

DAILY CURRENT AFFAIRS (DCA)

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MENSTRUAL HYGIENE IN INDIAN PRISONS

Context

- Several issues have been found in access to sanitary products and safe and dignified means of managing menstrual hygiene among the women in Indian prisons.

Background

- The fifth round of the **National Family Health Survey (NFHS 2019-2020)** revealed that about eight out of 10 young women aged 15-24 years are now using safe menstrual hygiene products.
- While urban areas and certain demographics have seen improved usage of menstrual hygiene products, the plight of women in Indian prisons remains overlooked.

Status of Menstrual Hygiene in Prisons

- According to the **National Crime Records Bureau**, there are 23,772 women in Indian prisons and **77%** of them are in the reproductive age group (18-50 years) and are likely to be regular menstruators.
- The **availability of sanitary napkins has been inconsistent** across different prisons in the country and the quality of sanitary napkins has also been unsatisfactory.
- Despite recommendations outlined in the **2016 Model Prison Manual**, many States have not implemented provisions like supplying adequate water and washroom facilities for female prisoners.
- **Overcrowding and poor socio-economic conditions** further exacerbate the struggle of incarcerated women to secure basic necessities such as water, sanitary napkins, detergent, and soap during menstruation.

Challenges faced by women in Indian Prisons

- The **lack of continuous water supply** forced women to store water, taking up valuable space in the limited number of toilets available.
- Women also reported feeling discouraged from using the **filthy washrooms** for urination, which led to a greater incidence of urinary infections.
- Prison authorities depended on sanitary napkins **donated by non-governmental organizations.**

- Decisions about the type, quality, and quantity of menstrual absorbents were left to these organizations, often resulting in the **supply of substandard products.**
- There is a **dearth of empirical evidence** highlighting an urgent need to conduct research to understand the current state of menstrual hygiene within prison walls.

Menstrual Hygiene and Health schemes in India

- **Menstrual Hygiene Scheme:** It was launched in 2011 for adolescent girls in the age group of 10-19 years and focussed on the distribution of low cost sanitary napkins in communities through ASHAs.
- **Swachh Bharat Abhiyan:** The Ministry of Jal Shakti and Education launched the National Guidelines on Menstrual Hygiene Management (MHM) for rural areas.
- **The Ministry of Chemicals and Fertilizers** implements the **Pradhan Mantri Bharatiya Janaushadhi Pariyojna (PMBJP)**, under which the Janaushidhi Kendras have been set up that provides Oxo-biodegradable sanitary napkins named Suvidha at **Rs. 1/- per pad only.**
- **National Menstrual Hygiene Policy** to recognise menstruation as a natural process that demands more meaningful attention.
 - **The draft policy states,** Prioritize equity to enable all menstruating individuals, regardless of their socioeconomic status and geographical location, to have equal opportunities to access and manage their menstruation in a safe and hygienic way.

Way Ahead

- The experience of menstruation within prisons presents unique challenges that demand attention through a public health lens, particularly as part of the fight against '**period poverty**'.
- The government must ensure that basic standards of menstrual hygiene for women in captivity are met.
- The need is to encourage **collaboration between public health authorities and prison administrators** to develop a comprehensive strategy to ensure access to adequate menstrual hygiene products and facilities while prioritizing the health and dignity of women behind bars.

Source: TH

DENOTIFIED AND NOMADIC TRIBES

Context

- **Denotified and Nomadic Tribes**, a group of marginalised communities across Andhra Pradesh, have been silently suffering **neglect and caste-based discrimination for centuries**.

About

- According to a report published by **the National Commission for Denotified, Nomadic and Semi-Nomadic Tribes in 2008**, there are **59 Denotified communities and 60 nomadic tribes in Andhra Pradesh**.
- They continue to battle impoverished conditions and social stigma.
- Of DNT communities, Lambadas (STs) are the most vocal and visible, followed by Vadderas (BCs) in government sector and political spheres.
 - ♦ The other communities, including Yanadis, Yerukulas, Nakkalas, Pamulollu and those falling in the SC group, rarely get their voices heard.

Nomadic, Semi Nomadic, and Denotified Tribes (NTs, SNTs, and DNTs)

- **Nomadic and semi-nomadic communities** are defined as those who move from one place to another rather than living at one place all the time.
- **Denotified tribes (DNTs)** are communities that were 'notified' as being 'born criminal' during the British regime under a series of laws starting with the **Criminal Tribes Act of 1871**.
- While most DNTs are spread across the Scheduled Castes (SC), Scheduled Tribes (ST) and Other Backward Classes (OBC) categories, some **DNTs are not covered in any of the SC, ST or OBC categories**.

Background

- The term '**De-notified Tribes**' stands for all those communities which were once notified under the **Criminal Tribes Acts**, enforced by the **British Raj between 1871 and 1947**.
- These Acts were repealed by the Independent Indian Government in **1952**, and these communities were "**De-Notified**". A few of these communities which were listed as de-notified were also nomadic.

- Terms such as **nomads and semi-nomads** are applied to social groups who undertook a **fairly frequent**, usually seasonal physical movement as part of their livelihood strategy in the recent past.
- The distinction between nomads and semi-nomads do not involve distinguishable ethnic categories or social groups, it rather describes the **degree of mobility practiced by them**.

Status in India

- It has been estimated that South Asia has the **world's largest nomadic population**.
- In India, roughly **10 percent** of the population is Denotified and Nomadic.
 - ♦ While the number of Denotified Tribes is about **150**, the population of Nomadic Tribes consists of about **500 different communities**.
- While the Denotified Tribes have almost settled in various States of the country, the Nomadic Communities continue to be largely nomadic in pursuit of their traditional professions.

Challenges faced by NTs, SNTs, and DNTs

- **Lack of Recognition and Documentation:** Denotified communities lacking citizenship documents, which makes their identity invisible and causes hindrances in obtaining government benefits, constitutional, and citizenship rights.
- **Limited Political Representation:** Inadequate representation for these communities making it challenging for them to voice their concerns and advocate for their rights.
- **Social Stigma and Discrimination:** NTs, SNTs, and DNTs often face discrimination and social stigma, both due to their historical denotified status and their distinct way of life.
- **Economic Marginalization:** Lack of access to resources, markets, and employment opportunities results in economic marginalization of these communities.
- **Educational Deprivation:** Educational opportunities for these tribes are limited, leading to high illiteracy rates.

Idate Commission

- In **2014**, a National Commission for Denotified, Nomadic and Semi Nomadic Tribes was constituted under the Chairmanship of **Bhiku Ramji Idate** for a period of three years.

- The commission has given the following recommendations;
 - There is a need to identify challenges faced by the NTs, SNTs, and DNTs owing to the stigma imposed by the enactment of the **Criminal Tribes Act, 1871** and later by the **Habitual Offenders Act, 1952** and figure out a way to modify discriminatory provisions of the latter.
 - It also suggested the non-inclusion of DNTs/NTs/SNTs under the SC/ST/OBC and formulation of specific policies for the former, among many others.
 - Setting up a permanent commission** for Nomadic, Semi Nomadic, and Denotified Tribes (NTs, SNTs, and DNTs) in India.
 - It stressed on taking measures to discern hurdles endured by the communities in availing basic facilities such as education, employment, health care, and legal documents, among others.
- A committee has also been set up by the NITI Aayog to complete the process of identification of the De-Notified, Nomadic and Semi-Nomadic Communities (DNCs).
- Scheme for Economic Empowerment of DNTs (SEED):** The scheme was launched in **2022** for the welfare of Denotified, Nomadic and Semi Nomadic Communities.
 - Budget:** The Ministry has been allocated **Rs. 200 crore** for this scheme to be spent over five financial years from **2021-22 to 2025-26**.
 - Components:** The four components of the Scheme for Economic Empowerment of DNTs are;
 - To provide **good quality coaching** for DNT candidates to enable them to appear in competitive examinations;
 - To provide **Health Insurance** to them;
 - To facilitate **livelihood initiative** at community level; and
 - To provide financial assistance for **construction of houses** for members of these communities.

Steps taken by government

- Based on the recommendations of the Idate Commission the Government of India constituted the **Development and Welfare Board for DNTs, SNTs & NTs (DWBDNCs)** in 2019.

Central Govt Schemes for DNTs, SNTs and NTs

- Nanaji Deshmukh Scheme for Construction of Hostels for DNT Boys and Girls**
The scheme aims to provide hostel facilities for students belonging to those DNT communities that are not covered under SC, ST or OBC, to enable them to pursue secondary and higher education.
- Dr. Ambedkar Pre-Matric and Post-Matric Scholarship for DNTs**
The scheme provides Pre-matric and Post-Matric Scholarships for the upliftment of students belonging to DNT communities.

Way Ahead

- The colonial mindset** about the Denotified Tribes having “criminal tendencies” needs to change to ensure their human rights are not violated.
- Proper documentation** of their identities needs to be speeded up so that they get the benefits of welfare schemes and the basic needs are provided to them.
- The NHRC** has suggested that there is a need to ensure representation of Denotified tribes in parliament, government institutions and higher education to mitigate the challenges faced by them.

National Human Rights Commission (NHRC) of India

- The NHRC is a **statutory public body** constituted in **1993**.
- It is responsible for the protection and promotion of human rights, defined by the act as “Rights Relating to **Life, liberty, equality and dignity** of the individual guaranteed by the constitution or embodied in the international covenants and enforceable by courts in India.

Source: TH

STRUCTURAL SHIFT TOWARDS FORMAL EMPLOYMENT IN INDIA

Context

- ISF unveiled “**India@Work: Vision Next Decade,**” a blueprint for formalisation of informal workforce and implementation of labour codes in the country.

About

- ISF stressed the need of **formalising the country’s informal workforce of over 400 million** and anticipated organised staffing companies would be able to contribute to this exercise.
 - ♦ A noticeable distinction was seen during the pandemic, where the formal workforce, comprising less than 15%, had access to their social security, which aided them in overcoming the challenges.
- ISF would be looking majorly into **three crucial aspects to address the challenges posed:** increasing the social security ambit; improving the concept of in-hand wage; implementation of labour codes; to minimise any obstacle to a favourable working condition.
- **Recommendations:** Some of the recommendations made by ISF included:
 - ♦ removing employment bottlenecks, urgent implementation of the four labour codes in India, policy changes and encouraging schemes, consideration of employment services as ‘merit services’, with lower GST slab tax rates at 5% with ICT benefits instead of the current 18% and linking of skilling initiatives to employment.

About ISF

- It was established in **2011** and plays a crucial role in promoting the benefits of flexible staffing solutions to **businesses, policymakers, and other stakeholders.**
- It works towards **creating a conducive regulatory environment** for the industry and fosters **ethical and professional standards** among its members.
- The ISF also conducts research and publishes reports to provide insights into the flexi staffing industry’s growth, challenges, and opportunities.

Difference Between Formal and Informal Sector

- The formal sector has a **written contract between the employer and the employee**, as well as **pre-defined labour conditions.**
 - ♦ This sector is made up of a well-organized group of people who operate in the same environment and are **legally and socially conscious of their rights.**
- **Informal Sector:** All unincorporated private enterprises owned by individuals or families involved in the sale and production of products and services on a proprietary or partnership basis are classified as informal.

Informal Sector of Indian Economy

- The Indian Economy is characterized by the existence of a vast majority of informal or unorganized labour employment.
- India with **almost 85% informal labour** is generating more than half of the country’s GDP.
- A high proportion of **socially and economically underprivileged sections** of society are concentrated in informal economic activities.

Challenges Related to Informal Sector in India

- **Impact on Women Labour Force Participation:** Women make up the majority of informal participants, yet they receive the fewest benefits and face lower salary, income volatility, and a lack of a strong social safety net. It has also greatly hampered women’s labor-force participation.
 - ♦ According to the Periodic Labour Force Survey statistics, female labour force participation fell to 21.2% in March 2021, down from 21.9% the previous year.
- **Low Wages and Exploitation:** Informal employment, by definition, lacks a written contract, paid leave, and hence does not pay minimum wages or pay attention to working conditions.
 - ♦ Working hours that exceed labour standards are widespread in India’s unorganised sector.
- **Lack of Social Security:** Workers in the informal sector often lack access to social security benefits such as healthcare, pensions, and unemployment insurance.
 - ♦ This leaves them vulnerable to economic shocks and health crises.
- **Limited Access to Finance:** Informal sector workers and businesses often struggle to access formal financial services such as bank loans and credit, hindering their ability to invest in their businesses or improve their living standards.

- **Poor Quality of Life:** Unorganized sector workers were far more likely to be poor than their organised sector counterparts.
 - ◆ Poor nutrition intake, as a result of low salaries and health problems, endangers their life.
- **Tax Evasion:** Because the informal economy's firms are not directly regulated, they typically dodge one or more taxes by concealing revenue and expenses from the legal system.
 - ◆ This is a problem for the government because a large portion of the economy is not taxed.
- **Lack of formal Data for Policymaking:** There are no official statistics available that reflect the true state of the economy, making it difficult for the government to formulate policies affecting the informal sector in particular and the economy as a whole.

Way Forward

- There is a need to **relax restrictions** for informal business conduct in order to pull informal businesses and their employees into the fold of formality.
 - ◆ A self-help group effort that gathers informal employees can help to foster self-sufficiency and address concerns linked to their working conditions.
- As part of the National Data System, **a comprehensive statistical base** on many elements of the informal economy is required to enable policymakers to make informed decisions.
- Grievances from informal employees should be **heard and resolved on a regular basis** through a **transparent and officially regulated procedure**.
- **Equal compensation for equal effort** is a **directive principle of state policy (Article 39(d))**, but women farm labourers typically earn less than their male colleagues.
 - ◆ Through appropriate legislative support, the government should enhance and enforce this DPSP.

Conclusion

- The plight of **lower-income and semi-skilled workers** underscores the pressing need for concerted action. Income inequality and rising poverty levels serve as stark reminders of the challenges India face.
- With **85% of India's workforce** operating in the informal sector, it was **imperative to initiate a structural shift** towards formalisation to

ensure equitable opportunities and sustainable livelihoods for all.

Source: TH

STATE OF FIRE SAFETY STANDARDS IN INDIA

In Context

- Recent devastating fires in Delhi and Rajkot have brought to light the **critical lack of fire safety measures in Indian cities**.

About

- Despite **established fire preparedness disciplines** worldwide and repeated fire outbreaks over the past three decades, public spaces, housing, hospitals, and commercial buildings in India remain vulnerable.
- In 2022, over 7,500 fire accidents resulted in the deaths of 7,435 people in India, according to the **National Crime Records Bureau (NCRB)**.
- **Maharashtra and Gujarat**, two of the most urbanized states, account for approximately 30% of fire-related deaths in the country.
- **Past incidents** like the Uphaar Cinema fire (1997), AMRI hospital fire (2011), Kamala Mills inferno (2017), and various hospital fires during the COVID-19 pandemic reveal a persistent neglect of safety standards.

Challenges in Preventing Fire Accidents in India

- **Non-compliance with Safety Regulations:** Many establishments, like the Rajkot gaming centre, operate without necessary fire safety clearances and flout basic safety norms.
- **Weak Municipal Oversight:** Municipal bodies responsible for fire safety inspections are often understaffed and lack resources, leading to infrequent and ineffective checks.
- **Neglect of Existing Guidelines:** Detailed guidelines in the National Building Code and state-specific fire safety rules are often ignored, resulting in hazardous conditions.
 - ◆ **National Building Code of India, 2016**, it includes provisions for 'Fire and Life Safety' audits, these are only recommendatory, not mandatory.
- **Inadequate Firefighting Infrastructure:** A study indicates urban India has less than 40% of the required fire stations, and the existing infrastructure needs modernization.

Fire Safety Standards in India

- Fire safety standards in India are governed by the **National Building Code (NBC) 2016**, which provides comprehensive guidelines for fire prevention, protection, and life safety in buildings.
- **Part 4 of the NBC** details fire and life safety requirements, including building materials, fire exits, firefighting equipment, and alarm systems.
- Each state has its own **Fire Services Act**, which outlines the powers and responsibilities of fire services and enforces fire safety regulations.
- The **BIS sets standards** for fire safety equipment like extinguishers, hoses, and alarms.
- Director-General of Civil Defense, Home Guards, & Fire Services under the Ministry of Home Affairs oversees fire management.
- **National Fire Service College, Nagpur** provides training and education for fire service personnel.

Steps Taken For Fire Safety

- **Scheme for Expansion and Modernization of Fire Services in the States:** Launched by the Centre in 2023, this scheme aims to strengthen fire services in states until 2025-26 by providing financial assistance for upgrading equipment, training personnel, and establishing new fire stations.
- **Model Bill to Provide for the Maintenance of Fire and Emergency Service for the State:** This model bill, circulated by the Centre, aims to facilitate the establishment and maintenance of efficient fire and emergency services at the state level.
- **National Disaster Management Authority (NDMA) guidelines:** The NDMA has released guidelines covering scaling, types of equipment, and training for fire services across the country.
- **Fire Safety Audits:** Mandating fire safety audits in all buildings over 15 meters tall every two years by an independent entity.

Way Ahead

- **Strict Enforcement of Regulations:** Authorities must rigorously enforce fire safety regulations and penalize violators.
- **Investing in Infrastructure:** A 2018 FICCI-Pinkerton study revealed that urban India has less than 40% of the required fire stations. The 15th Finance Commission highlighted the need for modernizing firefighting infrastructure.

- **Strengthening Municipal Capacity:** Municipal bodies need increased resources and training to conduct regular and thorough fire safety inspections.
- **Policy Implementation and Monitoring:** Ensure strict adherence to the National Building Code and state-specific fire safety regulations.
 - ♦ Regular audits of compliance, particularly in vulnerable facilities like hospitals.
- **Accountability and Legal Reforms:** Hold violators accountable through stringent penalties and legal action.
 - ♦ Fast-track the implementation of recommendations from past disaster investigations.
- **Prioritizing Healthcare Facilities:** Special attention must be given to fire safety in healthcare facilities, considering the presence of flammable materials and vulnerable patients.

Source: TH

PRIVATE SECTOR PARTICIPATION IN SPACE ACTIVITIES

In News

- New Space India Limited (NSIL), invited applications from private firms for “end-to-end” manufacturing of **Launch Vehicle Mark-III or LVM3**, the rocket that was used in the Chandrayaan-2 and Chandrayaan-3 lunar missions.

Do you know ?

- LVM3 is the new heavy lift launch vehicle of ISRO for achieving a 4000 kg spacecraft launching capability to GTO (Geosynchronous Transfer Orbit) in a cost effective manner.

About space sector

- The Indian Space Sector was valued at \$9.6 Bn in 2020, contributing 2%-3% of the global space economy.
- The size of the sector is expected to reach \$13 Bn by 2025, and by 2030 India further aims to capture a larger share of close to 10% of the global economy.

Private Sector's Participation

- India's space sector has entered a new era of growth and innovation with the government's decision to open up the sector to private enterprises.

- ◆ This strategic move is aimed at boosting the development of the segment and increasing India's share in the global space economy.
- the **Department of Space (DOS)** desires to encourage the participation of private companies in space activities.
- **ISRO's role** has shifted from being the sole operator to becoming a facilitator for private sector growth.
 - ◆ The organisation is now focused on supporting private enterprises through technology transfer, sharing expertise, and providing access to infrastructure.
- The **successful landing of Chandrayaan-3** on the moon's south pole has acted as a catalyst, encouraging private sector investment in space.
- ◆ Beyond the above mentioned limits investment is allowed in these segments via the government route.
- The investment in Indian Space Start-Ups has increased to \$ 124.7 Million in 2023.
- In 2020 ,the Indian National Space Promotion and Authorisation Centre (IN-SPACe) was established to promote, authorise and supervise various space activities of non-governmental entities (NGEs).
 - ◆ IN-SPACe has been instrumental in facilitating the entry of private players into the space sector.
- In **February 2021**, Centre issued guidelines for private companies to acquire all geospatial data and maps from government agencies without licences, and permission or clearances for collection, use and dissemination, except certain categories.

Benefits

- **Innovation and Competition:** With private companies like Skyroot Aerospace making headlines for their achievements, the sector is poised for a surge in innovation and healthy competition¹.
- **Global Collaboration:** The influx of FDI not only brings in capital but also fosters international collaborations, enhancing India's global standing in space technology¹.
- **National Development:** A strong space sector contributes to national development by improving connectivity, especially in remote areas, and aiding in disaster management and climate monitoring.
- **Cost competitive:** Promoting the private sector will enable the Indian space program to remain cost competitive within the global space market, and thus create several jobs in the space and other related sectors
- **The Indian Space Policy 2023:** The Union Cabinet's approval of the Indian Space Policy 2023 outlines the roles and responsibilities of key organisations like the Indian Space Research Organisation (ISRO), NewSpace India Limited (NSIL), and private sector entities, providing clarity and direction for future endeavours.

Conclusion

- The privatisation of the Indian space sector is a bold step towards harnessing the potential of private enterprises.
- There is a need to promote private sector activity in all high technology areas including space, to fully unlock the potential of India's youth and entrepreneurs
- Therefore ,it is necessary to enable private entities within the Indian space sector to establish themselves as independent players capable of end-to-end space activities.
- With the government's supportive policies and ISRO's collaborative approach, India is poised to make significant strides in the global space industry.
- Addressing the existing issues will be crucial for sustaining the momentum and ensuring the long-term success of India's privatised space sector.

Source: TH

Challenges

- Regulatory hurdles,
- Technology transfer complexities, and
- The need for a skilled workforce are some of the issues.

Governments steps

- In February, 2024, Centre amended its FDI policy, allowing up to **74% FDI for satellite manufacturing and operation**, up to **49% FDI for launch vehicles**, spaceports and associated systems and **100% FDI** to manufacture components and systems/sub-systems for satellites, ground and user segments.

NEWS IN SHORT

HAMPI'S VIRUPAKSHA TEMPLE

Context

- A section of the pillars holding up the pavilion at Hampi's Virupaksha temple collapsed recently following heavy rains.

About the Virupaksha Temple of Hampi

- It is a historic Hindu temple located in **Hampi, Karnataka, India**.
- It holds immense religious and cultural significance and is part of the **Group of Monuments at Hampi**, which has been designated as a **UNESCO World Heritage Site**.

Historical Significance

- It dates back to the **7th century CE**. Some historians suggest that it existed even before the Vijayanagara Empire established its capital in Hampi.
- During the **14th to 16th centuries**, under the **Vijayanagara rulers**, the temple underwent extensive expansion and flourished as a vital centre for religious and cultural activities.
 - ♦ The **Vijayanagara empire** was founded by **Harihara I of the Sangama dynasty**, it expanded from a strategic position on the **banks of the Tungabhadra river** to become one of the most powerful kingdoms of its time.

Architectural Marvels

- **The Vijayanagara Empire (1336 to 1646)**, known for its grand architecture, built **Dravidian-style temples** and palaces in Hampi, including the **Virupaksha Temple**.
- Notable features include towering **gopurams (gateways)**, **pillared halls**, and **shrines** dedicated to various deities.
- **The Vitthala Temple within the complex** stands out for its exquisite ornate structure, representing the **pinnacle of Vijayanagara temple architecture**.
 - ♦ It features a **grand bazaar street**, a **stepped tank**, and **beautifully carved mandapas**.

Religious Significance

- The temple is dedicated to **Lord Virupaksha, a form of Lord Shiva**.

- It is associated with the **local goddess Pampadevi**, linked to the Tungabhadra River.
- Worship at the Virupaksha Temple has persisted over centuries, even after the city's destruction in 1565.

Source: IE

MINOR FOREST PRODUCE

Context

- The indigenous communities of Odisha are eagerly waiting for the forest department's approval to sell Kendu leaves.

About Minor Forest Produce

- The Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (aka **Forest Rights Act, 2006**), defines '**minor forest produce**' as **any non-timber forest product of plant origin**.
- It includes various items such as **bamboo**, brush wood, stumps, cane, tussar, cocoons, honey, wax, lac, Kendu leaves, medicinal plants, herbs, roots, tubers and similar items.
 - ♦ **Tendu Leaves:** Used for making beedis (hand-rolled cigarettes).
 - ♦ **Bamboo:** Used for construction, handicrafts, and various household items.
 - ♦ **Honey:** Collected from natural beehives.
 - ♦ **Herbs and Medicinal Plants:** Used for traditional medicine and Ayurvedic practices.
- In simple terms, it encompasses **all other forest products, excluding timber**.
- **Forest Rights Act (2006)** aims to empower local communities by recognizing their traditional rights over these valuable resources.

Kendu Leaf (*Tendu Leaf or Diospyros Melanoxylon*)

- It is a **nationalised product** like Bamboo and Sal seed, and one of the most important **non-wood forest products** of Odisha.
- Due to its unique characteristics, viz. **Matching aroma with Tobacco**, **Hygroscopic nature** of dry leaves to withstand crack, **Thinness and pliability**, **gradual combustion**, **resistance to fungus attack** etc. these valuable leaves are used for **wrapping Bidis**.

- The leaves are **rich in tannins** and have been a significant source of livelihood for forest-dwelling communities.
- The **forest department of Odisha** procures Kendu leaves from local communities through its **Kendu Leaf (KL) wing** and then sells them to contractors via tenders.
- **Odisha is the third largest producer** of Kendu Leaf next to Madhya Pradesh and Chhattisgarh.

Significance of Minor Forest Produce

- **Livelihood Support:** MFPs play a crucial role in the livelihoods of forest-dependent communities.
 - ♦ According to estimates, the MFP economy supports approximately 275 million people in rural India.
 - ♦ For many tribal populations, these resources are not just commodities; they are a lifeline.

Challenges and Opportunities

- **Bureaucratic Hurdles:** Despite legal provisions, the implementation of the FRA has faced challenges.
 - ♦ Bureaucratic processes often delay the recognition of community rights over MFPs.
- **Low Prices:** The rates offered by government agencies for MFPs are often lower than what local communities can potentially earn.
 - ♦ It affects the economic well-being of forest dwellers.

Source: DTE

PREFIRE MISSION

Context

- Recently, **NASA** launched one of two climate satellites as part of the **PREFIRE (Polar Radiant Energy in the Far-Infrared Experiment) Mission**.

PREFIRE Satellites

- The PREFIRE satellites are **6U CubeSats**, measuring around 90 cm in height and nearly 120 cm in width when their solar panels are deployed.
- Two 6U CubeSats aim to orbit at an altitude of about 525 kilometres in a **near-polar orbit**.
- Each satellite carries a miniaturised infrared spectrometer, covering the 0-45 μm range at 0.84 μm spectral resolution.

What Are CubeSats?

- CubeSats are miniature satellites, each resembling a **10 cm x 10 cm x 10 cm cube (equivalent to 'one unit' or '1U')** and weighing no more than 1.33 kg.
- Developed initially as educational tools, CubeSats have gained popularity due to their **low cost and versatility**.

- Operating for one seasonal cycle (approximately a year), PREFIRE aims to provide **unprecedented data on far-infrared emissions from Earth's poles**.

PREFIRE's Objectives

- **Quantifying Far-Infrared Emission:** PREFIRE aims to document the variability in spectral fluxes from 5 μm to 45 μm , shedding light on the energy radiated by **Earth's polar regions**.
 - ♦ Nearly 60% of Arctic emission occurs at wavelengths $> 15 \mu\text{m}$ (FIR), which has remained uncharted territory until now.
- **Anchoring Climate Predictions:** By measuring far-infrared radiation, PREFIRE improves Arctic climate predictions.
 - ♦ It provides critical data for understanding Arctic warming, sea ice loss, ice sheet melt, and sea level rise.
- **Earth's Thermostat:** The Arctic acts as Earth's thermostat, regulating the climate by venting excess energy received in the tropics.
 - ♦ PREFIRE's insights into Arctic heat emissions contribute to a more accurate understanding of our planet's climate dynamics.

Significance: Earth's Energy Budget

- Understanding Earth's energy balance is crucial for **predicting climate changes**, as incoming solar radiation and outgoing heat determines our **planet's temperature and climate**.
- However, a significant portion of heat radiated from the Arctic and Antarctica occurs as **far-infrared radiation (wavelengths of 3 μm to 1,000 μm)**, which has never been systematically measured.
- PREFIRE aims to bridge this gap in knowledge by capturing spectral fluxes from 5 μm to 45 μm on hourly to seasonal timescales.

Source: IE

CENTRE FOR CARBON FIBER AND PREPREGS

In News

- The Vice President inaugurated the **Centre for Carbon Fiber and Prepregs** during his visit to National Aerospace Laboratories.

About Centre for Carbon Fiber and Prepregs

- Established by the **National Aerospace Laboratories (NAL)** in Bengaluru, India.
- It focuses on developing and producing carbon fiber, a high-strength, lightweight material used in various industries, including aerospace, automotive, and renewable energy.
- It helps in reducing India's dependence on imported carbon fiber, promotes innovation in composite materials, and supports the growth of various industries.

Prepregs & Carbon fibers

- **Prepregs** are laminate composites of fibre sheets that are impregnated with polymer resins (plastics) that have not been fully cured.
- **Carbon fibers** are produced by thermal conversion of organic fibers with a lower carbon content such as polyacrylonitrile (PAN) containing several thousand filaments .
 - ♦ Carbon fiber is a high strength, high-stiffness and low weight material, used extensively in aircraft, missiles, launch vehicles and satellites. It is also an important raw material in many vital industrial applications such as wind energy, infrastructure, sports and transportation, to name a few.

Do you know ?

- National Aerospace Laboratories (NAL), a constituent of the Council of Scientific and Industrial Research (CSIR), India, established in the year 1959 is the only government aerospace R&D laboratory in the country's civilian sector.
- It is a high-technology oriented institution focusing on advanced disciplines in aerospace.
- It aims to develop aerospace technologies with strong science content, design and build small, medium sized civil aircraft, and support all national aerospace programmes

Source:PIB

CATERPILLARS MAY SENSE THREATS USING ELECTRIC FIELDS

In News

- According to a recent study ,Caterpillars have a sixth sense that most land-based animals do not.

About Caterpillars

- Caterpillars are the larvae (immature forms) of butterflies and moths.
- There are many thousands of types, with a huge variety of colors and sizes.
- They look like worms and are covered in small hairs. Most are harmless, but some can cause allergic reactions.
- They can sense electric fields around them with small bristles called **setae on its body** — a feat called **electroreception**.
 - ♦ Since 2013, scientists have also found electroreception in arthropods like bumblebees, hoverflies, and spiders.
 - ♦ However, none of these land-based creatures use the ability to defend against predators.
 - ♦ Caterpillars, which are also arthropods, may break this mould, using electroreception to sense predatory insects nearby.

Source:TH

SCIENCE OF COLOURS

Context

- Colour plays an outsized role in the human experience of modern life as it invests both natural and synthetic worlds with beauty and meaning.

What is colour?

- **Colour is a type of information** our eyes receive and process based on electromagnetic radiation.
- An object by itself can't be said to have a colour — but based on which frequencies of visible-light radiation it absorbs, reflects, and/or scatters, we can perceive the object to have a particular colour.

How do human eyes perceive colours?

- In the human eye, the **rod and the cone cells** receive information in the light that strikes the eye.
- The rod cells record brightness while the cone cells record the wavelengths, which the human brain interprets as colour.

- ♦ Humans possess three types of cone cells and are called **trichromats**.
- Human vision is restricted to wavelengths from **400 nm to 700 nm**.
 - ♦ **Honeybees** can also see **ultraviolet light** and **mosquitoes** and some beetles can access information in some **wavelengths of infrared radiation**.

Science of colours

- **There are two broad ways to render colours:** additive and subtractive colouring.
- **In additive colouring**, light of different wavelengths is 'mixed' to yield light of one combined colour.
 - ♦ The colours on the **smartphone screens** and television sets are produced in this way.
 - ♦ LEDs use additive colouring to produce colours.
- **In subtractive colouring**, a colour is rendered by passing white light through a medium that absorbs, or takes away, specific wavelengths of light, leaving the rest to render a particular colour.
 - ♦ Its examples include dyes, pigments, and inks.

Source: TH

COST INFLATION INDEX

Context

- The Central Board of Direct Taxes, CBDT has notified the **Cost Inflation Index (CII)** for the financial year **2024- 25** for calculating long-term capital gains.

About

- **The Cost Inflation Index** is used by taxpayers to compute gains arising out of sale of capital assets after adjusting inflation.

- The CII for financial year **2024-25**, relevant to assessment year 2025-26, stood at **363**.
- Normally, an asset is required to be retained for more than **36 months** (24 months for immovable property and unlisted shares, 12 months for listed securities) to qualify as 'long-term capital gains'.
- Since prices of goods increase over time resulting in a fall in the purchasing power, the CII is used to arrive at the inflation adjusted purchasing price of assets so as to compute **taxable long-term capital gains (LTCG)**.

Source: AIR

PERIYAR RIVER

Context

- A report by Kerala University of Fisheries and Ocean Studies reveals **high levels of ammonia, hydrogen sulphide, and unidentified toxins in a Periyar river tributary in Ernakula**.

About

- The Periyar, 244 km in length is the **longest river of Kerala** and drains an area of 5,398 sq km.
- It originates in the **Western Ghats at Periyar Lake in the Idukki district** and flows through the central part of Kerala before emptying into the **Arabian Sea near the city of Kochi**.
- The **Periyar Wildlife Sanctuary**, located along the banks of the river, is one of the prominent wildlife reserves in Kerala, known for its rich biodiversity.
- **Some of the major tributaries of the Periyar River include:** Muthirapuzha River, Cheruthoni River, Edamalayar River, Perinjankutti River, and Mullayar River.

Source: TOI