



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

KADAMBA DYNASTY

An inscription believed to be from the 10th century A.D. Kadamba period, written in Kannada and Sanskrit, has been discovered in the Mahadeva temple at Cacoda in southern Goa.

8 JAN - 13 JAN 2024

WEEKLY CURRENT AFFAIRS

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INSIDE

GENERAL STUDIES – 1

Topics: Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location- changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

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GENERAL STUDIES – 1

Topics: Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location- changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

1. INDIA'S FIRST HIGH-RESOLUTION LANDSLIDE SUSCEPTIBILITY MAP

Context:

IIT Delhi's HydroSense Lab has created India's first high-resolution landslide susceptibility map.

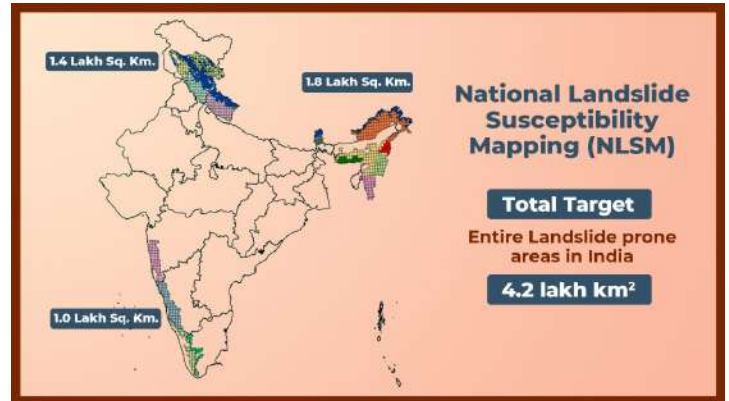
What is Landslide Susceptibility Mapping?

Landslide Susceptibility Mapping involves creating maps that depict areas prone to landslides based on certain factors. For example, using data on past landslide events and factors like slope steepness, soil type, and vegetation cover, a computer model can analyse these variables to predict areas at high risk.

Features of National Landslide Susceptibility Map:

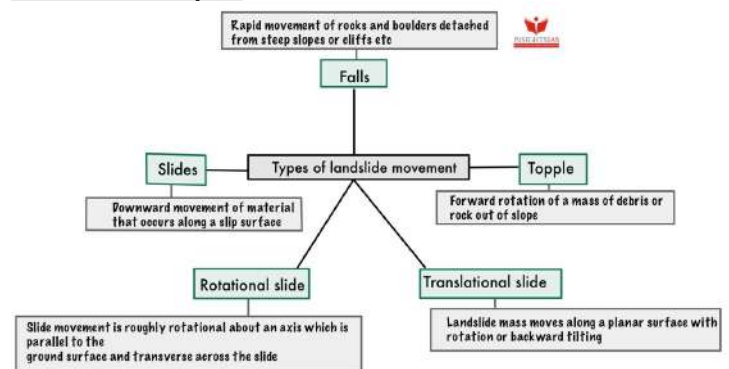
Features	Details
Data Sources	The map incorporates 1.5 lakh known landslide events from sources like the <u>Geological Survey of India</u> (GSI). It also considers 16 landslide conditioning factors , including soil cover, tree density, proximity to roads or mountains, etc.
Machine Learning Analysis	Ensemble machine learning methods were employed to analyse the data. This involves using multiple machine learning models together to mitigate the impact of any single model's limitations.
High-Resolution Mapping	The map provides a high-resolution overview with a detailed resolution of 100 sqm. , offering insights into landslide susceptibility across India.
Identification of New Risk Zones	Familiar areas with high susceptibility, such as the Himalayan foothills, Assam-Meghalaya region, and Western Ghats , were identified.
	New risk zones , previously unrecognized, were also revealed, including parts of the Eastern Ghats north of Andhra Pradesh and Odisha.

Online Accessibility	The map is available online and accessible to the public . It allows anyone to interact with the data without requiring technical expertise.
Future Use	The map aims to assist policymakers and organizations in landslide investigation and mitigation, and the team plans to develop a Landslide Early Warning System for India



About Landslide:

A landslide is **“a movement of a mass of rock, earth or debris down a slope”**.



Types of flows

- Debris flows:** It is a form of **rapid mass movement** in which a combination of loose soil, rock, organic matter, and slurry that flows downslope. They are commonly caused by intense precipitation or rapid snowmelt.
- Earth flow:** It is a **down-slope viscous flow of fine-grained material** saturated with water.
- Mudflow:** A mudflow is a **wet or viscous fluid mass** of fine and coarse-grained material that flows rapidly along drainage channels.
- Creep:** Creep is the **slow, steady, downward movement of material** under gravity that occurs in a large area

India's Vulnerability to Landslides (as per ISRO's Landslide Atlas of India)

- Global Ranking:** India ranks among the **top five**

countries globally prone to landslides, witnessing **at least one death per 100 sq km annually** due to such events.

2. **Primary Cause:** Rainfall variability, particularly in the **Himalayas and Western Ghats**, stands as the predominant cause of landslides in India.
3. **Geographical Vulnerability:** Excluding snow-covered areas, **over 12%** of the country's geographical land area is susceptible to landslides.
4. **Regional Breakdown:**
 - a. **Over 66% of landslides** occur in the **North-western Himalayas**.
 - i. **Rudraprayag and Tehri Garhwal districts** of Uttarakhand have the **highest landslide density and landslide risk** exposure in the country.
 - b. About 19% are reported in the **North-eastern Himalayas**.
 - c. The Western Ghats contribute to **over 14% of landslide events**.
5. **Impact in the Western Ghats:** Despite fewer occurrences, landslides in the Western Ghats pose significant risks, **especially in Kerala**, making inhabitants vulnerable to fatalities.

Effects of landslides:

- **Loss of Life:** According to the **International Disaster Database (EM-DAT)**, landslides have caused over 50,000 fatalities worldwide between 2000 and 2020.
 - In the state of Uttarakhand, India, the **2013 Kedarnath disaster** resulted in approximately 6000 deaths.
- **Environmental Impact:** Soil erosion caused by landslides can lead to sedimentation in rivers and streams, affecting water quality and aquatic life.
 - The **2014 landslide in Oso, Washington**, resulted in significant damage to the Stillaguamish River ecosystem.
- **Infrastructure Disruption:** Landslides can block critical transportation routes.
 - In **February 2021, the Chamoli disaster** led to the blockage of the Rishi Ganga River and the destruction of various infrastructure in the region.
- **Property Damage:** The cost of repairing or rebuilding homes, infrastructure, and farmlands can be substantial.
- **Displacement:** The United Nations Office for Disaster Risk Reduction (UNDRR) reports that landslides triggered by **heavy rainfall in Nepal in 2020 displaced more than 9,000 households**, leaving many families without shelter.

Causes of Landslides:

Causes of Landslides	Details
Heavy Rainfall	Excessive rainfall saturates the soil, increasing its weight and reducing cohesion. This weakens slopes, particularly during heavy rain, making them more susceptible to landslides.
Steep Slopes	Areas with steep terrain face greater landslide risk as gravitational forces act more intensely on sloping surfaces , especially during heavy rainfall or seismic activity.
Earthquakes	Seismic activity can disrupt slope balance, triggering landslides. Volcanic eruptions, such as pyroclastic flows, displacing soil and rock, also contribute to landslide occurrences.
Human Activities	Deforestation, mining, construction, and excavation alter landscapes, remove vegetation, and disturb slope balance. These activities weaken terrain stability, escalating the risk of landslides.
Underlying Geology	The type of rock and soil beneath an area influences landslide susceptibility. Loose, unconsolidated soil is more prone to landslides, while stable bedrock, typical in the Himalayan landscape, is less likely to experience such events.

Recent examples of landslide disasters in the past year:

- **Joshimath Sinking** in Uttarakhand
- **June 2023:** A landslide in the **Noney** district of **Manipur**, India, killed at least 58 people.
- **May 2023:** A landslide in **Rio de Janeiro, Brazil**, killed at least 232 people.
- **March 2023:** A landslide in **Putumayo, Colombia**, killed at least 323 people.

Government Measures for Landslide Impact Mitigation:

- **The National Landslide Susceptibility Mapping (NLSM) Programme** (initiated by the Geological Survey of India in 2014) aims to
 - i. Map the **0.42 million sq. km** landslide-prone areas across India at a **Macro Scale (1:50,000)**
 - ii. Create a **dynamic National Landslide Susceptibility Geodatabase** for India
 - iii. Establish a nationwide repository on **GIS-based Landslide Inventory**
 - a. The goal is to enhance **understanding, assessment, and management** of landslide-prone regions in the country through comprehensive mapping and geospatial analysis.
- **National Remote Sensing Centre (NRSC)** under the Indian Space Research Organisation (ISRO) has released the **Landslide Atlas of India**, a detailed guide identifying Landslide Hotspots in the country.

NDMA Guidelines:

National Disaster Management Guideline on Management of Landslides and Snow Avalanches

- a. **Hazard, Vulnerability & Risk Assessment:** Identify areas prone to landslide hazards and assess resources at risk
- b. **Early Warning Systems:** Continuous monitoring of movements, stress development, and timely data transmission
- c. **Investigations for Risk Assessment:** Multi-disciplinary investigations for comprehensive risk assessment leading to the formulation of standards to effectively mitigate the impact of landslides

Way Forward for Landslide Management in India:

Way Forward	Details
Landslide Monitoring	Involves deploying sensors, satellite imagery, and ground-based instruments for detecting ground movement and potential landslide precursors.
NHAI’s Landslip Detection System	The National Highways Authority of India (NHAI) plans to install a landslip detection system on the Kochi-Dhanushkodi National Highway in Munnar . The system, developed by IIT-Mandi, the Indian Army, and DRDO, aims to provide early warnings about landslips.
Landslide Hazard Maps	Generation of reliable landslide hazard maps using advanced tools like UAVs, Terrestrial Laser Scanners, and high-resolution Earth Observation (EO) data.
International Best Practices	Learning from Brazil’s SNAKE System , a Landslide Early Warning System (LEWS), to incorporate digital monitoring, forecasting, and alert mechanisms.
Special Purpose Vehicle (SPV) for Landslide Management	Formation of an expert professional group at the national level to study and decide on risk mitigation strategies to recommend permanent fixes for identified landslide hotspots.
Awareness Programmes	Initiatives aimed at creating a culture of awareness, alertness and preparedness among the public .
Monitoring Construction and Development	Implementing strict monitoring of construction and developmental activities , such as roads and dams, in landslide-prone areas.
Limiting Agriculture and Settlements	Restricting agriculture to valleys and areas with moderate slopes, controlling large settlements in high vulnerability zones.
Afforestation and Water Flow Control	Promoting large-scale afforestation programs and constructing bunds to reduce water flow.
Encouraging Terrace Farming	Encouraging terrace farming , especially in northeastern hill states where Jhumming (Slash and Burn/ Shifting Cultivation) is prevalent.

Conclusion:

Understanding the causes and effects of landslides is essential for disaster preparedness and mitigation efforts. Implementing early warning systems, land-use planning, and sustainable land management practices can help reduce the vulnerability of communities to landslide hazards. Moreover, international cooperation and sharing of knowledge and best practices are crucial in addressing the challenges posed.

Insta Links:

[Landslide Atlas of India](#)

Mains Link:

Q. Disaster preparedness is the first step in any disaster management process. Explain how hazard zonation mapping will help disaster mitigation in the case of landslides UPSC 2019

Q. Differentiate the causes of landslides in the Himalayan region and Western Ghats (UPSC 2021)

GENERAL STUDIES – 2

Topics: [Comparison of the Indian constitutional scheme with that of other countries](#)

1. COMPARISON OF THE INDIAN AND FRENCH CONSTITUTIONS

Context:

Gabriel Attal is the new Prime Minister of France, succeeding Elisabeth Borne. He is known for **banning abayas, proposing mandatory school uniforms, and addressing bullying**. Attal is **France’s first openly gay Prime Minister** and left the Socialist Party in 2016 to support Emmanuel Macron’s presidential bid.

Similarities and differences between the Indian Constitution and the French Constitution:

Aspect	Similarities	Differences
Preamble and Fundamental Rights	Both constitutions have a preamble emphasizing fundamental principles . India’s preamble emphasizes justice, liberty, equality, and fraternity, mirroring France’s commitment to liberty, equality, and fraternity Fundamental Rights are enshrined in both constitutions.	French Constitution emphasizes secularism (negative secularism: Complete separation between State and Religion); India adopts a more positive approach accommodating diverse religious practices (state promotes all religions).
Parliamentary System	Both countries have a parliamentary form of government with a President or Head of State and a Prime Minister as the Head of Government.	The Indian President holds a more ceremonial role with limited powers , while the French President possesses more substantial executive authority . This reflects the semi-presidential system in France.
Directive Principles and Social Justice	Both constitutions include Directive Principles of State Policy (India) and Objectives of the Republic (France), guiding the state in matters of social and economic welfare.	India’s Directive Principles are more detailed and comprehensive ; France focuses on broad principles without detailed specificity.
Federal Structure	Both constitutions provide for the division of powers between the centre and the states (India) or regions (France)	India has a federal system , while France has a unitary system
Amendment Procedures	Both constitutions allow amendments to accommodate societal needs .	India follows a rigid amendment procedure requiring a special majority ; France has a more flexible approach allowing amendments through a joint session of the Parliament.
Influence	Dr. B.R. Ambedkar and other constitutional makers	Montesquieu’s influence

Conclusion

Thus, the Indian constitution is longer, and more elaborate and aims to bring about social change. The French constitution is more open to interpretation and focuses on upholding republican ideals.

Comparison of the Indian Constitution with other countries:

FEATURE	INDIA	UK	USA	RUSSIA	JAPAN	FRANCE	GERMANY
Written/ Unwritten	Written	Unwritten	Written	Written	Written	Written	Written
Flexible/ Rigid	Both	Flexible	Rigid	Rigid	Rigid	Rigid	Rigid
Unitary / Federal	Federal with unitary bias	Unitary	Federal	Unitary	Unitary	Unitary	Federal

Parliamentary / Presidential	Parliamentary	Parliamentary	Presidential	Semi-Presidential	Parliamentary	Quasi-Presidential	Parliamentary
Sovereignty of Parliament	Supremacy of Parliament	Supremacy of Constitution		Supremacy of Constitution	Parliament with limited powers		
Supremacy of Constitution	Supremacy of Parliament	Supremacy of Constitution		Supremacy of Constitution			
Republic / Monarch	Republic	Constitutional Monarchy	Republic	Republic	Constitutional Monarchy	Republic	Republic
President	Ceremonial	Ceremonial	Executive	Executive		Executive	Ceremonial
Fundamental Rights	Yes	Yes	Yes	No	Yes	Yes	Yes

Insta Links:

[Comparison of the Indian Constitutional Scheme with that of Other Countries](#)

Topics: [Development processes and the development industry- the role of NGOs, SHGs, various groups and associations, donors, charities, institutional and other stakeholders.](#)

2. CIVIL SOCIETY UNDER SIEGE

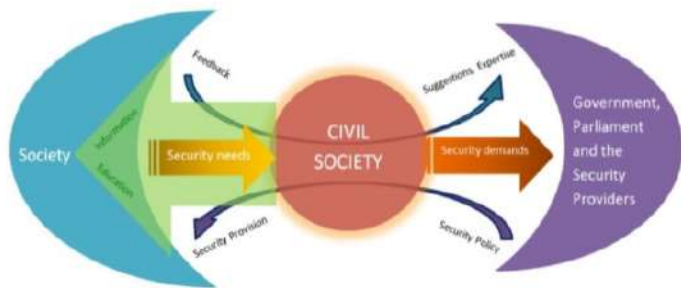
Context:

The [article](#) highlights the **threat to India’s civic space**, emphasizing the impact on progressive organizations.

What are CSOs?

These are **non-state, not-for-profit, voluntary entities** formed by people in the social sphere that are separate from the State and the market. They represent a wide range of **interests and ties and can include community-based organisations** as well as non-governmental organisations (NGOs).

Today, about 1.5 million NGOs work in India (i.e., nonprofit, voluntary citizens’ groups organized on a local, national, or international level).



Significance of CSO:

Civil Society Organisations (CSOs) play a pivotal role **in democratic societies, fostering active, diverse, and critical civic engagement**. In India, CSOs, including non-governmental or-

ganisations (NGOs), have been instrumental in shaping policy, public discourse, and community development.

Role of Civil Society Organisations in India

Role	Examples
Advocacy for Social Justice	The National Campaign for Dalit Human Rights (NCDHR) -Eliminates caste-based discrimination and promotes Dalit rights.
Community Empowerment and Development	Pratham - Focuses on grassroots education, enhancing literacy levels among underprivileged children.
Monitoring Government Accountability	Association for Democratic Reforms (ADR) - Promotes electoral and political reforms, advocating for transparency in political funding.
Environmental Sustainability	Greenpeace India - Campaigns for ecological sustainability.
Promotion of Civic Education and Awareness	Association for Democratic Reforms” (ADR): Raises awareness about democratic values, electoral processes, and citizen rights.
Response to Humanitarian Crises	Goonj - Works on disaster relief.
Promotion of Freedom of Expression	Reporters Without Borders - Advocates for freedom of expression and protects journalists and activists.
Inclusivity	Naz Foundation - Works towards LGBTQIA+ rights, including anti-discrimination and HIV awareness.
Grassroots Democracy and Participatory Governance	Mazdoor Kisan Shakti Sangathan (MKSS) - Advocates for the RTI act, encouraging community participation in decision-making processes.

Status of CSOs in India (in terms of restrictions)

Degree of regulations	Examples of Organizations
Highly Regulated	Citizens for Justice and Peace (CJP), Amnesty India, Oxfam, Centre for Equity Studies, Lawyers Collective
Moderately Regulated	Centre for Policy Research (CPR), ANHAD (Act Now for Harmony and Democracy)
Low-Level Regulated	Navsarjan, Save The Children

Instruments being used to restrict civil society:

Instruments Used	Laws and Acts	Examples
Legal Charges	Prevention of Money Laundering Act, 2002	Charges of money laundering, ED attacks NGOs
	Foreign Contribution (Regulation) Act, 2010	FCRA made stringent in 2010 and 2020
	Central Bureau of Investigation (CBI)	Empowered to investigate NGOs with lethal impact
Restrictions on Domestic Funding	Income-Tax Act, 2020 amendments	Mandatory renewals of 12A and 80G certificates
Income-Tax Surveys	Collecting data for filing more cases	

Various instruments, including **legal charges, specific laws and acts, and restrictions** on domestic funding, are being used to regulate civil society organizations in India. These regulations include **charges of money laundering, amendments to laws governing foreign funding, and mandatory renewals** impacting tax exemptions.

Impact of these restrictions on CSOs:

- Existential threats are faced by civil society** actors as their constitutional and civic freedoms are curtailed.
- Migrate to safer avenues/ limit the scope** of their work/ re-align with the govt.
 - This is a grave threat to the system’s integrity because civil society is an **indispensable safety valve (fixing accountability)** for tensions in a polity.
- Unable to speak truth/amplify the voices** of the most vulnerable, enrich policies/legislation through constructive feedback.
- Unable to further the collective good** – not in the national interest.
- Young activists could be inducted into political parties** → could create an institutionalised moral force within the parties → balance electoral compulsions

with ethical/human rights considerations.

Way forward for progressive civil society in India:

- For Government:** The government should recognize the **importance of a strong civil society** for the effectiveness of key laws such as the Right to Information Act, Protection of Children from Sexual Offences Act, and National Food Security Act.
- For NGOs:**
 - Alternate Funding:** NGOs are exploring local resource mobilization (LRM) and corporate funding through CSR post-new FCRA laws.
 - Charitable Funding:** Encouraging collective giving can pool resources for a more significant impact.
 - Technology Utilization:** Increased use of data and digital technology can enhance the effectiveness of charitable organizations.
- For Young Activists:** There is a potential for young activists to join political parties, providing an institutionalized moral force to balance electoral and ethical considerations within party organizations.
- The National Policy on Voluntary Sector 2007** aims to encourage, enable, and empower an independent and effective voluntary sector in India. It recognizes the sector’s significant contributions to addressing issues like **poverty, discrimination, and exclusion** through various means such as awareness, mobilization, service delivery, training, research, and advocacy.
- Learning from the Gandhian constructive movement**, which complemented the Congress system – an electoral and governance machine.
- CSOs will need to urgently collaborate** with other progressive stakeholders.
- Private philanthropies and companies** need to realise that they are the only lifeline for progressive CSOs today.

Conclusion:

The inaction today will directly contribute to the extinction of civil society – the fifth pillar of Indian democracy. Therefore, by devising new methods of principled coalition we can safeguard and eventually further the constitutional idea of India.

Insta Links:

- [Role of Civil society organisations](#)
- [India’s civil society organisations](#)

Mains Links:

Q. Can civil society and non-governmental organisations present an alternative model of public service delivery to benefit the common citizen? Discuss the challenges of this alternative method. (UPSC 2021)

GENERAL STUDIES – 3

Topics: Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management.

1. INDIAN FOOD PROCESSING SECTOR AND EXPORT

Context:

Indian processed food exports have witnessed a **remarkable 150% growth** over the past nine years.

Significant Achievements of the Indian Food Processing sector:

1. **Investment in the Processed Food sector:** India's Food Processing Sector emerged as the sunrise sector and attracted **FDI investments of about Rs 50,000 crore** in the past nine years
2. **Agricultural Exports:** India's agricultural exports have reached an aggregate of about \$53 billion during this period.
3. **Geographical Indications (GIs):** India boasts **158 food and Agri Geographical Indications (GIs)**, emphasizing the unique and region-specific nature of its food products.
4. **One District One Product (ODOP) Initiative:** Under the ODOP initiative, **708 unique food items** have been identified across districts, promoting local specialties.
5. **Global Demand for Indian Foods:** There is a burgeoning demand for Indian foods globally.
6. **Potential:** India's food processing market is estimated to **reach \$535 Billion by 2025**

Status:

India's food processing sector, a shining pillar of the Indian economy, has been booming in recent years. Holding a place among the largest food processing industries in the world, it is responsible for a significant portion – **about 32 per cent** – of India's overall food market. It **employs 13 million people** directly and about **35 million people** indirectly.

Challenges faced by the FPI: while the food processing industry in India has been on an impressive growth trajectory in recent years, there are certain issues that are holding it back.

1. **Gaps in supply chain infrastructure** (i.e., lack of primary processing, storage and distribution facilities);
 - e.g., **More than 30% of the produce from farm gates is lost** due to inadequate cold chain infrastructure.
2. **Fragmented Supply Chains:** High intermediation and lack of direct linkage between farmers and pro-

cessing companies increase sourcing costs and quality issues. Also hampers **traceability and adoption of global safety standards**.

3. **Infrastructure Bottlenecks:** Insufficient cold storage, refrigerated facilities, and testing laboratories close to production centres result in **30-40% food losses** and raised transport costs for processors. Constraint's scale-up and agility.
4. **Backward Regulatory Systems:** Complex **registration/licensing norms**, high compliance requirements, and differential state policies limit new investments. **Outdated systems** are unable to ensure food safety in the wake of more chemical usage. **Digitalization lacking**.
5. **Low Processing Levels:** Of the total agriculture and horticulture produce in India, merely around **10% undergoes processing**, vs 60-80% for developed nations. **Skill gaps** limit product diversification and value addition.
6. **Inadequate link between production and processing:** Severe under-penetration of formal **post-harvest infrastructure** leads to farmers opting for quick spot sales rather than supplying processing companies under contracts. **Hamper's visibility and ability** to invest in processing equipment.
7. **Seasonality of operations and low-capacity utilization:** Seasonal gluts of F&V production cause price volatility for farmers, pressing disposal to avoid losses.
 - In contrast, processors work under low gear in lean periods with high idle capacity as raw material supply tapers.
8. **Institutional gaps in the supply chain, dependence on APMCs:** Reliance on **fragmented APMC mandi intermediaries** to aggregate produce adds 3-4 steps, wastage and commission fee burdens before linking to bulk processors. Holds up modernization efforts.

Measures taken by the government to promote the growth of the FPI.

1. **Pradhan Mantri Kisan Sampada Yojana (PMKSY):** it aims to modernize and upgrade the food processing sector in India, including the supply chain.
 - a. Under this scheme, the government provides **financial assistance for the development of food processing infrastructure**, including cold storage facilities, processing centres, and logistics support.
2. **National Cold Chain Grid (NCCG):** launched by MoFPI, it is aimed at creating a seamless network of cold storage facilities across the country.
 - a. This network can help to reduce post-harvest losses and improve the quality and shelf life of food products.
3. **Scheme for Creation of Backward and Forward Linkages:** to perishable horticulture and non-horticulture produced by plugging the gaps in the supply chain in terms of availability of raw material and linkages with the market.

4. **National Agriculture Market (eNAM):** The eNAM platform is a **Pan-India electronic trading portal** for agricultural commodities. It provides a common platform for buyers and sellers to trade in agricultural products, including fruits and vegetables.
 - a. This platform can help to **reduce supply chain inefficiencies** and improve price transparency for farmers and other stakeholders.
5. **Also, the Logistics challenge of the supply chain** is being taken care of by leveraging the existing **PM-Gram Sadak yojana**, **BHARATMALA**, and **SAGAR-MALA** schemes.

Transformative approach needed for sustainable development of FPI:

Approach	Key Initiatives
1. Dedicated Food Parks	Integrated infrastructure: cold chain, warehouses, packaging units. Shared services for collective use by food processing companies at one site.
2. Assure MSPs and Contract Farming	Ensure Minimum Support Prices (MSPs) for crops. Facilitate contract farming tie-ups between farmer collectives and processing companies for mutual demand-supply assurance.
3. Modernize Certification Systems	Implement the 'One Nation One Standard' policy . Revise limits for additives and pesticide residues based on updated scientific research.
4. Skill Development and Innovation	Impart processing skills via Pradhan Mantri Kaushal Vikas Yojana . Provide tech/financial assistance for small entrepreneurs. Partner with universities on R&D for innovation .
5. Incentivize Export-Focused Value Addition	Provide concessional financing schemes like Champions and revamped EPCGS . Address trade deficit through value addition in exports.
6. Smart Food Processing Hubs	Establish hubs with IoT, AI, and blockchain . Monitor the entire food supply chain for quality, traceability, and efficiency.
7. Nutraceutical Innovation	Develop functional foods for specific health needs . Fortify foods with essential nutrients, probiotics, and bio-active compounds.
8. Zero-Waste Processing	Implement techniques to utilize every part of the raw material. Convert food waste into biofuels, create bio-plastics , or animal feed from by-products.
9. Community-Based Processing Centres	Establish centres in rural areas for local farmers . Reduce post-harvest losses and create rural employment opportunities.

Conclusion

Food processing has a promising future, provided adequate government support is there. It has the capacity to lift millions out of undernutrition. The government has its work cut out to develop industry in a way which takes care of small-scale industry along with attracting big-ticket domestic and foreign investments.

Insta Links:

- [Food processing and related industries in India](#)

Mains Links

Q. What are the reasons for the poor acceptance of a cost-effective small processing unit? How can the food processing unit be helpful to uplift the socioeconomic status of poor farmers? (UPSC 2017)

Q: Elaborate on the policy taken by the government of India to meet the challenges of the food processing sector. (UPSC 2019)

Prelims Links:

Q. With what purpose is the Government of India promoting the concept of "Mega Food Parks"? (UPSC 2011)

1. To provide good infrastructure facilities for the food processing industry.
2. To increase the processing of perishable items and reduce wastage.
3. To provide emerging and eco-friendly food processing technologies to entrepreneurs.

Select the correct answer using the codes given below:

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Ans: B

Topics: Conservation related issues, environmental pollution and degradation, environmental impact assessment.

2. NCAP COMPLETES FIVE YEARS

Context:

The **National Clean Air Programme (NCAP)**, completing five years, faces scrutiny on fund utilization and air quality improvements in the **131 funded cities**.

Over the past five years, the National Clean Air Programme (NCAP) has shown a mixed performance. Studies reveal that out of 49 cities assessed for **PM2.5** levels, 27 witnessed improvements, while for PM10, **24 out of 46 cities saw positive changes**. Notably, cities like **Varanasi, Agra, and Jodhpur** stood out for achieving significant reductions in both PM2.5 and PM10 levels.

About NCAP:

The Launch: In January 2019, the Ministry of Environment, Forest and Climate Change (MoEFCC) launched the National Clean Air Programme (NCAP) to prepare clean air action plans.

The mandate of the National Clean Air Programme (NCAP):

1. **Aim:** It aims to improve air quality in 131 cities (non-attainment cities (NAC) and Million Plus Cities) in 24 States by engaging all stakeholders.
2. The cities which are exceeding the National Ambient Air Quality Standards (NAAQS) for 5 consecutive years are identified as NAC by the Central Pollution Control Board (CPCB).
3. **Objective:** To achieve reductions up to 40% of Particulate Matter (PM10 and PM2.5) concentrations by 2025-26, base year 2017.
4. **Under NCAP, 132 non-attainment cities** have been identified across the country based on the Air Quality data from 2014-2018.
5. **Preparation of the city-specific action plans** including measures to strengthen the monitoring network, reduce vehicular/industrial emissions, and increase public awareness.
6. **Implementation of the city-specific action plans** to be regularly monitored by Committees at the Central and State level namely Steering Committee, Monitoring Committee and Implementation Committee.

Objectives of NCAP

1. **To augment and evolve effective and proficient ambient air quality monitoring** networks across the country to ensure a comprehensive and reliable database
2. **To have efficient data dissemination and public outreach mechanisms** for timely measures for the prevention and mitigation of air pollution
3. **To have a feasible management plan** for the prevention, control and abatement of air pollution.

Performance of National Clean Air Programme:

Positive

1. **Monitoring station:** Out of the targeted 1500 manual monitoring stations to be installed across the country, 818 have been installed.
2. **Region-specific programme:** A city-specific action plan has been developed for all the major cities of India. For instance, Delhi, Mumbai etc.
 - a. **131 cities** of the country have developed City Action Plans and Micro Action Plans
3. **PRANA web portal:** The Portal for Regulation of Air Pollution in Non-Attainment Cities which provides all information related to various policies/programs/schemes/activities of the stakeholders along with the progress made towards improvement in air quality across the country.

4. **Improvement:** There has been an overall improvement in Particulate Matter concentration in 95 cities including 20 cities conforming to the National Ambient Air Quality Standards in the year 2021-22 compared to 2017.

The issue facing NCAP:

1. **Unsatisfactory performance:** The CSE in its national analysis of PM2.5 levels in cities for which data is available found that between 2019 and 2021, only 14 of 43 (NCAP) cities registered a 10% or more reduction in their PM2.5 level between 2019 and 2021.
 - a. **On the other hand, out of 46 non-NCAP cities**, 21 recorded significant improvement in their annual PM2.5 value with a 5% or more decline between 2019 and 2021.
 - b. Mumbai witnessed over **38% increase in PM2.5** and about 37% in PM10 levels since 2019.
2. **Funding issue:** For disbursing funds, the Central Pollution Control Board, which coordinates the programme, only **considers levels of PM10**, the relatively larger, coarser particles. However, **PM2.5**, the smaller, more dangerous particles, aren't monitored as robustly in all cities, mostly due to the lack of equipment.
3. **Compartmentalizing rural-urban areas:** The scheme focuses on air pollution mitigation within cities **while ignoring rural air pollution** thus compartmentalizing both.
4. **Sluggish improvement:** The progress is even more sluggish in equipping all manual stations with **PM2.5** monitoring, where only 261 stations have PM2.5 monitoring facilities.
5. **No carrying capacity studies:** None of the 132 non-attainment cities has completed their carrying capacity studies.
 - a. **Carrying capacity** is the region's ability to accumulate and disperse emissions while maintaining breathable air quality.

Conclusion

It is important that NCAP be made legally binding on responsible authorities while setting interim (WHO interim targets) and long-term targets to achieve breathable air equivalent to WHO guideline levels over the next decade.

Further, enhancing transparency in the allocation and utilisation of finances and tracking the indicators through publicly available information under the PRANA web portal developed by CPCB can be a way forward.

Other Initiatives for Reducing Air Pollution:

1. [National Ambient Air Quality Programme](#) (NAMP)
2. [Graded Response Action Plan](#) (GRAP)
3. Switch to [Bharat Stage VI](#) (BS-VI) Emission Standards

4. Faster Adoption and Manufacturing of (Hybrid) Electric Vehicles ([FAME](#)) [Scheme](#)

Insta Links:

- [National Clean Air Programme](#)

Mains Links:

Q. Highlighting the major mandate and objectives of the National Clean Air Programme (NCAP), evaluate its performance in mitigating pollution in Indian Cities. (15M)

Prelims Links

Consider the following statements:

1. The National Clean Air Programme aims for a reduction in particulate matter concentrations in cities that don't meet the National Ambient Air Quality Standards (NAAQS).
2. India's National Ambient Air Quality Standards (NAAQS) meet the WHO's existing standards.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Solution: A

Emphasis on Transparency	Decision-making should be guided solely by institutional and public interest, devoid of biases . Abolishment of discriminatory privileges; emphasis on punishing the corrupt.
Core Values	Institutions are urged to ensure integrity, trusteeship, harmony, accountability , inclusiveness, commitment, respectfulness, belongingness, sustainability, constitutional values, and global citizenship.
Administrative Accountability	Administration should prioritize transparency, fairness, honesty, and the highest ethical standards. Refrain from misappropriation and reject gifts that may compromise impartial duties.
Confidentiality and Right to Information	The guideline emphasizes maintaining confidentiality and conflicting with the right to information. It mandates institutions to voluntarily disclose critical information for public scrutiny.
Teacher's Role	Teaching is a noble profession; teachers are expected to act as role models.
Stakeholder Unions and Associations	The expectation for staff and student unions to support the administration in development activities .

GENERAL STUDIES – 4

1. MULYA PRAVAH 2.0: VALUES AND ETHICS IN HIGHER EDUCATION

Context

The University Grants Commission (UGC) is pushing for **values and ethics in higher education through guidelines like Mulya Pravah 2.0**.

What is Mulya Pravah 2.0?

It is a guideline issued by the **University Grants Commission (UGC) in India**, aiming to instil human values and professional ethics in higher education institutions. It is a modified version of the **2019 Mulya Pravah guideline**.

Features of the guidelines:

Features	Details
Aim	Inculcating human values and professional ethics in higher education institutions to build value-based institutions and promote constitutional values.
Guideline Objectives	Instil deep respect for fundamental duties and constitutional values . Develop a culture of integrity, accountability, transparency , and inclusiveness in higher education institutions.

**MULYA PRAVAH 2.0
INCULCATION OF HUMAN VALUES AND PROFESSIONAL ETHICS IN HIGHER EDUCATION INSTITUTIONS**



Potential Issues with Guidelines

1. Lack of **definition for ‘dignified manner’** may lead to suppressing dissent.
2. **Associations and unions** have faced bans, suspensions, and legal battles.
3. Guideline’s effectiveness hinges on sincere implementation efforts
4. Conflicts, such as the **emphasis on confidentiality** conflicting with the right to information
5. Reservations about **unions’ limited role in protecting members’ rights**.
6. The guideline may face challenges in **practical application**.

For: Ethical concerns regarding [Indian educational institutions](#): [Click Here](#)

For: Reasons for Prevalence of Unethical Practices: [Click Here](#)

For: The implications of the prevalence of unethical practices: [Click Here](#)

Thinker view on values in Education:

Scholar	Perspective
Swami Vivekananda	Emphasized character-building and moral education for a strong and prosperous nation. Education should focus on physical, intellectual, and spiritual development.
Mahatma Gandhi	Stressed that education without values is incomplete . Advocated for values like truth, non-violence, and compassion to create a just and peaceful society. Character development is vital in education.
Rabindranath Tagore	Advocated for holistic development, emphasizing the significance of value education. Education should harmonize individuals with nature and society, fostering a sense of responsibility.

Best practices in the world on education:

Country	Approach
Japan	“Moral education” focuses on cultivating moral responsibility and social conscience. Emphasizes values like honesty, kindness, and respect.
Finland	Holistic education includes value education as a crucial part. Emphasis on character education and ethical development is reflected in high global rankings.

Australia	The “Values Education” program aims at developing social and emotional intelligence. Promotes values like respect, responsibility, fairness, and compassion.
Singapore	The “National Education” program aims at developing national identity, social responsibility, and civic consciousness. Emphasizes values like loyalty, resilience, and social harmony.
Canada	Emphasis on developing moral reasoning and ethical decision-making skills . The curriculum promotes values like empathy, justice, and inclusivity.

Conclusion:

The ultimate goal of education should be to **enhance the quality and integrity of the education system** while protecting individual rights and promoting a culture of accountability and transparency.

Insta Links:

[Ethics, Integrity and Aptitude](#)

Mains Links:

Q. Can ethics and morals be taught in educational institutions? If yes, make a case for introducing a course on ethics right from school. (250 Words)

CONTENT FOR MAINS ENRICHMENT

1. INITIATIVES AT THE CORBETT TIGER RESERVE (CTR)

Context:

The [Corbett Tiger Reserve \(CTR\)](#) in India showcases a **successful revival of tiger populations through wildlife conservation efforts**.

Initiatives taken at CTR:

Initiatives	Description
Digital and Intensive Patrolling	Adoption of electronic-eye under project E-eye and increased foot patrols to combat poaching and monitor wildlife movement.
Habitat Management	Meticulous management of grasslands and water resources , including the development of palatable grasses and waterholes for the prey base.
Strategic Corridors	Establishment of wildlife corridors to facilitate movement , reduce inbreeding, and contribute to healthier tiger populations.

<p>Community Initiatives</p>	<p>Introduction of the “Living with Tigers” initiative and the beehive fencing project “Corbee Honey” to mitigate human-wildlife conflicts.</p> <p>The “Living with Tigers” initiative focuses on cultivating safe practices and behaviours amidst human-wildlife conflict scenarios.</p>
<p>Cultural Importance</p>	<p>Recognition of the tiger’s role in India’s religious and mythological iconography led to increased public and political support.</p>

About Jim Corbett National Park
 Established in 1936 as Hailey National Park, later declared a **Tiger Reserve in 1973**, Jim Corbett National Park is **India’s first national park** and the inaugural participant in the **Project Tiger initiative**. Located in the Shivalik hills of the Himalayas, it spans Pauri Garhwal, Nainital, and Almora districts in Uttarakhand. Recognized for its global prominence, the reserve recorded an impressive increase in tiger density, **reaching 260 in 2022 from 231 four years earlier**.

2. NATIONAL CANCER GRID

Cachar Cancer Centre in Assam, are reducing cancer drug costs through the **National Cancer Grid**. This collaborative effort involves **bulk buying drugs, cutting costs by over 85%**, and making cancer treatments more affordable for patients, especially in smaller towns and rural areas.

The initiative is led by **Tata Memorial Hospital in Mumbai**, covering a range of generic drugs. The success has attracted interest nationwide, with plans to expand to over 100 drugs and consider broader cancer care purchases.

R Ravi Kannan (Ramon Magsaysay Award for 2023), leading the hospital’s operations, credits the initiative to cut cancer drug prices for enabling the purchase of quality medicines and providing free treatment to more patients.

Usage: The innovative example can be used to showcase how to address the financial burden on families and the challenge of accessing treatment in remote areas.

About National Cancer Grid
 National Cancer Grid (NCG) is a **network of major cancer centres**, research institutes, patient groups and charitable institutions across India with the mandate of establishing **uniform standards of patient care** for the **prevention, diagnosis, and treatment of cancer**, providing specialized training and education in oncology and facilitating collaborative basic, translational and clinical research in cancer. It was formed in August 2012. It has been established by: the **Department of Atomic Energy** and with the grant support of

Tata Memorial Centre.

3. JAPANESE CULTURAL PRACTICES AND ITS USE FOR DISASTER MANAGEMENT

Context:

A recent fire incident involving a **Japan Airlines (JAL) Airbus A350 and a De Havilland Dash 8 turboprop aircraft at Haneda airport in Tokyo**. Despite the severity of the incident, most passengers on the JAL aircraft survived, highlighting several factors contributing to their safety.

Factors Contributing to Passenger Safety in JAL Aircraft Incident

- 1. Japanese Culture:** The Japanese cultural practice of **‘Kiritu,’** emphasises self-discipline in various aspects of life. The **crew’s presence of mind and disciplined evacuation** procedures played a crucial role.
- 2. Superior Aircraft Technology:** Modern aircraft like the Airbus A350 and Boeing 787 use advanced materials, such as carbon fibre composites, which have lower burning temperatures compared to traditional aluminium.
- 3. Cabin Crew Competence:** The cabin crew’s competence, guided **by safety training, played a significant role.**
- 4. Safety Training and Track Record**

Usage: The example can be used in **DM/ Ethics** (to show values such as discipline, quick thinking, and safety consciousness in Japanese culture)

4. LILY GLADSTONE

Lily Gladstone made history at the 2024 Golden Globes as the **first Indigenous person** to win best actress in a motion picture drama. She began her acceptance speech in the **Blackfeet language**, translating to a standard greeting expressing love and identity.

What is the Blackfeet language?

It is the **native language of the Blackfeet people**, an Indigenous group in North America. It is spoken by the Blackfeet Nation, primarily in the **United States and Canada.**

Usage: Using indigenous language on such a mainstream stage, will help inspire indigenous youth, and help in preserving the Indigenous Blackfeet language.

5. HANA-RAWHITI MAIPI-CLARKE

Hana-Rawhiti Maipi-Clarke, at 21, became **New Zealand’s youngest MP in 170 years**, making history during the recent national elections. In her inaugural speech, she performed

the **traditional Maori haka**, emphasizing her commitment to her constituents and her role as a guardian **of the Maori language**, land, and wisdom.

Maipi-Clarke’s achievements include **managing a Maori community garden and authoring a book**. Her lineage includes notable figures advocating for **Maori rights and cultural preservation**.

Usage: The example shows the values such as **cultural pride, unity, resilience, commitment to her community**, commitment to cultural preservation and ethical responsibility.

Others	a) Economic Reforms: Focusing on job creation in small manufacturing and crafts, extending employment guarantees to urban areas.
	b) Social Justice: Addressing inter-faith conflicts, prioritizing marginalized groups’ rights, and suggesting increased spending on education and health.
	c) Decentralization: Seeking fuller implementation of panchayat laws and a National Environment Commissioner role.

6. PEOPLE’S MANIFESTO FOR A JUST, EQUITABLE AND SUSTAINABLE INDIA

Context:

The “**People’s Manifesto for a Just, Equitable and Sustainable India**” is a response to India’s crises, **released by 85 movements** and organizations under **Vikalp Sangam**. Focused on **ecological sustainability, dignified livelihoods, and democratic values**, the manifesto advocates policy shifts, emphasizing small manufacturing, crafts, and community-led initiatives.

It addresses concerns about **authoritarianism, decentralization, and societal vulnerabilities**. The manifesto presents a **21-point charter**, urging citizens to actively engage in shaping a just and sustainable future.

Category	Solutions Suggested by the ‘People’s Manifesto’
Governance	a) Power to Local Bodies: Real devolution of financial and legal powers to village and urban assemblies.
	b) Transparency and Accountability: Comprehensive laws ensuring state agency accountability, including public audits.
	c) Independent Institutions: Reviving the independence of the Election Commission and media.
Environmental Issues	a) Sustainable Policies: Urging a national land and water policy emphasizing conservation and community-led efforts.
	b) Organic Farming: Proposing conversion to organic farming by 2040.
	c) Renewable Energy: Advocating for decentralized renewable energy and phasing out fossil fuels by 2030 .

FACTS FOR PRELIMS

GS-1

1. KADAMBA DYNASTY

Context:

An inscription believed to be from the **10th century A.D. Kadamba period**, written in **Kannada and Sanskrit**, has been discovered in the **Mahadeva temple at Cacoda in southern Goa**.

- The **inscription commemorates the death of Gun-dayya, son of Talara Nevayya**, who fought and died fulfilling his **father’s desire to capture a gopura of the port of Goa**.

About Kadambas of Goa:

- The Kadambas of Goa were **originally subordinates of the Chalukyas of Kalyana, a powerful dynasty in medieval India**.
- Kadamba Shasthadeva**, a prominent figure among the Kadambas, was appointed as the **mahaman-daleshwara of Goa by Chalukyan emperor Tailapa II**.
- Kadamba Shasthadeva, in alliance with the Chalukyas, **achieved military success by overthrowing the Rashtrakutas**.
- He conquered the **city of Chandavara in 960 A.D.** and later **expanded his conquests to the port of Gopakapattana, which is the present-day Goa**.

2. CHANDUBI FESTIVAL

Context:

The **Chandubi Festival is a vibrant event** held near **Chandubi Lake in Assam’s Kamrup district**.

- Celebrated for the past 14 years**, the festival **showcases Assamese culture with activities such as folk music performances, traditional dance shows, local handicraft exhibitions, and Assamese cuisine stalls**.
- The festival has been providing an opportunity to **generate livelihood for different tribes –Rabhas, Garos, Gorkhas and tea tribes**.

Chandubi lake:

- It was created during a **massive earthquake in the year 1897.**
- It is a very **prosperous wetland of the state that houses numerous species of aquatic flora and fauna.**

GS-2

1. PRERANA PROGRAM

Context:

The **Ministry of Education, Government of India**, has launched the **‘Prerana: An Experiential Learning Program’** with the aim of providing a **meaningful, unique, and inspiring experience to selected students from classes IX to XII.**

Features of the program:

- It is a **week-long residential initiative held at a Vernacular School** where students will be guided **by mentors from prestigious institutions.**
- The curriculum, rooted in nine value-based themes, **includes activities such as yoga, mindfulness, meditation, experiential learning, thematic sessions, and visits to ancient heritage sites.**
- The program encourages participants to **embody the spirit of “Vasudhaiva Kutumbakam”** and contribute to **building a developed India.**

2. PRITHVI VIGYAN SCHEME

Context:

The Indian government, has launched **“PRITHvi Vigyan” scheme** for the **Ministry of Earth Sciences.**

- The scheme, to be **implemented between 2021-26**, aims to study the **atmosphere, ocean, weather, and Earth system sciences.**
- The objectives include enhancing **long-term observations of the Earth System, developing modelling systems for weather prediction, exploring polar and high seas regions, and developing technology for oceanic resource harnessing.**

It encompasses five ongoing sub-schemes: **ACROSS, O-SMART, PACER, SAGE, and REACHOUT**

Program	Description
Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)	For Research and Development (R&D) of dynamical models and providing forecast services.

Ocean Services, Modelling Application, Resources and Technology (O-SMART)	For technology development for oceanic applications, services (forecast and advisories), and R&D activities in the marine and coastal environment.
Polar Science and Cryosphere Research (PACER)	Comprising the Antarctic program, Indian Arctic program, Southern Ocean program, and Cryosphere and Climate program.
Seismology and Geosciences (SAGE)	Encompasses 6 activities including Seismological monitoring and microzonation, and Setting up a facility for geochronology.
Research, Education, Training and Outreach (REACHOUT)	Incorporating R&D in Earth System Science (RDESS), developing Skilled manpower in Earth System Sciences, etc.

3. INLAND WATERWAYS DEVELOPMENT COUNCIL

Context:

The first **Inland Waterways Development Council (IWDC)** in Kolkata, was recently launched for the development of **river cruise tourism in India.**

- The IWDC also launched the **‘Harit Nauka’ guidelines** and the **‘River Cruise Tourism Roadmap, 2047.’**
- The roadmap aims to **enable capacity in 26 additional waterways, increase the number of cruise circuits, and enhance infrastructure**, with the goal of significantly boosting cruise tourism traffic and local cruise tourism on National Waterways.
- The IWDC was organized by the **Inland Waterways Authority of India (IWA).**
- The government has undertaken various measures, **including the Jal Marg Vikas Project**, to enhance the **role of inland waterways and increase the modal share of Inland Water Transportation (IWT) from 2% to 5%.**

4. PRASADAM

Context:

India’s first **healthy and hygienic food street, ‘Prasadam,’** was inaugurated by the Union **Minister for Health & Family Welfare.**

- Prasadam aims to connect citizens across the country with **pure and safe local and traditional food, promoting healthy eating habits.**
- The food street includes facilities such as **a kids’ play area, drinking water, CCTV surveillance, parking, public conveniences, and seating spaces.**
- The event also featured the launch of **‘The DART Book’ by the Food Safety and Standards Authority of India (FSSAI),** providing consumers with **simple tests to check common food adulterations at home.**
- Additionally, a mobile food testing van **called Food**

Safety on Wheels (FSW) was introduced to **conduct training and awareness activities** in remote areas, addressing adulteration issues.

GS-3

1. DIRECT-TO-CELL

Context:

SpaceX successfully launched **the first set of Starlink satellites equipped with direct-to-cell capabilities**. Top of Form

About Direct to cell:

- Direct-to-cell refers to a technology that enables **communication signals, such as text messages, voice, and data**, to be **transmitted directly from space-based satellites to mobile devices** (cell phones) without the need for **traditional ground-based infrastructure**.
- In the context of **SpaceX's Starlink project**, **direct-to-cell capabilities allow the delivery of wireless services**, including network access and communication services, **to mobile users in specific geographical areas using satellite connectivity**.
- This technology is particularly **useful in remote or underserved regions** where establishing traditional terrestrial networks may be challenging or economically unfeasible.

2. ZOSURABALPIN

Context:

Researchers have identified a **new class of antibiotics**, specifically **zosurabalpin**, with the potential to **combat drug-resistant bacterium Acinetobacter baumannii**.

- This antibiotic was found to be **effective against CRAB (carbapenem-resistant Acinetobacter baumannii)-induced pneumonia and sepsis in mouse models**.
- Zosurabalpin, a drug candidate, was developed through the **optimization of a tethered macrocyclic peptide (MCP) that selectively kills A. baumannii**.
- The antibiotic's unique mode of action involves **inhibiting the transport of lipopolysaccharide (LPS)**, an essential process for **creating the outer-membrane structure of Gram-negative bacteria**.
- Zosurabalpin blocks LPS transport, **leading to the abnormal build-up of LPS in the cell and the subsequent death of the bacterium**.

3. ANTI-CANCER DRUG CAMPTOTHECIN

Context:

Researchers at the Indian Institutes of Technology Madras and Mandi have **successfully metabolically engineered plant cells** to increase the **production of the anti-cancer**

drug camptothecin (CPT).

- Traditionally extracted from **Nathapodytes nimmoniana**, an endangered plant native to India, the process involves a large quantity of plant material.
- The **decline in the plant's population has led researchers to explore alternative sources**.
- In a previous study, a microbe was identified as a high-yielding alternative.

Now, the researchers **have developed a genome-scale metabolic model for N. nimmoniana plant cells**, **paving the way for sustainable and efficient commercial production** of the drug and reducing the need to harvest endangered plants.

4. MARCOS

Context:

Indian Navy Marine Commandos (MARCOS) successfully thwarted a **pirate hijacking attempt on a Liberian-flagged vessel** in the North Arabian Sea.

About MARCOS:

MARCOS, formally the **Marine Commando Force (MCF)**, is the Indian Navy's elite special forces unit formed in 1987. It is modelled on the **US Navy SEALs** and has its Motto: **'The few, The fearless'**. MARCOS operates by **sea, air, and land**, collaborating with the Indian Army, especially in Kashmir. Notable operations include **Cactus, Leech, Pawan, and Cyclone**, with a significant role in the 26/11 Mumbai attacks.

5. BIO-IMAGING BANK

Context:

Mumbai's Tata Memorial Hospital (TMH), India's largest cancer treatment facility, is **leveraging artificial intelligence (AI) to address the increasing challenge of cancer cases**.

- TMH has established a **'Bio-Imaging Bank'** using deep learning to **create a cancer-specific algorithm for early-stage cancer detection**.
- The project involves a **comprehensive repository of radiology and pathology images**, linked with clinical information, for training and testing AI algorithms.
- The initiative, funded by the Department of Biotechnology in collaboration with other institutions, has already **reduced radiation exposure for pediatric patients by 40% using AI**.
- The hospital envisions AI playing a transformative **role in cancer treatment, enhancing precision, and enabling timely diagnoses, particularly in rural India**.

6. 'CLEAN & GREEN VILLAGES' PROGRAMME


Context:

The Panchayati Raj Ministry is prioritizing **'Clean & Green Villages'** for the expansion of solar power capacities on a commercial basis.

What is the Clean and Green Villages programme?



What is Clean and Green Villages programme?

About	The "Clean and Green Villages" program is the fifth theme under the Gram Panchayat Development Plan (GPDP) initiated by the Ministry of Panchayati Raj (MoPR)
Objective	Enhance clean energy potential at the grassroots level , provide access to safe water, sanitation, and low-pollution environments, create sustainable villages, and achieve UN Sustainable Development Goals (SDGs) like SDG-7 (affordable and clean energy) and SDG-13 (climate action).
Areas of Action	1. Open Defecation Free Village 2. Clean and Green School 3. Clean and Green Anganwadi 4. Promotion of Organic Farming & Progressive Reduction of Chemicals 5. Strengthening Local Committee & Enhance Larger Participation
Government Schemes	Paramparagat Krishi Vikas Yojana (Organic and natural farming); PM-PRANAM (Reducing chemical fertilizers); GOBARdhan, SATAT
GPDP has 9 themes	<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <ul style="list-style-type: none"> Theme 1 Poverty free and enhanced livelihoods village Theme 2 Healthy Village Theme 3 Child Friendly Village Theme 4 Water Sufficient Village Theme 5 Clean and Green Village Theme 6 Self-Sufficient Infrastructure in Village Theme 7 Socially Secured Village Theme 8 Village with Good Governance Theme 9 Women Friendly Village </div> <div style="flex: 1; text-align: center;">  </div> </div> <p style="text-align: right; font-size: small;">To know more Visit Insights IAS Daily CA</p>
GPDP Background	Mandated by Article 243G of the Constitution of India. Under it, Gram panchayats develop five-yearly and annual plans for economic development and social justice. MoPR provides guidelines for GPDP development

7. TRICHOLIME

Context:

The **Indian Institute of Spices Research (IISR)** in Kozhikode has successfully developed a **new granular lime-based Trichoderma formulation called 'Tricholime.'**

What is Trichoderma?

Trichoderma is a **fungal biocontrol agent** effective against **soil-borne pathogens** in crop production.

What is Tricholime?

It is a **lime-based formulation**, developed by integrating **Trichoderma and Lime** into a single product. Lime helps in controlling soil acidity.

Benefits: Tricholime **neutralizes soil acidity, promotes plant growth**, protects against pathogens, and simplifies application for farmers. It serves as a **bio-pesticide and bio-fertilizer**, benefiting soil health and supporting sustainable **organic farming**.

8. E-FUELS

Context:

The **International Energy Agency (IEA)** report on "**The Role of E-fuels in Decarbonising Transport**" anticipates that bio-fuels **will constitute 6% of road transport energy demand by 2030.**

Key Highlights of the report:

- In 2022, **road transport accounted for nearly all liquid biofuel use**, but this is projected to marginally **decrease to 98% by 2030.**

- Biofuels represented 5% of road transport demand in 2022**, amounting to 2.2 million b/d of oil demand.
- Global biodiesel demand is expected to exceed.
- While biofuels will play a crucial role in the future of transport, the report acknowledges the contributions of **electric vehicles (EVs) in displacing oil demand.**

About E-fuels:

E-fuels, also known **as electrofuels**, are a **type of synthetic fuel** that can be used to **power vehicles, ships, and aeroplanes**. They are a **sustainable alternative to fossil fuels and can be used in existing infrastructure**

E-fuels are made from **captured carbon dioxide or carbon monoxide**, and hydrogen obtained from **water split by sustainable electricity sources**. The process uses **hydrogen to bind with the CO2 under high pressure using a catalyst**

E-fuels **are climate-neutral and can be used to reduce CO2 emissions** in the transport and heating market.

9. PLASMA WAVES IN THE MARTIAN ATMOSPHERE

Context:

Scientists, including researchers from the **Indian Institute of Geomagnetism (IIG)**, have detected high-frequency plasma waves in the **Martian Upper Atmosphere** using data from the Mars Atmosphere and Volatile Evolution Mission (MAVEN) spacecraft.

What are Plasma Waves?

Plasma waves are **short-time scale fluctuations** in the **electric and magnetic fields** observed in plasmas, which are **ionized gases** consisting of positively charged ions and free electrons.

How does it help understand planetary phenomena?

In the context of **planetary atmospheres, such as Mars**, understanding the presence and characteristics of plasma waves helps scientists gain insights into the interactions between the **solar wind and the planet's atmosphere**, especially in the absence of an intrinsic magnetic field. Unlike Earth, Mars **lacks an intrinsic magnetic field**, causing direct interaction between high-speed solar wind from the Sun and the Martian atmosphere.

About MAVEN orbiter:

NASA's Mars Atmosphere and Volatile Evolution (MAVEN) spacecraft (launched in 2013 by NASA), is dedicated to **studying Mars' upper atmosphere, ionosphere, and interactions with the sun and solar wind**. The mission aims to uncover the history of Mars' atmosphere, climate, liquid water, and planetary habitability by examining the role of volatiles loss to space over time.

10. KRISHNARAJASAGAR (KRS) DAM

Context:

The High Court of Karnataka has issued a **ban on all mining and quarrying activities within a 20-km radius** of the Krishnarajasagar (KRS) dam in **Mandya district** (due to concerns about the **potential danger posed to the dam** by these activities)

The ban **applies to activities already permitted or in operation**, and it will remain in force until a comprehensive study by experts is completed. The decision on lifting the ban will be made by the **State Committee on Dam Safety**, established under the **Dam Safety Act, 2021**.

About Krishna Raja Sagar Dam	
Built	1932
Location	River Kaveri, Mysore, and Mandya districts, Karnataka
Named after	Krishnaraja Wodeyar IV (then ruler of Mysore Kingdom)
Engineer	Sir M. Vishweshwaraiah (Bharat Ratna) (Birthday celebrated as Engineers Day on 15th September)
Purpose	Water supply for Mysore city, Bangalore , and irrigation in Karnataka and Tamil Nadu
About River Kaveri	The Kaveri River is a perennial, monsoon rain-fed river . It rises at Talakaveri (Brahmagiri Hill) located in the Kodagu district in Karnataka.
	Drainage Basin: Karnataka and Tamil Nadu, Bay of Bengal (south of Cuddalore)
	Tributaries: Arkavathi, Hemavathi, Lakshmana Theertha, Shimsa, Kabini, Harangi
About Dam in India	India is the 3rd largest dam-owning nation in the world (after the US and China). India has over 6000 dams with 143 under construction
	Initiatives for Dam Safety: Dam Safety Act, 2021; National Committee on Dam Safety (NCDS); Dam Rehabilitation and Improvement Project (DRIP) Phases-II (co-financed by World Bank and Asian Infrastructure and Investment Bank)

11. INCOME INEQUALITY

Context:

According to a recent **SBI Research report**, income inequality in India has decreased, indicating a **positive trend of upward mobility and the growth of the middle class**.

What does the report say:

- **The decrease in Gini Coefficient** (a measure of income inequality) has decreased from **0.472 in AY**

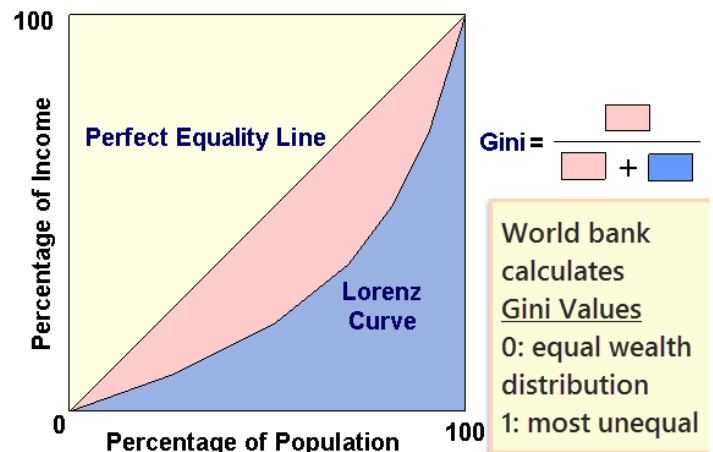
2014-15 to 0.402 in AY 2022-23.

- **Increasing tax base:** The study, referencing CBDT data, reveals a **widening Income Tax base**, with the number of individuals filing Income Tax Returns increasing from **70 million in AY 2021-22 to 74 million** in AY 2022-23.
- **Improving upward mobility:** The report attributes the decline in income inequality to significant upward mobility, with **over 36% of individuals** in the lowest income bracket in FY14 moving to higher income levels, resulting in **over 21% increase in their income** during FY14-FY21.
- Rising female labour force participation
- **Micro Firms moving towards becoming bigger firms:** There is a **positive trend in MSME income**, and changing consumption patterns post-COVID, challenging the notion of 'K' shaped growth.
- **Share of Top earners' declined:** The share of top earners with income over Rs 10 crores and Rs 100 crores has declined from 2013-14 to 2020-21.

About the Gini Coefficient:

The Gini coefficient is a **statistical measure of the economic inequality** across the population in a country or between countries. It measures the **dispersion of income or wealth distribution** among the members of a population.

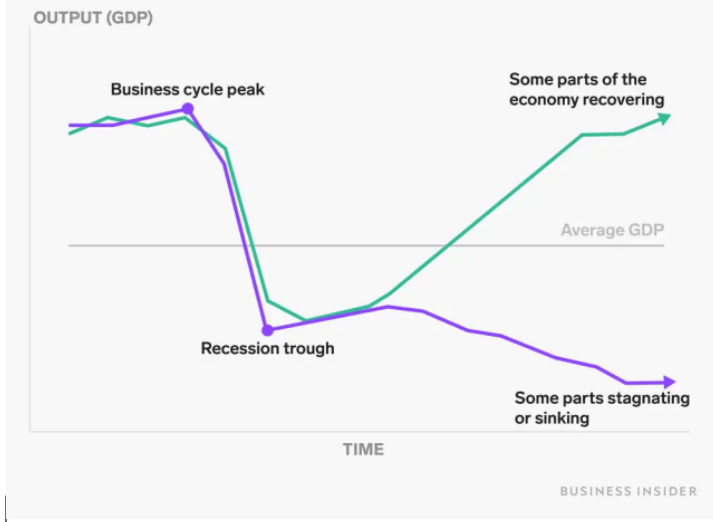
The Gini coefficient ranges from **0 (perfect equality) to 1 (perfect inequality)**. Theoretically, values over 1 are possible due to **negative income or wealth**. A Gini coefficient larger than **0.40** is considered high inequality.



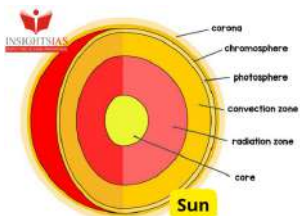
About K-Shaped Recovery:

Post-COVID, India is witnessing a **'K-shaped' recovery**, signifying disparate economic rebounds for different segments. Experts note that the affluent are thriving, while the less privileged encounter challenges, exemplifying a divided recovery pattern.

K-shaped recovery



12. PROBA-3 MISSION



Proba-3 Mission

Context: In September 2024, ISRO will launch the European Space Agency's (ESA) ground breaking Proba-3 mission using the reliable PSLV-XL rocket

Aspect	Details
Mission Overview	Proba-3 is a pioneering ESA mission involving two spacecraft , demonstrating precision formation flying in space. The goal is to form a 144-meter-long solar coronagraph for study of the Sun's corona (It is being tried 1 st time in the world)
Precision Formation Flying	Proba-3's two satellites, the Coronagraph spacecraft and the Occulter spacecraft , autonomously maintain formation to a few millimetres at distances of 144 m or more for six hours at a time. This autonomous formation opens possibilities for future large-scale missions , including Mars Sample return and satellite de-orbiting.
Technology Validation	Proba-3 serves as a space laboratory to validate strategies, guidance, navigation, control algorithms, and key technologies like metrology instruments. Techniques and simulators developed will have broader applications, preparing for future space missions.
Role of ESA and PSLV	ESA is responsible for designing and implementing the mission, while PSLV is the launch vehicle. Proba-3 signifies a significant step in formation flying, placing the spacecraft in a highly elliptical orbit of 600 x 60530 km.
About Sun's Corona	The Sun's corona is the outermost layer of its atmosphere , characterized by a faint, ghostly glow. Studying the Sun's corona is essential for unravelling mysteries about solar processes , enhancing space weather predictions, and gaining insights into the broader implications of solar activity on both the solar system and Earth.

13. ANEEL

Context:

Clean Core Thorium Energy, a Chicago-based company, has developed **ANEEL (Advanced Nuclear Energy for Enriched Life)**, (named after India's scientist, Dr Anil Kakodkar) - a fuel that combines **Thorium and High Assay Low Enriched Uranium (HALEU)**.

- ANEEL can be used in **India's existing Pressurized Heavy-Water Reactors (PHWRs)**, offering a **potential game-changer for the country's nuclear energy sector**.
- **India has the world's largest reserves of Thorium**, estimated at **1.07 million tonnes**, and **ANEEL could facilitate the efficient utilization of Thorium in nu-**

clear reactors.

The fuel's benefits include **reduced nuclear waste volume, lower operating costs, and longer-lasting efficiency**.

14. NASA'S LUNAR GATEWAY STATION

Context:

The **United Arab Emirates (UAE)** has announced its participation in developing a module on **NASA's Lunar Gateway Station**, joining the **USA, Japan, Canada, and the European Union** in the project.

- The **UAE's contribution** includes developing the **Crew and Science Airlock module**, serving as the **entry and exit point for missions and astronauts travelling to the Moon's surface from the Lunar Gateway Station**.
- The UAE will also manage and operate the Airlock, and the **first Emirati astronaut will be sent into lunar orbit as part of the project**.
- The **lunar space station will function as a space laboratory**, supporting various scientific and technical experiments, with a **minimum lifespan of 15 years**.

15. DRDO ANTI-DRONE TECH - DRONE, DETECT, DETER AND DESTROY (D4 SYSTEM)

Context:

The **Defence Research and Development Organisation (DRDO)** has developed a comprehensive **integrated anti-drone system**, focusing on the **detection, identification, and neutralization of drones**.

- The anti-drone technology is designed to **counter various types of drones, including micro drones, and is suitable for land borders**.
- D4 system can **instantly detect and jam micro drones (Soft kill)** and use a **laser-based kill mechanism to terminate targets (Hard kill)**.
- Utilizing the **Global Navigation Satellite System (GNSS)**, it identifies the frequency employed by the controller and subsequently disrupts the signals.

16. INDIA CLUB

Context:

India plans to establish its **own Protection and Indemnity (P&I) entity**, named the **India Club**, to provide **insurance for ships operating** along its coasts and waterways.

What are P&I clubs?

They are **mutual insurance associations** that offer **risk pooling and coverage for third-party risks like cargo damage, war, and environmental hazards**.

Aim:

The initiative aims to **reduce vulnerability to international pressures**, particularly in conflicts like the **Russia-Ukraine**

situation. The India Club will **initially focus on insuring ships involved in domestic movements**, led by the Ministry of Ports, Shipping, and Waterways.

Global P&I Club: International Group of P&I Clubs: Headquartered in **London**, this group comprises 13 clubs covering about **90% of the world's ocean-going vessels**.

17. ICAR-CENTRAL MARINE FISHERIES RESEARCH INSTITUTE (CMFRI)

Context:

ICAR-Central Marine Fisheries Research Institute (CMFRI) has proposed key policy suggestions, including the **introduction of the Marine Fishery Act**, to enhance **India's marine fisheries sector**.

Recommendations of CMFRI:

1. **Introduce the Marine Fishery Act:** It aims to regulate **fishing in areas beyond territorial waters**, addressing a policy and legislative vacuum.
2. Institutionalize **regular stock assessments**, establishing a **national guideline** for eco-labelling of marine fishery resources
3. Streamline **open sea mariculture** with a focus on sustainability
4. Implement **AI-mediated automated mechanisms** for landing estimation, and tracking fishing vessels.
5. Focused research **on deep-sea and non-conventional fishery resources**
6. Establish an institutional mechanism for overseeing deep-sea fishing
7. Strengthening **insurance for fishers**

India's Status in Marine Fisheries:

India, the **third-largest fish-producing country** and **second in aquaculture** lacks comprehensive **legislation for managing marine fisheries** beyond 12 nautical miles. To address this, the government has proposed the **Indian Marine Fisheries Bill** for sustainable development in the **Exclusive Economic Zone (EEZ)**.

Initiatives include the **Pradhan Mantri Matsya Sampada Yojana (PMMSY) 2020**, the **National Policy on Marine Fisheries (NPMF) 2017**, and the Fisheries and Aquaculture Infrastructure Development Fund (FIDF) 2015.

About ICAR-Central Marine Fisheries Research Institute (CMFRI):

It was **established in 1947 under the Ministry of Agriculture and Farmers Welfare in India**. In 1967, it joined the **Indian Council of Agricultural Research (ICAR) family** and became a leading **tropical marine fisheries** research institute globally. Headquartered in **Kochi, Kerala**.

18. THE PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS (PPVFR)

Context:

The Delhi High Court has ruled in favour of PepsiCo, allowing the company to claim a **patent for the potato variety** used in its potato chips.

- Pepsi had filed an appeal under the **Protection of Plant Varieties and Farmers' Rights Act, 2001** (the Act) challenging the **order of the Protection of Plant Varieties and Farmers Rights Authority (the Authority) in the Delhi High Court**.
- The decision **overturns a previous order** that revoked Pepsi's patent-protected potato variety, **FL 2027, used in chip production**

The **Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR Act)** was enacted by the Parliament of India. The act's objectives include:

- Establishing a system to **protect plant varieties and the rights of farmers and plant breeders**
- **Recognizing and protecting farmers' rights for their contributions** to conserving, improving, and making available **plant genetic resources**

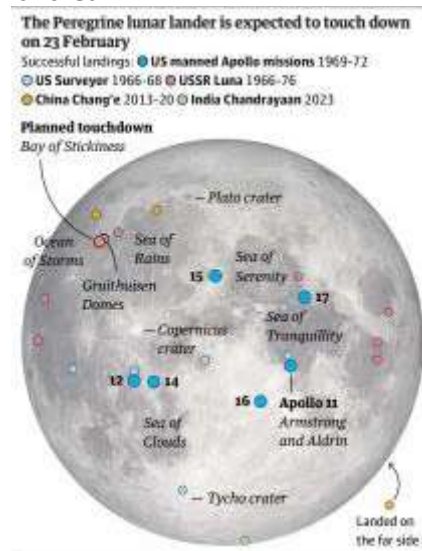
Safeguarding **researchers' rights and the larger public interest**

19. PEREGRINE LUNAR LANDER

Context:

A private US spacecraft, **part of NASA's Commercial Lunar Payload Services (CLPS) initiative**, took off with the **Peregrine lander module and Vulcan rocket built** by private space companies.

- This mission aims to be the **first US spacecraft to land on the Moon in over 50 years** and would have marked the **first landing of a private spacecraft on the Moon**.
- The Peregrine Mission-1, a private lunar lander, encountered an "anomaly" and will be **unable to make its planned soft landing on the moon due to a propellant leak**.

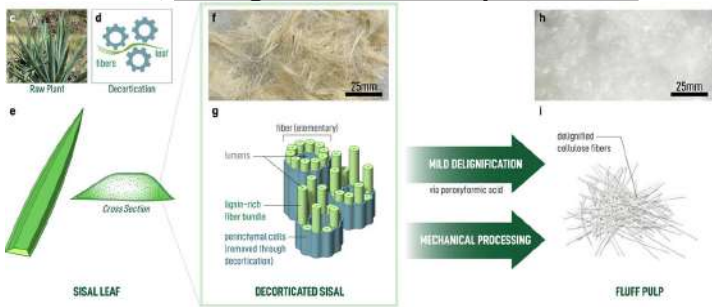


20. SISAL LEAVES

Context:

Scientists at Stanford University are researching the **use of sisal leaves** to create a highly absorbent material that could **replace cotton, wood pulp, and chemical absorbents in sanitary napkins.**

- The absorption capacity of the **sisal-based material is reported to be higher than that in commercial menstrual pads.**
- The method developed by the researchers involves using a **decorticator to mechanically separate the fibres** from sisal leaves and employing a **process inspired by termite guts to delignify the fibres.**
- The study claims that the process uses **no polluting or toxic chemicals** and can be conducted on a small scale, **making it environmentally sustainable.**



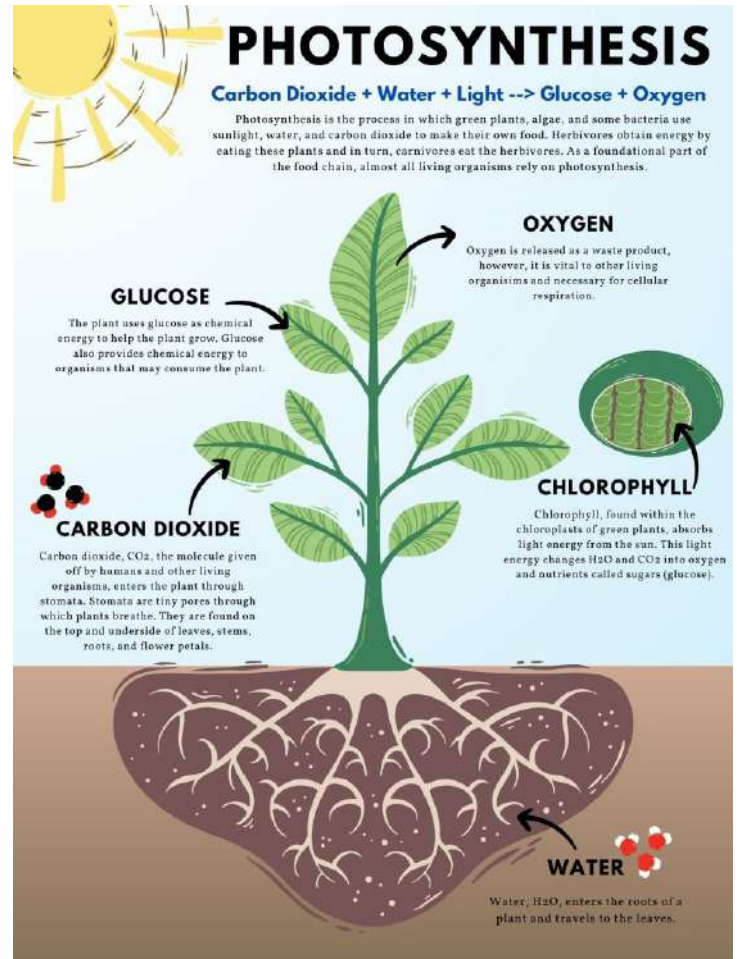
21. THE OLDEST EVIDENCE OF PHOTOSYNTHESIS

Context:

A study published in the journal Nature reveals the **oldest evidence of photosynthetic structures** found in a collection of **1.75-billion-year-old microfossils known as Navifusa majensis.**

- The **microstructures identified as thylakoids**, membrane-bound structures inside chloroplasts, provide direct evidence for oxygenic photosynthesis.
- This process, **unique to cyanobacteria and related organelles in eukaryotes**, involves converting **water and carbon dioxide into glucose and oxygen with sunlight.**

The discovery suggests that photosynthesis may have evolved before 1.75 billion years ago, shedding light on the **evolution of oxygenic photosynthesis**, a process that played a crucial role in **the Great Oxidation Event around 2.4 billion years ago.**



22. BHARAT TEX 2024

Context:

Union Minister for Textiles, Shri Piyush Goyal, reviewed the progress of the **upcoming mega textiles event, Bharat Tex 2024**, during a meeting with textile Export Promotion Councils and ministry officials.

What is Bharat Tex 2024?

It is a **global textile mega-event** organized by **11 Textile Export Promotion Councils** in collaboration with the **Ministry of Textiles**. It showcases **India's entire textile value chain**, emphasizing fashion, traditional crafts, and sustainability.

Aligned with India's 5F vision, it covers the journey from **Farm to Fibre to Factory to Fashion to Foreign**, representing the textile production process from raw resources to global markets.

23. CANNABIS PLANT

Context:

Scientists at **CSIR-Indian Institute of Integrative Medicine (IIIM)**, Jammu, have discovered that **phytocannabinoids**, compounds found in the **cannabis plant**, exhibit **previously unexplored antibiotic properties.**

- The study specifically focused on **tetrahydrocannabinol (THCBD), a phytocannabinoid**, and its efficacy against **Staphylococcus aureus**, a **bacteria contributing to antibiotic resistance**.
- THCBD demonstrated strong antibacterial effects against various **resistant strains of S. aureus, including the methicillin-resistant strain**.

24. CLASEPI

Source: [livemint](#)

Akumentis Healthcare Ltd has introduced **Clasepi, a cannabis-based medicine** designed to treat **seizures in toddlers**.

The drug, approved by the **Drug Controller General of India**, targets seizures associated with **Lennox-Gastaut Syndrome, Dravet Syndrome, or Tuberous Sclerosis Complex**

Clasepi contains **tetrahydrocannabinol (THC)** with content below 0.1%, and clinical studies have demonstrated its **efficacy in reducing seizures**, particularly in cases where conventional antiseizure medications have proven ineffective.

25. AMATERASU

Context:

Japanese scientists discovered a **high-energy cosmic-ray event named 'Amaterasu,'** making it the **second-highest-energy cosmic ray ever detected**.

- The energy level of **Amaterasu is about 40 million times higher than that produced by the Large Hadron Collider**.
- The discovery of such **ultra-high-energy cosmic rays (UHECRs)** could contribute to understanding cosmic phenomena and subatomic particles better, as well as **potentially challenging existing theories in high-energy particle physics**.
- Amaterasu's unique characteristic is that it appears to **have originated from an empty region of the universe**, presenting intriguing possibilities for **unknown astronomical phenomena**.

The study of these cosmic rays may offer insights into the **sources of cosmic rays and enhance our understanding of high-energy physics beyond the Standard Model**.

26. INTERNATIONAL CLASSIFICATION OF DISEASES (ICD) - 11

Context:

The **World Health Organization (WHO)** has launched the **ICD-11 Traditional Medicine Module 2**, incorporating data and terminology related to **Ayurveda, Siddha, and Unani Medicine**.

- The Ministry of AYUSH collaborated with WHO in preparing this classification, **aiming to strengthen India's healthcare system, research, development, and policy-making in the traditional medicine sec-**

tor.

- The inclusion of traditional medical terminologies in ICD-11 **aims to establish a connection between traditional medicine and international standards**, fostering a unified global tradition in healthcare.

About ICD:

ICD is the **international standard for systematic recording, reporting, analysis, interpretation, and comparison of mortality and morbidity data**.

Previously, ICD-11 included Module-1 which covers **traditional medicine conditions originating in ancient China, which is now commonly used in Japan, Korea etc.**

27. THYLAKOID MEMBRANES

Context:

Thylakoid membranes are small pouches located in the **chloroplasts of plants, storing chlorophyll and playing a crucial role in photosynthesis**.

- Originally found in **ancient cyanobacteria**, these **light-sensitive bacteria are believed to have contributed to the oxygen levels in Earth's atmosphere billions of years ago**.
- Recent discoveries, particularly **1.75-billion-year-old fossilized thylakoid membranes in microfossils off the coasts of Australia**, suggest that thylakoids played a key role in the **"Great Oxygenation" event around 2.4 billion years ago**.
- This event involved the **release of oxygen by cyanobacteria**, initially filling the **oceans and eventually escaping into the atmosphere**, leading to the **transformation of Earth's atmospheric composition**.

The findings open avenues for **further exploration of older cyanobacterial microfossils** and testing hypotheses related to the **emergence of thylakoids and their impact on Earth's early oxygenation**.

28. DRISHTI 10 STARLINER

Context:

The **Indian Navy** has received its **first indigenous medium-altitude long-endurance (MALE) drone, the Drishti 10 Starliner**, developed by **Adani Defence and Aerospace**.

Features:

- The Drishti 10 Starliner, **a variant of Elbit Systems' Hermes 900 Starliner**, is equipped with **state-of-the-art sensors**, automatic take-off and landing capabilities, **and a 36-hour endurance**.
- It can carry a **payload of 450 kg and has the potential for weaponization if required**.
- The **drone is 70% indigenous** and will **enhance the Navy's intelligence, surveillance, and reconnaissance capabilities**.

29. RECENT REPORTS IN NEWS

Report	Details
Global Risk Report 2024	Released annually by the World Economic Forum .
	Based on the Global Risks Perception Survey .
	India's top five risks: Misinformation and Disinformation (MI), Infectious diseases, Illicit economic activity, Inequality (wealth and income), and Labour shortage.
Henley Passport Index 2024 (HPI)	Released by Henley & Partners .
	Ranks passports based on allowing destinations without a prior visa .
	India ranks 80th with visa-free access to 62 nations. France, Germany, Italy, Spain, Japan, and Singapore share the top spot.
Global Economic Prospects Report 2024	Released by the World Bank Group .
	Global trade growth in 2024 is expected to be half the pre-pandemic average.
	Global growth is projected to slow from 2.6% in 2023 to 2.4% in 2024 . Developing countries need to increase investments, about \$2.4 trillion per year , to tackle climate change and achieve global development goals by 2030.
World Employment and Social Outlook Trends 2024	Released by the International Labour Organisation (ILO)
	Despite a slowdown, global growth in 2023 was modestly higher than anticipated.
	The macroeconomic environment deteriorated significantly in 2023. Real wages declined in the majority of G20 countries due to inflation.
"Digital Trade for Development" Report	Joint publication by IMF, World Bank, WTO, OECD, and UNCTAD .
	The value of digitally delivered services increased nearly four times since 2005 , growing at an average annual rate of 8.1% from 2005 to 2022.
	Developing economies require increased international financial and technical support for digital trade-related areas.
	Initiatives like WTO-led Aid for Trade, UNCTAD-led eTrade for All, and World Bank-led Digital Advisory and Trade Assistance (DATA) Fund can help.

30. GREEN FUELS ALLIANCE INDIA (GFAI)

Context:

Denmark has introduced the **Green Fuels Alliance India (GFAI)** to enhance collaboration with India in the **sustainable energy sector**, aligning with both nations' goals of **achieving carbon neutrality**.

Aim:

It aims to **advance the green fuels sector, including green hydrogen, through innovation and partnerships**. GFAI's objective is to foster **an ecosystem promoting sustainable energy growth in India**, involving businesses, government entities, and research institutions.

Background:

The initiative is part of the **Green Strategic Partnership signed in 2020** between India and Denmark. The announcement coincides with **India's push for carbon neutrality by 2070 and Denmark's top ranking in the 2024 Climate Performance Ranking**.

Other similar partnership initiatives:

- Global Biofuels Alliance** forged by Brazil, India, and the United States
- India U.S.-India Strategic Clean Energy Partnership
- Green / Clean Hydrogen India and Saudi Arabia
- India-Australia Green Hydrogen Taskforce
- Quad's Climate Working Group for Clean Energy

31. TEA INDUSTRY IN INDIA

Context:

The **Tea Association of India (TAI)** has issued a warning about challenges reminiscent of the **"dark phase" of 2002-07** in the country's tea industry.

Factors contributing to the crisis in the Tea Industry include:

- Stagnant prices: Assam, responsible for 55%** of India's tea production, is particularly impacted.
- Oversupply**
- A widening gap** between demand and supply
- Stiff competition** from other countries such as **Sri Lanka, Kenya**
- Costs of vital inputs grew by 9-15%** during the last decade, while **tea prices rose by 4%**.

For Initiatives by the Tea Board of India: [Click Here](#)

Topic	Information
About	Tea is a popular beverage made from the Camellia sinensis plant and is the second most consumed drink in the world.
Origin	Tea is believed to have originated in northeast India, north Myanmar, and southwest China , with evidence of consumption in China over 5,000 years ago.
Growth Conditions	Tea requires a hot and humid climate , temperatures of 20°-30°C , and 150-300 cm of well-distributed annual rainfall . It grows well in slightly acidic soil with porous subsoil in the hill ranges.
Health Benefits	Tea consumption can promote health and wellness due to its anti-inflammatory, antioxidant, and weight-loss effects .
Int'l Tea Day	May 21st every year (designated by the UN General Assembly in December 2019)
Production	India is the second-largest producer of tea globally (largest black tea producer) , with the majority of its annual tea production coming from Assam and West Bengal.
Consumption	India is among the world's top tea-consuming countries , with 80% of its production consumed domestically.
Export	India is 4th largest tea exporter globally and exports to over 25 countries. The majority of tea exported is black tea, with Darjeeling, Assam, and Nigiri tea being among the finest in the world.
GI Tag	Darjeeling tea, known as the "Champagne of teas," was the first GI tag product.
Regulator	The Tea Board of India (a statutory body under the Ministry of Commerce) is responsible for developing and promoting the tea industry in India. HQ: Kolkata, formed in 1953 . Foreign Offices: Dubai and Moscow.
Employment	Indian tea Industry is employing 1.16 million workers directly and an equal number of people are associated with it indirectly. Visit Insights IAS Daily CA



You can write the keyword "AROMA" Keyword for Tea promotion:

'AROMA'

- **A= Assistance** to small growers
- **R= Re-energise** to create infrastructure to augment exports and focus on high-value markets
- **O= Organic:** Promote organic and GI tea
- **M= Modernisation:** Strengthen local supply chains.
- **A= Adaptability:** Make tea plantations meet the challenges of climate change.

About Tea Association of India (TAI) (est. 1956; HQ: Kolkata)
It is predominantly an **Association of North Indian tea producers** in the organized sector of the Indian Tea Industry. It promotes and protects trade, commerce and industries associated with tea. Advise and render assistance to members of the Association. Represent members before industrial tribunals, Tea Board etc

32. EINSTEIN PROBE (EP)

Context:

China has launched a **new astronomical satellite named Einstein Probe (EP)** with a **lotus-shaped design** to observe **transient and violent celestial phenomena** in the universe.

The Einstein Probe (EP) satellite features **wide-field X-ray telescopes (WXT)** and **follow-up X-ray telescopes (FXT)**. Its objectives include **capturing initial light from supernova explosions**, detecting X-ray signals linked to **gravitational wave events**, and discovering **dormant black holes** and celestial objects. The satellite's X-ray detection tech, inspired by, showcases innovative **lobster-eye telescopes**

The mission involves international collaboration with **The European Space Agency and the Max Planck Institute for Extraterrestrial Physics** in Germany.

33. DARJEELING ZOO

Context:


Darjeeling Zoo, **home to the world's largest number of snow leopards in captivity**, boasts 14, including six cubs, marking a success story for India's lone **Conservation Breeding Programme**.

What is the Conservation Breeding Programme?

The Conservation Breeding Programme is the **science of conserving a species** by preventing imminent population collapse in the **wild due to a large number of eliminative pressures** (i.e. habitat loss, habitat fragmentation, industrialization, poaching, illegal trade climate change etc.)


The snow leopard conservation breeding program at Darjeeling Zoo, **established in 1985**, is the **first and only of its kind in India**. A key feature of the program is the careful use of a **diverse genetic pool** for **breeding snow leopards**.

About Snow Leopard:




Snow Leopard

IUCN: 'Vulnerable'
Schedule-I species of the Indian Wildlife (Protection) Act, 1972
Feature: It is an elusive mountain cats found in:




Jammu and Kashmir, Ladakh (Hemis NP is known for presence of Snow Leopard), Himachal Pradesh, Uttarakhand and Sikkim and Arunachal Pradesh.

Prey Species



Siberian ibex



Blue Sheep

Distribution of Snow Leopard



More on Snow Leopard:

Recently, **Kyrgyzstan** has officially chosen the **Snow Leopard** as its **national symbol**

Topic	Details
Range Countries	Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, Uzbekistan

Global Snow Leopard Population	Estimated between 4k and 6.5k world-wide ; China has the highest population; India has around 700-800 individuals Hemis National Park, Ladakh: Snow Leopard Capital of the world; State Animal of Ladakh & Himachal Pradesh
Conservation Efforts Worldwide	Snow Leopard Trust: Focus on community-based conservation programs Global Snow Leopard and Ecosystem Protection Program (GSLEP): Aims to secure 20 landscapes across the Snow Leopard range by 2020
Conservation Efforts in India	Project Snow Leopard (Government of India, 2009): Focus on conservation in high-altitude ecosystems Community Involvement: Initiatives like Himal Sanrakshak recognize local communities' role in protection and conflict reduction Snow Leopard Population Count: Introduced First National Protocol for population monitoring in 2019 Ministry's Recovery Programme: Snow Leopard is on the list of 21 critically endangered species for recovery Snow Leopard Conservation Breeding Programme: Conducted at Padmaja Naidu Himalayan Zoological Park, West Bengal

is renowned for its rich birdlife, offering diverse species in significant numbers. Notably, EagleNest is where the **Bugun liocichla (IUCN: CR), a passerine bird species**, was first discovered in 1995 and further observed and described in 2006.



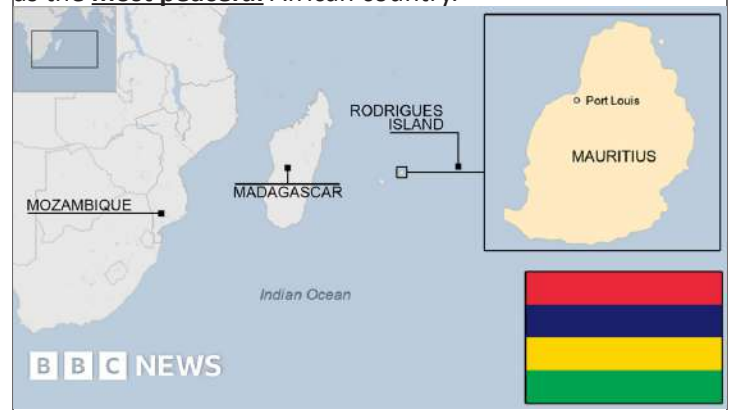
2. MAURITIUS

Context:

The Union Cabinet has approved a Memorandum of Understanding (MoU) signed between the **ISRO** and the **Mauritius Research and Innovation Council (MRIC)** for the development of a **Joint Small Satellite**.

About Mauritius:

Mauritius is an **island country** in the Indian Ocean. It comprises the main island, **Rodrigues, Agaléga, and St. Brandon**, forming part of the **Mascarene Islands**. The capital is **Port Louis**. Explored by **Arabs in 975, Portuguese and Dutch sailors** visited later. Mauritius is ethnically diverse, with **Hinduism being the predominant religion**. It follows a **Westminster parliamentary system**, boasts high economic and political freedom, and is classified as a **high-income economy**. Known for its biodiversity, Mauritius is home to endemic species and, historically, the **dodo**. It is consistently ranked as the **most peaceful** African country.



MAPPING

1. ARUNACHAL PRADESH'S EAGLENEST WILDLIFE SANCTUARY

Context:

An IISc study conducted in **Arunachal Pradesh's EagleNest Wildlife Sanctuary** reveals the threat posed to **montane birds by logging and climate change**.

Tropical montane forests, crucial biodiversity hotspots, are impacted by rising temperatures, prompting bird species to shift to higher elevations. The study emphasizes the importance of safeguarding **primary forests to mitigate climate change effects**.

About EagleNest Wildlife Sanctuary

It is situated in the **Himalayan foothills of West Kameng District, Arunachal Pradesh**, and is a protected area in India. It borders the **Sessa Orchid Sanctuary** to the northeast and the **Pakhui Tiger Reserve** across the Kameng River to the east, also being part of the **Kameng Elephant Reserve**. Named after the **Red Eagle Division** of the Indian army, the sanctuary

3. KRISHNA-GODAVARI BASIN

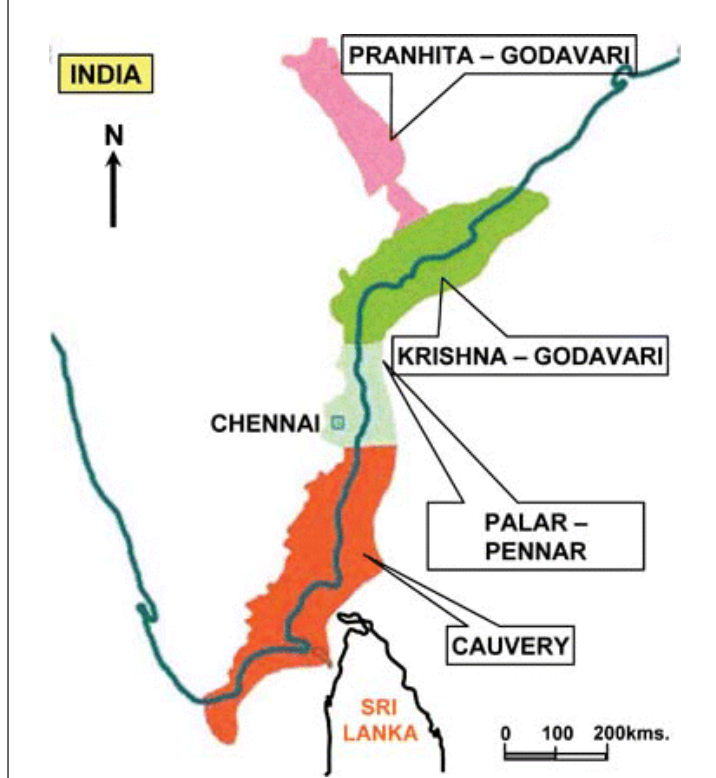
Context:

The **Oil and Natural Gas Corporation (ONGC)** has successfully initiated crude oil production from its **KG-DWN-98/2 deep-sea project** in the Krishna-Godavari basin off the east coast of India.

This significant development, marked by delays and extensions, aims to **bolster ONGC's overall oil production**, combating the decline in mature fields.

About Krishna-Godavari Basin:

It is situated in **Andhra Pradesh and the Bay of Bengal** is a vast deltaic plain formed by the **Krishna and Godavari rivers**. Covering **15,000 sq. km on land and 25,000 sq. km** offshore, it has **5 km thick sediments** deposited from **Late Carboniferous to Pleistocene**. The basin features **upland and coastal plains**, flood, and delta plains. Notably, the D-6 block in this basin holds **India's largest natural gas reserves**, discovered by ONGC in 1983. Besides its geological significance, the basin is home to the **Vulnerable Olive Ridley Sea Turtle**.



4. MUMBAI TRANS HARBOUR LINK (MTHL)

Context:

Mumbai Trans Harbour Link (MTHL), also named **Atal Bihari Vajpayee Sewri-Nhava Sheva Atal Setu**, India's longest sea bridge covering **21.8 km (16.5 km over the sea)**, has been inaugurated and is open for public commute.

Features:

1. The bridge is expected **to witness over 70,000 vehicles daily**, improving connectivity between **Mumbai and Navi Mumbai**.
2. It is the **longest sea bridge in India** (World's 10th longest sea bridge)
3. It is expected to **alleviate traffic congestion**, promote economic development, and reduce travel time between Sewri and Chirle to just **15 to 20 minutes**.

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4. Fuel, transportation costs & 1 hour travel time will be saved
5. **1st project in India** with an **open road tolling system**.
6. For the first time in India, **Orthotropic steel deck technology used**

About the Open road tolling system:

It refers to a method of collecting tolls on highways **without requiring vehicles to stop or slow down**. Instead of traditional toll booths, **open-road tolling uses electronic sensors and cameras** to detect vehicles as they pass through designated tolling points.

About Orthotropic steel deck technology

It is a **construction method used in building bridges and other structures**. It involves using **steel plates that are specifically designed to be strong and stiff** in one direction while being flexible in other directions. This allows the steel deck to **support heavy loads, such as vehicles while remaining lightweight**.

