the government.

- But if the Prime Minister is accompanied by another star campaigner, the candidate has to bear 50 per cent of expenditure on the security arrangements.

24 APRIL

1. Tiger Conservation Coalition: It is a group of NGOs that has worked for many years with partners to conserve tigers. Its vision is for a long-term presence of viable and ecologically functional populations of wild tigers secure in protected habitats, with representation and links across their indigenous range. It brings together leading tiger biologists and experts in wildlife crime, human-wildlife coexistence, policy, finance, development and communications with unprecedented alignment on achieving tiger conservation at scale. The eight non-governmental organisations (NGOs) includes the Environmental Investigation Agency (EIA), Fauna & Flora, the International Union for Conservation of Nature and Natural Resources (IUCN), Panthera, TRAFFIC, United Nations Development Programme (UNDP), Wildlife Conservation Society (WCS) and World Wide Fund for Nature (WWF). The members co-developed Tiger Conservation Landscapes 3.0, an integrated habitat modelling system to measure and monitor changes in tiger habitat at range-wide, national, biome and landscape scales in near real-time. This work serves as a model for objective, range-wide, habitat monitoring as countries work to achieve the goals laid out in the 30x30 agenda, the Sustainable Development Goals, and the Kunming-Montreal Global Biodiversity Framework.

2. Article 244(A): It allows for creation of an 'autonomous state' within Assam in certain tribal areas. This region could include certain tribal areas like Karbi Anglong. This provision was inserted by the Constitution (Twenty-second Amendment) Act, 1969. Such autonomous state created would have its own Legislature or Council of Ministers or both. It accounts for more autonomous powers to tribal areas, among

these the most important power is the control over law and order. **In Autonomous Councils under the Sixth Schedule, they do not have jurisdiction of law and order.** In the 1950s, a demand for a separate hill state arose around certain sections of the tribal population of undivided Assam. **After prolonged agitations, Meghalaya gained statehood in 1972. The leaders of the Karbi Anglong and North Cachar Hills were also part of this movement.** They were given the option to stay in Assam or join Meghalaya. They stayed back as the then central government promised more powers, including Article 244 (A).

3. Spices Board India: It is the **statutory organization constituted under the Spices Board Act 1986. It was formed with the merger of the erstwhile Cardamom Board and Spices Export Promotion Council.** It functions as an international link between the Indian exporters and the importers abroad and it has been involved in various activities which touch upon every segment of the spices sector.

Main functions: It is **responsible for the overall development of cardamom (small and large) in terms of improving production, productivity and quality.** It is also implementing post-harvest improvement programmes for improving quality of the 52 scheduled spices for export. **The various development programmes and post-harvest quality improvement programmes of the Board are included under the head 'Export Oriented Production'.**

Promotion of organic production, processing and certification of spices

Nodal Ministry: Ministry of Commerce & Industry, Government of India.

26 APRIL

1. Payment Aggregator (PA): A PA (also known as a merchant aggregator) is a **third-party service provider that allows merchants to accept payments from customers by integrating them into their websites or apps.** PAs enable their clients to accept various payment methods such as debit cards, credit cards, cardless EMIs, UPI, bank transfers, e-wallets, and e-mandates. Also, a **payment aggregator does fund settlement, i.e., it moves the money from banks and**

other issuing entities to the merchants. Similarly, they also enable disbursing payments to various stakeholders, such as partners, employees, suppliers, and authorities. It allows merchants to accept bank transfers without setting up a bank-based merchant account. It means a merchant need not have a merchant account directly with the bank. **A PA in India is incorporated under the Companies Act 2013. A PA can be a bank or a non-bank entity.** Since a PA handles funds, it requires a license from the RBI. Only non-bank PAs require unique authorization from RBI as 'handling funds' is considered a part of the normal banking relationships for bank PAs.

Examples: Amazon (Pay) India, Google India, Razorpay, Pine Labs, etc.

2. ASEAN Future Forum: It acts as a platform for ASEAN and its partners to share ideas and policy recommendations. It is **aimed at creating a common platform for ASEAN member states** as well as partner countries and ASEAN people to contribute to promoting and shaping the bloc's development path. It was **proposed by Vietnam at the 43rd ASEAN Summit in 2023.**

Theme of the first forum: Toward fast and sustainable growth of a people-centered ASEAN Community. It took place in **Hanoi, Vietnam.**

3. Phi-3-mini: Microsoft unveiled the latest version of its **'lightweight' AI model – the Phi-3-Mini.** It is believed to be the first among the three small models that Microsoft is planning to release. It has reportedly outperformed models of the same size and the next size up across a variety of benchmarks, in areas like **language, reasoning, coding, and maths. It is the first model in its class to support a context window of up to 128K tokens,** with little impact on quality. The amount of conversation that an AI can read and write at any given time is called the context window, and is measured in tokens. It is a **3.8B language model and is available on AI development platforms such as Microsoft Azure AI Studio, HuggingFace, and Ollama.**

28 APRIL

1. Climate Technology Centre and Network (CTCN): It is the **operational arm of the United Nations Framework Convention on Climate Change's (UNFCCC) Climate Change Technology Mechanism**. It is hosted by UN Environment (UNEP) in collaboration with the United Nations Industrial Development Organization (UNIDO) and with the support of 11 independent organizations having expertise in climate technologies. **It was established to accelerate the development and transfer of environmentally sound technologies for low-carbon and climate resilient development at the request of developing countries.** It provides technology solutions, capacity building, and advice on policy, legal, and regulatory frameworks. It is a **demand-driven mechanism** as its services are offered upon request by developing countries, and the volume and specific nature of activities ultimately depends on countries' requirements and needs. **It consists of two parts: a centre—a coordinating entity located in UN City Copenhagen—and a worldwide network of organizations that delivers CTCN services—both virtually and actually.**

2. Network as a Service (NaaS): It is a cloud service model in which customers rent networking services from a cloud vendor instead of setting up their own network infrastructure. It allows customers to operate their own networks without maintaining their own networking infrastructure. Like other cloud services, NaaS vendors run networking functions using software, essentially allowing companies to set up their own networks entirely without hardware. All they need is Internet connectivity. It is a **flexible, scalable, and affordable option for organizations since it enables them to allocate network resources as needed.** It can replace other networking systems that often require more work and provide less agility, such as **virtual private networks (VPNs) and multiprotocol label switching (MPLS)**. In addition, by using NaaS, you can shift your networking system to your provider, who can also give you security services to keep your network environment safe. This means you don't have to invest in on-premise firewalls and other security appliances. **The provider may offer customers a range of different options, such as:**

Managed services, where the **customer pays to use hardware on a subscription basis** while the provider operates and maintains it

Rented hardware, which is when the **provider owns networking hardware and allows the customer to rent it from them.** In this situation, customers have to install and operate the equipment themselves.

Full NaaS, where the provider handles everything in relation to the networking hardware, including installing and operating it.

3. Mephedrone: It also known as **4-methylmethcathinone, 4-MMC and 4-methylephedrone.** It is a synthetic stimulant drug of the amphetamine and cathinone classes.

Other names: drone, M-CAT, white magic, 'meow meow', and bubble. It has a role as a xenobiotic and an environmental contaminant. It has been linked to a range of adverse effects on both physical and mental health. **It is banned in India under the Narcotic Drugs and Psychotropic Substances Act, 1985.**

4. Liquid Nitrogen: It is an **inert, colorless, odorless, noncorrosive, nonflammable and extremely cold element.** It is a cryogenic liquid (Cryogenic liquids are liquefied gases that have a normal boiling point below –130°F (–90°C). **Liquid nitrogen has a boiling point of –320°F (–196°C).** Liquid nitrogen can scorch the organ or part of the body it contacts, making it appear like frost bites. **It can damage the lips, tongue, throat, lungs and stomach. It may cause lesions or burn tissues.** If it reaches the stomach, the organ could get perforated. In the lungs, it could produce CO₂ and the person could become unconscious.

Applications: It is used to cool and freeze food rapidly. In food production and industrial processes, a cooling tray filled with liquid nitrogen is used to rapidly cool materials or equipment by immersing the product in nitrogen. **In the wellness and sports industry, cryosaunas with liquid nitrogen vapor are used.**

Liquid nitrogen test chambers are used in technology and material sciences to test the performance and durability of materials and devices at extremely low temperatures.

29 APRIL

1. Critical Minerals Summit: It is organised by the Ministry of Mines, Government of India, in collaboration with the Shakti Sustainable Energy Foundation (Shakti), the Council on Energy, Environment and Water (CEEW) and the Indian Institute of Sustainable Development (IISD). It is designed to foster collaboration, share knowledge, and drive innovation in the field of critical mineral beneficiation and processing. It will bring together a diverse array of Indian and international stakeholders, including industry leaders, startups, government officials, scientists, academics and policy experts. It will address the increasing demand for Critical Raw Materials (CRMs) required for renewable energy systems and electric vehicles as part of India's strategic development goals. **The Ministry of Mines has identified eight key minerals for focus at the summit, including Glauconite (Potash), Lithium – Rare Earth Elements (Laterite), Chromium, Platinum Group, Graphite, Tungsten associated with Graphite, Rare Earths (RE) and Vanadium associated with Graphite.**

2. Critical Minerals: It is a metallic or non-metallic element that has two characteristics.

1. It is essential for the functioning of our modern technologies, economies or national security.
2. There is a risk that its supply chains could be disrupted.

The 'criticality' of minerals changes with time as supply and society's needs shift. They are used to manufacture advanced technologies, including mobile phones, computers, fibre-optic cables, semiconductors, banknotes, and defence, aerospace and medical applications. Many are used in low-emission technologies, such as electric vehicles, wind turbines, solar panels, and rechargeable batteries. Some are also crucial for common products, such as stainless steel and electronics.

Examples: antimony, beryllium, bismuth, cobalt, copper, gallium, germanium, lithium, vanadium, etc.

Top Producers: Chile, Indonesia, Congo, China, Australia and South Africa.

Critical Minerals in India:

Government has released a list of 30 critical minerals for India. These minerals are Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium, and Cadmium.

3. Opioids: These are a class of drugs that derive from or mimic, natural substances found in the opium poppy plant. They activate an area of nerve cells in the brain and body called opioid receptors that block pain signals between the brain and the body. They produce a variety of effects, including pain relief and euphoria and are highly addictive. Some common opioids include oxycodone, morphine, codeine, heroin and fentanyl.

Opioid overdose: It can lead to death due to the effects of opioids on the part of the brain which regulates breathing. An opioid overdose can be identified by a combination of three signs and symptoms: pinpoint pupils, unconsciousness and difficulties with breathing.

Fentanyl: It is a potent synthetic opioid drug approved by the Food and Drug Administration for use as an analgesic (for pain relief) and anesthetic. It is approximately 100 times more potent than morphine and 50 times more potent than heroin as an analgesic.

30 APRIL

1. Patachitra Painting: It is a general term for traditional, cloth-based scroll painting based in the eastern Indian states of Odisha and West Bengal. It is believed to have originated as early as the 12th century. In the Sanskrit language, "Patta" literally means "cloth" and "Chitra" means "picture". It is known for its intricate details as well as the mythological narratives and folktales inscribed in it. Most of these paintings depict stories of Hindu deities. It is one of the ancient artworks of Odisha, originally created for ritual use and as souvenirs for pilgrims to Puri, as well as other temples in Odisha. Patachitras are a component of ancient Bengali narrative art, originally serving as a visual device during the performance of a song. Patachitra paintings are made on a special canvas

where cotton sarees are layered with tamarind paste and then coated with clay powder. Traditionally, cotton canvas was used; now, both cotton and silk canvas are used for paintings. Once the canvas becomes sturdy, colours are filled in directly without any initial sketches. It is a tradition to complete the borders of the painting first. All colours are obtained from natural sources like lamp soot and powdered conch shells. Each painting can take up to weeks or months to be prepared.

2. La Cumbre volcano: Recent lava spewing from La Cumbre volcano on Galápagos Islands destroying habitat of rare land iguanas It is located on Fernandina Island – the third largest island in the Galápagos Islands. It lies directly atop the mantle plume, or hot spot, that produced all of the Galápagos Islands. It is located around 1,125 kilometres off mainland Ecuador and erupted for the first time since 2020. The volcano has a large crater, or caldera, at its summit that harbors a permanent crater lake. This lake attracts a wide variety of animals including tens of thousands of Galápagos land iguanas (*Conolophus subcristatus*) that lay their eggs in nests within the caldera.

3. Essential Programme on Immunization: It was launched as the Expanded Programme on Immunization (EPI) by World Health Organisation in 1974 to ensure that all children, in all countries, benefited from life-saving vaccines. It has evolved into what is now commonly known as the Essential Programme on Immunization.

Disease covered (Total 13): Initially this programme focused on protection against six childhood vaccine-preventable diseases namely **Bacillus Calmette-Guérin (BCG), diphtheria, pertussis, tetanus, polio, and measles.** Later on WHO added 7 more disease under

this initiative **Haemophilus influenzae type B (Hib), Hepatitis B (HepB), rubella, pneumococcal disease (PNC), rotavirus (Rota), human papillomavirus (HPV) and COVID-19 (for adults).**

India's Universal Immunization Programme (UIP): India launched the EPI in 1978, which was later renamed as the Universal Immunization Programme (UIP) in 1985.

Objectives:

- To rapidly increase immunization coverage.
- To improve the quality of services.
- To establish a reliable cold chain system to the health facility level.
- Monitoring of performance.
- To achieve self-sufficiency in vaccine production.

All beneficiaries' namely pregnant women and children can get themselves vaccinated at the nearest Government/Private health facility or at an immunization session site (Anganwadi centres/ other identified sites) near to their village/urban locality on fixed days. The UIP covers all sections of the society across the country with the same high quality vaccines. Under UIP, immunization is providing free of cost against 12 vaccine preventable diseases. **Nationally against 9 diseases - Diphtheria, Pertussis, Tetanus, Polio, Measles, Rubella, severe form of Childhood Tuberculosis, Hepatitis B and Meningitis & Pneumonia caused by Hemophilus Influenza type B. Sub-nationally against 3 diseases - Rotavirus diarrhoea, Pneumococcal Pneumonia and Japanese Encephalitis;** of which Rotavirus vaccine and Pneumococcal Conjugate vaccine are in process of expansion while JE vaccine is provided only in endemic districts.

PLACES IN NEWS

1. North Korea (Capital: P'yŏngyang)

- Russia has vetoed a United Nations Expert Panel that has been monitoring sanctions against North Korea.
- **Political features:**
 - Known as **Democratic People's Republic of Korea**, it is an East Asian country occupying Northern part of Korean Peninsula.
 - Bordered by **China and Russia to north and Republic of Korea (South Korea) to south.**
- **Water bodies:** East Sea (Sea of Japan) and Yellow Sea in west.
- **Geographical features:** **Highest Peak:** Mount Paektu. **Major Rivers:** Yulu (Yalu), Tumen, Taedang, and Imjin.

2. Katchatheevu Island:

- It is an **uninhabited off-shore island in the Palk Strait** originally owned by a king of **Ramnad** (present-day **Ramanathapuram, Tamil Nadu**).
- The island is used by fishermen to dry their nets.
- During the British rule, it was **administered jointly by India and Sri Lanka.**
- In the early 20th century, **Sri Lanka claimed territorial ownership** over the islet, so in **1974 India ceded the island to Sri Lanka, through a joint agreement.**
- Two years later through another accord, **India further gave up its fishing rights** in the region.

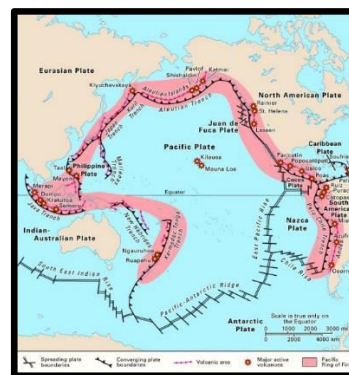


3. Kodaikanal Solar Observatory (KSO):

- KSO is entering its 125th year of establishment. It **was established in 1899 and subsumed then Madras Observatory.**
- It was set up to obtain data on how Sun heats up Earth's atmosphere and to understand monsoon patterns.
- **Kodaikanal was chosen for its proximity to equator and its dustfree high-altitude location.**
- Observatory is currently under **Indian Institute of Astrophysics and is located in Palani range (Tamil Nadu).**
- It also houses telescopes like **H-alpha telescope, Twin Telescope, WARM (White light Active Region Monitor) telescope** etc.

4. Ring of Fire

- The Ring of Fire is stretched to approximately **40,000 kilometers (24,900 miles)** tracing boundaries between several tectonic plates including the **Pacific, Juan de Fuca, Cocos, Indian-Australian, Nazca, North American, and Philippine Plates.**
- The chain runs up along the **western coast of South and North America**, crosses over the **Aleutian Islands in Alaska**, runs down the **eastern coast of Asia past New Zealand** and into the **northern coast of Antarctica.**
- **Bolivia, Chile, Ecuador, Peru, Costa Rica, Guatemala, Mexico, United States, Canada, Russia, Japan, Philippines, Australia, Papua New Guinea, Indonesia, New Zealand, and Antarctica** are some of the **important places located in the ring of the fire.**



5. Ecuador (Capital: Quito): Mexico suspends diplomatic ties with Ecuador after police raid in Mexican embassy in Quito.

Political Features:

- Located in North-western South America.
- **Neighboring countries:** Colombia (North) and Peru (East and South), Situated on the Equator Galápagos Islands, west of the mainland of Ecuador, are part of Ecuador.
- Bounded to the **West by Pacific Ocean.**

Geographical Features:

- **Equator passes through Ecuador.**
- **Andes mountain range crosses through Ecuador.**
- **Major Rivers:** Amazon, Guayas, Putumayo, etc.
- **Active Volcanoes:** Cotopaxi, Tungurahua, etc.
- **Highest Peak:** Mount Chimborazo.



6. Ural River: Rise in water level of Ural River due to snow melting affected over 10,000 Homes across Russia.

- It is **2,428 km long river that flows through Russia and Kazakhstan along the continental boundary between Europe and Asia.**
- Originates in Ural Mountains and empties into Caspian Sea.
- It is **Europe's third-longest river after Volga and Danube rivers.**
- Melting snow constitutes about 60% to 70% of the river's water source.



7. Republic of Ireland (Capital: Dublin): Ireland got new Prime Minister.

Political Features:

- It occupies greater part of an island lying to west of Great Britain.
- **Bordering countries:** Northern Ireland to North (Part of United Kingdom)
- **Surrounding water bodies:** Atlantic Ocean (west), Celtic Sea (south), and Irish Sea (east).
- **Ireland is separated from Great Britain by North Channel, Irish Sea, and St. George's Channel.**

Geographical Features:

- **Highest Peak:** Carrantuohill.
- **Longest river:** River Shannon.
- **Largest lake:** Lough Neagh

8. Mount Etna:

- It is **Europe's most active volcano** and one of the **largest in the world.**
- Its **recorded volcanic activity dates back to 1500 B.C.**
- It is on the eastern **coast of Sicily.**
- It is the highest Mediterranean island mountain and the **most active stratovolcano** in the world.
- It is about 3,326 meters high and is the highest peak in **Italy South of the Alps.**



- **Location:** It is the southernmost of the countries of the Balkan Peninsula.
- **Bordering water bodies:** Aegean Sea (east), Mediterranean Sea (south), and Ionian Sea (west).
- **Land Borders:** Albania, Macedonia, Bulgaria, and Turkey.

Geographical Features:

- **Rivers:** Acheloos, Evros (Maritsa), Nestos
- **Mountain:** Mount Olympus (highest), Mount Smolikas, Mount Voutsikaki.



11. Pulicat lake:

- Located along the coast of Bay of Bengal at the border of Andhra Pradesh & Tamil Nadu.
- **Second largest brackish water lake in India after Lake Chilika in Odisha.**
- **Sriharikota Island separates lagoon from Bay of Bengal.**
- It is fed mainly by the **river Kalangi and the river Arani.**
- Supports largest congregation of Flamingos.

12. Kenya (Capital: Nairobi):

Political boundaries:

- Lies on the East Africa coast, bordered by the Indian Ocean.
- Somalia to the east, Ethiopia and South Sudan to the north, and Uganda and Tanzania, west and south respectively.

Geographical features:

- **Major mountain:** Mt Kenya (second highest in Africa), Aberdare Range, Mau Escarpment

9. Colombia (Capital: Bogota): Bogota started water rationing due to low levels of water in its reservoirs.

Political Features:

- Located in the northwestern part of the South American continent.
- Bounded by the **Caribbean Sea in the north, Pacific Ocean in the west.**
- **Neighboring countries:** Panama on the west, Venezuela and Brazil on the east, Peru and Ecuador on the south.

Geographical Features:

- Andes Mountains run along the western flank, and the Amazon Forest in the southeast.
- **Important Peaks:** Pico Cristóbal Colón and Simón Bolívar.
- **Rivers:** Amazon, Magdalena, Orinoco.



10. Greece (Capital: Athens): A recent report warns that Greece is facing alarming population decline.

Political Features:

- **Major rivers:** Athi, Tana
- **Lake Victoria on the western border.**
- Bisected horizontally by the Equator.
- **Great Rift Valley passes through it.**



13. Sudan: According to the United Nations, Sudan's war is being fuelled by weapons from foreign supporters.

Political Boundaries:

- Located in north-eastern Africa.
- Bordered with **Egypt, Libya, Chad, Central African Republic, South Sudan, Ethiopia and Eritrea.**
- Shares its maritime border with Saudi Arabia in the Red Sea.

Geographical Features:

- **Highest Peak:** Deriba Caldera (Jabel Marra Mountain).
- **Major River:** Nile River (White Nile and Blue Nile merge in Khartoum).

14. Alagar Temple:

- Located on the **foothills of Alagar hills in Madurai, Tamil Nadu**
- The **temple is one of the 108 abodes of Lord Vishnu**, worshipped here in the name of Kallazhagar.
- It has six corridors surrounded by fort walls.
- The temple also finds mention in **Tamil epic Silappadikaram and in the hymns of the Alvars.**
- The **pillars of mandapam are depicted in the Nayaka art style.**

15. South-China Sea: Philippines denied China's claim on agreement over disputed South China Sea's Second Thomas Shoal.

- **South China Sea is a part of western Pacific Ocean stretching roughly from Singapore and the Strait of Malacca in the southwest, to the Strait of Taiwan in the northeast.**
- **Key Disputes in the South-China Sea:**
 - **Nine-dash line (imaginary line) of China:** It covers most of the South China Sea and overlaps with the exclusive economic zone claims of **Brunei, Indonesia, Malaysia, the Philippines, Taiwan, and Vietnam.**
 - **It includes**
 - ◆ **Paracel Islands:** Controlled by China but also claimed by Taiwan and Vietnam.
 - ◆ **Spratly Islands:** Claimed by China, Taiwan, Vietnam, Philippines, and Malaysia. » Second Thomas Shoal, a submerged reef is located near this Island.
 - ◆ **Scarborough Shoal:** Claimed by China, Taiwan, and Philippines.

EDUFACTS

2 APRIL

1. 50% of MPs facing criminal charge are from **Uttar Pradesh, Maharashtra, Bihar, Andhra Pradesh, Telangana, and Himachal Pradesh.**

2. In 2022, buildings were responsible for 34% global energy demand and 37% of energy and process-related carbon dioxide (CO₂) emissions. **India is attributing 40% of its CO₂ emissions to buildings.**

3 APRIL

1. **Disturbed area are declared under Section 3 of AFSPA** when a part or whole State/ Union Territory (UT) is in such a condition that the use of armed forces in aid of civil power is necessary.

2. Currently, **nuclear energy is responsible for around 25 % of global low carbon electricity production.**

4 APRIL

1. **Defence exports have grown by 31 times in last 10 years as compared to FY 2013-14 and growth of 32.5% over FY 2022-23.** Also, number of export authorisations rise to 1,507 in FY 2023-24. Private sector contributed about 60% in defence exports.

2. More than **one in three migrants whose country of origin could be identified comes from countries in conflict.** More than two-thirds of those whose deaths were documented through IOM's MMP are unidentified.

5 APRIL

1. Rapid expansion of Digitalization is requiring more energy and resulting in Greenhouse Gas (GHG) emissions. At least **1.7% of global emissions stem from the ICT sector.**

2. Roughly **90% of all earthquakes occur along Ring of Fire,** and it has 75% of all active volcanoes on Earth.

9 APRIL

1. AMFi-CRISIL released a report titled '**Mutual Growth**' which states that **financial decision-making and labour force participation rate (LFPR) of women are rising in India.**

Key highlights of the report:

- Female LFPR rose to 41.5% (PLFS of Oct 2023) against 24.6% five years back.
- 47% of women take financial decisions on their own.
- Autonomy of women in taking financial decisions depends on income source, age, and stage of affluence.

10 APRIL

1. **India's solar modules manufacturing capacity is around 50 GW and installed capacity of solar cell manufacturing is around 6 GW.** Around 11.17 billion USD of solar cells and modules have been imported into the country in last five years. China produced 57% to 100% of Indian imports of products including modules, cells, wafers and solar glass (since 2021).

11 APRIL

1. **Yearly potential soil loss for India is calculated at 21 tonnes/ha/yr.** More than 78 million hectares of agricultural land in India experience an average productivity loss of 8%.

2. Over the past 17 years, **Kharif and Rabi cropland has expanded by 46.06% and 35.23% respectively,** as fallow land diminished by 45.19%.

12 APRIL

1. **Suez Canal: Handles about 12% of global trade.** It is the **shortest maritime route between Asia and Europe.** Trade is hampered due to attacks on vessels.

2. Evidence shows "**friendshoring**" in **ICT services**. US imports from Asia (mostly India) dropped to 32.6% from 45.1% , while those from North America increased

15 APRIL

1. According to estimates, **global space tourism** market size is expected to grow at compound annual growth rate (CAGR) of **44.8% from 2024 to 2030**.

16 APRIL

1. According to the **Ministry of Tribal Affairs**, 23.43 lakh land titles have been distributed (individual and community rights) across States.

2. As per International Energy Agency, on average **Coal-to-gas switching reduces emissions by 50% when producing electricity**

18 APRIL

1. **Significance of Coral reefs:** Often called **rainforests of the ocean** due to **high biodiversity and productivity**, support around 25% of marine life, minimize storm impact, **promote tourism**, act as **carbon sink** etc.

2. While India produces the highest percentage of **women STEM graduates in the world (about 40%)**, their share in **STEM jobs in the country is very low at 14% (CSIR report 2022)**.

22 APRIL

1. As per the RBI report, **rising temperature and changing patterns of monsoon rainfall in India could cost the economy 2.8 % of its GDP**.

2. Around 1 in every 10 patients is harmed in healthcare and more than 3 million deaths occur annually due to unsafe care. **Above 50% of harm is preventable; half of this is attributed to medications**.

23 APRIL

1. **Section 126(1)(b)** prohibits displaying any election matter in any electronic media during the **period of 48**

hours ending with the hour fixed for conclusion of poll.

2. At birth only 25% of the eventual brain is formed, while **75% develops in the first 3 years of a child's life**.

25 APRIL

1. 36% of soil samples in India exhibit organic carbon deficiency. **Only 34% of nitrogenous urea is absorbed by crops**.

2. India's agriculture sector, excluding land use change and forestry emissions, **contributed 13.44% of overall GHG emissions in 2023**.

26 APRIL

1. The latest order from Food Safety Standards Authority of India (FSSAI) has increased the **Maximum Residue Limit (MRL) of pesticides from 0.01 mg/ kg to 0.1 mg/kg**.

2. **Vaccination against 14 diseases contributed to reducing infant mortality by 40% globally** For each life saved through immunization, an average of 66 years of full health were gained.

29 APRIL

1. **Status of solar energy in India:**

- Installed solar energy capacity stands at **81.81 GW as of Mar 2024**.
- **India's solar energy potential is estimated to be 748 Giga Watt peak** as estimated by National Institute of Solar Energy.
- India ranks 5th in Solar Power Capacity globally.
- 50 solar parks with an aggregate capacity of 37.49 GW have been approved.

30 APRIL

1. In several studies, it has been found that **screen time among children is more than 2 hours a day**.

2. According to the **International Energy Agency**, demand of critical mineral is set to grow by three and a half times by 2030.