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GENERAL STUDIES – 1

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

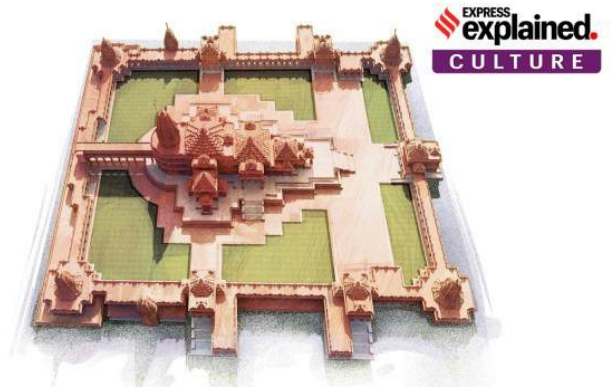
1. AYODHYA'S RAM TEMPLE: NAGARA STYLE OF TEMPLE ARCHITECTURE

Context:

The Nagara style of temple architecture, observed in Ayodhya's Ram temple construction, emerged in the **fifth century CE during the late Gupta period** in northern India.

Key features of the Ram Janmabhoomi Mandir in Ayodhya:

1. Constructed in the **traditional Nagara style** with a length of 380 feet, width of 250 feet, and height of 161 feet.
2. Houses the **childhood form of Bhagwan Shri Ram (Shri Ram Lalla)** in the main sanctum sanctorum and a Shri Ram Darbar on the first floor.
3. Includes **five mandaps (halls)**: Nritya Mandap, Rang Mandap, Sabha Mandap, Prathana Mandap, and Kirtan Mandap.
4. **The compound has four Mandirs dedicated** to Surya Dev, Devi Bhagwati, Ganesh Bhagwan, and Bhagwan Shiv, along with Mandirs for Maa Annapurna and Hanuman ji.
5. **Surrounded by a Parkota** (Rectangular compound wall) with a length of 732 meters and a width of 14 feet.
6. **Features a historic Well (Sita koop)** and a restored ancient Mandir of Bhagwan Shiv at Kuber Tila.
7. Utilizes traditional construction materials, **avoiding the use of steel or iron.**
8. **The main temple structure was built with Bansi Paharpur Pink Sandstone**, granite stones in the plinths, **and white Makrana marble** and coloured marble for inlay work.
9. Incorporates **special bricks known as "Ram Shilas"** with the inscription "Shri Ram" for symbolic significance.
10. Constructed entirely using **traditional and indigenous technology**, emphasizing **environmental conservation with 70% of the area left green.**



Nagara and Dravida styles are considered **"the two great classical languages of Indian temple architecture"** rather than mere 'styles'.

Nagara temples, distinguished by **towering shikhara (mountain peaks)**, have a raised plinth with the garbha griha (sanctum sanctorum) as the most sacred part. The shikhara represents the **natural and cosmological order in Hindu tradition**. Nagara architecture has five modes: **Valabhi, Phamsana, Latina, Shekhari, and Bhumija**. The Ayodhya Ram temple exhibits a **'hybrid' feature, lacking an elaborate gopuram but featuring a boundary wall.**

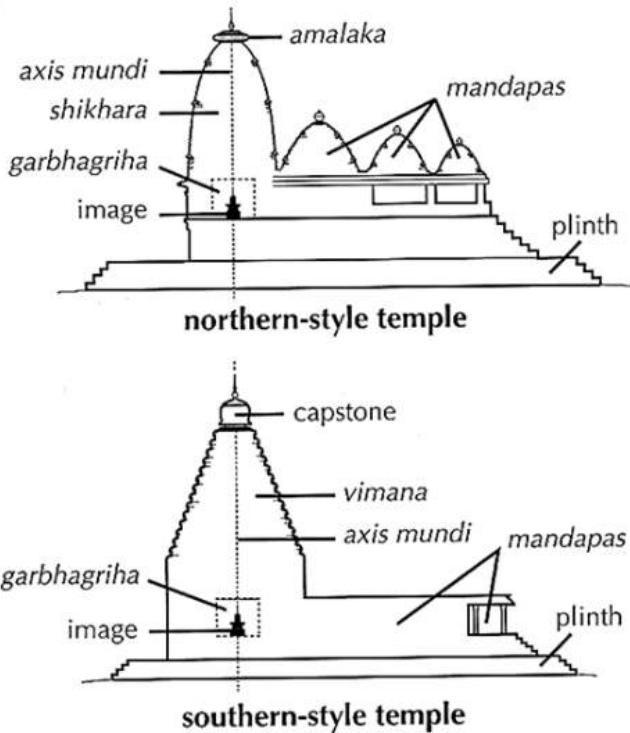
While the **Nagara and the Dravidian styles** of temple architecture belong to the **Northern and Southern regions of India respectively** and exhibit uniqueness, **they also share some common features in their design and appearance.**

Common Features of both the style:

- **Dravidian or Chola style of temple architecture:**
 - The Dravidian style of temple architecture of **South India** flourished roughly from the **8th to about 13th-14th century A.D.**
 - It developed under the patronage of the **Chola rulers**, but was a continuation of the previous **Pallava architecture**, with some variations.
 - E.g., **Brihadeeswara Temple, Gangaikondacholapuram Temple.**
- **Nagara temple architecture:**
 - The Nagara temple architecture developed as a distinct style in the **Northern part** of India from the **5th century AD onwards.**
 - E.g., **Sun Temple** at Konark, **Kandariya Mahadev Temple** at Khajuraho.
- **Common features:**
 - **Temple plan:**
 - The **panchayatana style** with a principal temple and four subsidiary shrines is a common feature.
 - **Decorative features:**
 - Decoration of the **walls and vimanas through sculptures and engravings** is an important feature of both styles.
 - **Halls:**
 - There are **assembly halls or mandaps** in

front of the principal shrine for cultural and spiritual events in both styles of temples.

- Also, the other aspects such as the **Sanctum Sanctorum, Vimana and Shikara** are present in both styles.



Conclusion

The Nagara and Dravidian styles of temple architecture **largely resemble the common structures** such as the plan, towers, spires, etc. However, they also differ in their approach to the minute **features of expression** that these structures carry, thereby **preserving their uniqueness**.

A **hybrid of these two is the Vesara style** found mostly in the Deccan regions. E.g., the Virupaksha temple in Pattadakal, and the Durga temple in Aihole.

Other styles of Temple architectures:

Topic	Key Points
Temple Architecture (Summary)	Distinct architectural styles: Nagara (North), Dravida (South), and Vesara (mix of Nagara and Dravida). Basic features: Sanctum, entrance, free-standing spire, vahan, and mithun sculptures.
Nagara or North Indian Style	Built on the stone platform, multiple towers (shikharas), Latina, phamsana, valabhi sub-types. Mainly found in North India, e.g., Uttar Pradesh, Madhya Pradesh, Rajasthan.
Central India Temples	Sandstone construction, Gupta Period temples, panchayatana style (e.g., Deogarh temple).
Western Indian Temples	Gujarat, Rajasthan, Western Madhya Pradesh. Varied stone types, exuberant sculptures.
Eastern Indian Temples	Terracotta construction in Bengal. Pala style sculptures, distinctive Vanga style.
Odisha Temples	Rekhapida, pidhadeul, khakra architectural orders. Square ground plan, lavishly carved exteriors.
Hill Temples	Kashmir, Kumaon, Garhwal. Wooden architecture, pagoda shapes, Karkota period significance.
Dravida or South Indian Style	Enclosed within a compound wall, gopuram entrance, stepped pyramid vimana. Main temple towns: Kanchipuram, Thanjavur, Madurai, Kumbakonam.
Deccan Architecture	Ellora's grand rock-cut structures. Rashtrakutas' Kailashnath temple, vesara architecture in Karnataka.
Buddhist Architectural Developments	Mahabodhi Temple in Bodhgaya, Nalanda's mahavihara, Nagapattinam's Buddhist centre.
Jain Architectural Developments	Jain pilgrimage sites in Bihar, Ellora, Aihole, Mount Abu, Shravanabelagola, Palitana.

Distinctive features of the Dravidian and the Nagara Styles:

FEATURES	DRAVIDIAN STYLE	NAGARA STYLE
Boundary walls and gateways	Temples are surrounded by high boundary walls . The front wall has a high entrance gateway known as a gopuram .	It did not have elaborate boundary walls or gateways.
Crowning element	Shaped in the form of an octagon and is known as the shikhara	Shaped in spherical form is known as the Kalash
Spire / Vimanas	Present in the form of a stepped pyramid that rises up linearly .	The vimana rises in a curved form .
Number of Vimanas	There is only one vimana and that is on top of the main temple . The subsidiary shrines do not have vimanas.	Besides the main temple, the subsidiary shrines also have vimanas .
Water features	The presence of a water tank inside the temple enclosure is a unique feature here.	Generally, there are no water tanks or reservoirs present on the temple premises.

Mains Links:

Q. How will you explain that medieval Indian temple sculptures represent the social life of those days? (UPSC 2022)

Prelims Links:

Q. The Prime Minister recently inaugurated the new Circuit House near Somnath Temple Veraval. Which of the following statements are correct regarding Somnath Temple? (UPSC 2022)

1. Somnath Temple is one of the Jyotirlinga shrines.
2. A description of Somnath Temple was given by Al-Biruni.
3. Pran Pratishtha of Somnath Temple (installation of the present-day temple) was done by President S. Radhakrishnan.

Select the correct answer using the code given below:

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

Answer: A

Q. With reference to Chausath Yogini Temple situated near Morena, consider the following statements: (UPSC 2021)

- (1) It is a circular temple built during the reign of the Kachchhapaghata Dynasty.
- (2) It is the only circular temple built in India.
- (3) It was meant to promote the Vaishnava cult in the region.
- (4) Its design has given rise to a popular belief that it was the inspiration behind the Indian Parliament building.

Which of the statements given above are correct?

- (a) 1 and 2
- (b) 2 and 3 only
- (c) 1 and 4
- (d) 2, 3 and 4

Answer: C

Topics: The Freedom Struggle – its various stages and important contributors /contributions from different parts of the country.

2. ROLE OF THE INDIAN NATIONAL ARMY (INA) IN INDIA'S FREEDOM

Context: Subhas Chandra Bose's Indian National Army (INA) emerged as a pivotal force in India's quest for independence during World War II.

What was INA?

The INA (a military organization) was established to encourage the **growth of armed Indian nationalism**. It was also conceived to undermine the British Indian Army and finally work to secure the Independence of India.

Initially founded by Mohan Singh and later led by **Subhas Chandra Bose**, the INA aimed to secure Indian independence from British rule and fought under the command of the Japanese military in Southeast Asia. The first INA, formed in 1942, collapsed due to disagreements with the Japanese military and was later revived under **Bose's leadership in 1943**. Through a strategic public relations campaign, Bose garnered widespread support, **expanding the INA's strength to over 40,000 personnel**.

INA activities:

1. The INA in a **few months' time had three fighting brigades** named after Gandhi, Azad and Nehru. Soon other brigades were raised, namely the **Subhash Brigade and the Rani Jhansi Brigade** (an exclusive women's force).
2. The most important operation the INA was a part of, was undoubtedly its operations in the **Indian theatre in the Second World War**. The Japanese were initially reluctant to take INA troops with them but Bose convinced them to take a small INA force which was used, much to the frustration of Bose, for secondary operations by the Japanese.
3. **Creation of the provisional government** - On October 21, 1943, Subhash Bose formed the **Provisional Government for Free India in Singapore with H.C. Chatterjee (Finance portfolio)**, M.A. Aiyar (Broadcasting), Lakshmi Swaminathan (Women Department), etc.
 - a. This provisional government declared **war on Britain and the United States** and was recognised by the Axis powers.
 - b. Recruits were trained and funds were collected for the INA.
 - c. The famous slogan—**"Give me blood, I will give you freedom"** was given in **Malaya**.
4. **Battle of Kohima** - The Azad Hind Fauz crossed the Burma border and stood on Indian soil on March 18, 1944. The INA units subsequently advanced up to Kohima and Imphal
 - a. The tricolour was hoisted on Indian soil
 - b. However, the INA failed to capture Imphal due to two reasons:
 - i. The Japanese failed to supply the necessary material and air cover to the INA.
 - ii. The Monsoon prevented their advance.
5. **INA trials - The Indian National Army trials** (also known as the INA trials and the Red Fort trials) was the **British Indian trial by court-martial** of a number of officers of the Indian National Army (INA) between November 1945 and May 1946, on various charges of treason, torture, murder and abetment to murder, during the Second World War.
 - a. In November 1945, a British move to put the I.N.A. men on trial immediately sparked massive demonstrations all over the country.

Significance of INA:

The INA had failed to achieve its goal, but it made a significant impact on the freedom struggle in the following ways

- Awakening sense of nationalism** - INA also generated patriotic feelings in the hearts of many national leaders and the masses and caused uprisings in Bombay and Calcutta. The **Red Fort trials of INA members** managed to unite masses of Indians against British rule.
- Demonstration of communal unity** - The struggles of the INA demonstrated that those who waged an armed struggle against the British were **not at all affected by communal division. As, there were Hindus**, Muslims and Sikhs in the INA who had fought as Indians
- Empowerment of women** - The actions of the **Rani Jhansi Brigade**, an exclusive women's force, demonstrated the capabilities of Indian Women waging armed struggle against the British.
- Fighting against injustice** - It became clear to the British that, they could no longer depend on the loyalty of Indian Soldiers and treat them as mercenaries.
- Igniting unity among various political groups** - All the political groups came together to protect the prisoners of INA which showed the united political unity against British Rule.

Conclusion

Gandhiji addressing the INA officers said **“Your objective, as I have been told, was only to free India, never to help the Japanese.** You failed in your direct objective, i.e. to defeat the British. But you have the satisfaction that the whole Country has been roused into a new political consciousness and have begun to think in terms of Independence”. Thus Activities of INA did hasten the process of the British leaving India.

About Subhas Chandra Bose:

Aspect	Details
Full Name	Subhas Chandra Bose
Nicknames	Netaji
Birth date and Place	January 23, 1897, Cuttack, Odisha, India
Education	Studied at the University of Calcutta and later at the University of Cambridge
Political Career	Joined Indian National Congress - Elected to Congress Working Committee in 1923 - Appointed Secretary of Bengal Provincial Congress Committee in 1924 - Resigned from Congress in 1939 due to differences - Advocated more militant action for independence - Organised the All India Forward Bloc a faction within the Congress in Bengal.
Inspiration	He was highly influenced by Vivekananda's teachings and considered him as his spiritual Guru. His political mentor was Chittaranjan Das

Formation of INA	Indian National Army (INA) was founded by Mohan Singh in 1942 - Later handed over to Subhas Chandra Bose - Renamed Azad Hind Fauj by Bose
Role in INA	Led the INA against the British in South-east Asia during World War II - Goal: Secure India's independence from British rule - Named brigades/regiments after Mahatma Gandhi, Jawaharlal Nehru, Maulana Azad, and himself
Contributions	Rallying Indians to the cause of independence - Gaining international support for the INA - Significant impact on the independence movement despite INA's military setbacks
Famous Quotes	“Tum Mujhe Khoon Do, Main Tumhe Azadi Doonga” (Give me blood, and I will give you freedom!) - “Freedom is not given - it is taken.” - “Soldiers who always remain faithful to their nation, who are always prepared to sacrifice their lives, are invincible.”
Death	August 18, 1945 - Died in a plane crash under mysterious circumstances
Legacy and Recognition	Posthumously awarded the Bharat Ratna, India's highest civilian award - Remembered as a hero of the Indian independence movement - Inspires those fighting for freedom and justice His Jayanti is celebrated as ‘Parakram Diwas’ on 23rd January The Subhas Chandra Bose Aapda Prabandhan Puraskar is an annual award established to acknowledge and honour outstanding contributions to disaster management by individuals and organizations in India. Announced on January 23 each year, the award includes a cash prize of Rs. 51 lakh with a certificate for institutions and Rs. 5 lakh with a certificate for individuals.

Insta Links:

- [Azad Hind Fauj](#)

[Topics: Salient features of Indian Society, Diversity of India.](#)

3. ROLE OF SLUMS IN INDIAN SOCIETY

Context:

The [article](#) explores the evolving narratives and definitions of slums in the context of Indian parliamentary debates.

Evolution of the discourse on slums:

Era	Conceptualisation	Steps
First era (1950s-1960s)	Slums are viewed as a result of partition and population influx into cramped areas. Considered an epidemic to be eradicated. Connected to spatial constraints and health issues, ignoring socio-economic factors.	The introduction of the Slum Areas Act of 1956 made government intervention possible. Slums became a legal entity .
Second era (Early 1970s-Mid-1980s)	Shifted to viewing slums as something to be developed . The narrative included providing basic amenities instead of destruction.	Town planning emerged as a governance tool , pushing slums to peripheries.
Third era (Mid-1980s-Late 1990s)	Cities and slums are seen as assets for economic growth . Economic reasoning replaced social concerns.	Broader housing policies were introduced, addressing land, finance, and infrastructure. The National Slum Development Programme was launched in 1996.
Fourth era (2000s-2014)	Understanding based on data from the 2001 Census. The causes of slum formation are linked to urban planning, population growth, urbanization, land pressure, and price rise. Upliftment associated with property rights .	Urban housing deficit became the focus of housing policies. Definitions broadened with the Census, leading to targeted schemes .
Overall Transformation	Evolution from viewing slums as a socio-political issue to a technical, economic object . Increasing reliance on technological solutions for urban problems.	Continual transformation of slum definitions, adapting to data-driven and technocratic approaches .

are unfit for human habitation, or are by dilapidation, overcrowding, design of buildings, narrowness of streets, lack of ventilation, light or sanitary facilities or any combination of these factors, are **detrimental to safety, health or moral (Slum Area Improvement and Clearance Act 1956)**.

Status:

An all-India average where the cities with 10 lakh and above population have **over 29% population living in slums**. The percentage of slum population in the four mega cities is – Bombay (over 34%, Calcutta 32%, Madras 32% and Delhi 31%). As much as **65% of Indian cities** have adjoining slums where people live in small houses adjacent to each other.

The role played by Slums in Indian cities

- **Economically:** Slums are often vibrant centres of economic activity as slum workers provide **essential services to the city**.
 - **Informal economy:** Slums are home to a large number of people who work in the **informal sector**, such as rickshaw drivers, street vendors, and construction workers.
 - **Contribution to Urban Workforce:** Many slum residents form an integral part of the urban workforce, providing essential services in **construction, domestic work, transportation**, and other sectors. Their contributions are critical to the functioning of the city.
- **Socially:** Slums are also home to a diverse range of people. This **diversity** can lead to a **vibrant community life**, with people from different cultures coming together to support each other.
 - **Social Networks and Solidarity:** These communities develop strong social networks and a sense of solidarity. Residents support each other through **mutual assistance, shared resources, and collective problem-solving**.
 - These **informal support systems** are vital in the absence of formal social services, creating a sense of belonging and **resilience** within the community.
- **Culturally:** Slums are characterized by their diverse population with people from **different regions, religions, and cultural backgrounds**. This diversity fosters cultural exchange, tolerance, and understanding among residents. Slums can be **dynamic spaces** where **diverse traditions, languages, and cuisines coexist, enriching the social fabric** of the city.

Common problems faced by Slum dwellers



What are Slums?

Slums have been defined as those areas **where buildings**

Government Initiatives for Slum Dwellers/Urban Poor:

- [Pradhan Mantri Garib Kalyan Yojana](#)
- [Atmanirbhar Bharat Abhiyan](#) (self-reliant India).
- [PM- Awas Yojana- Urban](#).

Recommendations for Improving Conditions of Slum Dwellers in India

- Efforts should focus on **addressing the underlying issues, such as poverty, housing, and infrastructure**, while also recognizing the strengths and resilience of slum communities.
- By implementing **inclusive urban policies** and improving living conditions, it is possible to harness the positive aspects of slums while ensuring better opportunities and quality of life for all residents.
 - For e.g. **Dharavi Redevelopment Project** is the makeover of Mumbai's slum cluster, Dharavi. It entails resettling 68,000 people, including slum dwellers and those with commercial establishments.
- **Local authorities** need to be empowered **with financial and human resources** to deliver services and infrastructure to the slum dwellers in India.
- **State governments** have to develop strategies to **prevent the formation of new slums**.
 - These should include access to **affordable land, reasonably priced materials**, employment opportunities, and basic infrastructure and social services.
- **Public investments** must focus on providing **access to basic services and infrastructure**. The cities need to invest in housing, water, sanitation, energy, and urban services, such as garbage disposal.
 - These services and infrastructure must **reach the poor living** in informal settlements.
- **Building codes and regulations** should be realistic and enforceable and reflect the local community's lifestyle and needs.

Conclusion

By addressing the challenges faced by slum dwellers, the **Govt's can help to improve the lives of millions of people and make India a more inclusive society**. Human well-being is broadly considered to include the consumption of goods and services and the **access to basic necessities for a productive and socially meaningful** life to all sections of the population, especially the deprived slum dwellers in India.

Insta Links:

- [Government Initiatives to manage Slums](#)

Mains Links:

Q. Why slums are considered as 'problems' in urban regions?

[Topics: Women and women related issues.](#)

4. CONTRIBUTIONS OF WOMEN AND WOMEN'S MOVEMENT

Context:

The [article](#) highlights the **often-underappreciated role of women in India's journey towards becoming a republic**, focusing on their efforts in securing national freedom and women's rights, particularly the right to vote.

Women's contribution to Freedom Struggle:

Throughout India's struggle for independence, **women emerged as stalwart contributors, playing diverse and pivotal roles** that shaped the trajectory of the freedom movement. Their involvement spanned various spheres, encompassing **leadership, activism, revolutionary endeavours, and community mobilization**.

Women played a multifaceted role in India's freedom struggle:

- **Mass Mobilization:** Women took part in protest marches, boycott campaigns and mass agitations.
 - For example, **Kamaladevi Chattopadhyay led the Salt Satyagraha** in Bombay by mobilizing thousands of women. **Women picketers in Bengal** protested the **Simon Commission** wearing black sarees.
 - Women students joined the **Quit India movement** by going on strikes and processions. This challenged the conservative social norms that restricted women's public presence.
- **Underground Activism:** Women undertook underground and revolutionary activities against British rule.
 - For example: **Bhikaji Cama** unfurled the Indian flag in **Stuttgart, Germany** in 1907 as part of expatriate revolutionary activities. **Kalpana Dutt** transported bombs and weapons for revolutionary groups in Bengal.
 - **Aruna Asaf Ali** went underground during the Quit India movement and carried out sabotage attacks.
 - By directly attacking British institutions, **women shed their conventional non-violent image**.
- **Social Reforms:** Many women connected the national struggle to social reform causes.
 - For example, **Sarojini Naidu, Annie Besant and Vijayalakshmi Pandit** demanded women's political representation and suffrage rights.
 - **Pandita Ramabai** campaigned for widows' rights and reform of Brahminical traditions that suppressed women.
 - **Tarabai Shinde** wrote a landmark feminist critique of patriarchy in her 1882 text **Stri Purush Tulna**.
- **Leadership role:** Beyond these three dimensions, women like **Lakshmi Sahgal, Aruna Asaf Ali, Sucheta Kripalani and Rajkumari Amrit Kaur** held leading organizational positions in the freedom struggle.

Feminist movements in pre-independent India: They played a crucial role in ensuring women's rights were guaranteed in the Constitution.

1. **1917 - Memorandum of Demands:** Women activists presented a memorandum of demands to Montagu and Lord Chelmsford, urging enfranchisement.
2. **1917 - Formation of IWA:** The Women's Indian Association (WIA) was established to address women's socio-economic challenges, becoming the first national body advocating for female suffrage.
3. **1918 - Travel for Support:** WIA and others travelled to Britain in 1918 to garner international support for their causes.
4. **Congress Resolutions:** Sarojini Naidu championed women's rights within the Congress party, moving resolutions for women's enfranchisement in Bijapur and Bombay.
5. **1921 - First Victory:** The Government of India Act, 1919 allowed provincial legislatures to enfranchise women, with Madras becoming the first province to grant women the right to vote in 1921.
6. **1925 - Bengal Campaigns:** The enfranchisement Bill faced defeat in the Bengal Legislative Council. Suffragists, led by the **Bangiya Nari Samaj**, organized extensive awareness campaigns, resulting in the Bill's passage in 1925.
7. **Formation of All India Women's Conference (AIWC):** In 1927, women-led organizations formed the AIWC. Initially focused on women's education, AIWC later advocated against **child marriage, raised the age of consent**, and opposed polygamy.
8. **Nehru Report & Beyond on Right to Vote:** The Nehru Report of 1929 called for equal civic rights, but Britain resisted the expansion of this right.
9. **Government of India Act 1935:** This Act expanded voting rights, enabling women to participate in public offices. In the 1936-37 elections, women leaders advocated for **universal adult franchise**.
10. **Adoption of Indian Woman's Charter:** In 1945-46, AIWC adopted this charter, demanding equality, women's economic empowerment, and reforms in personal laws.
11. **Post-Partition Issue:** After Partition, reservation of seats on religious grounds emerged as a key issue.

Gender equality and women's rights role in Post-Independent India:

- **Constitutional, Institutional and legal-** FR- Right to equality **Art 14, 15 16**, Right to life- **Art 21**,
 - DPSP- **Article 39** requires the State to direct its policy towards securing for men and women equally the right to an adequate means of livelihood, and equal pay for equal work.
 - **Right to property- Art. 300-A**, Universal adult franchise- **Art 326**
 - **National Commission for Women-** review

the Constitutional and Legal safeguards for women, recommend remedial legislative measures, facilitate redressal of grievances and advise the Government on all policy matters affecting women.

- **Laws-** Equal Remuneration Act, 1976, Special Marriage Act 1954, Hindu Succession Act 1956, Dowry Prohibition Act 1961, Domestic Violence Act 2005; etc
- **Economic-** Women have played a pivotal role in helping the growth of the Indian economy. **Women contribute approximately 17-18% of the total GDP.** Although they are strong in the farming and dairy sector, India's rapid urbanization has not yet encouraged more women to join the labour force.
 - **Entrepreneurs-** Many women have **broken the societally imposed glass ceiling** to reach the top positions in organizational ladders. Many have started their own company creating jobs for thousands. Eg- **Kiran Mazumdar Shaw** founder of **Biocon Ltd**, **Falguni Nayar** associated with **Nykaa**.
- **Security-** They **constitute 12% of the Police force, 0.56% of the army, 1.08% of the air force, and 6.5% of the navy.** Women have become Fighter pilots for the Air Force. Thus their role in the security domain is gradually increasing and becoming more significant.
- **Employment-** Women now make up **34% of the IT workforce** in India and the country is now almost at a **50:50 gender parity rate in STEM graduates.**
- **Grass root Democracy-** The 73rd and 74th CAA made provisions for 33% reservation for women in the institutions of local self-government. Participation is crucial in **policy formulation and regulation, Acting as role models for women's empowerment, Empowerment of women, Less corruption** and improved efficiency.
- **Education-** AISHE (All India Survey on Higher Education) 2019-20 report, according to which women in India now hold a **49% share in total enrolment in higher education.**
- **Social Contributions-**
 - **Anti-Dowry movements:** In the 1980s several women's and other progressive organizations formed a joint front in Delhi called "Dahej Virodhi Chetna Manch".
 - **Chipko Movement-** In this movement the women symbolically tied sacred threads around the trees, faced police firing in February 1978, and later courted arrest. This movement continued under the leadership of **Sri Sunderlal Bahuguna** in various villages.
 - **Narmada Bachao Andolan** is one of its kind of a social movement led by **Medha Patkar**. It is the active and huge participation and engagement of women that have led to the huge success of the movement.

Conclusion

Thus, from mass activism to underground attacks to spearheading social reforms, women **played a multifaceted and pivotal role in expanding the scope**, presence and impact of India’s national movement and in post-independent India development.

Insta Links:
[Women’s Liberation Movement](#)

Mains Links

Q. Discuss the significance of contributions made by women freedom fighters during the second half of the 20th century.

Prelims Links:

In the context of Indian history, the Rakhmabai case of (1884) revolved around? (UPSC 2020)

1. women’s right to gain education
2. age of consent
3. restitution of conjugal rights

Select the correct answer using the code given below:

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

Answer: B

[Topics: Distribution of key natural resources across the world \(including South Asia and the Indian subcontinent\)](#)

5. IRON ORE AND STEEL SECTOR IN INDIA

Context:

The [Competition Commission of India](#) (CCI) conducted a **study on iron ore pricing and exports**, highlighting concerns about varied pricing and recommending **discouraging iron ore exports** in the country.

What did CCI say?

Aspect	Details
Concerns Raised by CCI	The recent increase in iron ore exports (low value compared to finished products like steel)
	Allocation of captive mines to certain players creates entry barriers for others and is against competition
	Differential pricing of iron ore for different end-users raises competition concerns.

Key Recommendations by CCI	CCI discourages iron ore exports due to its non-renewable nature and importance to various industries.
	Prioritize export of higher value-added products like finished steel to promote self-reliant India.
	Upgrade iron ore quality using cutting-edge technologies to enhance grade.

What is Iron Ore?

Iron ore refers to **rocks and minerals** from which **metallic iron** can be extracted economically. It typically contains **iron oxides**, and the primary types include **hematite, magnetite, and taconite**.

Status:

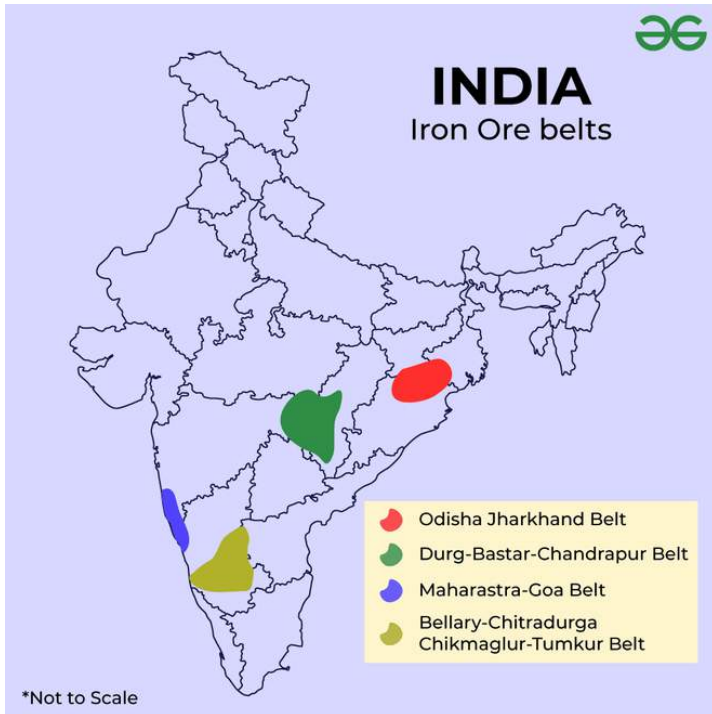
India is **self-sufficient** in iron ore production. It contributes **7%** to global production. India ranks as the **4th largest producer** globally. India is the **2nd largest producer of steel** in the world after China

Distribution of Iron Ore:

- **India** is endowed with abundant resources of iron ore, with **the largest reserve of iron ore in Asia**.
- The iron ore mines occur in close proximity to the **coal fields in the northeastern plateau** region which adds to their advantage.
- **States:**
 - About 95% of total the reserves of iron ore are located in the States of **Odisha, Jharkhand, Chhattisgarh, Karnataka, Goa, Telangana, Andhra Pradesh and Tamil Nadu**.
- **Mines:**
 - **In Odisha**, iron ore occurs in a series of hill ranges in **Sundergarh, Mayurbhanj and Jhar**. The important mines here include **Badampahar (Mayurbhuj), Kiruburu (Kendujhar) and Bonai (Sundergarh)**.
 - **Jharkhand** has some of the oldest iron ore mines and most of the iron and steel plants are located around them.
 - Important mines include **Noamundi and Gua in Poorbi and Pashchimi Singhbhum districts**, further extending to **Durg, Dantewara and Bailadila**.
- **Other regions:**
 - **Karnataka - Sandur-Hospet area of Ballari district, Baba Budan hills** and Kudremukh in Chikkamagaluru district and parts of Shivamogga, Chitradurg and Tumakuru districts.
 - **Chandrapur, Bhandara and Ratnagiri districts of Maharashtra;** Karimnagar and Warangal districts of **Telangana;** Kurnool, Cuddapah and Anantapur districts of **Andhra**

Pradesh; Salem and Nilgiris districts of **Tamil Nadu**

- **Goa** has also emerged as an important producer of iron ore.



Significance of iron ore:

- **International trade:**
 - The two main types of **iron ore** found in India are **haematite and magnetite**. It has great demand in the international market due to **its superior quality**.
- **Industrial use and applications:**
 - Iron ore is the source of primary iron for the **world's iron and steel industries**.
 - It is therefore essential for the production of steel, which in turn is essential to maintain a strong industrial base. **Almost all (98%) iron ore is used in steelmaking**.
- **Larger significance:**
 - Most part of the **economy in the above regions**, especially the four states of Jharkhand, West Bengal, Odisha and Chhattisgarh **revolves around these raw materials** (iron and manganese).

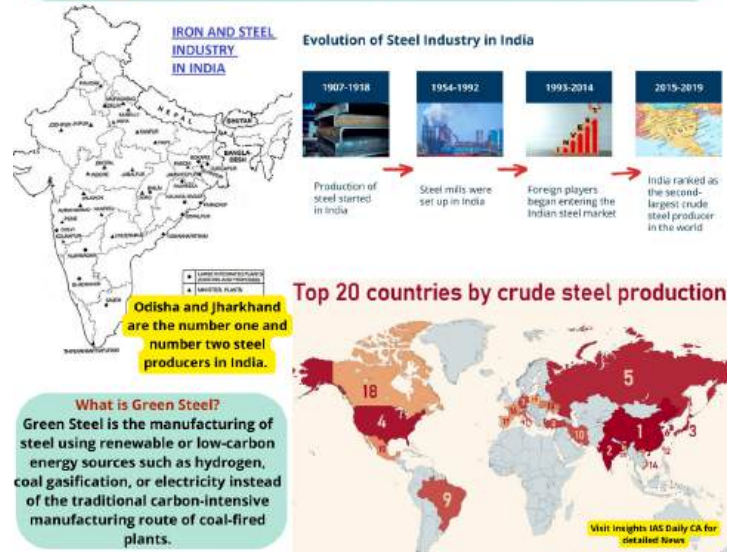
Steel sector in India:

The state of the steel sector in India is key to its economy, accounting for **2% of the GDP** in FY 21-22. The major steel-producing states include Odisha, Jharkhand, Chhattisgarh, Karnataka, Maharashtra, Gujarat, and West Bengal, with **Odisha leading in production**.

Steel Sector in India

Steel manufacturing produces more CO2 than any other heavy industry, comprising around **8%** of total global emissions. India is currently the **world's 2nd largest producer of crude steel**

- **Important steel-producing centers** are Bhilai (Chhattisgarh), Durgapur (West Bengal), Burnpur (West Bengal), Jamshedpur (Jharkhand), Rourkela (Odisha), Bokaro (Jharkhand).
- **Consumption:** India is the 2nd largest consumer of finished steel in 2021 after China



Challenges Faced by the Steel Sector:

Challenges	Details
Barriers to Setting up Modern Steel Plants:	Significant investment is required for modern plants; Reliance on debt financing and high domestic financing costs impact competitiveness
Cyclical Demand and Monsoon Challenges:	Demand is influenced by factors like monsoons; Low-demand periods lead to financial strain and plant closures.
Low Per Capita Consumption	Low per capita steel consumption compared to other developed countries.
Low Investment in R&D	Dependence on international research increases costs, and outdated technologies hamper competitiveness
Environmental Concerns:	The steel industry is a major carbon dioxide producer, and many of the plants don't adhere to green and EIA guidelines
Impact of EU's CBAM:	EU's Carbon Border Adjustment Mechanism (CBAM) from January 1, 2026. Adverse impact on India's exports of metals like iron, steel, and aluminum products to the EU due to additional environmental scrutiny.

Government Initiatives for the Steel Sector in India:

Initiative	Description
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Inclusion of <u>Specialty Steel in the PLI Scheme</u>	The government allocated Rs 6322 crore for a 5-year period to promote <u>specialty steel manufacturing</u> , attract investments, and foster technological advancements.
Green Steel Making	Ministry of Steel constituted 13 Task Forces to discuss and recommend <u>de-carbonization strategies</u> , and the sector is part of <u>the National Green Mission for green hydrogen production</u> .
<u>Purvodaya initiative</u>	Facilitates the <u>establishment of green-field steel clusters</u> in the Eastern states of Chhattisgarh, Jharkhand, West Bengal, Odisha, and Andhra Pradesh.
<u>Steel Scrap Recycling Policy</u>	Notified in 2019, <u>facilitating the establishment of metal scrapping centres</u> for scientific processing and recycling of ferrous scrap, including end-of-life vehicles.
<u>National Steel Policy 2017</u>	Formulated to <u>encourage long-term growth for the Indian steel industry by 2030-31</u> , aligning with infrastructure development, the 'Make-in-India' initiative, and other government schemes.
Steel and Steel Products (Quality Control) Order	Introduced to <u>ban sub-standard/defective steel products</u> , ensuring availability of quality steel conforming to relevant BIS standards.
Safety in the Iron & Steel Sector	Formulated <u>25 common minimum Safety Guidelines in consultation</u> with stakeholders, and academia, and in compliance with global standards and the ILO Code of Practice.
National Metallurgist Award	A prestigious award recognizing <u>outstanding contributions of metallurgists in the iron and steel sector</u> , presented by the Ministry of Steel.

Conclusion:

Engaging with **policymakers and international bodies** is crucial to advocate for **fair CBAM** policies. Collaborative efforts with other industries and countries can address unique challenges in the **Indian steel sector**.

Insta links:
[Steel Sector in India](#)

Mains Links

Q1. Account for the present location of iron and steel industries away from the source of raw material, by giving examples. (UPSC 2020)

Q2. Account for the change in the spatial pattern of the Iron and Steel industry in the world. (UPSC 2014)

Prelims Links

Q. Which of the following are some important pollutants released by the steel industry in India? (UPSC 2014)

1. Oxides of sulphur
2. Oxides of nitrogen
3. Carbon monoxide
4. Carbon dioxide

Select the correct answer using the code given below:

- (a) 1, 3 and 4 only
- (b) 2 and 3 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Ans: D

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.

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

Context:

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

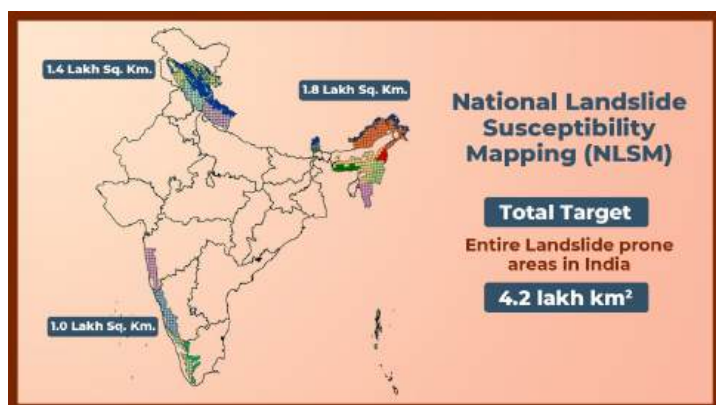
What is Landslide Susceptibility Mapping?

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:

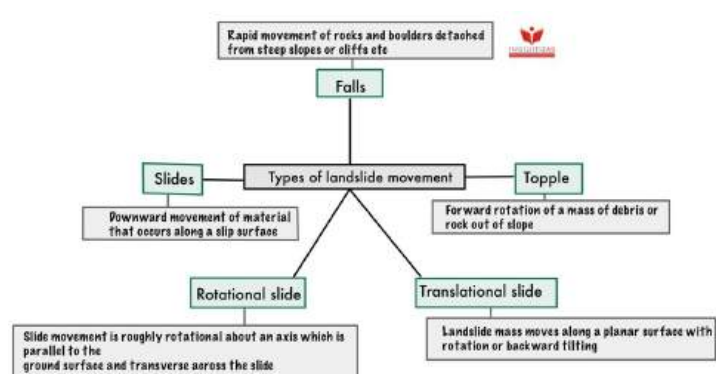
Features	Details
Data Sources	The map incorporates <u>1.5 lakh known landslide events</u> from sources like the Geological Survey of India (GSI). It also considers <u>16 landslide conditioning factors</u> , including soil cover, tree density, proximity to roads or mountains, etc.
Machine Learning Analysis	Ensemble <u>machine learning methods</u> were employed to analyse the data. This involves <u>using multiple machine learning models</u> together to mitigate the impact of any single model's limitations.
High-Resolution Mapping	The map provides a <u>high-resolution overview with a detailed resolution of 100 sqm.</u> , 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.
- Primary Cause:** Rainfall variability, particularly in the **Himalayas and Western Ghats**, stands as the predominant cause of landslides in India.
- Geographical Vulnerability:** Excluding snow-covered areas, **over 12%** of the country’s geographical land area is susceptible to landslides.
- Regional Breakdown:**
 - Over 66% of landslides** occur in the **North-western Himalayas**.
 - Rudraprayag and Tehri Garhwal districts** of Uttarakhand have the **highest landslide density and landslide risk** exposure in the country.
 - About 19% are reported in the **North-eastern Himalayas**.
 - The Western Ghats contribute to **over 14% of landslide events**.
- Impact in the Western Ghats:** Despite fewer occurrences, landslides in the Western Ghats pose significant risks, **especially in Kerala**, making inhabitants vulnerable to fatalities.

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.

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.

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
 - Map the **0.42 million sq. km** landslide-prone areas across India at a **Macro Scale (1:50,000)**
 - Create a **dynamic National Landslide Susceptibility Geodatabase** for India

- Establish a nationwide repository on **GIS-based Landslide Inventory**
 - 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: Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.

1. FISCAL FEDERALISM: DISTRIBUTION OF FUNDS FROM CENTRE TO STATES

Context:

The recent disagreement between the **central and Tamil Nadu governments** over flood relief following heavy rainfall sparked a debate on the criteria for awarding central grants to states.

Also, Uttar Pradesh (UP) has received the highest allocation of funds under the **‘Scheme for Special Assistance to States for Capital Expenditure/Investment’**, while some other states such as Andhra Pradesh, Kerala, Manipur, and Punjab have **received no allocation in 2023-24**

What is Fiscal Federalism?

Fiscal federalism deals with the **division of financial powers as well as the functions** between multiple levels of the government in a country. It has within its ambit the **imposition of taxes as well as the division of different taxes** between the Centre and the constituent units.

Tools for Fiscal Federalism:

Tools	Description
Constitutional Assignment of Powers	The Constitution of India delineates taxation and expenditure powers for different government levels , ensuring clear demarcation between the central and state governments.
Finance Commission	A constitutional body (Art 280) is responsible for recommending tax revenue distribution, suggesting ways to enhance state financial resources, and promoting fiscal discipline.
Goods and Services Tax (GST)	A comprehensive indirect tax replacing multiple central and state taxes on goods and services, administered by a GST Council with representatives from the central and state governments.
Grants-in-Aid System	Involves the discretionary transfer of funds (Art 275) from the central government to state governments for specific purposes or schemes, addressing regional disparities and developmental gaps.

Issues in the Fiscal Federalism in India:

Issues	Details
Central Assistance for Disasters	The Tamil Nadu government requested ₹21,692 crore in relief funds from the Union government due to the disaster caused by Cyclone Michaung . The central government allocated only ₹450 crore to the State Disaster Response Fund (SDRF) and ₹500 crore for a Chennai flood mitigation project.

<p>Scheme for Special Assistance to States for Capital Expenditure/Investment</p>	<p>UP and Bihar lead in meeting criteria for Capital Expenditure, securing the highest allocation in the last four years. However, Uttarakhand, Haryana, Kerala, and Punjab receive 1-2% of the total released amount. Andhra Pradesh, Kerala, Manipur, and Punjab have not received any allocation in 2023-24, as they didn't meet the criteria.</p> <p>The Scheme for Special Assistance to States for Capital Expenditure, initiated in FY 2020-21 during the Covid-19 pandemic, is extended as the 'Scheme for Special Assistance to States for Capital Investment 2023-24' with an allocation of over Rs 1lakh crore.</p>
<p>FRBM Act</p>	<p>Fiscal Responsibility and Budget Management (FRBM) Act, 2003 is applicable to all states. However, many of the states have missed its targets.</p>
<p>Issues w.r.t GST</p>	<p>Financial Autonomy of the State: The GST has taken away much of the autonomy available to states, making the country's indirect tax regime unitary in nature.</p> <p>GST Compensation: The Centre missed the compensation amount, becoming a major point of contention.</p> <p>GST Council: The GST Council's voting structure gives a virtual veto to the central government, sidelining the principle of consensus.</p>

Role of the 15th Finance Commission in fostering fiscal federalism:

- Increased tax devolution to states from 32% to 41%:** This enhances states' fiscal capacity and autonomy on spending, allocating more resources to states for economic development and governance roles. States' fiscal buffer has widened.
- Emphasis on sector-specific purpose-based grants:** The commission has provisioned **Rs 4.36 lakh crore** performance-based grants to states in areas like **health, education, rural connectivity, and water conservation** that address development gaps.
- Boosts local government finance:** The commission mandates a **4.31% share** of the divisible pool for local governments. **Over Rs 2 lakh crore**, grants to urban and rural local bodies strengthen decentralization.

Shortcomings:

- Centre retains larger revenue-raising powers** and control over citizens' vital personal finances & expenditures through GST, corporate taxes etc. constraining states' capacity. RBI's monetary powers also lie with the central government. This **severely skews fiscal imbalance against states.**
- Rigid fiscal consolidation goals** overlook economic constraints: **Mandating 4% fiscal deficit limits** for states could curb their capital spending abilities and reduce fiscal legroom, posing risks amid the economic revival phase.
- Limited sectoral grants in a few specialized domains:** The absence of performance incentives for states in many areas like environmental management, digital governance, and social security benefits leaves critical sectors underfunded hampering states' capacity to uplift them.

Key principles that guided 15th Finance Commission recommendations:

- Equity:** Balanced distribution of resources between the Centre and states based on sound criteria like demographics, development levels etc. to bridge inequality.
- Efficiency:** Results-based incentives were introduced for the first time across sectors like **agriculture, education, and health to boost effective governance.**
- Conditionality:** Certain sector grants are tied to state-level reforms to enable the realization of national priorities like power sector viability and ease of doing business.
- Inclusiveness: Enhanced** funds allocation to deprived groups and backward regions to ensure even development. Also empowered local governments by allotting them a share of central taxes.
- Responsiveness:** Sector-specific grants responsive to emerging priorities like improving air quality, water conservation and metro connectivity made growth more sustainable.
- Cooperative Federalism:** Constant consultation between the Centre and states throughout the Commission's five-year award period to better reconcile national and sub-national priorities.

Suggested measures for improving centre-state fiscal relations:

Suggestions	Proposed Solutions
<p>Equity-Oriented Intergovernmental Transfers</p>	<p>Intergovernmental transfers, like funds from the central government to states, should be designed to promote equity.</p>

Horizontal and Vertical Fiscal Imbalances	Addressing both horizontal imbalances (disparities among states) and vertical imbalances (between central and state governments) is crucial. The devolution formula should be designed to account for both sets of imbalances to ensure that resources are allocated fairly.
Constitutional Reforms	Revisit Articles 246 and the Seventh Schedule to redefine the division of powers and responsibilities between the central and state governments. This can help clarify which functions should be carried out at each level, reducing confusion and enhancing efficiency.
Empowering Local Governments	Strengthen the third tier of government by providing them with adequate resources , functions, and autonomy.
Fiscal Responsibility and Budget Management (FRBM) Act	Align the FRBM Act provisions for both central and state governments to maintain fiscal discipline while accommodating their unique fiscal situations. Promote the implementation of FRBM Acts at the state level, as suggested by the Fourteenth Finance Commission .
Devolving Tax Powers	Provide states with more flexibility and control over taxation, enabling them to generate revenue according to their local economic conditions and priorities.
Cooperative Federalism	Foster a spirit of cooperative federalism where the central and state governments collaborate to design and implement policies that benefit the nation as a whole.
Regularization of Appointments of FC	Implement the recommendations of the Punchhi Commission , which suggested that the Finance Commission's appointment should be regularized to ensure its autonomy and periodic review.
Clear Guidelines for Disaster Relief	There is a need for clear guidelines for disaster relief and debates about the exclusion of long-term restoration works from SDRF/NDRF funding.
Scheme Funds for Disaster Relief	A parliamentary committee recommended in 2021 that states should be allowed to use more than the allocated 25% flexi-fund of centrally sponsored schemes for post-disaster restoration.

Conclusion

A careful re-evaluation of fiscal arrangements, prioritization of central expenditure, and discussions on a new grant framework are crucial for fostering effective fiscal federalism in India. The government has given the **Terms of Reference** of the **16th Finance Commission** in order to better prioritise government finances.

Insta Links:

- [Rethink the dynamics of India's fiscal federalism](#)
- [The poor state of India's fiscal federalism](#)

Prelims Links:

Q. Which of the following is/are included in the capital budget of the Government of India? (UPSC 2016)

1. Expenditure on acquisition of assets like roads, buildings, machinery, etc.
2. Loans received from foreign governments
3. Loans and advances granted to the States and Union Territories

Select the correct answer using the code given below:

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

Ans: D

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

2. 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: Appointment to various Constitutional posts, powers, functions and responsibilities of various Constitutional Bodies.](#)

3. SC DECISION IN DELHI'S CHIEF SECRETARY'S CASE

Context:

The Supreme Court has **permitted a six-month extension to Delhi's Chief Secretary Naresh Kumar**, despite serious charges of **corruption and favouritism against him**.

What is the Issue?

The ongoing issue involves a **constitutional and political debate over the distribution of powers between the elected government of Delhi and the Lieutenant Governor (LG)**. It particularly revolves around the extension of the Chief Secretary's tenure, with conflicts arising from notifications, judicial decisions, and legislative actions.

More on the Issue:

Aspect	Information
Unique Status of National Capital Territory of Delhi	NCT of Delhi is unique, serving as the seat of both the central and Delhi governments . Special provisions ensure cooperation and coordination between them.
Constitutional Head	The Lieutenant Governor (LG) is the constitutional head , representing the President in the NCT of Delhi.
Jurisdiction of LG	Certain subjects like police, public order, and landfall are under LG's jurisdiction, not the elected government of Delhi.
Powers Distribution Debate	Powers and responsibilities between the elected government and LG have been a constitutional and political debate .
Ongoing Tussle	The conflict involves the extension of the Chief Secretary's tenure .
2015 Notification	In 2015, the central government added Entry 41 to Article 239 AA(3(a)) , granting the Delhi LG authority over services, public order, police, and land. The notification specified that the Delhi government couldn't legislate on Entry 41 .
SC Invalidation (2023)	In the 2023 case of the Government of NCT of Delhi v. Union of India , the Supreme Court affirmed Delhi's legislative and executive power over administrative services , except for public order, police, and land. The judgment emphasized the "triple chain of accountability" in representative democracy, stressing civil servants' accountability to the cabinet, the cabinet's accountability to the legislature , and the legislature's periodic accountability to the electorate. Severing this chain undermines the core constitutional principle of representative government .
Central Government's Response	Following the Supreme Court's decision , the Central Government responded by issuing the Government of NCT of Delhi (Amendment) Ordinance to overturn the verdict . The Delhi Government challenged the ordinance in the Supreme Court, leading to the matter being referred to a Constitution Bench. Meanwhile, the Parliament enacted the Government of National Capital Territory of Delhi (Amendment) Act, 2023 , granting overriding powers to the centre in Delhi's administration.
SC judgement (2024)	The judgement to extend the Chief Secretary's tenure by six months reflects this central government authority.

Issues with the Government of NCT of Delhi Act, 2023	The Government of NCT of Delhi Act, 2023, raises critical issues centred on undermining democracy and violating constitutional principles. It erodes the foundations of representative democracy by diminishing the elected Delhi government's authority over services and rendering the roles of the Chief Minister and council of ministers symbolic, as they can be overruled by bureaucrats ultimately accountable to the Lieutenant Governor and the Centre
	This Act contradicts a Supreme Court judgment affirming the Delhi government's legislative and executive powers, excluding public order, police, and land matters, and contravenes Article 239AA , which envisions a harmonious relationship between the Centre and the Delhi government.
	Act infringes upon the constitutional principle of federalism , a fundamental feature, by encroaching upon the domain of the States.

Concerns regarding the recent SC judgement:

1. Firstly, it **deviates from constitutional logic and past wisdom**, questioning the Court's evolving stance on constitutional matters.
2. **The selective application of rules for the Chief Secretary**, exempting him from the government's recommendation, raises doubts about the Court's consistency.
3. **Conflict of interest allegations against the Chief Secretary** and the criteria for tenure extension are not adequately addressed, casting uncertainty on the extension's legitimacy.
4. **The Court's failure to recognize the breakdown in accountability** and neglect of the Chief Secretary's involvement in multiple subjects under the Delhi government's competence are significant oversights.

- **Balancing national and regional interests:** By operating within constitutional boundaries, the Union ensures a delicate balance between national and regional aspirations.
 - It prevents the domination of the central government and safeguards the rights and interests of states, contributing to a more inclusive and equitable governance structure.
- **Role of the Supreme Court:** The Supreme Court of India plays a crucial role in **interpreting the Constitution**, resolving disputes between the Union and states, and maintaining the **balance of power**. It acts as a **neutral arbiter**, ensuring that both the Union and states operate within the constitutional boundaries and adhere to the **principles of cooperative federalism**.

The way forward: Cooperative federalism

- **Proper power balance required:** A diverse and large country like India requires a proper balance between the **pillars of federalism**, i.e., the autonomy of states, national integration, centralisation, decentralisation, nationalisation, and regionalisation.
- **Basic structure:** The **federal nature of the Constitution** is its basic feature and cannot be altered, thus, the stakeholders wielding power intend to protect the federal feature of our Constitution.
- **Distribution of powers:** The Constitution provides States with the power to function independently within the area transcribed by the Constitution. The Union and the States are meant to operate within their assigned legislative domains. The States are not **subservient to the Union**.
 - The **legislative domain of the States is exclusive**, and cannot be interfered with by the Union.
- **Inter-governmental institutions:** Various inter-governmental institutions facilitate cooperation and coordination between the Union and the states. The **Inter-State Council, NITI Aayog, and Finance Commission are** examples of such institutions that provide a platform for dialogue, consultation, and resolution of disputes.

Conclusion:

The way forward involves the **formation of an expert committee comprising legal, constitutional, and administrative experts**. This committee should thoroughly analyze legal and administrative aspects, review precedents, and propose practical solutions to uphold democratic principles and maintain the delicate balance of power.

Insta Links:
[Delhi Government Case Vs LG](#)

Mains Links:
 Q. Discuss the constitutional intricacies surrounding the Government of National Capital Territory of Delhi (Amendment) Act, 2023, and its implications on the relationship between the elected government of Delhi and the central government. (15M)

4. COMPETITION COMMISSION OF INDIA (CCI) ROLE

Context: The **Competition Commission of India (CCI)** plays a crucial role in ensuring fair competition amidst India's rapid technological and economic changes.

What is CCI?

The Competition Commission of India (CCI) is a statutory and quasi-judicial body working under the **Ministry of Corporate Affairs**. It was established under the Competition Act, 2002 for the administration, implementation and enforcement of the Act, and was duly constituted in March 2009.

Objectives:

1. Ensure markets **benefit consumers**.
2. Implement competition policies for **efficient resource utilization**.
3. **Foster fair and healthy competition** for inclusive economic growth.
4. **Ensure alignment of sectoral regulatory laws** with competition law.

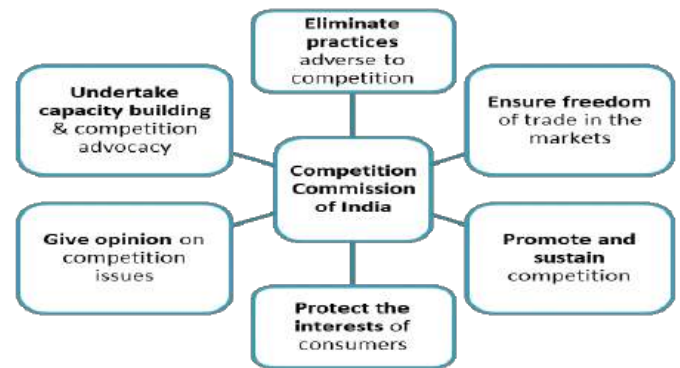
Functions:

1. **Investigate negative** effects on competition.
2. **Regulate mergers** to prevent market capture.
3. **Eliminate anti-competitive practices** and regulate combinations.
4. **Undertake competition advocacy**, create public awareness, and provide training.
5. **Provide opinions on competition** issues referred by statutory authorities.

The role of the competition commission to regulate and achieve the policy goals of competition

- It guarantees that **no enterprise abuses their 'dominant position'** through the control of supply, manipulating purchase prices, or adopting practices that deny market access to other competing firms
 - **For example - It imposed penalties on the BCCI for the abuse of dominant position.** - CCI imposed a penalty of 522 million (US\$7.6 million) on the **BCCI** in 2013 for misusing its dominant position.
- **Secure the interest of consumers and ensure that their welfare is not compromised.**
 - **For example –It played active role in preventing cartelization in the telecom sector.** – CCI ordered a probe into the functioning of **Cellular Operators Association of India (COAI)** following a complaint filed by Reliance Jio against the cartelization by its rivals Bharti Airtel, Vodafone India and Idea cellular.
- **Ensures that foreign companies abide by the country's competition laws.**
 - **For example - It ordered for an anti-trust probe against Google-** for abusing its dominant position with Android to block market rivals.
- **Prevent cartelization**
 - **For example - It has prevented the cartelization of cement companies.** CCI imposed a fine of **63.07 billion** (US\$910 million) on 11 cement companies for cartelisation in June 2012.
- Undertake competition advocacy, create public awareness and impart training on competition issues.
- Ensure smooth alignment of sectoral regulatory laws and competition laws.

- It has **ensured that there is proactive engagement with all stakeholders**, including consumers, industry, government and international jurisdictions.



❖ The recent **The Competition (Amendment) Bill, 2022** and its increased efficiency – It has been introduced to improve regulatory set-up by **increasing the CCI's accountability**, giving it flexibility and enforcement efficiency.

- **Key changes made in the bill**
 - **Increasing transparency and strengthening the accountability:**
 - **A board with part-time members** to supervise CCI activities.
 - CCI to mandatorily **issue penalty guidelines** and give reasons in case of any divergence.
 - **Enforcement efficiency**
 - CCI could engage in structured negotiations with parties and arrive at mutually-workable solutions without having to go through lengthy formal proceedings.

- **Limitations:**
 - The bill does little to **address competition concerns in digital markets**.
 - e.g., mergers concern in digital markets between entities that **do not have significant assets or turnover**, but are still very significant (such as Facebook-WhatsApp).
 - **No effective clause for regulating anti-competitive** conduct by digital platform.

For more on the bill: [Click Here](#)

Initiatives Taken by CCI to Address New-age Challenges:

Initiatives	Description
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Streamlining Processes	CCI has enhanced the efficiency of investigation and decision-making processes , resulting in reduced times for investigations and decisions, ultimately improving overall market efficiency.
Addressing Digital Economy Challenges	CCI is concentrating on scrutinizing practices such as predatory pricing and data monopolisation employed by tech giants in the digital economy to ensure fair competition and prevent market distortions.
Regulatory Framework Evolution	CCI is continuously updating its regulatory framework to remain robust and flexible , aligning with emerging market dynamics and preparing for potential future challenges.
International Cooperation	CCI actively collaborates with global entities, engaging in knowledge-sharing initiatives and working towards harmonizing regulations to ensure effective enforcement in the international context.

Conclusion

Competition commission of India should **enhance its efforts and reach to the technological nuances of the new digital era** and ensure whether these markets are being fairly, effectively, and transparently used for the benefit of consumers.

Insta Links:

- [Competition law amendments: Of penalties and misses](#)

Topics: Statutory, regulatory and various quasi-judicial bodies.

5. NATIONAL HUMAN RIGHTS COMMISSION (NHRC) AND IDATE COMMISSION REPORT

Context:

The National Human Rights Commission (NHRC) emphasized the need to **implement the Idate Commission report**, which recommends establishing a permanent commission for **Nomadic, Semi-Nomadic, and De-Notified Tribes (NTs, SNTs, and DNTs)** in India.

The NHRC called for **repealing the Habitual Offenders Act, 1952**, and suggested appointing a representative of the De-notified Tribe community as per the Act’s stipulations. Additionally, it proposed the non-inclusion of DNTs/NTs/SNTs under SC/ST/OBC categories, formulation of specific policies for them, and addressing challenges in obtaining basic facilities and rights, especially for women and children

among these communities. The discussion highlighted the importance of changing colonial mindsets and ensuring human rights for these tribes.

What are Nomadic Tribes (NTs), Semi-Nomadic Tribes (SNTs), and De-Notified Tribes (DNTs)?

1. **Nomadic Tribes (NTs):** These are communities that migrate from one place to another in search of livelihood. They often do not have a permanent settlement. Examples include the Banjara tribe and the Gujjar tribe.
2. **Semi-Nomadic Tribes (SNTs):** Similar to Nomadic Tribes, SNTs partially practice a nomadic lifestyle. They may have some settled areas but also engage in a nomadic way of life. The Van Gujjars in Northern India are an example.
3. **De-Notified Tribes (DNTs):** These tribes were originally labelled as “criminal tribes” during the British colonial period under the Criminal Tribes Act, 1872. After independence, this label was officially removed, but the stigma persists. The term “De-Notified” refers to the removal of this classification. The Kanjar and Nat communities are examples of De-Notified Tribes.

About the Idate Commission (officially known as the National Commission for Denotified, Nomadic, and Semi-Nomadic Tribes):

It was formed in 2014 with **Bhiku Ramji Idate** as its head. Its primary objectives included creating a comprehensive state-wide catalogue of Denotified, Nomadic, and Semi-Nomadic Tribes (DNTs), identifying those not listed under SCs/STs or OBC categories, and proposing welfare measures for their benefit.

Major recommendations of the Idate Commission:

1. **Establish a permanent commission for the DNTs, SNTs, and NTs** with statutory status.
2. **Establish a separate department** for their welfare in states with their sizable populations.
3. **Conduct a detailed survey of the families of DNTs** to work out their estimated population and their concentration.
4. **Enable legal and constitutional protection** by including a third schedule in the Prevention of Atrocities Act, 1989.
5. **DNTs not included in the SCs/STs/OBCs** list should be listed as OBCs.

About the challenges faced by Denotified, Nomadic, and Semi-Nomadic Tribes (DNTs):

They encounter various challenges as **they lack a centralized list and recognition as a distinct group under the Constitution**, similar to Scheduled Castes (SC) or Scheduled Tribes (ST). These communities often fall outside the scope of government welfare initiatives, facing issues such as limited

education and inadequate access to essential infrastructure like drinking water, shelter, and healthcare.

Steps taken by the government

- 1. Development and Welfare Board for DNTs** Established in 2019 (based on the recommendations of the Idate Commission) for a period of 3 years (extendable to 5 years)
- 2. Scheme for Economic Empowerment of DNTs (SEED)** for educational empowerment, health insurance, livelihoods and housing.
- 3. A committee has also been set up by the NITI Aayog** to complete the process of identification of the De-Notified, Nomadic and Semi-Nomadic Communities (DNCs)

About NHRC:

The National Human Rights Commission (NHRC) is a **statutory body** established in India to safeguard and promote human rights in the country. It was established under the **Protection of Human Rights Act, 1993**, with a mandate to address human rights violations, provide remedies to victims, and create awareness about human rights principles among the public.

The mandate of the National Human Rights Commission (NHRC):

Mandate of NHRC	Description
Investigate Human Rights Violations	The NHRC is responsible for investigating and inquiring into complaints of human rights violations , covering civil, political, economic, social, and cultural rights.
Recommend Remedial Measures	After investigation, the NHRC has the authority to recommend remedial measures to the concerned authorities for the protection and promotion of human rights . This includes suggestions for compensation, rehabilitation, and legal action against the perpetrators.
Spread Awareness and Education	The NHRC is tasked with spreading awareness about human rights, promoting human rights education , and conducting research on various issues related to human rights in India.
Monitor State and Central Government Actions	The NHRC monitors the actions of both state and central government authorities to ensure compliance with human rights standards and principles.
Provide Assistance and Advice	The NHRC provides assistance and advice to individuals, groups, and organizations on human rights issues , offering guidance and support in addressing violations or concerns.

Promote Human Rights Culture	The NHRC aims to promote a culture of human rights by organizing seminars, workshops, and campaigns on various human rights issues. It collaborates with civil society organizations, academia, and other stakeholders to create awareness and advocacy for human rights.
Cooperation with International Bodies	The NHRC collaborates with international organizations, including the United Nations and its agencies , to exchange information, expertise, and best practices in the field of human rights. This fosters cooperation on a global scale to address and advance human rights concerns.

Evaluation of its success in achieving its objectives:

Positives:

- Investigation of Human Rights Violations:** The NHRC has been successful in investigating numerous cases of human rights violations in India.
 - As of September 2021, the **NHRC had registered over 17,000 cases** and completed inquiries in more than 13,000 cases.
- Recommendations for Remedial Measures:** The NHRC’s recommendations have led to positive changes and accountability in some cases.
 - One notable example is the **NHRC’s intervention in the encounter killings in Manipur**, where it recommended the registration of FIRs, compensation to the victims’ families, and disciplinary action against the involved security personnel. From 1993 to 2021, the NHRC awarded monetary relief amounting to over Rs. 200 crores in cases of custodial deaths.
- Awareness and Education:** The NHRC has played a crucial role in spreading awareness about human rights through its campaigns, workshops, and publications.
 - As of 2020, the NHRC had organized **more than 5,000 human rights awareness** programs across the country.
- Monitoring of Prisons and Jails:** The NHRC has the authority to visit and inspect prisons, jails, and detention centres to ensure the protection of the human rights of inmates.
 - It conducts regular inspections and takes appropriate** actions to address issues such as overcrowding, torture, and other forms of ill-treatment.
- International Engagement:** The NHRC actively participates in international human rights forums and collaborates with international organizations. It engages in dialogue with various countries and shares best practices in the promotion and protection of human rights.

Negatives:

- Implementation and Enforcement:** Despite its recommendations, the implementation of NHRC’s di-

rectives by the concerned authorities has been a challenge. In some cases, the authorities have **failed to take adequate action, leading to a lack of accountability and justice.**

- **Limited Jurisdiction:** It does not have jurisdiction over human rights violations by non-state actors, such as private companies. NHRC is also limited by temporal jurisdiction of **cases violation limited to the past 1 year.**
- **Delayed Justice:** For instance, the NHRC's recommendations in cases of extrajudicial killings and custodial deaths have not always led to prompt action and redress for the victims and their families.
- **Limited Resources and Staffing:** The NHRC has often faced resource constraints, including limited budgetary allocations and understaffing. This hampers its ability to effectively handle a large number of complaints and conduct comprehensive investigations in a timely manner.

Conclusion:

The National Human Rights Commission (NHRC) plays a **crucial role in promoting and protecting human rights** in India. The Supreme Court has emphasized the need to provide the NHRC with greater autonomy, independence, and financial resources to enhance its effectiveness in addressing human rights issues.

Insta Links:

- [National Human Rights Commission](#)

Prelims Links:

Q. Other than the Fundamental Rights, which of the following parts of the Constitution of India reflect/reflects the principles and provisions of the Universal Declaration of Human Rights (1948)? (UPSC 2020)

1. Preamble
2. Directive Principles of State Policy
3. Fundamental Duties

Select the correct answer using the code given below:

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

Ans: D

Q. Consider the following: (UPSC 2011)

1. Right to education
2. Right to equal access to public service
3. Right to food.

Which of the above is/are Human Right/Human Rights under "Universal Declaration of Human Rights"?

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

Ans: D

Topics: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

6. PERFORMANCE OF MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE ACT (MGNREGA)

Context:

The Centre has **mandated the payment of all wages under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** through an Aadhaar-based payment system (ABPS), starting from Jan 1st, 2024.

- **Exceptions:** The government may consider **exemptions for Gram Panchayats** facing technical or Aadhaar-related issues.
- **Aim of the move:** The move aims to **curb corruption, ensure prompt payments**, and reduce rejections, affecting more than 1100 government schemes and programs.

What is MGNREGA?

The **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** is a **rural employment program** in India that aims to provide **guaranteed wage employment to rural households**. The scheme has been implemented in India since **2005** and has been credited with providing a **safety net for rural households**, particularly during times of **economic hardship**.



What is ABPS?

Aadhaar-based payment system (ABPS) (it has been in use since 2017). ABPS utilizes the **worker's 12-digit Aadhaar number** as their financial address, requiring linkage to job cards, bank accounts, and the **National Payments Corpo-**

ration of India (NCPI) database. Some notable programs where ABPS is mandatory include Pradhan Mantri Ujjwala Yojana, Pradhan Mantri Awas Yojna, Pradhan Mantri Fasal Bima Yojana, and Atal Pension Yojana.

The situation of stagnant growth in Rural India:

Stagnant rural wage growth has posed a challenge to the recovery because it has been the result of unemployment among the rural population resulting in significant demand reduction in the rural area.

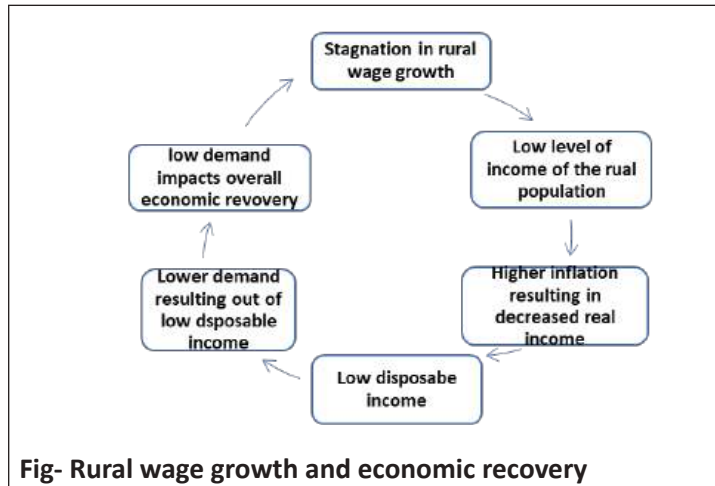


Fig- Rural wage growth and economic recovery

Performance of MGNREGA IN ALLEVIATING RURAL POVERTY

- **Providing a safety net for rural households:** providing 100 days of guaranteed work, has ensured a **minimum level of income** for rural households, particularly during periods of hardship.
 - Ex- **COVID- wages earned under the Act helped compensate somewhere between 20% and 80% of the income loss incurred because of the lockdown- study by Ajim Premji Institute.**
- **Improving rural livelihoods:** The program has helped provide a source of **additional income**. This has helped to increase the overall standard of living in rural areas.
- **Creating employment opportunities:** MGNREGA has helped reduce **unemployment and underemployment** in rural areas. **113.7 million households were employed under MGNREGS, while a total of 2.89 billion person-days of employment were generated in 2022- Ministry of Rural Development.**
- **Development of agriculture-** Activities such as the construction of **bunds, terracing, and the improvement of irrigation systems have helped increase agricultural income.**
- **Improving rural infrastructure:** MGNREGA has been used to finance a wide range of public works activities, including the creation of **rural roads, water bodies, and rural housing.**
- **Supporting rural health systems:** MGNREGA has led to the construction of health facilities and sanitation systems in rural areas. Ex- construction of toilets.

- **Providing food security:** MGNREGA was used for the construction of community kitchens and food storage facilities in rural areas. This helped to ensure that rural households had access to food during the pandemic.
- **Reducing migration:** MGNREGA has helped to reduce migration from rural to urban areas by providing employment opportunities in rural areas. This has helped to keep families together.

According to the **National Council of Applied Economic Research (NCAER)**, MGNREGA has played a vital role in reducing poverty **among the poor as well as the socially weaker sections** such as Dalits, tribals and marginal farmers.

Issues with MGNREGA:

1. **Limited Coverage (not in the urban areas)**
2. **Lack of adequate funding, bureaucratic delays, corruption**
3. **Low Wages**
4. **Lack of Skilled Jobs**
5. **Limited Impact on** Poverty Reduction Workers not receiving timely payment and the quality of work is subpar.
6. Despite multiple deadline extensions, over **34% of registered job card** holders and over **12% of active workers** remain ineligible for ABPS as of December 27 (2023).
7. The push for ABPS eligibility has led to the deletion of over **7 crore job cards** in the past 21 months, causing concerns about denial of the **right to work**.
8. Activists call for the **revocation of mandatory ABPS implementation and the reinstatement** of deleted workers with due compensation. The government argues that ABPS will enhance efficiency and reduce payment rejections.

Measures needed to improve the performance of MGNREGA

- **Increased allocation of funds:** To fully realize the potential of MGNREGA, it is important to allocate sufficient funds to the scheme. In the **2023-24 budget, Rs.60,000** was allocated towards MGNREGA, which after payment of existing liabilities can provide **only 17 days** of work-study by PAEG.
- **Better targeting of beneficiaries:** The current targeting mechanism for MGNREGA beneficiaries needs to be improved to ensure that the benefits of the scheme reach the most vulnerable and marginalized groups in society, including **women, Dalits, and Adivasis.**
- **Improved monitoring and evaluation:** through **Social audits** to enforce greater accountability.
- **Increase MGNREGA wage rates-** to at least the state minimum wage or **₹375 per day** as recommended by the **Anoop Satpathy Committee** and index with CPIR.

- **Strengthening the role of gram panchayats:** they should be provided with adequate resources (advanced funds), powers, and responsibilities to sanction works, provide work on demand, and authorise wage payments to ensure there are no delays in payments.
- **Increased participation of women:** The participation of women in MGNREGA needs to be increased to ensure that the scheme provides equal opportunities for both men and women and that women are able to access the benefits of the scheme.
- **Linking with other development programs:** to ensure that the scheme contributes to the overall development of rural areas. Ex-National Bamboo Mission, Rashtriya Krishi Vikas Yojana.
- **Awareness generation-** displaying a 'Know Your Rights (KYR)' concerning MGNREGA in public places, usage of **ombudsman app** for grievance redressal.

Conclusion

MGNREGA was regarded as a **stellar example of rural development by the World Development Report of 2014**. While the MNREGA has noble goals and has provided some employment opportunities to rural workers, it has faced several limitations that have prevented it from achieving its full potential as a poverty reduction program.

Insta Links:

- [MGNREGS social audit](#)
- [MGNREGS](#)

7. REGULATING INDIA'S ONLINE GAMING INDUSTRY

Context:

The [article](#) emphasizes the **need for robust regulation in India's online gaming** industry due to emerging market failures, including concerns about addiction, mental health, financial fraud, and national security issues.

What is Online gaming?

It refers to **video games/mobile games** that are played over the internet through various devices. E.g., multiplayer online battle arena (MOBA) games, first-person shooter (FPS) games, massively multiplayer online role-playing games (MMORPGs), and many others.

Types of online gaming:

1. **e-sports** (well-organized electronic sports which include professional players),
2. Fantasy sports
3. **Casual games:** these can be either skill-based (mental skill) or chance-based (based on a random activity like a roll of a dice) online games.

Issues with Online Gaming:

Issues	Description
Addiction	Online gaming addiction can lead to physical and psychological harm , as well as interfere with daily life activities.
	Gambling addiction: Online gambling games can lead to addiction and financial problems.
Cyberbullying	Online gaming can involve communication with other players through chat or voice features, which can lead to cyberbullying and harassment .
Security risks	Online gaming platforms are at risk of cyber-attacks and data breaches , which can result in compromised personal and financial information.
Inappropriate content	It can contain violent, sexual, or other inappropriate content that is not suitable for all ages.
Ethical Concerns	It can perpetuate negative stereotypes and biases , particularly towards marginalized groups; In-game purchases can lead to overspending or exploiting vulnerable individuals .
Cheating and hacking	It can be prone to cheating and hacking , which can ruin the gameplay experience for others.
Physical and health issues	Long periods of sitting and staring at a screen can cause physical health problems such as eyestrain, back pain, and carpal tunnel syndrome .
Social isolation	Excessive online gaming can lead to social isolation and a lack of face-to-face communication with others.
Loss of Tax revenue	The growth of illegal offshore gambling markets is identified as a major challenge, leading to potential harm to users and substantial losses in tax revenue .

Ministry of Electronics and IT (MeitY) has released the Draft Rules for Online Gaming (as an amendment to the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**)

Provisions	Description
Self-Regulatory Body	Online gaming companies must register with a self-regulatory body .
	The body must have a board of directors with five members from diverse fields, including online gaming, public policy, IT, psychology, and medicine .

Due Diligence	Online gaming companies must undertake additional due diligence , including KYC of users, transparent withdrawal and refund of money, and a fair distribution of winnings.
Random Number Generation Certificate	Gaming companies must secure a Random Number Generation Certificate , typically used for card games, to ensure that game outputs are statistically random and unpredictable.
Restrictions on Betting	Online gaming companies will not be allowed to engage in betting on the outcome of games.
Compliance	Online gaming platforms must appoint a compliance officer , a nodal officer, and a grievance officer.

Other regulations:

- State subject:** Online gaming so far has been a state subject, but state governments are finding it extremely difficult to enforce certain rules like **geo-blocking certain apps or websites within the territory of their state.**
- Tamil Nadu Prohibition of Online Gambling and Regulation of Online Games Bill, 2022** prohibits all forms of online gambling and allows for the regulation of online games that are not considered gambling.
 - The bill prohibits minors from participating in online games and prohibits the promotion of online gambling** and gaming through advertising or other means.
- Karnataka government** had previously **banned all forms of online gaming** where the transfer of money is involved
- GST:** A proposed **28% Goods and Services Tax** that may soon be imposed on deposits

Case study: UK Model for Regulation

The UK model for online gaming regulation involves a **centralized government regulator that enforces strict measures to ensure player protection.** Quarterly reports on regulatory effects are published, **imposing significant fines** on operators violating player protection requirements. This strict enforcement, coupled with harm reduction efforts, has led to a **decline in disordered gaming and risky behaviour**

For: Voluntary Code of Ethics by the Online Gaming Industry: [Click here](#)

Way forward:

Clear and consistent regulations, responsible gaming measures, industry self-regulation, public awareness campaigns, and collaboration between industry and government can all help to create a sustainable and responsible online

gaming industry in India.

Conclusion:

The online gaming industry in India can continue to grow and provide entertainment and employment opportunities while also protecting players and promoting responsible gaming practices

Insta Links

[Online gaming](#)

Mains Links:

Q. “Internet gaming has turned worse than drugs”. Do you agree? Critically examine the statement in light of the announcement made by the World Health Organization (WHO) to include “gaming disorder” as a mental health condition. (250 words)

Q. How does gaming addiction, impact children? Do you think China’s recent imposition of a three-hour limit on gaming, is a good way to tackle it? (150 words)

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

8. 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 organisations (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 signifi-

cant impact.

- c. **Technology Utilization:** Increased use of data and digital technology can enhance the effectiveness of charitable organizations.
- 3. **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.
- 4. **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.
- 5. **Learning from the Gandhian constructive movement**, which complemented the Congress system – an electoral and governance machine.
- 6. **CSOs will need to urgently collaborate** with other progressive stakeholders.
- 7. **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)

Topics: Important aspects of governance, transparency and accountability, e-governance applications, models, successes, limitations, and potential; citizens charters, transparency & accountability and institutional and other measures.

9. RBI REPORT ON PANCHAYATI RAJ INSTITUTIONS (PRIS)

Context:

The [Reserve Bank of India](#) (RBI) report highlights financial challenges faced by Panchayati Raj Institutions (PRIs), **with 95% of their revenues coming from grants, limiting their spending capacity.**

About PRI:

The 73rd Constitutional Amendment Act (1992) institutionalized Panchayati Raj Institutions (PRIs) with a **three-tier structure:** Gram Panchayat at the village level, Panchayat Samiti at the intermediate/block level, and Zila Parishad at the district level. PRIs **operate under 29 subjects** outlined in the **11th Schedule of the Constitution.**

Source of Finance for PRIs:

Local government revenue sources include:

1. **Central Finance Commission Grants** (Tax devolution) and other Grants from the Central Government
2. Tolls, taxes, duties, and fees collected by the **State government on behalf of local bodies** (State Finance Commissions Transfer); Grants in aid, etc.
3. PRIs have the authority, **as per Article 243-H**, to impose, collect, and allocate taxes, duties, tolls, and fees.

Key point of the RBI report:

Aspect	Overview
Own Revenue Sources	Panchayats rely on limited sources like property taxes, fees, and fines, constituting a minor share of their revenue. Own revenues, generated through local taxes, contribute only about 1.1% to their total revenue in 2022-23
Low expenditure	Revenue expenditure of panchayats is less than 0.6% of the gross state domestic product for all states.
Grant Dependency	Approximately 95% of Panchayats' revenues come in the form of grants from higher government levels , limiting their financial autonomy.
Inter-State Variations in Devolution	Significant variations exist in the devolution of powers and functions to Panchayats across states. States with higher devolution levels show improved socio-economic outcomes.
Inconsistency in Data	The assessment of the fiscal health of Panchayati Raj Institutions is hindered by inconsistent data on their finances.
Challenges in Local Tax Revenue Generation	Panchayats face challenges in generating local tax revenue due to a limited tax base, administrative infrastructure shortages, lack of trained staff, and unclear guidelines.

Improve the fiscal position of PRIs by:

1. **Boosting revenue-generating** capabilities to enhance financial autonomy.
2. **Effectively implementing Article 243 (I)** for fair revenue sharing through established Finance Commissions.

3. **Strengthening local administrative skills** for better financial management and ensuring consistent funding for effective planning and execution.
4. **Drawing insights from global models**, like Finland and Switzerland, where local governments manage substantial tax revenue.
5. **Promoting decentralization** to empower local leaders in making community-specific decisions based on needs and circumstances.

Other Limitations of Panchayati Raj Institutions:

- **Capacity and Skill Gap:** A survey conducted by the World Bank in 2018 revealed **significant variations in the capacity and resources** of Panchayati Raj Institutions, lacking even the most basic staff and infrastructure.
- **Political Interference:** The Asian Development Bank, in its report on PRIs, highlighted instances of political interference in the functioning of PRIs.
- **Inadequate representation of marginalized sections:** While reserved seats for SCs, STs, and women have enhanced their representation, the overall representation of marginalized sections in PRIs may still be inadequate. In some cases, these reserved seats are occupied by **proxy candidates like Panchayat Pati**.
- **Limited awareness and participation:** The Centre for the Study of Developing Societies (CSDS) conducted a survey that revealed that awareness about Panchayati Raj Institutions among rural citizens is relatively low, **with only 45% of respondents having heard of their local Panchayat**.

Successes of Panchayati Raj Institutions:

- **Empowering communities:** As of 2021, there are **over 2.5 lakh** Panchayati Raj Institutions in India, comprising approximately 30 lakh elected representatives at the village, intermediate, and district levels.
- **Strengthening inclusivity:** As of 2021, approximately 24% of seats in PRIs are reserved for SCs about 17% for STs and around 44% of the total seats in PRIs are reserved for women.
- **Grassroots democracy:** They have created opportunities for direct participation and involvement in local decision-making, enabling citizens to shape the development agenda according to their needs and aspirations.
- **Local development initiatives:** For instance, **Village Development Plans (VDPs)** prepared by PRIs involve the participation of community members.
- **Accountability and transparency:** Through regular meetings, audits, and social audits, PRIs ensure that public funds are utilized efficiently and that the decision-making process is transparent and accountable to the community.
- **Social harmony and conflict resolution:** The inclusive nature of these institutions and their emphasis on participatory decision-making have created platforms for dialogue and consensus-building, leading to the resolution of various social and community issues.

Way Forward

- **Strengthen financial autonomy:** Explore innovative financing mechanisms, such as **participatory budgeting and community-led fundraising**, to enhance the financial autonomy of PRIs.
- **Capacity building and training:** The Ministry of Panchayati Raj has also initiated various capacity-building programs, such as the **Panchayat Empowerment and Accountability Incentive Scheme (PEAIS)**.
- **Enhance representation of marginalized sections:** Ensure the effective implementation of reservation policies to increase the representation of women, SCs, STs, and other marginalized communities in PRIs.
- **Embrace technology and digital platforms:** Digital platforms such as e-Panchayat, Panchayat Enterprise Suite (PES), and PRIASoft have been implemented for this.

Conclusion:

These measures can contribute to the continuous improvement of Panchayati Raj Institutions, empowering communities, fostering inclusivity, and shaping a stronger democracy from the ground up.

List of Various Committees for PRI:

Committee	Focus
Balwant Rai Mehta Committee (1957)	Recommended the three-tier Panchayati Raj system, comprising Gram Panchayats (village level), Panchayat Samitis (block level), and Zilla Parishads (district level)
Ashok Mehta Committee (1977)	Focused on strengthening financial resources and functional autonomy of Panchayats .
G.V.K. Rao Committee (1985)	Emphasized the need for regular elections and greater participation of women and marginalized communities.
L.M. Singhvi Committee (1986)	Recommended measures to address financial constraints and improve administrative efficiency of Panchayats.
P.K. Thungan Committee (1989)	Proposed electoral reforms and devolution of more power and functions to Panchayats .
Harlal Singh Kharrar Committee (1990)	Focused on ensuring timely elections and strengthening accountability mechanisms .
Natarajan Committee (1996)	Assessed the implementation of the 73rd Amendment and recommended further devolution of power and resources .

Vikram Singh Malik Committee (2001)	Proposed measures to address corruption and promote transparency in Panchayati Raj institutions.
Sachar Committee (2006)	Highlighted the need for greater representation and empowerment of women in Panchayats .
M.V. Rajwade Committee (2017)	Reviewed the functioning of Gram Sabhas and recommended steps to enhance their participation and effectiveness .

International Agreements and Treaties	Frameworks like the Nuclear Non-Proliferation Treaty (NPT) , Comprehensive Nuclear-Test-Ban Treaty (CTBT) , and others establish norms, regulations, and obligations related to nuclear activities.
International Organizations and Agencies	Bodies like the International Atomic Energy Agency (IAEA) oversee nuclear activities, and inspections, and promote nuclear safety and security worldwide.

Topics: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

10. GLOBAL NUCLEAR ORDER (GNO) IS UNDER STRAIN

Context:

The global nuclear order (GNO), established **during the Cold War**, faces significant challenges.

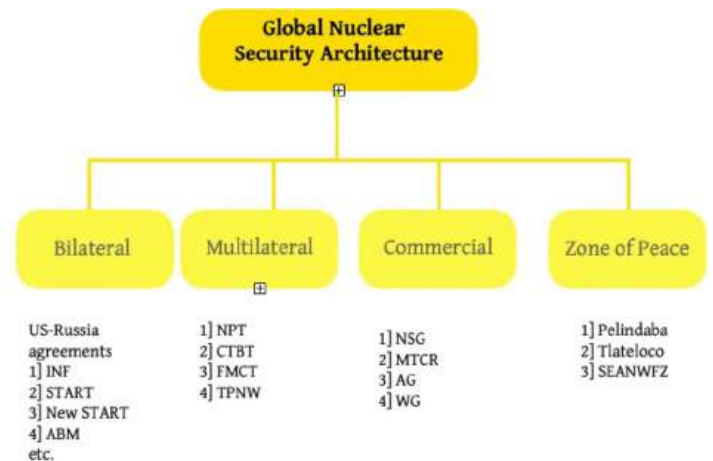
What is the global nuclear order (GNO)?

The global nuclear order (GNO) refers to the **established framework, rules, and agreements governing the use and proliferation of nuclear weapons** on a global scale.

E.g., the **Nuclear Non-Proliferation Treaty (NPT)** aims to prevent the spread of nuclear weapons and promote disarmament.

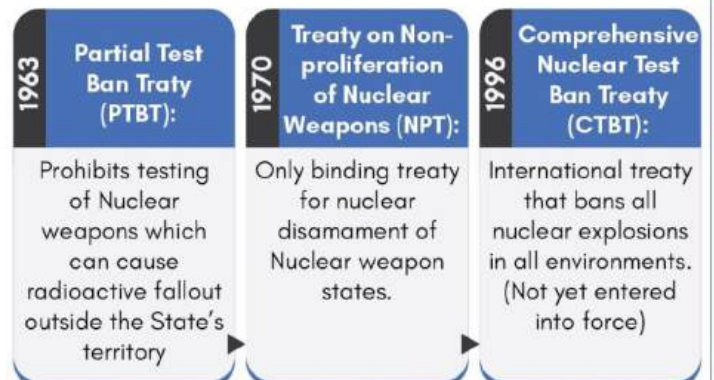
Key Components of the Global Nuclear Order:

Key Components	Description
Non-Proliferation	Efforts to prevent the spread of nuclear weapons to additional states.
Disarmament	Initiatives aimed at reducing and ultimately eliminating nuclear arsenals globally.
Nuclear Material Security	Measures to safeguard nuclear materials, facilities, and technologies from theft, sabotage , or unauthorized access.
Peaceful Use of Nuclear Energy	Promotion of nuclear technology for peaceful purposes such as electricity generation, medicine, agriculture, and industry .



Out of these, three important treaties for GNO are:

KEY TREATIES FOR NUCLEAR DISARMAMENT, ARMS CONTROL AND NON-PROLIFERATION



Global Nuclear Order (GNO) Significance:

- Preventing Proliferation:** Preventing widespread possession.
- Ensuring Stability:** Arms control negotiations achieved **strategic parity**, fostering stability in the arms race and crisis management since 1945

Current status of GNO:

As per the Stockholm International Peace Research Institute (SIPRI)

- Nine nuclear-armed states**, including prominent players like the United States, Russia, and China, are actively engaged in the **modernization and expansion**

- sion of their nuclear arsenals.
- Total global inventory:** It is approximately **12,512 warheads**, with a significant portion, around 9,576, held in military stockpiles for potential use.
 - Dominance in nuclear capabilities:** It remains concentrated in **Russia and the United States**, which collectively possess nearly **90% of all nuclear weapons**

Issues/concerns with Current GNO:

Concerns	Description
Shift from Bipolarity to Multipolarity	The rise of China introduces a new dynamic in nuclear relations, shifting from the previous bipolar order.
Changes in the U.S.-Russia Treaties	Withdrawals from key treaties like ABM and INF , along with uncertainties surrounding the New START Treaty .
New Nuclear Peer Rivals	The U.S. facing two nuclear peer rivals (Russia and China), with added uncertainties arising from the Ukraine war .
Shifts in Technology	Evolving nuclear technology and instances of biased dealings, such as the AUKUS deal with Australia, raise concerns in the NPT community.
Changing Perspective	Shifts in the nuclear perspectives of nations like South Korea and Japan, with considerations for national nuclear deterrents .
Arms Control	Challenges in implementing existing agreements like NPT and lack of progress in disarmament efforts.
Modernization and Technology	Ongoing modernization of nuclear arsenals , including advanced and potentially destabilizing technologies.
Emerging Threats and Actors	Risks associated with non-state actors or rogue states acquiring nuclear materials or technology.

India’s Position on the Global Nuclear Order:

- Nuclear Disarmament:** India supports complete disarmament within a specified timeframe
- The doctrine of ‘No First Use’ (NFU) of nuclear weapons:** The doctrine was formally adopted in January 2003, and says that nuclear weapons will only be used in retaliation against a nuclear attack on Indian territory or on Indian forces anywhere
 - Last year, the Indian Defence Minister said that the **‘no first use nuclear policy’ of India** may change in the future.
- Advocate for Global Disarmament:** India advocates for global nuclear disarmament while seeking recognition as a responsible nuclear power.
- Non-Signatory to NPT and CTBT:** India distinguishes itself by not being a signatory to the Nuclear

Non-Proliferation Treaty (NPT) and CTBT, as it deems them discriminatory

- India’s **non-signatory status** to the NPT creates complexities in its relationship with the global nuclear order, having developed its nuclear program independently.
- Nuclear Arsenal Expansion:** India’s ongoing expansion and modernization of its nuclear arsenal raise concerns about regional stability, especially given tensions with **Pakistan and the strategic rivalry with China**.
 - Relations with Pakistan:** The nuclear dynamics between India and Pakistan pose challenges
 - China Factor:** India’s nuclear policy is influenced by its **relations with China**, and as China modernizes its nuclear capabilities, India might feel compelled to bolster its arsenal

Way forward:

Creating a **just, safe, and improved Global Nuclear Order** requires a comprehensive approach integrating **diplomacy, technology, governance, and international cooperation**.

Key steps include:

- Encouraging disarmament** through significant and verifiable reductions in nuclear arsenals
- Strengthening **non-proliferation efforts**
- Fostering **inclusive dialogue** among all stakeholders
- Monitoring** emerging technologies for potential risks
- Supporting new treaties like the **Treaty on the Prohibition of Nuclear Weapons (TPNW)** while engaging nuclear-armed states in discussions for a nuclear-free world.
- India:** India must focus on **maintaining stability in its region**, engaging in dialogue with Pakistan and China, and ensuring the safe and responsible management of its nuclear arsenal.

Conclusion:

The **legitimacy of any global nuclear order** hinges on two vital conditions: achieving **convergence among major powers** and effectively portraying the outcomes as a global public good for the rest of the world. These conditions underscore **the necessity for collaboration, transparency, and shared responsibility** in shaping a stable and just global nuclear order.

Insta links:

- [Nuclear Non-proliferation Treaty](#)
- [Evolution of India’s nuclear policy](#)

Prelims Links:

Q. Consider the following countries: (UPSC 2015)

1. China
2. France
3. India
4. Israel
5. Pakistan

Which among the above are Nuclear Weapons States as recognized by the Treaty on the Non-Proliferation of Nuclear Weapons, commonly known as the Nuclear Non-Proliferation Treaty (NPT)?

- (a) 1 and 2 only
- (b) 1, 3, 4 and 5 only
- (c) 2, 4 and 5 only
- (d) 1, 2, 3, 4 and 5

Ans: (a)

GENERAL STUDIES – 3

Topics: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

1. APPRAISAL OF IBC

Context:

The [article](#) assesses the **effectiveness of India’s Insolvency and Bankruptcy Code (IBC), enacted in 2016**, in resolving financial distress and enhancing economic well-being. The IBC aims to address Non-performing Assets (NPAs) and debt defaults.

What is IBC?

The **Insolvency and Bankruptcy Code (IBC), enacted in 2016**, is a comprehensive legal framework in India that replaced existing laws related to insolvency and bankruptcy. It provides a uniform procedure for resolving financial distress, **addressing Non-performing Assets (NPAs), and managing debt defaults**. The primary goal of the IBC is to streamline and expedite the resolution of insolvency and bankruptcy disputes in a time-bound manner.

IBC and its performance

1. **Initiated cultural shift:** The IBC has initiated a cultural shift in the dynamics between lender and borrower, promoter and creditor. It played a critical role in reshaping the behaviour of borrowers.
 - a. Before the enactment of the IBC, the recovery mechanisms available to lenders were **through Lok Adalat, the Debt Recovery Tribunal and the SARFAESI Act**.
 - b. While the earlier mechanisms resulted in a **low average recovery of 23%, the recoveries have risen to 43% under the IBC regime**.

2. **Reduction in NPAs:** IBC significantly reduced banks’ NPA rate, dropping from **14.8%** (September 2018) to **3.2%** (September 2023).
3. **Increase in Bank Profits:** Banks experienced a turnaround, achieving a historic profit of **€2.63 trillion** in 2022-23, compared to a loss in 2017-18.
4. **Improvement in Corporate Balance Sheets:** Post-IBC, firms demonstrated enhanced performance with robust balance sheets, improved leverage management, and an interest coverage ratio exceeding **3.5**.
5. **Enhancement in Corporate Governance:** IBC led to improved corporate governance, evidenced by a reduction in related party transactions, as highlighted in a post-IBC study.
6. **Global Ranking Improvement:** India’s global insolvency resolution ranking improved significantly, moving from **136th to 52nd** within the first three years of IBC implementation.
 - a. India won the **Global Restructuring Review award** for the most improved jurisdiction in 2018.
 - b. **An IMF-World Bank study in January 2018** observed that India is moving towards a new state-of-the-art bankruptcy regime.
7. **Stability in financial systems:** Recovery through the IBC was about **Rs 70,000 crore** in fiscal 2019 twice the amount recovered through other resolution mechanisms in fiscal year 2018.
 - a. The recovery rate is also twice the liquidation value for these 94 cases, which underscores the value maximization possible through the IBC process.

Issues with the IBC

1. **Overburden NCLT benches:** The number of NCLT benches is 16 and the total number of bench members is only 20
2. **Inefficient Time Management:** IBC’s resolution processes are prolonged, averaging 867 days, far beyond the intended 180 days.
3. **Gap in Asset Value Maximization:** Resolutions achieve only 86% of fair company value, indicating a shortfall in desired value maximization.
4. **High Incidence of Liquidation:** IBC results in more liquidations than rescues, especially impacting already sick or defunct companies. Many liquidated firms had assets valued at about 5% of their claims.
5. **Methodological Issues in Appraisal:** Some appraisals of IBC’s performance use flawed methodologies, focusing solely on recovery rates and overlooking factors like realizations from equity holdings or guarantor resolution.
6. **The low approval rate of resolution plans:** According to the data from the Insolvency and Bankruptcy Board of India (IBBI), of the 2,542 corporate insol-

venue cases filed between December 1, 2016, and September 30, 2019, about 156 have ended in approval of resolution plans — a mere 15%.

Way forward

The insolvency litigation process should focus on **minimizing duration and case volumes to alleviate uncertainties**. In **France, reforms in 2021** extended the process to ensure full judicial resolution of specific disputes before confirming a restructuring plan. Empowering the insolvency professional or assigning a supervisory judge, as done in France, can grant exclusive authority for vital settlements with insolvent companies, some requiring court ratification.

Conclusion

The IBC is a crucial structural reform, which if implemented effectively and in a time-bound manner can produce major gains for the corporate sector and the economy as a whole.

Prelims Links:

Q. Which of the following statements best describes the term ‘Scheme for Sustainable Structuring of Stressed Assets (S4A)’, recently seen in the news? (UPSC 2017)

- (a) It is a procedure for considering the ecological costs of developmental schemes formulated by the Government.
- (b) It is a scheme of RBI for reworking the financial structure of big corporate entities facing genuine difficulties.
- (c) It is a disinvestment plan of the Government regarding Central Public Sector Undertakings.
- (d) It is an important provision in ‘The Insolvency and Bankruptcy Code’ recently implemented by the Government.

Ans: B

Topics: Inclusive growth and issues arising from it.

2. ECONOMIC GROWTH AND INEQUALITY

Context:

The [article](#) warns against the **obsessive pursuit of economic growth in India**, emphasizing that despite ambitious projections, the associated rising inequality poses significant challenges.

Current Status of India’s Growth:

India’s recent economic growth has been robust, with an **estimated 6.9% expansion in FY 2022/23**, driven by **strong domestic demand**, increased infrastructure investment, and robust private consumption. For FY 2023/24, a **growth of 7.3% is projected**, maintaining India’s **5th position in the global GDP rankings**. The economy has surged to **\$3.7 trillion**. Future prospects indicate an ambitious target of reaching a **\$10 trillion economy by 2035**, aligning with the government’s vision to transform India into a **‘developed country’ by 2047**.

Status of Inequality in India:

Inequality Aspect	Statistics
Recent SBI Research	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. Ginni Coefficient decreased from 0.472 in AY 2014-15 to 0.402 in AY 2022-23
Income Inequality	The top 10% holds 57% of total income. The top 1% holds 22% of total income . Bottom 50% share reduced to 13%
Tax Burden on Poor	The bottom 50% contributes 64% to GST. The top 10% contributes only 4%
Healthcare Accessibility	63 million pushed into poverty annually due to healthcare costs
Food Security and Nutrition	74% of the population can’t afford a healthy diet . 39% lack a nutrient-adequate diet
Global Hunger Index 2023	The 2023 Global Hunger Index gives India a rank of 111 out of 125 countries. Highest child-wasting rate
Gender Inequality	India ranked 127 out of 146 countries in the Global Gender Gap Report, 2023 . Faces issues of “missing women”

Causes of Increasing Inequality in India:

Causes	Factors Contributing to Inequality
Concentration of wealth	The top 10% holds 77% of national wealth . The richest 1% owns 53%, while the poorer half has only 4.1%
	Inadequate land reforms leading to landlessness and economic vulnerability
	Crony capitalism fosters wealth accumulation in a select group, contributing to inequality
Policy issues	Skewed distribution of economic gains , favouring specific sectors or income groups
	Regressive taxation policies that benefit the wealthy, contribute to income inequality
	Wage gaps between skilled and unskilled workers , and informal labour markets widening income disparities
	The absence of minimum wage regulations and limited collective bargaining rights lead to income disparities

Social Exclusion	Caste discrimination marginalizing groups and limiting their access to opportunities, resources, and benefits
	Gender inequality results in unequal access to employment opportunities and wage disparities
	Unequal access to quality education , limiting upward mobility and reinforcing existing disparities
	Technological advancements lead to job displacement and wage stagnation, exacerbating income inequality

Universal Access to Public Services	Ensuring universal access to quality public services, including healthcare, education, social security , and employment guarantee schemes, significantly reduces inequality.
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Insta Links:
[Whose GDP is it anyway?](#)

Mains Links:

Q. What is Gross Domestic Product (GDP)? Examine the limitations pertaining to GDP as an economic performance measurement framework of the country. (250 words)

Alternatives to GDP:

1. Explore the use of **Green GDP to account for environmental factors**.
2. Explore **alternatives to GDP such as OECD's "GDP alternatives"** that adjust for leisure and other factors.
3. Consider the **"Index of Sustainable Economic Welfare"** that accounts for pollution costs and income distribution.
4. Explore the **"Genuine Progress Indicator"** that adjusts for income distribution, household work, and more.
5. Explore well-being measures like the **Happy Planet Index, Gross National Happiness, and National Well-Being Accounts**.

Prelims Links:

Q. Consider the following statements:

1. Nominal GDP is calculated in a way such that the goods and services are evaluated at some constant set of prices.
2. If the Real GDP changes, it implies that the volume of production is undergoing changes.
3. The ratio of nominal GDP to real GDP gives us an idea of how the prices have moved from the base year to the current year.

Which of the above statements is/are correct?

- a) 1, 2
- b) 1, 3
- c) 2, 3
- d) 1, 2, 3

Solution: c)

Way forward:

Ways	Description
Focus on Labor-Intensive Manufacturing	Prioritize labour-intensive manufacturing , even for domestic consumption, to boost job creation.
Diversify Growth Strategies	Develop diversified growth strategies that emphasize not just GDP growth but also the creation of high-quality jobs and addressing employment elasticity.
National Employment Policy	Implement a National Employment Policy to address both labour supply and demand, enhancing the quantity and quality of employment opportunities.
Explore Green Manufacturing	Explore opportunities in green manufacturing to reshape India's industrial development in a sustainable manner.
Address Structural Issues	Tackle structural issues in the economy related to caste, gender, and religion to ensure equitable distribution of growth benefits.

Topics: Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers.

3. PRODUCTION OF PULSES IN INDIA

Context:

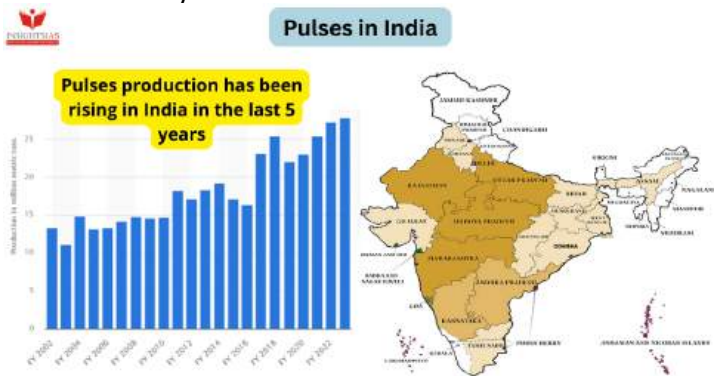
India is poised to become the **world's largest producer of lentils (masoor)** in the 2023-24 crop year due to increased acreage.

Recent facts:

1. India's **pulse imports** have **significantly decreased from about 6 million tonnes in 2016-17 to about 2 million tonnes in 2022-23**. The decline is attributed to reduced imports **of yellow peas and chickpeas over the past decade**, primarily influenced by high import duties and procurement policies.
2. The government's incentives to boost pulse cultivation have led to a higher lentil crop area, reaching **over 19 lakh hectares** by January 2024.
3. The government **has increased the Minimum Sup-**

port Price (MSP) to further support farmers

- The government recently stated its objective of **achieving self-sufficiency in pulses by the end of 2027**
- Despite the current increase in production, the **past three decades have seen stagnation in acreage, production, and productivity of pulses** across the country

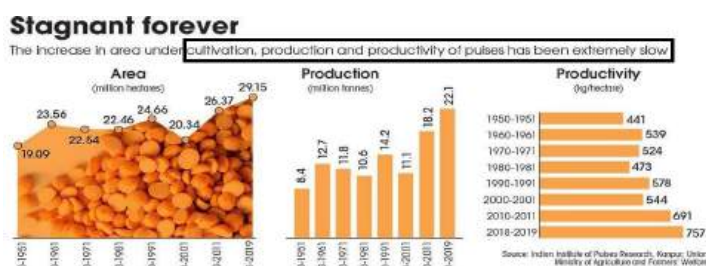


Parameter	Details
India's Pulse Production	India is the world's largest producer of pulses (25% of global production)
Pulse Consumption	Largest consumer , with 27% of global consumption
Pulse Imports	Largest importer , accounting for 14% of global trade of pulses
Major Pulse Crops	Gram (41% share), Tur (16% share), Urad, and Moong are the major pulse crops grown in India
Top Producing States	Rajasthan, Madhya Pradesh, Maharashtra, Uttar Pradesh, and Karnataka are the top producing states of pulses in India
Geographical Conditions	Temperature: Between 20-27°C, Rainfall: Around 25-60 cm, Soil Type: Sandy-loamy soil
Cropping Pattern	These crops are mostly grown in rotation with other crops
Government Schemes	National Food Security Mission for Pulses, Pulses Development Scheme, and Technological Mission on Pulses Visit Insights IAS Daily Current Affairs

Importance of pulse production for India:

- Pulses are **rich in proteins** and found to be the **main source of protein to vegetarian people** of India so it is the second important constituent of the Indian diet after cereals.
- Pulses being **legumes fix atmospheric nitrogen** into the soil. Being leguminous crops, all these crops except Arhar **help in restoring soil fertility**.
- These are mostly **grown in rotation with other crops**
- They **add organic matter** into the soil in the form of leaf mould.
- They supply additional fodder for cattle. Some pulse crops like Gram, Lobia, Urad bean & Moong bean are fed to **animals as green fodder**.
- They provide raw materials to various industries. **Ex. Dal industry, Roasted grain industry, Papad industry, etc.**

Fig: Shows the stagnation of Pulses in Area, Production, and Productivity



The major factors responsible for the stagnation in Pulses are:

Policy factors:

- Introduction of Green Revolution:** A report "**Pulses in India: Retrospect and Prospects**" (2017) a report published by the Agriculture Ministry, says **farmers in the Gangetic plains quit pulses for other crops around 1990** because of the **improvement in irrigation facilities**. The breakthrough via **HYVs in cereals** has been accompanied by a loss of acreage under pulses to cereals, and consequently a sharp decline in the total production of pulses.
- Skewed implementation of agriculture reforms:** Due to a number of economic and political compulsions, the strategies for agricultural growth remained anxious with the aim of achieving rapid increases in food grain production by concentrating the resources and efforts on the relatively better-endowed areas and strata of cultivators.

Demand factor:

- Cobweb phenomenon:** Shrinking demand due to a surge in prices leads to farmers diverting to other crops in the next agriculture seasons (thereby reducing production further), which leads to a vicious cycle of high price, low demand, and low production.

Infrastructure factors:

- Lack of Infrastructure:** Inadequate **Warehousing Facilities & Collateral Finance**.
- Uncertain monsoons and insufficient irrigation amenities**

Other factors:

- Pest attack:** Pulses are highly prone to damage by **insect pests, diseases, nematodes, and weeds**.
 - Damage to pulses by **nilgais and other stray animals** is a big factor in Uttar Pradesh for farmers moving to other crops.
- Low seed rate** resulting in **poor crop stands**.
- Imbalance of use of fertilizers:** Unstable use of fertilizers is one of the important reasons for low productivity and depleting soil fertility. The average N: P: K ratio in the past two decades has been **7:3:1** against the recommended **4:2:1**.
- Inadequate MSP by the government** for pulses (compared to cereals)

Government Initiatives:

- Providing Minimum Support Prices (MSP)** to farmers through:
 - National Agricultural Cooperative Marketing Federation of India (NAFED)
 - Small Farmers Agri Consortium (SFAC)
- National Food Security Mission (NFSM)-Pulses.**
- ICAR's Role in **Research and Variety Development.**
- Pradhan Mantri Annadata Aay SanraksHan Abhiyan (PM-AASHA) Scheme.**

Measures that can be taken to improve pulse production:

Short-term Strategies

- **Strengthening seed delivery system:** Availability of quality seeds of already-developed improved varieties would increase the pulse production by at least 15–20 per cent.
 - In addition to public seed corporations, **seed societies and private companies** should be involved in seed production.
- **Ensuring remunerative prices:** The MSP for pulses should be fixed considering not only the cost of its cultivation and parity with the competing crops but also considering the **yield variability in pulses and externalities** it brings to the system in **terms of nitrogen saving and subsidy saved on fertilizer and irrigation.**
- **Effective procurement:** Bring the procurement centres to the doorstep of the growers, particularly during harvest season.
- **Skilling of pulse growers:** India's 600+ **Krishi Vigyan Kendras (KVKs)** can be used for skilling pulse growers on modern production practices—**from sowing to harvesting.**
- **Efficient crop insurance mechanism:** Only 20 per cent of farmers subscribe to crop insurance. Providing efficient crop insurance would give sufficient confidence to these farmers to **combat the situation of crop failure.**

Medium-term Strategies

- **Expansion of area under pulses:** Fallow lands or reclaimed wastelands can be identified and targeted in each state to bring it under pulse crops.
- **Farmers' producer organization (FPO) on pulses:** It will integrate the **backward and forward linkages** and will help the farmers in reducing the cost of production substantially.
- **Customization and development of farm equipment:** Developing **small-size multi-crop harvesting farm machines and other farm equipment for plant protection**
 - New age **app-based custom hiring services for farm equipment** can be quite useful, particularly for smallholders in doing the basic farm operations timely and economically.
 - **Case study:** Private Tractor Company, like **Mahindra and Mahindra**, has started on a pilot basis **'on-demand farm equipment rental start-up, Trringo in Karnataka state**, through which farmers can book tractors by the hour via a phone call.
- **Setting up of storage and warehousing in rural areas**
- **Foresight for international trade:** Develop a predictive tool to determine the demand and supply of pulses in forthcoming seasons to plan in advance to import or export pulses in the international market.

Long-term Strategies

- **Developing short-duration and pest- and disease-resistant cultivars:** Infestation of pests and diseases such as pod borer, wilt, and so on and variation in rainfall and temperature bring huge risks to

pulses cultivation.

- **The development of suitable cultivars specific to production regions will be very important to break the yield barrier**, as has happened in the southern region, particularly in the case of chickpeas.
- **Integrating pulses into the public distribution system:** Compulsory inclusion of pulses in the **existing schemes such as the mid-day meal scheme or public distribution system (PDS) shall be ensured** so that the minimum pulses consumption by poor households is maintained even during the scarcity in pulses production.

Conclusion:

Thus there is a need for a **holistic approach to enhance the production and productivity of pulses crops.** Prominently good agronomic practices with their different components for excelling production under changing climatic scenarios are the need of the hour for the protein security of the nation esp. for the poor.

Insta Links:

- [Pulses in India](#)

Mains Link:

Q.Mention the advantages of the cultivation of pulses because of which the year 2016 was declared as the International Year of Pulses by United Nations. (UPSC 2017)

Prelims Links:

Q. With reference to pulse production in India, consider the following statements: (UPSC 2020)

1. Black gram can be cultivated as both kharif and rabi crop.
2. Green gram alone accounts for nearly half of pulse production.
3. In the last three decades, while the production of kharif pulses has increased, the production of rabi pulses has decreased.

Which of the statements given above is/are correct?

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

Ans: A

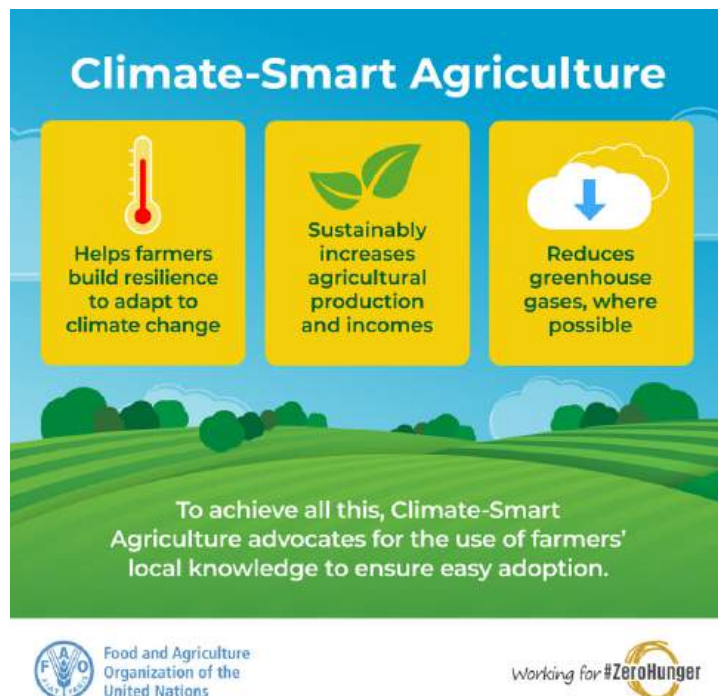
4. ADOPTION OF CLIMATE-SMART AGRICULTURE (CSA)

Context:

The adoption of **climate-smart agriculture (CSA)** faces challenges in South Asia, as sustainable practices and technologies struggle to gain widespread acceptance.

What is CSA?

CSA, or Climate-Smart Agriculture, is an **approach that incorporates a set of agricultural practices and technologies**. Its goals are to **boost productivity** (e.g., precision farming, smart crops), **enhance resilience** (e.g., zero budget natural farming, agroforestry), and **reduce greenhouse gas emissions** (e.g., zero tillage, permaculture, organic farming).



Examples of Climate-Smart Agriculture Practices:

- Cultivating Climate-Resilient Crop Varieties:** Growing crops resistant to temperature changes, pests, and diseases. Example: Drought-tolerant maize in sub-Saharan Africa benefits smallholder farmers.
- Conservation Agriculture:** No-till and reduced-tillage cultivation for soil coverage,
- Agroforestry:** Integrating trees and shrubs with crops and livestock.
- Precision Irrigation:** E.g., Drip and sprinkler irrigation maximize water use efficiency.

Challenges faced in CSA:

Challenges in CSA	Details
Weak Organizational Capacities	Difficulty reaching farmers due to a large rural population with limited integration with CSA-promoting markets.
	Limited government resources impact the number of field schools, demonstration plots, and training programs in rural areas.
	Inadequately staffed and poorly trained government agricultural extension departments for CSA information dissemination.

Inadequate Targeted Incentives	Chemical fertilizers, pesticides, and electricity- and diesel-based irrigation are largely subsidized, while CSA practices lack adequate incentives .
	Conflicting subsidies , such as those for zero tillage as well as for conventional tillage machinery, hinder the adoption of CSA technologies.
	Zero tillage is considered a CSA practice that involves minimal disturbance of the soil , promoting conservation and sustainability. On the other hand, conventional tillage involves more intensive soil disturbance
Limited Post-Adoption Follow-up	Emphasis on adoption initiation with less attention to post-adoption follow-up .
	Monitoring and evaluating CSA adoption over time is crucial for identifying challenges faced by farmers.
Inequities in Information Dissemination	Inequitable dissemination of CSA information , prioritizing wealthier farmers with greater social networks.
	Gender inequality persists , with little involvement of women in CSA dissemination processes, despite increasing female participation in farming.

Benefits of Climate-Smart Agriculture (CSA):

Benefits	Details
1. Increased Agricultural Productivity	Addresses resource-efficient farming for climate variability.
	Counters climate-induced crop yield decline in India, contributing to adaptation, mitigation, and food security.
	Various climate-smart techniques enhance production, sustainability, and reliability, while reducing GHG emissions.
	Site-specific no-tillage in the Indo-Gangetic Plain boosts wheat production, nutrient efficiency, and profitability, and lowers GHG emissions.

2. GHG Emission Reduction	Crucial for lowering the agricultural sector's 17% share in GHG emissions (2018)
	Enhances farmland carbon storage .
3. Support for Small and Marginal Farmers	Significant role in increasing profits for the majority of Indian small and marginal farmers .
4. Biodiversity Conservation	Ecosystem-based approach and diverse crop varieties promote the coexistence of cropland and wild animals
	Safeguards native plant species , stabilizes pollinator populations and mitigates habitat degradation effects.
5. Reduced Impact of Climate Change	Promotes crop diversification , and water efficiency, and integrates drought-resistant crop types.
	It Lessens the disruptive effects of climate change and increases resilience to longer-term stressors.

Promoting CSA:

- Capacity Building:** Raise awareness and provide training for officials, extension workers, and farmers.
- Incentives to Farmers:** Support eco-friendly practices (e.g., mulching, crop rotation) and sustainable indigenous technologies.
- Collaborative Approach:** Form international/regional partnerships, such as the Youth for Green and Climate-Resilient Agriculture Programme (YCRA) by the Food and Agriculture Organization.
- Other Measures:** Encourage private capital investment, implement micro-level policies, and explore additional avenues for CSA promotion.

Climate-Smart Agriculture Initiatives:

- Government Initiatives in India:** National Adaptation Fund for Climate Change, National Innovation on Climate Resilient Agriculture, Soil Health Mission, Pradhan Mantri Krishi Sinchayee Yojana, Paramparagat Krishi Vikas Yojana, Biotech-KISAN, and Climate Smart Village.
- Public and Private Sector Involvement:** Farmer-producer organizations, NGOs, and various entities are actively contributing to CSA adoption.
- Research Programs:** The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) addresses challenges of food security, poverty, and climate change on a global scale, National Innovations in Climate Resilient Agriculture (NICRA)

- World Bank Group:** Provides financial support and technical assistance for CSA projects in developing countries.
- Global Alliance for Climate-Smart Agriculture (GACSA):** A voluntary platform fostering collaboration among governments, civil society, farmers, research institutions, and the private sector to promote knowledge sharing, policy dialogue, and investment in CSA.
- Climate-Smart Agriculture Youth Network (CSAYN):** Comprises young individuals from various countries dedicated to raising awareness and taking action on CSA among youth and other stakeholders.
- National Mission for Sustainable Agriculture (NMSA)** One of the missions under the National Action Plan on Climate Change (NAPCC).

To learn about Climate Resilient Agriculture: [Click Here](#)

Insta Links:

- [Climate-smart agriculture](#)

Mains Links:

Q. Elaborate on the impact of the National Watershed Project in increasing agricultural production from water-stressed areas. (UPSC 2019)

Prelims Links:

Q1. With reference to the circumstances in Indian agriculture, the concept of "Conservation Agriculture" assumes significance. Which of the following fall under the Conservation Agriculture? (UPSC 2018)

- Avoiding the monoculture practices
- Adopting minimum tillage.
- Avoiding the cultivation of plantation crops
- Using crop residues to cover soil surface
- Adopting spatial and temporal crop sequencing/crop rotations

Select the correct answer using the code given below:

- 1, 3 and 4
- 2, 3, 4 and 5
- 2, 4 and 5
- 1, 2, 3 and 5

Ans: (c)

Q2. With reference to the 'Global Alliance for ClimateSmart Agriculture (GACSA)', which of the following statements is/are correct? (UPSC 2018)

- GACSA is an outcome of the Climate Summit held in Paris in 2015.
- Membership of GACSA does not create any binding obligations.
- India was instrumental in the creation of GACSA.

Select the correct answer using the code given below:

- 1 and 3 only
- 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

Ans: B

Q3. In the context of India's preparation for Climate-Smart Agriculture, consider the following statements: (UPSC 2021)

1. The 'Climate-Smart Village' approach in India is a part of a project led by the Climate Change, Agriculture and Food Security (CAAFS), an international research programme.
2. The project of CCAFS is carried out under Consultative Group on International Agricultural Research (CGIAR) headquartered in France.
3. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India is one of the CGIAR's research centres.

Which of the statements given above are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Ans: D

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

5. 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 processing 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 SAGARMALA** 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 bioactive 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: Science and Technology- developments and their applications and effects in everyday life Achievements of Indians in science & technology; indigenization of technology and developing new technology.

6. SCIENTIFIC COMMUNICATION IN INDIA

Context:

The [article](#) discusses the importance of effective science communication in India, citing examples like the Chandrayaan-3 mission and COVID-19 information dissemination.

What is Scientific communication?

Science communication involves **conveying scientific information to diverse audiences** in an understandable and engaging manner. It encompasses various forms, **including journalism, public talks, social media, and educational outreach**. The goal is to bridge the gap between scientists and the public, promoting understanding of scientific concepts and their relevance.

Example: The communication of **Chandrayaan-3, India's lunar exploration mission**, serves as an example of effective science communication. Through live broadcasts and updates, people across India were informed and engaged in the progress and scientific findings of the mission, contributing to **widespread understanding and discourse**.

Role of Science Communication for Society in India

Role	Example
Increasing Scientific Awareness:	Publicizing achievements like India's Mars Orbiter Mission to enhance understanding of space exploration.
Addressing Public Health Issues:	Disseminating accurate information during the COVID-19 pandemic to combat misinformation and promote vaccination.
Fostering Environmental Consciousness:	Campaigns explaining the importance of conservation and sustainable living for a cleaner environment.
Bridging the Gap with Researchers:	Organizing public lectures, workshops, or online forums where scientists interact with the community.
Promoting Scientific Temper:	Educational programs, science festivals, and initiatives promoting scientific inquiry among students.
Government Policies and Decision-Making:	Advocacy for policies based on scientific research in areas like healthcare, environment, and technology.
Encouraging Innovation and Research:	Publicizing breakthroughs in research to garner support and funding for further scientific exploration.
Building Trust in Scientific Institutions:	Regularly sharing updates, findings, and insights from scientific institutions to build credibility.

Empowering Decision-Making:	Initiatives explaining the science behind everyday choices, from healthcare to technology use.
Crisis Management and Risk Communication:	Timely and accurate communication during natural disasters or health emergencies to guide the public on safety measures.

Government efforts:

Government-Led Efforts	Details
Publications & Information Directorate (PID)	Established in 1951 under CSIR. Published national science magazines, including Vigyan Pragati (Hindi), Science Reporter (English), and Science Ki Duniya (Urdu), for disseminating scientific knowledge.
Birla Industrial and Technological Museum (1959)	Established in 1959 with a focus on defining India's scientific heritage and promoting science education.
42nd Amendment to the Constitution (1976)	Introduced Article 51 A (h) in 1976 , emphasizing the duty of every citizen to develop a scientific temper, humanism, and the spirit of enquiry and reform.
National Council for Science and Technology Communication (NCSTC)	Formed during the sixth Five Year Plan (1980-1985) with a focus on the popularization of science .
Vigyan Prasar (1989)	An autonomous organization set up in 1989 by the Department of Science and Technology to popularize science.
CSIR-National Institute of Science Communication and Policy Research (CSIR-NIScPR, 2021)	Established in 2021, merging two previous institutions, to continue the promotion of science communication.
Active Engagement by National Science Funding Agencies and Research Organizations	Ongoing efforts by agencies and organizations to actively engage in science communication through press releases, social media campaigns, exhibitions, and lectures.

Other initiatives:

Project	Description
Indian Sign Language AstroLab	Equipped with 65 pieces of equipment, including a large telescope and audiovisual aids , the AstroLab provides virtual access to educational videos in Indian sign language, promoting inclusivity and accessibility.

CSIR-NPL (Council of Scientific and Industrial Research - National Physical Laboratory)	Conducts multidisciplinary R&D for quantum standards, and technology development, and provides training under “Make in India” and “Skill India” programs.
One Week - One Lab Campaign	A program by CSIR-NPL to create awareness about technologies and services, provide solutions to societal problems and develop scientific temperament among students. Over 180 schools in Delhi-NCR have been exposed to NPL labs, and more schools will be included in future interactions.
Science and Heritage Research Initiative (SHRI)	This initiative can potentially increase demand for the traditional art of Tirunelveli, Tamil Nadu.
National Initiative for Developing and Harnessing Innovations (NIDHI)	An end-to-end plan for start-ups aimed at doubling the number of incubators and start-ups in five years.
National Start-up Awards	Recognizes and rewards outstanding start-ups and ecosystem enablers contributing to economic dynamism by stimulating innovation and competition.

To enhance science communication in India, key measures include:

- Formal Education and Training:** Introduce master’s and doctoral programs in science communication to cultivate skilled communicators attuned to India’s diverse contexts.
- Integration with Scientific Process:** Encourage scientists to actively participate in science communication, incorporating it into research and rewarding their efforts.
- Large-Scale Strategy:** Establish a professional organization collaborating with government departments, stakeholders, and experts to create comprehensive science communication frameworks spanning various disciplines, media formats, and demographic groups.

Conclusion:

Science communication is crucial for **advancing scientific literacy, public engagement, and informed decision-making** in India. Addressing current gaps and adopting a forward-looking approach can build a robust science communication ecosystem, bridging the gap between science and society and propelling scientific progress.

Insta links:

- [Science & Technology](#)

Mains Links:

Q. What is India’s plan to have its own space station and how will it benefit our space programme? (UPSC 2019)

Prelims Links:

Q Consider the following statements: (UPSC 2016)

The Mangalyaan launched by ISRO

1. is also called the Mars Orbiter Mission
2. made India the second country to have a spacecraft orbit the Mars after USA
3. made India the only country to be successful in making its spacecraft orbit Mars in its very first attempt

Which of the statements given above is/are correct?

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

Ans: C

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

7. 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);

- 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.
- 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).
- 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

Topics: Security challenges and their management in border areas; linkages of organized crime with terrorism.

8. BORDER SECURITY FORCE (BSF) AND ISSUES OF OPERATIONAL JURISDICTION

Context:

Punjab has filed a suit challenging the central government's decision to **increase the BSF's operational jurisdiction from 15 km to 50 km**, considering it a breach of federal principles and an **encroachment into state law and order powers**. **West Bengal** shares a similar view.

What is the Special Powers of BSF?

In all border states, **there is a power under the BSF Act, 1968** to extend the jurisdiction of BSF so far as offences are considered. Different states have different jurisdiction limits. E.g., Gujarat had 80 km, but in some states, it was less (e.g., 15km in Punjab). Now (by the Central Government 2021 notification) it has been made **uniform 50 kms**.

BSF has concurrent power with state police/agencies with regard to some offences under the Criminal Procedure Code, 1973, Passport (Entry into India) Act, 1920 and Passport Act, 1967 etc.

The procedure:

The BSF **conducts search and seizure for violations** such as smuggling narcotics, prohibited items, illegal entry of foreigners, and offences under Central Acts. After detaining a suspect or seizing a consignment in the specified area, the **BSF can only perform "preliminary questioning" and must hand over the suspect to local police within 24 hours**. The BSF **lacks the authority to prosecute crime suspects**.

What is the Issue?

In 2021, the Punjab government moved the **Supreme Court (under Article 131)** challenging the Centre's decision that expanded the BSF's jurisdiction from 15 to 50km.

It alleged a **breach of federal principles** and encroachment into the state's law and order powers.

Note: Article 131 vests the Supreme Court with original jurisdiction over disputes occurring between states or between states and the Centre.

What has SC said?

The Supreme Court **clarified that the 2021 notification expanding BSF's jurisdiction** in Punjab from 15 to 50 km grants **concurrent authority** for preventing specific offences but **does not diminish the investigative authority** of the state police.

What does the Constitution Say?

Under Article 355, the **Centre can deploy forces to protect a state from external aggression** or internal disturbance, even without the state's request. If a state opposes deployment, the Centre can issue directives under Article 355. If the state doesn't comply, the Centre can take further action under **Article 356 (President's Rule)**.

Issues with the Centre's extension of BSF's jurisdiction:

Issues	Description
Public Order vs Security of State	The responsibility for public order and police rests with the State Government .
Weakening Spirit of Federalism	The notification without state government concurrence is seen as an encroachment on state powers. The Punjab Government views it as an encroachment under the guise of security or development
Affecting Functioning of BSF	Policing in the hinterland weakens BSF's capacity to fulfil its primary duty of guarding the international border.
Issues Specific to Punjab	The extension covers major cities in a relatively small state like Punjab. In contrast, states like Gujarat and Rajasthan have specific geographical features (marshland and desert, respectively) that may justify the extension.

Arguments from the Central Government

- Enhanced Border Security:** The increase to 50 km is justified to improve border patrol effectiveness.
- Standardizing Operations:** The expansion aims to unify the operational area across different states for consistency.

The way forward involves:

- Desirable State Consent:** The Union Government should consult the State Government before deploying armed forces, whenever possible.
- State Self-Reliance:** Each State Government, in consultation with the Union Government, should develop short-term and long-term plans to strengthen its Armed Police.
- Regional Arrangements:** Neighbouring States can establish a standing arrangement, agreed upon by

consensus, for using **each other's Armed Police in times of need**. **Zonal Councils** provide a suitable forum for States within a zone to reach such agreements.

About Border Security Force (BSF):

The Border Security Force (BSF), **established in 1965** following the India-Pakistan war, is a significant component of India's security apparatus. Operating under the administrative control of the **Ministry of Home Affairs**, it is one of the seven Central Armed Police Forces. With a force strength of over 2 lakhs, it is primarily deployed **along the Pakistan and Bangladesh borders**, managing security on the Indo-Pakistan International Border, Indo-Bangladesh International Border, and Line of Control (LoC) in coordination with the Indian Army

Role of the Border Security Force (BSF) in dealing with illegal migration and cross-border crimes.

- **Defending the porous borders:** BSF has been defending **Sir Creek in the Arabian Sea** and **Sundarbans Delta** in the Bay of Bengal with its state-of-the-art fleet of Water Crafts.
- **Cooperating with local police:** most of the raids and arrests that are conducted are in close coordination and cooperation with the local police.
 - Police do act against any smuggler or criminal if the BSF provides irrefutable evidence.
- **The First Line of Defence:** It has been termed the First Line of Defence of Indian Territories because of the role played by it in dealing with illegal migration from the eastern border and tackling cross-border crimes.
- **Comprehensive Integrated Border Management System:** has vastly improved the capability of the Border Security Force (BSF) in detecting and controlling cross-border crimes like illegal infiltration, smuggling of contraband goods, human trafficking and cross-border terrorism, etc.
- **BSF and internal security duties:** While border protection has been the primary duty of BSF, it has also been deployed for counter-terrorism and counter-insurgency operations in troubled areas of the country like **J&K, NE states and Naxal-hit areas**.
- **Trans-border crimes:** BSF was given powers way back in **1969 under the Indian Passport Act, Customs Act Arms Act, NPSD Act, and CrPC** to arrest, search and seize a person, vessel or premises so it can effectively deal with trans-border crimes which have a bearing on national security in larger areas of the bordering states.
 - For instance, the smuggling of narcotics, arms and ammunition, fake currency and other contraband items on the western and eastern borders of the country.
- **Gathering information:** The BSF does not have the responsibility only to apprehend the offenders while committing trans-border crimes at the zero line,
 - but also to gather information to **neutral-**

ize the network and accomplices operating from their side of the area, independently as well as with the help of local police.

Challenges before BSF in dealing with illegal migration and cross-border crimes: -

- **Porous border—along the India-Bangladesh border**, from Sunderbans in the south to Malda in the north, and is the most porous stretch of India's borders in the entire eastern theatre making it complex to manage.
- **Challenges on both our eastern and western borders** have grown many folds in the last four decades despite the increased presence of BSF units, the erection of a border fence and the use of modern technologies.
- **Trans-border crimes are no longer confined to petty smuggling** of few eatables or locally produced consumable items; pushing in of narcotics, arms and fake currency into India and **large-scale illegal migration of Bangladeshi nationals and Rohingyas** pose a serious threat to our security and economy.
- **Increased connectivity and communication:** As connectivity, communication and mobility have increased, trans-border criminals have the advantage of operating from deeper areas.
 - Most of the time BSF operates in close coordination with the local police, but this delays the operational functioning of BSF.
- **Wider outreach of criminals:** While BSF is responsible for preventing trans-border crimes, the sphere of action of these criminals expands to the hinterlands.
 - In places like **West Bengal**, the trans-border criminals were cleverly operating from areas beyond the jurisdiction of BSF.

Conclusion and opinion

Thus, BSF needs to overcome these challenges and further strengthen its border domination against the threats from underground tunnels or enhanced threats by the use of drones or other methods. The added responsibility will require better-coordinated efforts at every level.

Insta Links:

- [Illegal immigration in India's northern and eastern borders](#)

Mains Links:

Q. Analyze the multidimensional challenges posed by external state and non-state actors, to the internal security of India. Also, discuss measures required to be taken to combat these threats. (UPSC 2021)

Prelims Links:

Q. Department of Border Management is a Department of which one of the following Union Ministries? (UPSC 2008)

- (a) Ministry of Defence
- (b) Ministry of Home Affairs
- (c) Ministry of Shipping, Road Transport and Highways
- (d) Ministry of Environment and Forests

Ans: B

9. VIJAY RAGHAVAN COMMITTEE AND DRDO FUNCTIONING

Context:

The Prime Minister has urged the **armed forces, military-civilian bureaucracy, and the Defence Research and Development Organization (DRDO)** to eliminate cost overruns and project delays in defence manufacturing to make “Atmanirbhar Bharat” (self-reliant India) successful.

Previously, a committee led by **Prof. K. Vijay Raghavan** was formed by the Ministry of Defence to **review and restructure the functioning** of the DRDO and the **defence R&D ecosystem** in the country.

What is DRDO?

DRDO (est. 1958; HQ: New Delhi) is the **R&D wing of the Ministry of Defence**, which aims to equip India with **advanced defence technologies**, fostering self-reliance. DRDO comprises **over 50 laboratories** focusing on diverse defence disciplines such as aeronautics, electronics, and engineering systems. Motto- **“Balasya Mulam Vigyanam”** – “The source of strength is science”

Important programmes of DRDO:

Programs	Description
Integrated Guided-Missile Development Programme (IGMDP)	Initiated by Dr. APJ Abdul Kalam. Aimed at achieving self-sufficiency in missile technology. Developed missiles: Prithvi , Agni , Trishul , Akash , Nag
Mobile Autonomous Robot System (MARS)	Smart robot for handling landmines and IEDs . Assists Indian Armed Forces in disarming explosive devices from a safe distance. Can be equipped for ground digging and IED defused.
Highest Terrestrial Centre in Ladakh	Located at 17,600 feet near Pangong Lake . Functions as a natural cold storage unit for preserving natural and medicinal plants.

Recent projects	Extreme Cold Weather Clothing System (ECWCS) (designed to protect military personnel in harsh cold environments); ‘Pralay’ missiles; Controlled Aerial Delivery System; Pinaka Extended Range (Pinaka-ER) Multiple Launch Rocket System; Supersonic Missile Assisted Torpedo System (SMART); Akash-NG and MPATGM projects (guided missile technology); Drone, Detect, Deter and Destroy (D4 System)
	2016: It successfully tested its first indigenously developed heavy-duty drone Rustom 2
	2018: DRDO co-developed INS Arihant , India’s first nuclear ballistic missile submarine
	2019: DRDO developed India’s first anti-satellite system (Mission Shakti)

Issues with DRDO:

Issues	Description
Inadequate Budgetary Support	The Standing Committee on Defence highlighted concerns about insufficient budgetary support for ongoing DRDO projects.
Inadequate Manpower	DRDO faces challenges due to inadequate manpower, particularly in critical areas, and a lack of proper synergy with the armed forces .
Cost Escalation and Delays	E.g., the Light Combat Aircraft (LCA) Tejas project, initiated in the 1980s with the aim of creating an indigenous supersonic fighter aircraft , faced significant delays and cost overruns.
Big on Promise, Small on Delivery	DRDO has been criticized for making significant promises but delivering less. Lack of accountability and repercussions for overruns have been pointed out by entities like the Comptroller and Auditor General (CAG).
Obsolete Equipment	Instead of focusing on cutting-edge technology, DRDO has been accused of tinkering with World War II-era equipment , leading to concerns about the relevance and effectiveness of its projects.
Long-Term Trials	The organization has faced criticism for prolonged testing phases without clear assurances of achieving the desired end state.

Comparison with ISRO	DRDO is focused on too many technologies (defence, underwater, space, equipment, etc.) whereas ISRO's success is attributed to its sharp focus on space.
	While ISRO serves as the developer, launcher, and controller , ensuring cohesiveness and persistence, DRDO, being only the developer , faces challenges in maintaining a seamless transition from design to realization, necessitating a revamp.

Key recommendations made by Vijay Raghavan's committee for DRDO:

Category	Key Recommendations
Structural Changes	Formation of the Defence Technology Council (DTC) headed by the Prime Minister, with the Defense Minister and National Security Advisor as Vice Presidents.
	DTC to determine the country's defence technology roadmap , decide on major projects and their execution
	Creation of a separate department under the Defence Ministry, i.e., Department of Defence Science, Technology, and Innovation (DDSTI) , to promote defence R&D in the academic and start-up ecosystem, serving as the secretariat for DTC.
Research Focus	Concentrate on Intelligence, Surveillance, and Reconnaissance technologies .
	Emphasize areas in life sciences.
Human Resources	Hire 100 graduates from campuses on a contract every year.
	Strengthen DRDO's lateral entry program .
	Reduce the median age of DRDO to 35 .
Laboratories	Restructure 41 DRDO labs into 10 national labs , distributed in Delhi, Bengaluru (2), Hyderabad (2), Pune, Dehradun, Chennai, Visakhapatnam, and Chandigarh.

Other suggestions for improving the functioning of DRDO:

DRDO's restructuring, proposed by the **2007 committee led by P. Rama Rao**, advocates a leaner organization with a **commercial arm for profitability** and project completion efficiency. Former DRDO chief V.K. Saraswat suggests the establishment of a **Defence Technology Commission** and a more significant role for DRDO in selecting production partners. The organization's 2021 HR policy focuses on **knowledge sharing, open-book management, and participative management**, marking a positive step forward.

Insta Links:

- [Defence Technology](#)

Mains Links:

Q. What is the significance of Indo-US defence deals over Indo-Russian defence deals? Discuss with reference to stability in the Indo-Pacific region. (UPSC 2020)

Topics: [Various Security forces and agencies and their mandate.](#)

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.
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.

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 .

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



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.

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**.

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 accountabil-

ity 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)

2. EXAMPLES OF ETHICS

Example 1: IAS Rajat Bansal (Development in Naxal Region)

In addressing the **challenge of Naxal violence in Chhattisgarh**, the district administration of Bastar launched **Think-B**, a start-up incubator, to encourage youth entrepreneurship. Led by **IAS Rajat Bansal**, the initiative aims to provide **employment opportunities and tackle extremism** through innovative, development-focused solutions.

Success: Think-B has mentored batches of entrepreneurs, resulting in successful startups like **Zillusion Studios and Mom’s Food Services**. The approach highlights the transformative power of good governance and development in addressing complex issues, even in remote naxal areas.

Example 2: IAS Divya Iyer (Crowd Management)

In 2021-22, **Sabarimala faced challenges during the Mandala season** due to disruptions like protests and floods. Crowd management, crucial for safety, became a priority. **IAS Divya Iyer and the Pathanamthitta district administration** successfully conducted the yatra through strategic planning, including coordination with 52 departments, **a Safety Walk, landslide hazard mapping, and implementing the Sabarimala Virtual Queue System** with COVID protocols. In December 2023, **Sabarimala implemented the Tirupati model of a queuing system**.

Divya emphasizes the importance of disaster management, including prevention, mitigation, and education. She believes continuous learning is essential for civil servants facing diverse challenges daily.

Usage of examples: For Essays, Governance, and Ethics section of Mains examination as case studies and example-fodder for answers. Candidates will find it useful for framing replies in interviews/ personality tests.

3. AI EFFECT ON LABOUR

Context:

As AI, **including generative AI like ChatGPT**, becomes commercially widespread, concerns arise regarding its **impact on the job market**.

Studies suggest **potential automation of 60-70% of employee tasks** by current AI, with projections of 50% automation

by 2045.

Ethical Aspects of AI’s Impact on Labour:

Ethical Aspects	Implications on Labour
Job Displacement	Potential ethical concerns regarding the social and economic impact of job losses due to AI automation.
Wage Inequality	Ethical questions about fair compensation and addressing the widening gap in wages , particularly in easily automatable sectors.
Retraining Opportunities	Ethical imperative to provide accessible and effective retraining opportunities to facilitate workers’ transition to new roles.
Bias and Fairness	Ethical considerations to address biases in AI systems that may affect hiring and employment practices, ensuring fairness.
Transparency	Ethical concerns about the opacity of AI algorithms , emphasise the need for clear communication and understanding of decision-making processes.
Multidisciplinary Education	Ethical responsibility to provide education that encompasses technical skills along with societal, ethical, and humanistic aspects , preparing individuals for responsible AI use.
Governance and Regulation	Ethical imperative for establishing governance and regulations , such as the Harmonized Rules on AI, to ensure responsible and accountable AI deployment.

The evolving nature of AI prompts the **need for a multidisciplinary approach in education**, balancing technological advancements with ethical considerations. **EU’s Harmonized rules on AI (ACI Act 2023)**, aim to address socio-economic benefits and potential risks. In the face of technological change, **Higher Educational Institutes (HEIs)** play a crucial role in preparing a multi-skilled workforce for the future.

Insta Links:

- [Can AI be Ethical and Moral?](#)
- [A new global standard for AI ethics](#)

4. RELIGION, ETHICS AND THE SPIRIT OF TRUTH

Context:

The [article](#) delves into the intricate connection between religion, ethics, and truth, emphasizing their significance in understanding the human experience.

Meaning of the terms:

Term	Definition	Example
Religion	A set of beliefs, practices, and values that centre around a higher power or a divine being.	Christianity involves worshipping Jesus Christ as the central figure in religious practices.
Ethics	Moral principles guide behaviour and decision-making, distinguishing right from wrong.	Honesty and integrity in business dealings are ethical principles.
Truth	The state of being in accordance with facts or reality ; the actual state of a matter.	In science, the truth is determined through evidence and experimentation .

The Connection between religion, ethics, and truth:

Religion often provides a framework for ethical guidelines.

The ethical principles derived from religious beliefs contribute to **shaping individual and societal behaviours**. Ultimately, these three concepts are intertwined in **shaping moral conduct and guiding individuals** towards what is considered truthful and virtuous within their respective belief systems.

Who is God?

The simple answer is '**God is truth and truth is God**'. And when we say being ethical, we mean to bring the **truth into the frame of religion**. According to **Gandhiji, truth is God**. According to Gandhiji truth in daily life is relative but through relative truth, an absolute truth can be reached and this observation is the ultimate goal of life. Its attainment is the ultimate dharma of man and therefore he experimented with truth only.

Your Truth Vs My Truth

In today's world, **truth is frequently challenged**, causing conflicts in personal, professional, and societal spheres. The **global response to the pandemic highlights** a universal truth in vaccination. Some nations resort to propaganda and violence, suggesting a relative truth in the power of force (e.g., Russia-Ukraine War, Israel-Palestine conflict). This era witnesses **widespread contestation of truth**, leading to **deception and denial**. The ethical dilemma arises when individuals and nations **harm innocents in the pursuit of their perceived truths**, prompting a crucial self-reflection on the morality of such actions.

Swami Vivekananda's Message

The spiritual path leads to truth and peace only. Vivekananda said, "**Do not care for doctrines, do not care for dogmas, or sects, or churches, or temples**; they count little compared with the essence of existence in each man which is spirituality; and the more this is developed in each man, the more powerful is he for good."

Vivekananda reminds us, "**Follow truth wherever it may lead you; carry ideas to their utmost logical conclusions.** You must have a great devotion to your ideal, devotion not of the moment, but calm, persevering, and steady devotion, like that of a Chataka (a kind of bird) which looks into the sky amid thunder and lightning and would drink no water but from the clouds."

Conclusion:

The truth is that **we all are human beings** and for our survival, we have to take care of each other. **Religion and ethics are for human beings'** benefit and this is the truth. We are **beyond race, religion, caste, class, regionalism**. We are only human beings. Neither more nor less. And we are completely dependent on nature. Even for oxygen. It is the only universal truth. Rest is man-made.

Insta links:

- [MK Gandhi](#)

CONTENT FOR MAINS ENRICHMENT

1. IAS OFFICER SUSHANT GAURAV

Context:

IAS officer Sushant Gaurav, the Deputy Commissioner of **Gumla in Jharkhand**, has been credited for transforming the poverty-stricken district into the '**Ragi Capital of India**.'

Gaurav's innovative approach **shifted locals from water-intensive paddy cultivation to a more sustainable model of ragi cultivation**. The district, once plagued by **extreme poverty and Naxalite insurgency**, underwent a remarkable turnaround under Gaurav's leadership. For his efforts, he received the **Prime Minister's Award for Excellence in Public Administration**. The shift to ragi cultivation **brought nutritional benefits** to the predominantly Adivasi population in Gumla.

Usage: The example can be used to show the ethical values of Leadership, Innovation, Empathy, Social Responsibility, and Public Service Excellence.

2. NOBEL PRIZE WINNER MUHAMMAD YUNUS

Context:

Nobel Prize winner Muhammad Yunus was sentenced to **six months in jail** by a Bangladesh court for **violating labour laws**.

Why is Yunus facing judicial cases?

Yunus faces charges, including **corruption and fund embezzlement**. The court found his company, Grameen Telecom,

guilty of **labour law violations**.

However, supporters claim the case is **politically motivated** due to his strained relationship with **Prime Minister Sheikh Hasina**, who accused him of exploiting the poor. In August last year, over 160 personalities like **Barack Obama and ex-UN Secretary-General Ban Ki-moon**, signed a joint letter denouncing the **“continuous judicial harassment”** of Yunus.

Contributions of Yunus:

Muhammad Yunus, through his **innovative microfinance model**, particularly with the establishment of **Grameen Bank**, has made significant contributions to **alleviating poverty**. His approach of providing **small, collateral-free loans** to the poor, especially women, has empowered millions of entrepreneurs who wouldn’t qualify for traditional bank loans. For his work, he was awarded the **Nobel Peace Prize in 2006**

Other famous personalities facing issues in their own country:

Name	Details
Alexei Navalny	Russian opposition leader and anti-corruption activist ; faced imprisonment and legal challenges in Russia.
Aung San Suu Kyi	Former Myanmar leader and Nobel laureate; detained and faced charges following a military coup in Myanmar in 2021
Liu Xiaobo	Chinese human rights activist and Nobel Peace Prize laureate ; imprisoned for advocating political reform.
Raif Badawi	Saudi Arabian blogger and activist ; jailed for promoting free speech and political reform in Saudi Arabia.
Mahsa Amini	She was a women’s rights activist . Following her death in the Police Custody, civil unrest and protests began against the government of the Islamic Republic of Iran but were suppressed by September of 2023 .

3. NINA SINGH

Context:

Nina Singh, a **1989 batch IPS officer** of the **Rajasthan cadre**, has made history as the **first woman** to head the **Central Industrial Security Force (CISF)**, responsible for securing Delhi Metro and airports nationwide.

Originally from Bihar, Singh, who served as a **special DG with the CISF since 2021**, has an impressive career. She was the **first woman to hold the top police post in Rajasthan**, played a key role in developing an **outreach program for the State Women’s Commission**, collaborated with **Nobel laureates Abhijit Banerjee and Esther Duflo**, and worked on projects to **enhance police accessibility**. Singh, associated with high-profile cases, received the **‘Ati Utkrisht Seva Medal’** for

professional excellence in 2020.

Ethical Values: She reflects ethical values such as **pioneering leadership** as the first woman to hold top police posts, **dedication to public service** through outreach programs, commitment to **accessibility in policing**, and handling high-profile cases **with integrity**.

4. COEXISTENCE BETWEEN WARLI TRIBES AND LEOPARDS

Context:

The **article** discusses the peaceful coexistence between Maharashtra’s Warli tribe and leopards near the **Sanjay Gandhi National Park (SGNP)**.

Unlike common fear, **Warlis worship leopards as Waghoba**, considering them part of their environment. Despite Mumbai having a high leopard density, the Warlis share space with leopards, taking precautions like **keeping children indoors after 6 pm**. Encounters are common, and the Warlis revere leopards, with shrines dedicated to Waghoba.

Other tribes co-existing with animals are:

Tribes	Animal Coexistence Examples
Bishnois (Rajasthan)	Bishnois revere blackbucks, protecting them from harm.
Jarawas (Andaman Islands)	Jarawas live in harmony with diverse wildlife on the Andaman Islands. They maintain sustainable hunting practices and have minimal impact on the environment.
Van Gujjars (Uttarakhand)	Nomadic Van Gujjars coexist with elephants in the Himalayan forests. They follow traditional practices, respecting wildlife habitats and minimizing conflicts.
Mishing Tribe (Assam)	Mishing people in Assam coexist with the Gangetic River dolphin. They consider the dolphin sacred and have rituals that promote its conservation.
Kani Tribe (Kerala)	Kani tribe in the Western Ghats coexists with elephants and other wildlife.

About Warli Tribe:

The Warli tribe, **one of Maharashtra’s largest**, resides on the outskirts of Mumbai in the **North Sahyadri region**. Renowned for their Warli wall paintings dating back to the **10th century AD**, the art depicts daily life and surroundings. Utilizing natural materials and colours, the tribe **employs bamboo brushes** in their distinctive paintings.

5. HENRY FORD

In 1914, Henry Ford, the founder of Ford Motors, made a ground-breaking decision to more than double the minimum daily wage of his workers from **\$2.34 to \$5**. This move attracted widespread attention and varied reactions, with Ford being both praised as an **“inspired millionaire”** and **accused of socialist tendencies**. The motivation behind this wage increase was rooted in **Ford’s introduction of the moving assembly line in 1913**, revolutionizing car production and reducing the time to build a Ford Model T from 12 hours to **just ninety minutes**.

Despite concerns about costs, the **wage hike proved beneficial for Ford**. Total costs decreased, and the company experienced a **surge in productivity, doubling profits within two years**. This strategic move to improve worker retention and increase efficiency through higher wages was considered by Ford as one of his **best cost-cutting decisions**.

Usage: The example can be used to showcase the values of **Productivity with Purpose**, Equity and Inclusion, Social Responsibility, **Employee Welfare and Fair Compensation**

6. 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 water-holes for the prey base.
Strategic Corridors	Establishment of wildlife corridors to facilitate movement , reduce inbreeding, and contribute to healthier tiger populations.
Community Initiatives	Introduction of the “Living with Tigers” initiative and the beehive fencing project “Corbee Honey” to mitigate human-wildlife conflicts.
	The “Living with Tigers” initiative focuses on cultivating safe practices and behaviours amidst human-wildlife conflict scenarios.

Cultural Importance	Recognition of the tiger’s role in India’s religious and mythological iconography led to increased public and political support.
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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**.

7. 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**.

8. 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 'Kiritsu,' 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)

9. 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.

10. 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.

11. 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 <u>phasing out fossil fuels by 2030.</u>
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.

12. WOMEN COMMANDOES IN MAOIST REGION

Context:

In the Dandakaranya forest near Gadchiroli district, Maharashtra, 11 women officers from the Maharashtra police, informally called commandos, stand ready at an outpost near the Maoist frontier. Trained in jungle warfare and weaponry, they are part of a 200-strong security force facing the Maoist headquarters in the ‘unknown hills.’

Passionate about their role, these women commandos are safeguarding a ballistic-proof outpost established within 24 hours in November. This groundbreaking move aims to transform the region, previously labelled a ‘Liberated Zone,’ bringing development and security to the people in surrounding villages.

Values: The article shows the values of Dedication and Service, Courage and Determination, and Community Impact

13. STEEL SLAG ROAD

Context:

India’s first National Highway Steel Slag Road section on NH-66, connecting Mumbai to Goa, has been inaugurated, showcasing a pioneering eco-friendly initiative.

The ground-breaking technology, developed by CSIR-CRRI, transforms waste from the steel industry into a valuable resource for constructing robust and environmentally friendly national highways. The bituminous steel slag road, constructed with 28% less thickness than conventional roads, demonstrates cost-efficiency and enhanced durability.

Usage: The example highlights the values of sustainability, innovation, and collaboration. Key values include efficiency, cost-effectiveness, and durability in road construction.

14. THE BUDDHIST VOICE OF GLOBAL SOUTH

Context:

The vice president addressed the 12th General Assembly of the Asian Buddhist Conference for Peace (ABCP) in New Delhi. Emphasizing India’s leadership role in the Global South, he highlighted the theme “ABCP - The Buddhist Voice of Global South.”

Teachings of Buddha:

Teachings	Current Relevance
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Life brings sorrow; overcome desire	Promotes a <u>simple, virtuous life between extreme austerity and luxury</u> . Encourages a citizen-centric governance approach where the right speech, conduct, and livelihood can make administration more responsive and service-driven.
Four Noble Truths and Eight-Fold Path	Offers a path to the <u>end of suffering, emphasizing the right views, aspirations, speech, action, livelihood, effort, mindfulness, and concentration</u> . These principles are relevant in promoting scientific temper, mindfulness, and a spirit of inquiry in contemporary society.
Middle Path	Advocates a <u>middle path between extreme lifestyles</u> . Pertinent to sustainable development, it provides a solution to issues like consumerism, climate change, and corruption. Encourages a balanced approach to address societal challenges.
Pursuit of a just and egalitarian society	Promotes <u>eliminating discrimination against vulnerable sections, fostering inter-faith harmony</u> , and advocating for peace. Encourages a spirit of love towards all living beings and emphasizes the law of karma to curb wars, terrorism, extremism, and violence.
Welfare for All	Lord Buddha taught us, <u>‘भवतुसब्समंगलम्’</u> : which means blessings, compassion and welfare of all.

15. BAMBOO COMPOSITES

Context:

During the India International Science Festival (IISF) 2023, Know-How Technology on “Bamboo Composites” was transferred.

What are Bamboo Composites?

Bamboo composites are industrial products developed using an environmentally friendly technique that involves processing bamboo, a natural and versatile resource.

Bamboo, declared as grass, matures in 3-4 years, making it a rapid and sustainable source. The technology involves cutting bamboo poles, splitting them, removing knots, treating them chemically for protection, converting them to fibrous form, and finally, creating composite materials through compaction under heat and pressure. These composites resemble teak wood, offering durability, dimensional stability, high strength, fire resistance, and a natural appearance. They can be used in various applications, including panel boards, beams, pillars, doors, and more.

Usage: Such examples can be used in Essay/Environment Questions to show sustainable solutions, which can also help improve the income of bamboo farmers.

16. BOEING SUKANYA PROGRAM

Context:

PM inaugurated the **Boeing India Engineering & Technology Center (BIETC)** campus in Bengaluru, and the launch of the **Boeing Sukanya Program** to promote the entry of girls into India's aviation sector.

The program aims to **empower girls and women in STEM fields**, offering training for aviation jobs. It includes **creating STEM Labs at 150 locations** to foster interest and providing scholarships for women training to be pilots. India boasts a noteworthy **15% of female pilots, three times** the global average. While female enrollment in STEM courses has risen to over 42% in 2021-22, workforce participation remains at a modest **14% in 2021**.

Usage: The example can be used to show how foreign investments can help drive economic as well as social changes in India

17. ARTIFICIAL GREENING AND PLANTATIONS

Context:

In India, **invasive alien plant species** are displacing native vegetation, posing a significant **threat to wildlife by disrupting natural habitats** and depleting essential food sources.

A study suggests that about **66% of the country's natural systems are infested by 11 invasive species**, compromising or threatening **two-thirds of the available food for wild animals**. The invasion is driven by human actions, including **horticultural practices and land-use changes**.

What is Artificial greening and plantations?

It refers to **human-initiated efforts to introduce or promote specific vegetation** in an area, often for ecological restoration, aesthetic purposes, or to address environmental issues. These practices involve **planting selected plant species**, typically non-native or commercially valuable ones, to modify or enhance the existing vegetation in a particular area.

While some experts view artificial greening as a way to ecological restoration, livelihood enhancement, Aesthetic Landscaping, Erosion Control, etc. But artificial greening if done with **non-native species can have an irreversible impact** on the overall ecological landscape.

18. NATIONAL GIRL CHILD DAY (NGCD)

Context:

It is observed annually **on January 24**, and sheds light on challenges faced by girls in Indian society.

Established in 2008 by the Ministry of Women and Child Development, **NGCD** advocates for **equal opportunities in education, healthcare, and nutrition**. It commemorates the inaugural anniversary of the **Beti Bachao, Beti Padhao Scheme launched on January 22, 2015**, aiming to improve the child sex ratio and empower girls and women. The day also holds significance as it marks the **anniversary of Smt. Indira Gandhi took the oath as the first woman Prime Minister of India on January 24, 1966**. **NGCD** promotes equal opportunities for the girl child while raising awareness about the injustices they face.

Activities this year:

The government urged states and union territories to conduct a **five-day campaign** at the grassroots level to raise awareness about the **importance of the girl child**. The campaign includes various activities, such as **Gram Sabha or Mahila Sabha, oath-taking ceremonies, workshops on menstrual hygiene**, and celebrating local champions in education, sports, social welfare, and **community mobilization**.

Quotes on Girl Child:

1. "Empower a girl, empower a nation. The strength of our future lies in the hands of every girl child."
2. "Girls are not just a part of the story; they are the storytellers, shaping the narrative of a better tomorrow."
3. "Girls are not liabilities; they are assets that enrich the fabric of society with their intelligence and compassion."

Usage: The examples can be used in Essays/ Ethics (value of gender equality)/ Case studies etc.

19. SCREEN TIME FOR CHILDREN

Context:

During the seventh edition of **Pariksha Pe Charcha, the Prime Minister** emphasized the importance of quality sleep for students, sharing a personal insight that he **falls asleep within 30 seconds of going to bed**.

He cautioned **against excessive screen time**, noting its potential to disrupt sleep patterns, and advocated for a **balanced lifestyle**. The message serves as a timely reminder for students, parents, and teachers to prioritize restful sleep as a crucial component of overall well-being.

Excessive screen time among children has been associated with a range of negative impacts on their **physical and mental well-being**. The prolonged use of screens, particularly for activities such as gaming or social media, has been linked to **health issues like obesity, sleep disorders, depression, and anxiety**. Moreover, it negatively influences their **cognitive development, reducing essential social skills** such as empathy by limiting face-to-face interactions.

To address these concerns, **WHO guidelines recommend no screen time for babies under 2 years old**, with limited screen time for **those aged 2 to 4**. Additionally, implementing **parental controls and filters** can help block access to unsuitable content and products, ensuring a healthier screen time experience for children.

FACTS FOR PRELIMS

GS-1

1. SURYA NAMASKAR

Context:

Gujarat set a Guinness World Record with over **50,000 people** performing **'Surya Namaskar' simultaneously at 108 venues**.

- The main event took place at **Modhera Sun Temple in Mehsana** district.

About Surya Namaskar:

Surya Namaskar, also known as **Sun Salutation**, is a **yogic practice that involves a series of 12 postures or asanas**. The practice is **said to pay respect to the sun**.



About the Sun Temple:

Built in 1026-27 CE during Bhima I's rule in the Solanki dynasty, the **Modhera Sun Temple** is a protected monument managed by the **Archaeological Survey of India**. Divided into **Gudhamandapa, Sabhamandapa, and Kunda**, it's believed to commemorate the defence of Modhera against Mahmud

of Ghazni.

The **Maru-Gurjara or Solanki style** architecture showcases exquisite craftsmanship from the Golden Age of Gujarat. Recognized as a **Monument of National Importance**, it was listed on the **UNESCO World Heritage tentative list** in December 2022.

The annual **Uttarardha Mahotsav dance** festival is organized at the temple by the Tourism Corporation of Gujarat. Other notable Sun Temples in India include Konark, Martand, Katarmal, Dakshinarkaa, Bhramanya, Surya Prahaar, Suryanar Kovil, and Suryanarayana temples.

2. THE KHARSAWAN MASSACRE OF 1948

Context:

On January 1, 1948, **Kharsawan in present-day Jharkhand** witnessed a massacre similar to **the Jallianwala Bagh incident**.

- During a **protest against the merger of Kharsawan with Orissa**, police **opened fire on a gathering** of Adivasis, killing hundreds or possibly thousands.

Background:

- The **demand for a separate tribal state** had been **ongoing since 1912**, gaining momentum over the years.
- Kharsawan's merger with Orissa triggered the protest**, with over 50,000 tribals assembling, expecting leader **Jaipal Munda**.
- However, **his absence led to unrest, and police fired on the crowd**, resulting in numerous casualties.

A memorial now stands at Kharsawan, and the day **is observed as a day of mourning and remembrance in the Kolan region of Jharkhand**.

The **Jallianwala Bagh Massacre**, also known as the **Amritsar Massacre**, occurred on April 13, 1919. **British troops opened fire on a peaceful crowd** of unarmed Indians who had gathered to **protest the Rowlatt Act** and the **arrest of pro-independence activists**.

3. DIVYA KALA MELA 2023

Context:

The **Department of Empowerment of Persons with Disabilities (Divyangjan)** is set to **inaugurate the Divya Kala Mela 2023** in Bengaluru.

- 'Divya Kala Melas' organized across India** is part of the **initiative to empower Persons with Disabilities (PwD) during the year 2023-2024**.

About Divya Kala Mela:

- Around **100 Divyang artisans from 20 states/UTs**

will display their products in categories such as home décor, clothing, stationery, eco-friendly items, packaged food, organic products, toys, gifts, and personal accessories.

- The Mela will also feature cultural activities and performances by Divyangjan artists, providing a platform for marketing and showcasing their skills.

4. MAHARISHI VALMIKI INTERNATIONAL AIRPORT

Context:

The Prime Minister inaugurated the newly constructed **Ayodhya Airport**, naming it **Maharishi Valmiki International Airport**.

Maharishi Valmiki is a **legendary poet and the traditional author of the epic Ramayana**. He is known as the **Adikavi, or "First Poet"** because he is credited with **discovering the first śloka, or verse**, which defined the form of **Sanskrit poetry**.

Maharishi Valmiki is highly respected in Hindu culture for his **contribution to literature and his role in preserving the story of Lord Rama**. The Valmiki Ramayana is one of the **foundational texts of Hindu philosophy, morality, and spirituality, and it continues to be a source of inspiration** for millions of people.

5. BAB EL-MANDEB STRAIT

Context:

Explosions were reported near a cargo ship in the **Bab el-Mandeb Strait** on January 2, according to the **UK Maritime Trade Operations (UKMTO)**. The ship was travelling between the **coasts of Eritrea and Yemen**.

What is a Strait?

A strait is a narrow, **naturally formed waterway that connects two larger bodies of water**, typically seas or oceans. They can be formed by a variety of geological processes, such as **tectonic activity, erosion, or the submersion of land**.

The **Strait of Bab el-Mandeb** is a crucial **maritime choke-point**, connecting the Red Sea with the **Gulf of Aden and the Indian Ocean**.

Important Straits of the World are:

Strait	Connecting Water Bodies
Strait of Gibraltar	Mediterranean Sea and Atlantic Ocean
Bosporus Strait	Black Sea and Sea of Marmara
Strait of Hormuz	Persian Gulf and Gulf of Oman

Malacca Strait	The Andaman Sea and South China Sea
Bab el-Mandeb Strait	Red Sea and Gulf of Aden
English Channel	North Sea and English Channel
Taiwan Strait	East China Sea and South China Sea
Cook Strait	Tasman Sea and Pacific Ocean
Torres Strait	Coral Sea and Arafura Sea
Davis Strait	Baffin Bay and Labrador Sea
Palk Strait	Bay of Bengal and Gulf of Mannar

GI tag products

Context: **Seventeen products** have been awarded the **Geographical Indications (GI) tag**

State/UT	Short Description
Odisha	Lanjia Saura paintings: Wall mural art with spiritual importance.
	Dongaria Kondh shawl: Unique and ancient knitted shawls reflecting culture and beliefs.
	Khajuri Guda: Natural sweetener made from date palm juice.
	Dhenkanal Magji: Milk product.
	Similipal Kai Chutney: Chutney is made from indigenous Kai fruit.
	Nayagarh Kanteimundi Brinjal: Vegetable crop with prickly thorns.
	Koraput Kalajeera Rice: Rice variety from Koraput.
Arunachal Pradesh	Handmade Carpets: Artisan-crafted carpets.
	Wancho Wooden Craft: Ethnic art practiced by Wancho tribes.
	Adi Kekir (Ginger): Ginger variety.
West Bengal	Tangail Saree, Garad Saree, Korial Saree: Traditional sarees.
	Kalonunia Rice: Rice variety.
	Sundarban Honey: Honey from the Sundarbans
J&K	Anardana: Pomegranate product from Ramban.
Gujarat	Kachchhi Kharek: Local product from Gujarat.

About GI Tags:

A Geographical Indication (GI) is a **designation used on products with a specific geographical origin**, indicating qualities or reputation linked to that origin. Internationally recognized **under the Paris Convention**, GI is part of **Intellectual Property Rights (IPRs)**, covered by the **WTO's TRIPS Agreement**,

Madrid Agreement, and Lisbon Agreement.

In India, GI registration is governed by the **Geographical Indications of Goods (Registration and Protection) Act of 1999**. Administered by the Registrar of Geographical Indications (RGI), it identifies **agricultural, natural, or manufactured goods**, providing legal protection **for 10 years**, renewable. The **Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry**, oversees GI registration, offering protection against unauthorized use, promoting exports, and ensuring quality and distinctiveness.

6. 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 Gundayya, 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**.

7. 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**.

8. HARVEST FESTIVAL: MAKAR SANKRANTI, PONGAL, LOHRI AND MORE

Context:

January 14 marks the significance and celebration of festivals such as **Makar Sankranti, Pongal, and Lohri**, which are **observed across India**.

- The festivals mark the transition of **seasons, symbolizing the end of winter and the onset of warmer months**.
- **Makar Sankranti and Pongal** are associated with the **northward journey of the sun (Uttarayan)**, signifying longer days and the **shift towards the Capricorn zodiac sign**.

Features:

- The **festivals follow the solar cycle** and are celebrated on almost the same day each year.
- Rituals include **bathing in sacred rivers**, offering **Nav-ivedhya to the Sun god**, charity, Shradha rituals, and breaking fast during **Punya Kaal**, with variations across regions.
- In **Tamil Nadu, the four-day Pongal festival** involves cleaning houses, decorating entrances, and celebrating the **toil of bulls on the third day**.
- Special dishes like **Pongal (rice mixed with boiled milk and sugar)**, **lemon and tamarind rice**, **vadas**, and **Payasam** are prepared.
- Various regional customs include **door-to-door exchanges of plates** containing sugarcane, sesame seeds, and jaggery, symbolizing sharing and spreading happiness.
- **Kite-flying occurs in Rajasthan and Gujarat, and sky lanterns are flown in the evening**.

9. SHANKARACHARYA

Context:

The **four Shankaracharyas, leaders of Hindu mathas (monasteries) in Dwarka, Joshimath, Puri, and Sringeri**, have decided **not to attend the inauguration of the Ram temple in Ayodhya**.

- The Shankaracharyas are heads of the mathas believed to **be founded by the eighth-century scholar Adi Shankara**.
- The mathas, **considered centres of knowledge, trace their lineage to Adi Shankara**, fostering Hindu traditions and philosophy.

Sri Ramanujacharya and Adi Shankaracharya

Context: Prime Minister has paid tributes to Jagadguru Adi Shankaracharya and Sri Ramanujacharya on their birth anniversary.

	Adi Shankaracharya	Sri Ramanujacharya
Birth and Lifetime	Born in 788 CE in Kaladi, Kerala, and passed away in 820 CE 	Born in 1017 CE in Sriperumbudur, Tamil Nadu, and passed away in 1137 CE 
Philosophy	Advaita Vedanta (Non-Dualism)	Vishishtadvaita Vedanta (Qualified Non-Dualism)
Interpretation of Vedas	Argued that the ultimate reality is Brahman and that the universe is an illusion (Maya)	Argued that Brahman is the ultimate reality, but also that the universe is real and a manifestation of Brahman
Approach to God	Emphasized the importance of renunciation and meditation to realize the ultimate reality	Emphasized devotion (bhakti) to achieve union with the divine
Scriptures	Emphasized the importance of the Upanishads and the Brahma Sutras	Emphasized the importance of the Bhagavad Gita and the Divya Prabandham
Influence	Revived Hinduism and helped unify various philosophical schools of thought. Founded four mathas (monasteries) in India.	Popularized devotion to Vishnu and helped revive the Bhakti movement in India.
Key Works	Vivekachudamani, Upadesa Sahasri, and commentaries on the Upanishads, Bhagavad Gita, and Brahma Sutras	Sri Bhashya, Vedanta Sara, and commentary on the Bhagavad Gita
Legacy	His teachings have had a profound impact on Indian intellectual and spiritual life.	His teachings have had a significant impact on the development of the Bhakti movement and culture
Statue	A 12-foot statue of Adi Shankaracharya at Kedarnath (Uttarakhand)	Statue of Equality on the outskirts of Hyderabad, Telangana <small>Visit Insights IAS Daily Current Affairs</small>

10. VADNAGAR

Context:

A joint study led by the Indian Institute of Technology (Kharagpur) has uncovered evidence of a human settlement in Vadnagar, dating back to 800 BCE.

- The study indicates cultural continuity in Vadnagar after the Harappan collapse.
- The research spans 3,000 years, revealing the rise and fall of different kingdoms and recurrent invasions linked to changes in climate, such as rainfall or droughts.
- The findings challenge the notion of a “Dark Age” and suggest a cultural continuity in India for the last 5,500 years.
- The excavation at Vadnagar unveiled artefacts, potteries, copper, gold, silver, iron objects, intricately designed bangles, and a Buddhist monastery.

About Vadnagar:

Vadnagar is a town and municipality in the Mehsana district of Gujarat, India. Vadnagar’s ancient names include Anarta-pura and Anandapura.

Vadnagar is home to many popular places, including Hat-keshwar Temple, Kirti Toran, and Sharmishtha Talav.

Vadnagar and Modhera’s Sun Temple were recently added to the UNESCO World Heritage Sites tentative list.

11. KACHCHHI KHAREK

Context:

Kachchhi Kharek, the indigenous variety of dates from Kutch, Gujarat, has been granted a geographical indication (GI) tag by the Controller General of Patents, Designs and

Trade Marks (CGPDT) of India.

- This makes Kachchhi Kharek the second fruit from Gujarat to receive a GI tag, following Gir kesar mango in 2011.



12. INDIA METEOROLOGICAL DEPARTMENT

Context:

The India Meteorological Department (IMD) celebrated its 150th year of establishment and service to the nation.

About India Meteorological Department:

- The India Meteorological Department (IMD) is the primary government agency for meteorology and related topics.
- It is responsible for weather forecasting, seismology, and meteorological observations.
- The IMD was established in 1875 by the Government of India. Its parent organization is the Ministry of Earth Sciences. The IMD’s subsidiaries include the Regional Meteorological Centre, Chennai and the Indian Institute of Tropical Meteorology.

13. VEERABHADRA TEMPLE IN LEPAKSHI

Context:

The Prime Minister visited the Veerabhadra temple in Lepakshi, Andhra Pradesh, during his 11-day special ritual for the consecration of Lord Ram’s idol at the Ayodhya Ram temple.

- Lepakshi holds significance in the Ramayana, and its name, meaning ‘Rise, oh bird’ in Telugu, is a tribute to Jatayu, the mythical bird who fought Ravan.
- According to the Ramayana, Jatayu fell wounded in Lepakshi after battling Ravan, and it is here that he informed Lord Ram about Sita’s kidnapping.
- The temple is believed to have preserved the footprints of Goddess Sita.



About Chittorgarh Fort:

Chittorgarh Fort, also known as Chittod Fort, is a **UNESCO World Heritage Site**. It's located in the city of **Chittorgarh, Rajasthan**.

The fort was built in **the 7th century by various Maurya rulers and is the largest fort in India**.

15. GURUVAYUR TEMPLE

Context:

The Prime Minister visited the **Sreekrishna Temple in Guruvayur, Thrissur district**.



About Lepakshi Temple:

The Veerabhadra Temple, also known as the Lepakshi Temple, is located in **the Anantapur district of Andhra Pradesh**.

The **temple was built in 1533 by the Vijayanagara rulers**. It is known for its architecture, which includes **hanging pillars and cave chambers**.

The temple is dedicated to **Virabhadra, a fierce incarnation of Lord Shiva**. The temple's architectural features are in the **Vijayanagara style**, with carvings and paintings on almost every exposed surface.

The main shrine is of Lord Shiva, and there are also shrines to Ganesha and Durga.

14. CHITTORGARH FORT

Context:

The **Supreme Court of India has banned the mining of limestone** by blasting or using explosives within a **five-kilometre radius of the compound wall of Chittorgarh Fort in Rajasthan**.

- It emphasized the **threat to the fort's existence due to unscientific mineral exploitation** and directed a multidisciplinary study of **environmental pollution and its impact on structures**.



The Guruvayur Temple is **a Hindu temple in Guruvayur, Kerala, India**.

It is dedicated to **Guruvayurappan, a form of Vishnu, also known as Krishna**. The presiding deity is depicted in a standing posture with **four hands holding Shankh, Sudarshana Chakra, Lotus and Mace**. It is carved out of a stone named **Patala Anjana**.

In **1931-32, Sathyagraha was launched under Kelappan (Kerala Gandhi)** to secure the entry of untouchables into the temple.

It led to the **Travancore Temple Entry Proclamation in 1936**.

16. TRADITIONAL BUFFALO FIGHT (MOH-JUJ)

Context:

The Assam Government **reinstated the traditional buffalo fight (Moh-Juj) after a nine-year hiatus**, following a Supreme Court ban on similar events in Tamil Nadu and Maharashtra.

The event, held in **Ahotguri, Nagaon district, aimed to revive Assam's cultural traditions**. The Supreme Court had previously outlawed such events but, in May of the previous year, **upheld amendments allowing traditional bull-fights** in certain states.

About Moh-Juj

It was **introduced by the 30th Ahom king Swargadeo Rudra Singha nearly 200 years ago** and is celebrated as a sport in **Ahatguri during Magh Bihu**, a significant harvest festival in Assam held in January–February. The buffalo fight tournaments in Ahatguri have been a tradition since 1972. The event is part of the cultural celebration of Magh Bihu.

About the wild buffalo (*Bubalus arnee*)

It primarily inhabits alluvial grasslands, marshes, swamps, and river valleys. It is listed as **“Endangered” on the IUCN Red List**, under Schedule I of the Wildlife Protection Act, 1972, and included in Appendix III of CITES.

About Prevention of Cruelty to Animals (PCA) Act, 1960:

An Act to **prevent the infliction of unnecessary pain or suffering on animals** and to amend the law relating to the prevention of cruelty to animals.

Animal Welfare Board of India vs A Nagaraja, (2014)

Case: The Supreme Court banned the use of bulls and bullocks in **“entertainment activities”** such as Jallikattu and bull-ock cart racing, among others. However, later jallikattu got an exemption from the Prevention of Cruelty to Animals Act (1960).

17. SOLIGAS AND YERAVAS

Context:

The **Soligas and Yeravas**, indigenous groups living in the **Western Ghats, forage foods from the biodiversity-rich region**, forming a significant part of their diets.

- The recently launched book **“Forgotten Trails: Foraging Wild Edibles”** chronicles the **diverse foods foraged by these tribes**, emphasizing the importance of preserving traditional knowledge and addressing the **impact of land use changes and shifting policies on their food sources**.

About Soligas:

- The **Soligas are an indigenous community residing in the Cauvery Basin and surrounding hills of peninsular India**.
- The Soligas speak Sholaga, belong to the Dravidian family, and practice a blend of naturism, animism, and Hinduism, with Madeshwara as their primary deity.
- Notably, they are the **first tribal community within an Indian tiger reserve to have their forest rights formally acknowledged by a court of law**.

About Yeravas:

- The **Yeravas**, another indigenous community in the same region, **migrated from Wayanad district in Kerala and settled in Kodagu district**.
- They speak the Revula language, practice Hinduism, and believe in spirits residing in natural elements.
- **Yeravas, often agricultural labourers in coffee and tea**

plantations, include a higher quantity of tubers in their diet compared to Soligas.

- They consume mushrooms during the monsoon season, and their **settlements are called ‘Kunju.’**

18. MADHIKA LANGUAGE

Context:

The **Chakaliya community** in the remote colony of Kookanam, near Karivellur grama panchayat in Kannur, is **facing the imminent extinction of its unique language, Madhika**.

- The language, has **no script and is a blend of Telugu, Tulu, Kannada, and Malayalam**, will be lost soon.
- Despite its diverse influences, **Madhika is losing ground among the younger generation**, who prefer **mainstream languages like Malayalam**.
- The **Chakaliya community, considered untouchables in the past**, faced social stigma, contributing to the neglect of their language.

19. SRIRANGAM TEMPLE

Context:

The Prime Minister visited **Srirangam Sri Ranganathaswamy Temple**, marking the first visit by a **servicing Prime Minister to the temple**, according to temple priests.

Sri Ranganatha Swamy Temple, also known as Srirangam Temple, is a **Hindu temple in Srirangam, Tiruchirapalli, Tamil Nadu, India**. It is dedicated to **Ranganatha, a form of Vishnu**. The temple is **considered the first and most important of the 108 main Vishnu temples**.

It is constructed in **Dravidian style and temple Complex has 21 sculpted Gopurams**, 50 sub-shrines, and 9 sacred pools (tanks).

Situated on island of Srirangam **bounded by Cauvery and Kollidam (tributary of Cauvery) Rivers**.



20. BHARAT RATNA KARPOORI THANKUR

Context:

The Centre has announced the **posthumous award of the Bharat Ratna to Karpoori Thakur**, former **chief minister of Bihar**, on his birth centenary.

- Known as **“Jannayak” (leader of the people)**, Thakur was a **prominent backward caste leader in Bihar**.
- Thakur’s radical policy decisions, **including removing English as a compulsory subject, implementing alcohol prohibition, and introducing a layered reservation system**, had a significant impact.

About Bharat Ratna:

The **Bharat Ratna is the highest civilian award in India**, awarded by the President of India.

It is conferred **“in recognition of exceptional service/performance of the highest order”** without distinction of race, occupation, position, or sex.

The award was established on **January 2, 1954, by the first President of India, Rajendra Prasad**.

Initially, the Bharat Ratna was only awarded for exceptional services in the fields of science, arts, literature, and public services, but **the criteria were later expanded to include any field of human endeavour**.

The recipients receive a certificate signed by the President and a medallion. **The number of annual awards is restricted to a maximum of three in a particular year. It does not carry any monetary grant. It is not a title under Article 18.**

21. ‘SAPINDA’ MARRIAGES

Context:

The Delhi High Court has **affirmed the constitutional validity** of a provision in the **Hindu Marriage Act** that prohibits **‘sapinda’ marriages**, those between individuals related through ancestors unless their custom permits.

What is ‘Sapinda’ marriage?

‘Sapinda’ marriages refer to unions between individuals who are **closely related through their common lineal ancestors**.

According to the **Hindu Marriage Act**, individuals are considered ‘sapindas’ if one is a direct ancestor of the other within specified limits or if they share a common lineal ascendant within the ‘sapinda’ relationship boundaries. The Act aims to regulate such unions to prevent potential issues and ensure adherence to recognized customs.

Sapinda’ relationship extends up to the **third generation through the mother’s line and the fifth generation through the father’s line**.

22. STONE INSCRIPTIONS OF GRANTHAM

Context:

A research team from Tamil Nadu has discovered **two stone inscriptions near Kangayam in Tamil Nadu**.

- The inscriptions **include an 11th-century Grantham and a 16th-century Tamil inscription**.

About Grantham Inscriptions:

- The **Grantham inscriptions**, created by Tamils for **writing the North Indian language**, were found near the **Amman shrine inside the Siva Temple**.
- The stone, bears graffiti marks and writings on all four sides, **depicting symbols such as standing lamps, ‘Trishul,’ conch, and moon symbols**.

About Tamil inscription found:

- The 16th-century Tamil inscription, found inside the Vishnu temple, **provides historical details about pottery-making and a donation for lighting the perpetual lamp in the temple**.



23. GALLANTRY AWARDS

Context:

The President has approved Gallantry awards for **80 Armed Forces personnel, including 12 posthumous honours, on the eve of the 75th Republic Day**.

- These awards comprise **six Kirti Chakras** (three posthumous), **16 Shaurya Chakras** (two posthumous), **53 Sena Medals** (seven posthumous), **one Nao Sena Medal** (Gallantry), and **four Vayu Sena Medals** (Gallantry).

About Gallantry awards

They are announced **twice a year (on Republic Day and Independence Day)**. Gallantry awards are honours conferred upon **individuals**, particularly **members of the military or security forces**, for acts of **exceptional bravery, courage, and valour displayed in the face of danger or during active combat**.

24. KUTIA KONDH TRIBE

Context:

Two individuals from the **Kutia Kondh community**, **considered one of the Particularly Vulnerable Tribal Groups (PVTGs) in Odisha**, have been invited as special guests to attend the Republic Day parade in New Delhi.

- Every year, representatives from **PVTGs are invited by the Union Ministry of Tribal Affairs for Republic Day events.**

About Kutia Kondh:

The Kutia Kondh community is located in the **Belaghara area of Kandhamal district in Odisha.**

The Kutia Kandha are a major section of the Kandha tribe who speak **Kui, a Dravidian language.** They are known for their buffalo **sacrifice ritual, called "Kedu"** to worship their Earth Goddess".

25. PADMA AWARDS 2024

Context:

The President approved 132 Padma awards, including **five Padma Vibhushan, 17 Padma Bhushan, and 110 Padma Shri awards.** The list features 30 women, nine from the category of "Foreigners/NRI/PIO/OCI," and nine posthumous awardees.

About Padma Awards

It is among India's **highest civilian honours**, announced annually with brief interruptions in **1978-1979 and 1993-1997.** Instituted in 1954 with three classes, renamed in 1955 as **Padma Vibhushan, Padma Bhushan, and Padma Shri.** They recognize exceptional service in various fields like art, social work, science, sports, civil service, etc., and are conferred without being a title under **Article 18.** The announcement is made on Republic Day each year.

Components	Hill Forts: Salher, Shivneri , Lohgad, Raigad, Rajgad, and Gingee forts; Hill-forest fort: Pratapgad; Hill-plateau fort: Panhala; Coastal fort: Vijaydurg; Island forts: Khanderi, Suvarnadurg, and Sindhudurg
Geographical Distribution	Across diverse regions in Maharashtra and Tamil Nadu. Except for Gingee Fort, all forts are from Maharashtra
Establishment Period	In 1670 CE during the reign of Chhatrapati Shivaji Maharaj, persisted until 1818
Significance	Strategic Utilization of Terrain: Utilized existing terrain for guerrilla warfare against Mughals and European coastal powers
Unique Military Legacy	The Maratha Empire's warfare strategy is a unique example with global significance
Recognition	Included in the Tentative List of World Heritage Sites in 2021
Major Forts	Raigad: Coronation site of Chhatrapati Shivaji Maharaj; Shivneri: Birthplace of Shivaji; Sindhudurg: Built on an island in the Konkarn region; Pratapgarh: Site of the encounter between Shivaji and Afzal Khan
Nomination Category	Cultural property for UNESCO World Heritage List

India has 42 World Heritage Sites (WHS), with 34 cultural sites, seven natural sites, and one mixed site. In Maharashtra, cultural WHS include Ajanta Caves, Ellora Caves, Elephanta Caves, Chhatrapati Shivaji Maharaj Terminus (formerly Victoria Terminus), and Victorian Gothic and Art Deco Ensembles of Mumbai. The natural WHS is the Western Ghats spanning Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu, and Kerala.

GS-2

1. INTERNATIONAL COURT OF JUSTICE (ICJ)

Context:

South Africa recently moved to **file a case against Israel at the International Court of Justice (ICJ), accusing Israel of genocide.**

- South Africa has **expressed strong support for Gaza and criticized Israel's actions** on the basis of **1948 Genocide Convention.**
- South Africa's **historical solidarity with Palestine is attributed to its own experience of discrimination, alignment with anti-discrimination activism, and opposition to Western influence**

1948 Genocide Convention, which defines genocide as acts

26. MARATHA MILITARY LANDSCAPES

Context:

India has proposed the **'Maratha Military Landscapes'** as its nomination for inclusion in **the UNESCO World Heritage List for the 2024-25 cycle.**

Aspect	Details
About	The Maratha military landscape was conceived by Chhatrapati Shivaji Maharaj in 1670 CE. Crafted between the 17th and 19th centuries , the Maratha Military Landscapes represent an exceptional fortification and military system envisioned by the Maratha rulers.
	There are three categories of nomination- cultural, natural and mixed. Maratha Military landscapes (developed between the 17th and 19th centuries) are nominated in the cultural category.

committed with **the intent to destroy a national, ethnic, racial, or religious group.**

ICJ vs. ICC		
	International Court of Justice (ICJ) La Cour Internationale de Justice (CIJ)	International Criminal Court (ICC) La Cour pénale internationale (CPI)
Year Court Established	1946	2002
UN-Relationship	Official court of the U.N., commonly referred to as the "World Court."	Independent. May receive case referrals from the UN Security Council.
Location	The Hague, The Netherlands	The Hague, The Netherlands
Types of Cases	Contentious between parties & Advisory opinions	Criminal prosecution of individuals
Subject Matter	Sovereignty, boundary, & maritime disputes, trade, natural resources, human rights, treaty violations, treaty interpretation, and more.	Genocide, crimes against humanity, war crimes, crimes of aggression
Funding	UN-funded.	Assessed contribution from state parties to the Rome Statute; voluntary contributions from the U.N.; voluntary contributions from governments, international organizations, individuals, corporations and other entities.

2. NATIONAL TRANSIT PASS SYSTEM

Context:

The Indian government has introduced the **National Transit Pass System (NTPS)**, a unified platform for the **seamless transport of forest goods across the country through a single permit.**

- Union Minister for **Environment, Forest and Climate Change**, inaugurated the system, emphasizing its role in **promoting transparency and simplifying transportation processes for forest and agro-forestry businesses.**

Features:

- The NTPS operates as a **web portal and mobile application**, enabling **online filing of applications** for permission to **transport forest products and obtain no-objection certificates (NOCs).**
- The system **replaces the need for merchants and farmers to obtain permits from multiple states** for inter-state transportation of forest and agro-forestry products.
- The **QR-coded permits issued by NTPS are machine-readable** and can be **decoded by any state forest department** in the country, streamlining the process and reducing the time taken to obtain permits.

The initiative aims to **facilitate one-nation-one-pass transportation for forest products**, enhancing the ease of doing business for timber merchants and farmers involved in agro-forestry.

3. SUKANYA SAMRIDDHI YOJANA (SSY) SCHEME

Context: The government has increased the interest rate on the **Sukanya Samriddhi Yojana (SSY) scheme** by 20 basis

points for the January-March quarter ahead of the 2024 Lok Sabha polls. The new interest rate is **8.2%**, up from the previous 8%.

About the scheme:

Objective	Aims to ensure equitable share to a girl child in resources and savings of a family.
Scheme	Small deposit scheme for a girl child launched under the "Beti Bachao, Beti Padhao" initiative. Offers a higher interest rate than PPF , exclusive to girls below 10 years with a longer lock-in period.
Start Date	2015
Investment Type	Small deposit account. The scheme offers income tax benefits under Section 80C . Interest earned through the Sukanya Samriddhi Account is tax-free . Withdrawals can be made after the account holder turns 18, with a maximum annual withdrawal limit of 50% of the balance .
Where	Post office and selected banks
Max Number of Accounts	1 account per girl, Maximum of 2 girl children
Age Eligibility	From birth to 10 years of the girl's child
Min. Deposit	Rs. 250 per year (Previously Rs. 1000), further multiples of Rs. 100
Max. Deposit	Rs. 1.5 lakh per year
Interest Rate	subject to annual changes
Partial Withdrawal	50% allowed at the age of 18 years of the girl
Maturity	21 years from the date of account opening or marriage , whichever is earlier

4. BHARATIYA NYAY SANHITA (BNS) FOR HIT-AND-RUN CASES

Context:

Truck, bus, and tanker drivers across India are protesting against the **newly implemented Bharatiya Nyay Sanhita (BNS)** for hit-and-run cases.

What is a Hit and Run Case?

A hit-and-run case refers to a situation where a **person involved in a road accident** leaves the scene without stopping to identify themselves or render assistance to the injured parties.

What are Bharatiya Nyay Sanhita (BNS) provisions for hit-and-run cases?

BNS has replaced the **colonial-era Indian Penal Code** and imposes stringent regulations, including up to **10 years of im-**

prisonment or a fine of Rs 7 lakh (under **Section 106** of the act) for drivers causing serious accidents who fail to inform the authorities.

The increase in sentence **duration to 10 years is based on the Supreme Court's recommendations** for stricter actions **against reckless drivers** who flee accident scenes.

Why are truck Unions Protesting?

Truck drivers fear additional criminal liability under **Section 106**, leading to a call for a strike.

Solution:

The government held talks with the All-India Motor Transport Congress, and plans to implement BNS only after consulting.

The issue questions **whether the law should increase jail terms for accidents** and emphasizes the need for a **comprehensive accident prevention policy** covering imprisonment, compensation, and safety.

5. SMART 2.0

Context:

The Central Council for Research in Ayurvedic Sciences (CCRAS) and the National Commission for Indian System of Medicine (NCISM) have jointly launched the **'SMART 2.0' (Scope for Mainstreaming Ayurveda Research among Teaching professionals) program.**

- This initiative aims to **foster collaborative clinical studies** in priority areas of **Ayurveda with academic institutions and hospitals across India.**

The **goal of 'SMART 2.0'** is to **generate tangible evidence demonstrating the efficacy and safety of Ayurvedic interventions** through **interdisciplinary research methods, translating the findings into public healthcare.**

The previous version, **'SMART 1.0,' covered around 10 diseases with active participation from teaching professionals.**

6. SUPREME COURT LEGAL SERVICES COMMITTEE (SCLSC)

Context:

Supreme Court judge **Justice BR Gavai** has been nominated as the Chairman of the Supreme Court Legal Services Committee (SCLSC), succeeding Justice Sanjiv Khanna.

What is SCLSC?

The Supreme Court Legal Services Committee (SCLSC) was **established under Section 3A of the Legal Services Authorities Act, 1987**, to provide **"free and competent legal services to the weaker sections of society."**

The committee is composed of **Chairperson BR Gavai and nine members nominated** by the Chief Justice of India (CJI). It has the authority to appoint officers and employees as

prescribed by the Centre, in consultation with the CJI.

Constitutional provisions

- Free Legal Aid:** Article 39A emphasizes the need for **accessible justice, ensuring free legal aid for the poor** and weaker sections of society
- Articles 14 and 22(1):** Promoting equality and informed rights for all under

About the Act:

Legal Services Authorities Act, 1987 gives a statutory base to legal aid programs, ensuring free and competent legal services for various eligible groups. **NALSA**, constituted in 1995, **monitors and evaluates** the implementation of legal aid programs nationwide. **State Legal Services Authorities and District Legal Services Authorities** are established to execute NALSA's policies and provide legal services at the state and district levels.

7. REGISTERED UNRECOGNISED POLITICAL PARTIES (RUPPS)

Context:

The Election Commission of India has **introduced new rules for the allocation of symbols to Registered Unrecognised Political Parties (RUPPs).**

What are RUPPs?

RUPPs, or Registered Unrecognised Political Parties, include **newly registered parties**, those **not meeting the vote percentage for state party status**, or those never contesting elections post-registration.

Only 30% of RUPPs participated in the **2019 Lok Sabha election.** They are governed by the **Representation of the People Act (RPA) of 1951.** Common symbols are provided to RUPPs based upon an undertaking that they would put up **"at least 5% of total candidates** with regard to said **Legislative Assembly election of a State"**.

What are the new rules?

Under new rules **effective from January 11, 2024**, Registered Unrecognised Political Parties (RUPPs) **must provide audited accounts of the last three financial years**, expenditure statements of the last two elections, and the authorized office-bearer's signature for symbol allocation. Once these details are furnished, RUPPs become eligible for the **concession of common symbol allotment**, allocated as per the **Election Symbols (Reservation & Allotment) Order, 1968.**

8. 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**.

9. 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.

10. 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 (IWAI)**.
- 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%**.

11. 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.

12. RIGHT TO RESIDE

Context:

The **Delhi High Court** has ruled that a **foreigner cannot claim the right to reside in India under Article 19(1)(e) of the Constitution**, which grants all citizens the right to reside and settle in any part of India.

- The judgment came during the hearing of a habeas corpus petition filed by the uncle of **Azal Chakma, a suspected Bangladeshi national, alleging Chakma’s illegal custody**.
- The court emphasized that a **foreign national cannot assert the right to reside in India and referred to the Supreme Court’s decision**, stating that the Indian government’s power to expel foreigners is absolute and unlimited.

Article 19(1)(e) of the constitution grants the **right to reside and settle in any part of the territory of India** as a fundamental right under the Right to Freedom.

However, **Reasonable restrictions on this right** can be imposed by law- in the **interest of the general public**, or for the protection of **interest of any Scheduled Tribe**.

13. GUIDELINES FOR COACHING CENTRE

Context:

The Ministry of Education has sent to states/UTs for consideration guidelines for coaching centres.

Education comes under **Concurrent List status**, with coaching institutes falling under state/UT jurisdiction.

Need for Guidelines:

Regulation is deemed necessary due to **recent incidents, including fire-related deaths and suicides, coupled with concerns about methodologies and excessive fees**. The aim is to address misleading ads under the Consumer Protection Act, offer career guidance, and psychological counseling, and align with the **National Education Policy (2020)** emphasizing formative assessment over summative assessment to discourage a ‘coaching culture.’

Key features of the Guidelines:

Guidelines	Details
Definition of Coaching	Tuition, instructions, or guidance in any branch of learning to more than 50 students, excluding certain activities.
Definition of Institution	School or any educational institution recognized or controlled by the State/UT Government.
Definition of Tutor	The person guiding or training students in any coaching centre, including those providing specialized tuition.
Definition of University	University established by or under a Central Act, a Provincial Act, or a State Act.
Registration of Coaching Center	Prior registration is required for maintaining a coaching centre. Existing centres must apply within three months.
For States	States/UTs were urged to Develop an Online Registration Portal for Coaching Centers
For Coaching Centers	

Fee and Infrastructure	Centres can charge fair fees, provide receipts , mention courses, and duration, and maintain basic infrastructure.
Fee Refund Clause	Refund the remaining fee within 10 days if a student leaves the course midway after paying the entire fee.
Basic Infrastructure and Study Hours	Allocate a minimum of one square meter per student , comply with fire safety, and limit study hours.
Timetable of Coachings	Class schedules should not overlap with regular school hours.
Rest Period	Mandatory weekly offs for both students and tutors.
Class Sizes	Maintain sizes for a healthy teacher-student ratio.
Qualification of tutor	No coaching centre shall engage tutors having less qualification than graduation.
Advertisement	No coaching centre shall make misleading promises or guarantee of rank or good marks to parents/students for enrolling them in the coaching centre
Penalty for Violations	First offence: ₹25,000; Second Offence: ₹1 lakh; Repeated Breaches: Revocation of Registration.
Mental Health of Students	Establish committees for complaint redressal, avoid undue pressure, and provide assistance to students in distress.
Other Remedial Steps	Remedial classes, spaced-out curriculum, weekly offs, no tests/exams after weekly offs, festival leaves, limited daily class hours, appropriate timing, co-curricular activities, counselling sessions, and non-publication of assessment results.

14. ALLIANCE FOR GLOBAL GOOD- GENDER EQUITY AND EQUALITY

Context:

India launched the “**Alliance for Global Good- Gender Equity and Equality**” at the World Economic Forum (WEF) 2024 in Davos.

More about the initiative:

Led by the Union Minister of Women & Child Development, the **alliance aims to promote women-led development**

globally. The alliance **focuses on global best practices**, knowledge sharing, and investments in women’s health, education, and enterprise. Aligned with **G20 Leaders’ Declaration**, it reflects **India’s commitment to women-led development**. Supported by the **Bill and Melinda Gates Foundation**, anchored by the CII Centre for Women Leadership, WEF acts as a **‘Network Partner,’** and **Invest India** as an ‘Institutional Partner.’

The initiative **reinforces India’s commitment** to global cooperation and the overarching WEF theme, **‘Rebuilding Trust.’** The launch was complemented by a **women’s leadership lounge (We Lead lounge)** at WEF, featuring discussions and showcasing products by women entrepreneurs.

15. DIGITAL STUDY MATERIAL IN INDIAN LANGUAGES

Context:

The Ministry of Education (MoE) has **instructed schools and higher education institutions**, including regulators like UGC, AICTE, NCERT, NIOS, IGNOU, and prominent educational institutions, to provide **digital study material for all courses in Indian languages** within the next three years.

The **National Education Policy 2020** emphasizes **multilingualism** at all education levels. **Article 350 A** of the Constitution mandates education in the mother tongue for children from linguistic minority groups at the primary stage. The **Right to Education Act 2009** recommends using the mother tongue as the medium of instruction whenever possible.

Initiatives in Education:

Initiative	Description
PM e-Vidya	A comprehensive initiative under Atma Nirbhar Bharat Abhiyaan (2020) for digital/online/on-air education . Offers multi-mode access to education for students across all states at no cost.
Anuvadini (AI based App)	Translation of Engineering, Medical, Law, UG, PG, and Skill books through an AI-based app.
e - K U M B H Portal	Launched by AICTE to provide free access to technical education books in various Indian languages.
DIKSHA Portal	Offers study material for school education in over 30 Indian languages .
Bhasha Sagar Project	A project aimed at developing a mobile application and a web-based platform for learning Indian languages.
Natural Language Translation	A mission facilitating access to teaching and research material across all regional languages.

Sathee Portal	Developed in collaboration with IIT Kanpur , this portal assists students preparing for competitive exams nationwide, including in their native language
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Q. Which of the following provisions of the Constitution does India have a bearing on Education? (UPSC 2012)

1. Directive Principles of State Policy
2. Rural and Urban Local Bodies
3. Fifth Schedule
4. Sixth Schedule
5. Seventh Schedule

Select the correct answer using the codes given below:

- (a) 1 and 2 only
- (b) 3, 4 and 5 only
- (c) 1, 2 and 5 only
- (d) 1, 2, 3, 4 and 5

Ans: D

Mains Links

Q. How have digital initiatives in India contributed to the functioning of the education system in the country? Elaborate on your answer. (UPSC 2020)

16. PRADHAN MANTRI SURYODAYA YOJANA

Context:

The **Pradhan Mantri Suryodaya Yojana**, launched recently, **aims to provide rooftop solar panels for consumers.**

- The scheme intends to **supply power to households** through solar rooftop installations and offers **additional compensation for excess electricity output.**

Key Features:

- The goal is to **install rooftop solar on 1 crore houses, providing 1 crore families access** to rooftop solar energy.
- The scheme is designed to **benefit poor and middle-income households**, helping them **reduce electricity bills.**

This initiative **follows the government’s 2014 Rooftop Solar Programme.**

About solar rooftop system:

A solar rooftop system consists of **solar modules, solar inverter(s) and other electrical components such as meter(s), cables etc.**

Solar Photovoltaic modules and allied electrical equipment are installed on residential and commercial rooftops and connected to the power grid.

These are known as **Grid connected Rooftop Photovoltaic systems (GRPV).**

17. SURROGACY ACT, 2021

Context:

The Union Health Ministry has **requested data from all States and Union Territories** regarding the **number of couples and single and unmarried women** who have successfully availed **surrogacy under the Surrogacy Act, 2021**, and the number of **couples and single women who have opted for Assisted Reproductive Technology (ART) under the ART Act, 2021**.

The **Surrogacy (Regulation) Act, 2021** is a law that **regulates and promotes surrogacy in India**. The law also prohibits commercial surrogacy and regulates in **vitro fertilization (IVF) clinics**.

The purpose of the **ART Act is to regulate and supervise assisted reproductive technology (ART) clinics and banks in India**. The Act also aims to ensure that **ART practices are safe and ethical**.

18. STANDARDS MACHINE APPLICABLE READABLE AND TRANSFERABLE (SMART)

Context:

The Director General of the **Bureau of Indian Standards (BIS)**, advocates for the implementation of **the SMART (Standards Machine Applicable Readable and Transferable)** approach to make **Indian standards easily readable and understandable for all stakeholders**.

- A SMART standard initiative by the **International Electrotechnical Commission (IEC) and the International Organization for Standardization (ISO)**, emphasises **machine interpretability and readability as key factors**.
- There is a **need for accessible standards**, especially for **sectors dominated by small enterprises**, which constitute **more than 80% of the licenses granted by BIS**.

19. SOUTH ASIAN UNIVERSITY

Context:

The Delhi High Court has observed that the **South Asian University (SAU)** has the **status of an “international organisation”** and is entitled to **“privilege and immunity”** from the writ jurisdiction under **Article 226 of the Constitution of India**.

- The university is **characterized as an international institution**, deriving its powers from a **2007 inter-governmental agreement**.

Background:

- This came during a **hearing on pleas by SAU’s associate professors**, who faced show cause notices for their alleged involvement in a student protest.
- The court stated that SAU enjoys international organization privileges and immunities, and the dispute

should be addressed through the Arbitral Tribunal as agreed upon in the employment contracts, dismissing the maintainability of the pleas.

Article 226 of the Constitution of India gives **High Courts the power to issue writs, orders, and directions to enforce fundamental rights and other purposes**. This includes the power to issue writs to **any person or authority, including the government**.

Article 226 gives High Courts extraordinary jurisdiction to **address legal injury**. This allows the High Court to **consider public interest and equity when making decisions**.

20. AMU MINORITY STATUS DISPUTE

Context:

The legal dispute over **Aligarh Muslim University’s (AMU) minority status** is currently under consideration by a **seven-judge Supreme Court Bench** led by Chief Justice D.Y. Chandrachud.

Background to the issue:

The dispute over **AMU’s minority character** originated in **legal challenges to the AMU Act of 1920**, with significant amendments in 1951 and 1965. Changes included replacing the ‘Lord Rector’ with a ‘Visitor’ (President of India) and **allowing non-Muslims in the University Court**. The **SC’s 1967 ruling** held that AMU, being a central university, **couldn’t be considered a minority institution**. This raised questions about AMU’s minority character, challenging the notion that its establishment solely relied on the efforts of the Muslim minority. In 1981, AMU was recognized as an **“institution of national importance” by the Union government**.

Following the SC’s 1967 ruling, protests erupted and it led to an amendment affirming AMU’s minority status in 1981. However, the **Allahabad High Court nullified the 1981 Act in 2005**, rejecting the reservation. In 2019, a three-judge Bench referred the dispute to a seven-judge Bench.

Observations by SC in the case:

Observations	Supreme Court’s Stance
On Minority Status	The court emphasized that regulation by statute doesn’t diminish minority status . Article 30 doesn’t mandate exclusive administration by the minority community.
	Article 30(1) of the Constitution grants religious and linguistic minorities the right to establish and administer educational institutions of their choice

Can have Secular Administration	A minority institution can have a secular administration and admit students from diverse communities; it need not exclusively offer religious courses.
Majority Community in Administration	The presence of majority community members in administrative roles doesn't necessarily dilute the minority character of educational institutions.

Constitutional and Statutory Provisions regarding minorities in India:

Provisions	Details
Article 29	Grants the right to conserve distinct language, script, or culture for any section of citizens in India. Protects both religious and linguistic minorities . The term 'section of citizens' includes both minorities and the majority .
Article 30(1)	Empower religious and linguistic minorities to establish and administer educational institutions. Ensures non-discriminatory aid from the Union government.
Article 25	Protects freedom of conscience and the practice, profession, and propagation of religion.
Article 26	Grants religious denominations the right to establish and maintain institutions for religious and charitable purposes.
Article 27	Provides freedom from compulsory payment of taxes for promoting any particular religion.
Article 28	Allows freedom regarding attendance at religious instruction or worship in certain educational institutions.
National Commission for Minorities (NCM)	Established in 1992 under the NCM Act. Advises central and state governments on the welfare and development of minority communities . Initially covered Muslims, Christians, Sikhs, Buddhists, and Parsis; Jains were included in 2014.
SC: TMA Pai Case	For Article 30 rights, religious and linguistic minorities should be considered state-wise .
SC: Inamdar Case	The state cannot impose reservation policy on minority and non-minority unaided private colleges. Reservation in private, unaided educational institutions was declared unconstitutional.

About AMU:

AMU traces its origins to the **Muhammadan Anglo-Orien-**

tal (MOA) College established by Sir Syed Ahmad Khan in 1875 to address educational backwardness among Muslims. In 1920, an Act of the Indian Legislative Council granted the University status, transforming it into Aligarh Muslim University (AMU).

21. INITIATIVES FOR COURTS IN INDIA

Context:

Prime Minister Narendra Modi inaugurated the Diamond Jubilee celebration of the Supreme Court and launched multiple technology initiatives.

Initiatives Include:

Initiative	Description
Digital Supreme Court Reports (Digi SCR)	Provides free and electronic access to Supreme Court judgments for citizens.
Digital Courts 2.0	The e-Courts project, aims to provide district court judges with electronic court records and utilizes Artificial Intelligence (AI) for real-time speech-to-text transcription. The E-Court project is a Pan-India initiative led by the Department of Justice, Ministry of Law and Justice, to digitally transform and enable District Courts nationwide through Information and Communication Technology (ICT) .
For Supreme Court	New Website of Supreme Court: Re-designed website available in English and Hindi, featuring a user-friendly interface. Approved 800cr fund for the expansion of the Supreme Court building complex.

Other initiatives:

- National Judicial Data Grid (NJDG):** Online database for orders, judgments, and cases created under the e-Courts Project.
- National Service and Tracking of Electronic Processes:** Technology-enabled platform for process serving and issuing summons.
- AI-powered portals:
 - SUPACE (Supreme Court Portal for Assistance in Court's Efficiency).
 - SUVAS (Supreme Court Vidhik Anuvaad Software): AI-trained machine-assisted translation tool.

About the Supreme Court of India:

The Indian High Courts Act of 1861 established **high courts, replacing Supreme Courts in Calcutta, Madras, and Bom-**

bay, along with sadar adalats in presidency towns. The Federal Court of India, created under the **Government of India Act 1935**, became the highest court until the establishment of the Supreme Court on January 28, 1950. The Supreme Court replaced both the **Federal Court and the Judicial Committee of the Privy Council**. Initially seated in the **Chamber of Princes**, it moved to its present premises in 1958. The emblem features the **Lion capital of Ashoka at Sarnath with a wheel having 32 spokes**.

22. ECOWAS

Context:

Burkina Faso, Mali, and Niger have abruptly withdrawn from the Economic Community of West African States (**ECOWAS**), citing it as a **“sovereign decision.”**

The military regimes in these Sahel nations, grappling with jihadist violence and economic challenges, have strained relations with ECOWAS since recent coups. Facing suspensions and sanctions, the three nations have solidified their stance and formed an **“Alliance of Sahel States.”**

Previously, **ECOWAS** had suspended members like **Mali, Guinea, and Burkina Faso** following coups in those countries, refusing to recognize their new governments.

The **Economic Community of West African States (ECOWAS)** is a regional bloc established in 1975 with the goal of **promoting economic integration among its 15 member** countries in West Africa.

- Members:** These countries include Burkina Faso, Mali, Niger (all three now left it), Cape Verde, Benin, Cote d’Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, Sierra Leone, Senegal, and Togo.
- Aim:** ECOWAS aims to achieve a single common currency and create a large trading bloc in various sectors like industry, transport, telecommunications, energy, finance, and culture.

23. DEFAULT BAIL

Context:

The Supreme Court of India ruled that **an accused cannot seek default bail** based on the grounds that **the investigation is pending against other accused or that the charge sheet filed by the probe agency is incomplete.**

- The court stated that the **benefit of the proviso appended to sub-section (2) of Section 167 of the Code of Criminal Procedure (CrPC)** is available to the offender **only when no charge sheet is filed, and the investigation is pending against them.**
- Once a charge sheet is filed, this right ceases, and **the accused cannot claim default bail** on the grounds of an incomplete charge sheet or

pending investigation against other accused.

Default bail, also known as **statutory bail**, is a right to bail that arises **when the police fail to complete an investigation within a specified period.** This right is enshrined in **Section 167(2) of the Code of Criminal Procedure (CrPC).**

GS-3

1. RADIOCARBON DATING

Context:

Radiocarbon dating is a scientific method that utilizes the **isotope carbon-14 to determine the age of organic materials.**

- Carbon-14 is created in the Earth’s atmosphere** when cosmic rays interact with nitrogen-14 atoms, producing carbon-14.
- This isotope enters the **food chain through plants, animals, and other biomass.**

How Radiocarbon Dating works:

- The process involves **measuring the remaining amount of carbon-14 in an organic sample.**
- While the organism is alive, it **constantly exchanges carbon with its surroundings.**
- When it dies, this **exchange stops**, and the concentration of **carbon-14 in the body decreases over time due to radioactive decay.**
- By **measuring the remaining carbon-14, scientists** can estimate the time since the organism’s death.

The advent of radiocarbon dating is **considered a revolution in archaeology and geology**, providing an **objective and numerical dating method** for organic remains.

2. CHAMELEON TROJAN

Context:

A new version of the **‘Chameleon Trojan’ malware** has been discovered by security researchers, capable of **disabling biometric authentication methods such as fingerprint and face unlock to steal a phone’s PIN.**

- The **malware attaches itself to legitimate Android apps like Google Chrome** to evade detection, running code in the background.
- It uses the **Accessibility service to gain unauthorized access**, showing an HTML page with instructions on **enabling the service in newer Android versions.**
- Chameleon Trojan collects sensitive information**, such as **PINs and passwords**, and tracks user app usage habits to launch attacks when the device is least likely to be in use.

To protect against this malware, users are advised to **avoid unofficial app sources**, refrain from **enabling the Accessibility service for unknown apps**, run regular security scans, and keep **Google Play Protect enabled.**

3. VIRTUAL DIGITAL ASSET SERVICE PROVIDERS (VDA SPS)

Context:

The [Financial Intelligence Unit India \(FIU IND\)](#) issued show-cause notices to 9 **offshore virtual digital asset service providers** (VDA SPs), including Binance and Huobi, for **operating illegally** without complying with **anti-money laundering regulations** (under the [Prevention of Money Laundering Act \(PMLA\), 2002](#))

What are VDA SPs?

VDA SPs (Virtual Digital Asset Service Providers) are entities (operating within or outside India) that offer **digital asset services**, such as **cryptocurrency exchanges**.

Regulations in place for VDA SPs:

In March 2023, India mandated **VDA SPs to adhere to the Prevention of Money Laundering Act under the Anti Anti-Money Laundering/Counter Financing of Terrorism (AML-CFT) framework**. They also have **to verify client identities** and record financial transactions. Non-compliance led to notices and a request to **block URLs**. They are required to be registered with **FIU IND as Reporting Entity**. Currently, 31 VDA SPs have registered with FIU IND

Concerns of Money Laundering Due to VDAs:

1. **Predicate crime:** Raising funds through illegal activities by selling illegal goods or services in return for virtual assets.
2. **Placement:** Converting ill-gotten virtual assets into fiat currencies within a traditional financial system.
3. **Layering:** Converting fiat assets into virtual assets, exchanging virtual assets, and vice-versa.
4. **Integration:** Forming an online company that accepts crypto payments to legitimize income and clean dirty crypto.
5. **Hiding:** Using anonymizing services like mixers and tumblers to break the links between crypto transactions.

Global Regulations:

Global regulations vary, with **Dubai's VARA** having a licensing framework, the **EU's MiCA** focusing on market rules, and the **U.S. lacking a comprehensive framework**. The **Bureau for International Settlements (BIS)** suggests considering an **outright ban**, containment, or regulation, emphasizing the need to balance benefits and costs, especially for **emerging market economies**.

About Financial Intelligence Unit – India

It is an organisation (**HQ: New Delhi; formed: 2004**) under the **Department of Revenue, Government of India** which collects financial intelligence about offences under the **Prevention of Money Laundering Act, 2002**. It is an **independent body** reporting directly to the **Economic Intelligence Council (EIC) headed by Finance Minister**.

4. GREEN FUNDS/DEPOSIT

Context:

The Reserve Bank of India clarified that **banks and NBFCs are not obligated to raise green funds**.

What are Green Funds/Deposits?

Green funds refer to **financial resources** (interest-bearing deposit) specifically earmarked for **environmentally sustainable projects and activities**. These funds are designed to support initiatives that contribute to **ecological well-being**, such as renewable energy, green transport, and eco-friendly construction.

What are REs?

Regulated Entities (REs) are **financial institutions and organizations** operating in the financial sector that fall under the regulatory purview of a central authority, such as the **Reserve Bank of India (RBI)**.

REs under the Framework for acceptance of Green Deposits include:

1. **Scheduled Commercial Banks including Small Finance Banks** (excluding Regional Rural Banks, Local Area Banks, and Payments Banks)
2. **All Deposit-taking NBFCs** registered with the RBI
3. **Housing Finance Companies (HFCs)**

Other aspects of Green Deposits are:

- **Green deposits in India must be in Indian rupees.** The framework aims to encourage **green financing and address concerns**, supporting the flow of credit to eco-friendly projects.
- **Sectors included are** Renewable Energy, Energy Efficiency, Clean Transportation, Climate Change Adaptation, Sustainable Water and Waste Management, Green Buildings, etc.
- **Exclusions (don't come under Green Deposit framework):** Projects involving new or existing extraction, production and distribution of fossil fuels; Nuclear power generation; Direct waste incineration; Land-fill projects; **Hydropower plants larger than 25 MW, etc.**

Monitoring: Green deposit funds are subject to **independent third-party verification** on an **annual basis**.

5. MARINE ENERGY CONVERSION SYSTEMS SECTIONAL COMMITTEE (MECSCC)

Context: The [Bureau of Indian Standards \(BIS\)](#) has taken a significant step in promoting **standardization in the field of Marine Energy Conversion Systems** by establishing the Marine Energy Conversion Systems Sectional Committee **under ETD 54**.

It will establish **comprehensive standards and guidelines** for various aspects of Marine Energy Conversion Systems (MECS). Promote **collaboration, innovation, and knowledge exchange** within the MECS domain.

What are Marine Energy Conservation System?

Marine Energy Conversion Systems refer to **technologies that harness energy from the ocean**, converting it into electricity or other usable forms. Examples include:

- **Tidal Energy:** Utilizing the rise and fall of tides to generate electricity through tidal turbines or barrages.
- **Wave Energy:** Capturing the kinetic energy of ocean waves to generate power through devices like wave energy converters.
- **Ocean Thermal Energy Conversion (OTEC):** Leveraging temperature differences between the warm surface water and cold deep water to produce electricity.
- **Salinity Gradient Power:** Generating energy from the difference in salt concentration between freshwater and seawater.

About BIS:

The Bureau of Indian Standards (BIS) (HQ: New Delhi) is the **National Standards Body of India** under the **Ministry of Consumer Affairs, Food & Public Distribution**. Established by the **Bureau of Indian Standards Act, 2016**, effective from October 12, 2017, it replaced the **Indian Standards Institution (ISI)**. The BIS Act, 2016, designates the Minister in charge of the relevant Ministry as the ex-officio President. It also serves as India's **WTO-TBT (Agreement on Technical Barriers to Trade) enquiry point**.

6. UNITED LIBERATION FRONT OF ASOM (ULFA)

Peace Agreement with ULFA

Context: The Union Ministry of Home Affairs (MHA), the Assam government, and the pro-talks faction of the **United Liberation Front of Asom (ULFA)** have signed a memorandum of settlement

What is ULFA?
It is an armed militant group in Assam, founded in 1979, seeking independence for the indigenous Assamese people. It was banned in 1990, and signed a "Suspension of Operations" agreement in 2011, abandoning the demand for independence.

Other Recent Agreements	Details
Peace Agreement with UNLF (2023)	UNLF (United National Liberation Front) is the oldest valley-based Meitei insurgent group in Manipur which signed a peace agreement with the central government
Assam-Meghalaya Inter-State Boundary Agreement (2022)	Aims to resolve disputes in six sectors . Assam receives about 181 sq. km, and Meghalaya gets about 18 sq. km of the disputed areas.
Karbi Anglong Agreement (2021)	Tripartite agreement involving five Assam insurgent groups, the Centre, and the state government. Five militant organizations (KLNLF, PDCK, UPLA, KPLT, and KLF) laid down arms, with over 1,000 armed cadres transitioning to mainstream society.
Bodo Accord (2020)	Signed by the central government, Assam government, and Bodo groups (including NDFB factions), it redraws and renames the Bodoland Territorial Area District (BTAD) as the Bodoland Territorial Region (BTR) in Assam .
Bru-Reang Agreement (2020)	Quadrilateral agreement involving the Centre, Mizoram, Tripura governments, and Bru leaders . Aims to settle Bru community members, indigenous to Northeast India, in Tripura, with the Home Ministry covering settlement expenses.
NLFT-Tripura Agreement (2019)	NLFT, banned since 1997, reached an agreement resulting in the surrender of 88 cadres with 44 weapons . The National Liberation Front of Tripura operated from camps across the international border.
Roll Back of Armed Forces Special Powers Act (AFSPA)	The government withdrew AFSPA from a significant part of the Northeast , including the entire Tripura and Meghalaya. In Arunachal Pradesh, AFSPA remains enforced in only three districts. Visit Insights IAS Daily CA

7. REVERSE FLIP

Context:

Several **well-funded startups**, including **Pine Labs and Udaan**, are considering **relocating their holding companies to India**, a trend known as "**reverse flipping**" ahead of **potential IPOs**.

- This shift is attributed to a **tightening regulatory environment, potential IPO plans, and the desire to operate from the home market**.

Reverse Flipping is a term used to **describe the trend of overseas start-ups shifting their domicile to India and listing on Indian stock exchanges**. Reverse flipping can be done through share swaps and inbound mergers. Some reasons for reverse flipping include:

- Access to venture capital
- Favourable tax regimes
- Better intellectual property protection
- Favourable government policies

8. 20-30% HEALTH TAX ON FOOD HIGH IN SUGAR

Context:

A study **commissioned by Niti Aayog recommends imposing a health tax of 20-30% in addition to GST** on foods **high in sugar, salt, and fat**, as well as **sugar-sweetened beverages (SSBs)**.

- The study, **funded by UNICEF**, aims to **influence policies that promote healthy eating practices**.
- The research suggests that such taxes **could lead to a 13-18% decrease in demand for sugar in bulk purchases**.
- India, being the largest consumer of **sugar globally, faces health challenges, and the study suggests that taxing unhealthy foods may help reduce obesity and related health issues**.

The study draws parallels with other countries that have successfully **implemented health taxes on similar products, such as Mexico, Chile, Saudi Arabia, Argentina, and South Africa**.

9. SQUARE KILOMETRE ARRAY (SKA) PROJECT

Context:

Union Cabinet has approved the Square Kilometre Array (SKA) project, the **world's largest radio telescope**, involving international collaboration, including India's participation with a financial commitment.

Major aspects of the Project:

Nature of Project	Development of the world's largest radio telescope. Giant Metre wave Radio Telescope (GMRT) is playing a role in SKAO
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Participating Countries	Australia, Canada, China, India, Italy, New Zealand, South Africa, Sweden, the Netherlands, UK (hosting headquarters)
India's Role	India joined SKAO in 2012 as an Associate Member and has actively participated in the pre-construction phase of the SKA telescopes
Project Objective	Study galaxies in the universe, map visible galaxies with unprecedented detail , provide data on the evolution of our galaxy, and search for signs of extra-terrestrial life , Detect Gravitational Waves
Observatory Structure	Square Kilometre Array Observatory (SKAO) - an intergovernmental organization headquartered in the UK. SKAO will consist of one global observatory , operating two telescopes, across three sites . Two SKA telescopes will be at radio-quiet sites in South Africa and Australia . They will operate as one large unit.
Construction Phases	Two phases - SKA1 construction started in December 2022, with operations expected to begin by 2029
Key Activities	Rapid scanning of the skies, detailed mapping of visible galaxies, collection of survey data for insights into the early evolution of our galaxy, and the search for extraterrestrial life

10. DESERT CYCLONE

Context:

The India-UAE Joint Military Exercise, named 'DESERT CYCLONE,' has commenced in Mahajan, Rajasthan, and is scheduled from 2nd to 15th January 2024.

India has also been a regular participant at the **biennial International Defence Exhibition (IDEX)** in Abu Dhabi.

Exercise Name	Objectives
DESERT CYCLONE	Enhance interoperability in Sub-conventional Operations
DESERT FLAG	Joint air exercises and training
Zayed Talwar	The bilateral naval exercise 'Zayed Talwar' aims to enhance the interoperability and synergy between the Indian Navy and UAE Navy.
INDE-UAE BILATERAL EXERCISE	Focus on counter-terrorism and strategic cooperation

11. CO2 LEVELS IN PLANET ATMOSPHERE

Context:

New research suggests that **lower levels of carbon dioxide (CO2)** in a planet's atmosphere compared to its **neighbours could indicate the presence of liquid water on that planet.**

- The drop in CO2 levels relative to neighbouring planets **may suggest the absorption of the gas by an ocean or isolation by biomass on a planetary scale.**
- The study, introduces a new "**habitability signature,**" offering a **practical method for detecting habitability in planets.**

Significance:

- The researchers propose that **examining CO2 levels and habitability** could **provide insights into Earth's environmental tipping points** and **carbon levels that could render a planet uninhabitable.**
- The habitability signature may also serve as a **biosignature, as living organisms capture CO2, with the emission of oxygen as a tell-tale sign.**

12. POLYMER ELECTROLYTE MEMBRANE FUEL CELL

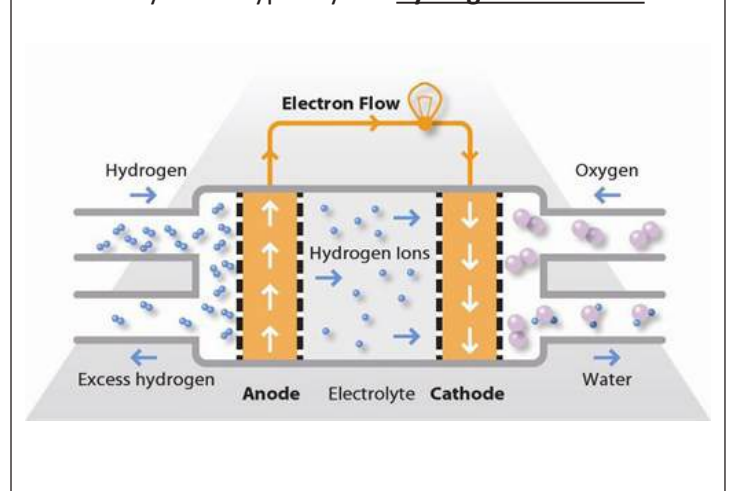
Context:

The Indian Space Research Organisation (ISRO) has successfully tested a **100 W class Polymer Electrolyte Membrane Fuel Cell** based Power System (FCPS) on its orbital platform, **POEM3.**

- The experiment aimed to **assess the operation of Polymer Electrolyte Membrane Fuel cells** in space and gather data for designing systems for future missions.
- **Hydrogen fuel cells** produce **electricity directly and are efficient, emission-free, and ideal for space missions.**

The test was part of the POEM-3 experiment executed during the **PSLV-C58 X-ray Polarimeter Satellite (XPoS) mission.**

Polymer electrolyte membrane (PEM) fuel cells, also known as **proton exchange membrane fuel** cells, are electrochemical devices that **convert chemical energy into electrical energy.** They use a proton-conducting polymer membrane as the electrolyte and typically use **hydrogen as the fuel.**



13. DIRECT-TO-MOBILE (D2M) TECHNOLOGY SERVICES

Context:

Indian telecom operators have urged the government to auction spectrum for Direct-to-mobile (D2M) technology services.

What is D2M Technology?

D2M (Direct-to-mobile) technology is a **new-age communication approach** that combines broadband and broadcast. D2M allows **mobile phones to capture territorial digital TV signals**, enabling the direct streaming of multimedia content, including live TV matches, without the need for internet connectivity. It is **similar to that of an FM radio**, where a receiver within the device can tap into different radio frequencies.

Benefits:

It proves **beneficial for delivering emergency alerts, disaster management audio content, and citizen-centric information** directly to mobile devices, reducing reliance on internet data consumption.

Difference between Broadband and Broadcast?
Broadband involves **high-speed internet access, transmitting data in both directions**. **Broadcast** is a **one-way transmission of content**, such as TV or radio signals, to a wide audience. Broadband is interactive, while broadcast is typically unidirectional.

“Reddmatter”: New superconductor Material

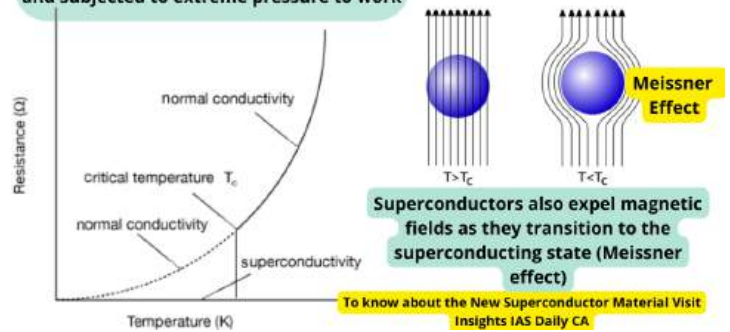
Context: A group of researchers at the University of Rochester claim to have developed the first commercially accessible material that eliminates the loss of energy as electricity moves along a wire.



H. Kamerlingh Onnes – 1911 – Pure Mercury

About Superconductivity:
 Superconductors are materials that conduct electricity with no resistance. Unlike the more familiar conductors such as copper or steel, a superconductor can carry a current indefinitely without losing any energy. However, superconductivity is hard to achieve as they need to be extremely cooled and subjected to extreme pressure to work

Superconductivity was discovered in 1911 by Heike Kamerlingh Onnes, who studied the resistance of solid mercury at cryogenic temperatures using the recently discovered liquid helium as ‘refrigerant’.



Superconductors also expel magnetic fields as they transition to the superconducting state (Meissner effect)

To know about the New Superconductor Material Visit Insights IAS Daily CA

What is the Meissner effect?

It is a phenomenon **observed in superconductors**, where these materials **expel magnetic fields** from their interior when **cooled below a critical temperature**. This expulsion occurs as the **material transitions to a superconducting state**, displaying the ability to conduct electric currents without any resistance.

14. ROOM TEMPERATURE SUPERCONDUCTIVITY

Context:

A recent study by **scientists in China and Japan** has reported signs of **superconductivity** in a material **called LK-99**, which had been controversially claimed to be **a room-temperature and pressure (RTP) superconductor**.

The researchers observed the **Meissner effect in copper-substituted lead apatite**, indicating superconductivity. The **Meissner effect is crucial in** identifying materials that conduct electricity without resistance.

Previously, in August (2023), **Reddmatter** (a new superconductor material) was developed.

15. BIO-CREDITS

Context:

There is growing momentum behind the **concept of biodiversity credits or bio-credits**, proposed as a **financial mechanism** to support the targets outlined in the **Kunming-Montreal Global Biodiversity Framework (KMGBF)** adopted in 2022.

What is Bio-Credits?

Bio-credits are **financial instruments** proposed to support the targets outlined in the **Kunming-Montreal Global Biodiversity Framework**. Similar to **carbon credits**, bio-credits aim to **generate funds for biodiversity protection** and restoration by selling credits, with proceeds directed toward conservation projects.

Organizations Involved:

The Biodiversity Credit Alliance was launched (in COP15 of CBD, 2022) to promote bio credits. Other initiatives, such as the **Ocean Conservation Commitments**, have emerged to encourage the use of Bio-credits.

About KMGBF:

Event	Details
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Conference Name	15th Conference of Parties (COP15) to the UN Convention on Biological Diversity (CBD), 2022 adopted Kunming-Montreal Global Biodiversity Framework (GBF)
Goals of GBF	Restore 30% of degraded ecosystems globally (on land and sea) by 2030
	Conserve and manage 30% of areas (terrestrial, inland water, coastal, and marine) by 2030
	Prevent the extinction of known species
	Reduce various environmental risks and footprints
Targets of GBF	23 targets for achievement by 2030 , including the 30x30 Deal, reduction of pesticide and nutrient risks, pollution control, sustainable consumption, climate change mitigation, invasive species control, and wildlife trade management
Need for Bio-Credit	The KMGBF targets private investment through innovative schemes like bio credits, with an estimated annual need of at least \$200 billion for biodiversity protection.

Examples of Bio-Credits:

Bio-Credit Examples	Details
Ocean Conservation Commitments (OCCs)	Launched in September 2023 by the Government of Niue and the non-profit Tofia Niue. Offers OCCs based on the size of Niue’s Marine Protected Area, available for purchase to fund conservation projects.
Wallacea Trust	A biodiversity and climate research organization based in the UK. Has financial commitments for 5 million biodiversity credits, with 60% of the issuance price directed to local stakeholders.
Besparingskog (Sweden)	A forest cooperative in Sweden. Swedbank has invested an undisclosed amount to protect 13 hectares of forested area over 20 years, using bio credits.
GlaxoSmith-Kline (GSK)	Purchased bio credits from rePLANET to protect Cusuco National Park in Honduras.
ValueNature	A company facilitating the development of biodiversity credits. Plans to bring biodiversity credits to the market in 2024 , aiming to generate funds for biodiversity protection.

16. GREEN COVER INDEX

Context: The **National Highways Authority of India (NHAI)** has signed a three-year Memorandum of Understanding (MoU) with the **National Remote Sensing Centre (NRSC)**, a

part of **the Indian Space Research Organization (ISRO).**

- The collaboration aims to develop and report a **“Green Cover Index”** for **India’s extensive National Highways network.**
- The **Green Highways Policy**, initiated in 2015, **prioritizes greening highway corridors, and currently, monitoring relies on field visits.**
- This innovative approach **promises a reliable, time-saving, and cost-effective solution**, allowing for a **macro-level assessment of greenness along highways.**

The project’s **primary goal is to capture the Green Cover Index region-wise for National Highways in the first assessment cycle**, followed by annual cycles focusing on estimating growth patterns.

17. CYBER KIDNAPPING

Context:

Recently a Chinese student in Utah was cyber kidnapped.

- **“Cyber kidnapping”** refers to a crime where perpetrators convince **victims to hide, then contact their loved ones for ransom.**
- The victim may send pictures that suggest they **are held captive, creating a false impression of danger.**
- The **perpetrators, not physically present, monitor the victim online through** video-call platforms.

Experts warn that with the rise of Artificial Intelligence, scammers can use technology to enhance deception.

18. AADHAAR ENABLED PAYMENT SYSTEM (AEPS)

Context:

In 2023, Aadhaar Enabled Payment System (**AePS**) frauds accounted for **11% of cyber financial scams originating in India**, according to an analysis by the **Indian Cyber Crime Coordination Centre (I4C).**

Most of these frauds occurred in **Bihar and Jharkhand.** The central government’s portal and the 1930 helpline received over 13 lakh complaints related to cyber-enabled financial frauds. AePS fraud included instances of **biometric cloning.**

What is AePS?

It is a **payment service** that allows **users to access their Aadhaar-enabled bank accounts** for transactions. The analysis also highlighted other categories of cyber financial frauds, both locally and internationally, including sextortion, investment scams, illegal loan apps, and romance scams. Social media-related cybercrimes totaled 1,41,056 reported cases in 2023.

	Details
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What is AePS?	The AePS is a bank-led model facilitating online interoperable financial transactions through Aadhaar authentication.
	It is managed by the National Payments Corporation of India (NPCI) , a joint initiative of the RBI and IBA.
	Aimed at providing secure access to banking services , especially for rural and marginalized communities.
Working	Eliminates the need for OTPs, bank details , and other financial information.
	Transactions require only the bank name, Aadhaar number, and captured fingerprint during Aadhaar enrollment.
Benefits:	Facilitates cash transfers for government schemes directly into beneficiaries' accounts; Allows access to bank accounts through any Banking Correspondent or micro-ATM of any bank
How is AePS Exploited?	Leaked Biometric Details: Cybercriminals use stolen biometric information for unauthorized transactions.
	Silicone Thumbs: Scammers use silicone thumbs to deceive biometric devices and perform fraudulent transactions.
	Lack of Transaction Notifications: Victims may not receive immediate alerts for unauthorized transactions.
	Systemic Issues: Biometric mismatches, poor connectivity, and weaker systems affect performance and reliability.
Preventive Measures	Amendments to Aadhaar Regulations 2016: Proposed changes restrict the sharing of Aadhaar details without redaction.
	Aadhaar Lock: Users are advised to lock and unlock the Aadhaar as needed to prevent unauthorized biometric use.
About I4C	Indian Cyber Crime Coordination Centre (I4C) deals with all types of cybercrimes in India. It will be set up under the newly created Cyber and Information Security (CIS) division of the MHA .
	The I4C aims to centralize cyber security investigations , develop response tools, and foster collaboration among private companies to combat cybercrime.

19. WETLAND CITY ACCREDITATION (WCA)

Context: The Ministry of Environment, Forest, and Climate Change (MoEF&CC) has nominated **Indore, Bhopal, and**

Udaipur for **Wetland City Accreditation (WCA)** under the Ramsar Convention on Wetlands. It is the **first nomination of its kind** by the Ministry of Environment, Forest, and Climate Change (MoEFCC).

- **Ramsar Site in Indore:** Sirpur Wetland, Yashwant Sagar (Ramsar site closer to Indore)
- **Ramsar Site in Bhopal:** Bhoj Wetland
- **Ramsar Site in and around Udaipur:** Five major wetlands — Pichola, Fateh Sagar, Rang Sagar, Swaroop Sagar, and Doodh Talai

About WCA and Ramsar sites:

About Wetland City Accreditation (WCA)	It is a voluntary accreditation system to recognize the importance of wetlands in urban and peri-urban environments.
	Origin: Outcome of Ramsar Convention during COP12 in 2015 .
	Objective: Promote the conservation and wise use of wetlands , as well as sustainable socio-economic benefits for local populations
	Significance: Provides international recognition and branding for wetland conservation efforts. It will also help in the implementation of the Amrit Dharohar Initiative (to conserve Ramsar Sites in India)
	Validity: Once granted it is valid for 6 years.
What are Wetlands?	Definition: Areas of marsh, fen, peatland, or water, natural or artificial, static or flowing, with fresh, brackish, or saltwater.
Ramsar Convention	It is an Intergovernmental treaty in 1971 at Ramsar (Iran). It provides the framework for conservation and wise use of wetlands and resources. 172 contracting parties to the Ramsar Convention as of January 2024, with India having declared 75 wetland sites . Montreux Record: Register of Ramsar Sites needing urgent attention, launched in 1990.
India's Largest Ramsar Site:	Sundarbans in West Bengal, covering around 11,000 square kilometres, are vital habitat for Bengal tigers.
The state with the highest number	Tamil Nadu has the highest number of Ramsar Sites in India with 14 Ramsar Sites .

20. 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.

21. 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.

22. 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 nimoniana,** 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. nimoniana plant cells, paving the way for sustainable and efficient commercial production of the drug and reducing the need to harvest endangered plants.

23. 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.

24. 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.

25. '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;"> <p>Theme 1 Poverty free and enhanced livelihoods village</p> <p>Theme 2 Healthy Village</p> <p>Theme 3 Child Friendly Village</p> <p>Theme 4 Water Sufficient Village</p> <p>Theme 5 Clean and Green Village</p> <p>Theme 6 Self-Sufficient Infrastructure in Village</p> <p>Theme 7 Socially Secured Village</p> <p>Theme 8 Village with Good Governance</p> <p>Theme 9 Women Friendly Village</p> </div> <div style="flex: 1; text-align: center;">  <p>To know more Visit Insights IAS Daily CA</p> </div> </div>
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

26. 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**.

27. 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.

28. 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.

29. 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)

30. 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**

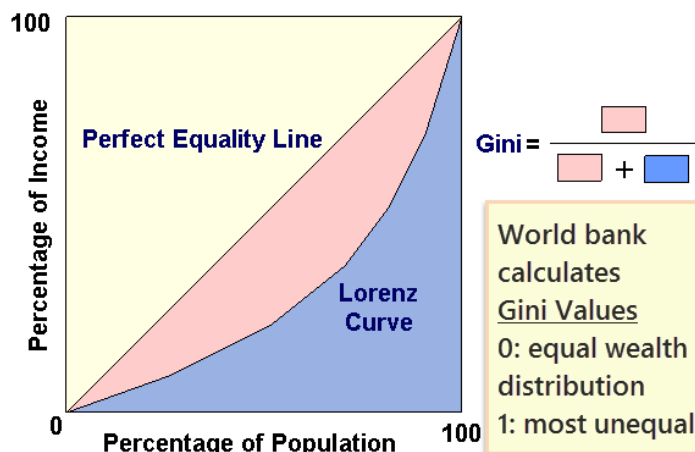
2014-15 to 0.402 in AY 2022-23.

- **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.

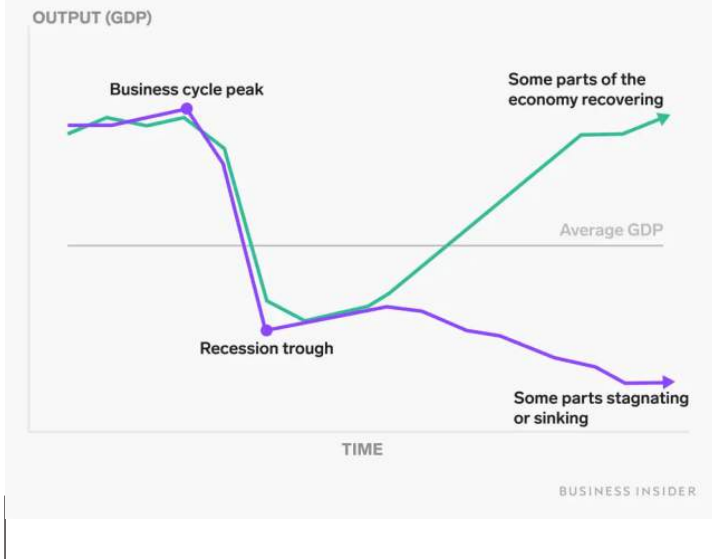
The Gini coefficient ranges from **0 (perfect equality) to 1 (perfect inequality)**. Theoretically, values over 1 are possible due to **negative income or wealth**. A Gini coefficient larger than **0.40** is considered high inequality.



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



- 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 nuclear reactors.

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

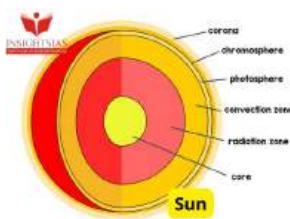
33. NASA'S LUNAR GATEWAY STATION

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.

31. 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 <u>ESA mission involving two spacecraft</u> , demonstrating precision formation flying in space. The goal is to form a <u>144-meter-long solar coronagraph</u> 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 <u>Coronagraph spacecraft and the Occulter spacecraft</u> , <u>autonomously</u> 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 <u>future large-scale missions</u> , including Mars Sample return and satellite de-orbiting.
Technology Validation	Proba-3 serves as a <u>space laboratory to validate strategies, guidance, navigation, control algorithms, and key technologies</u> 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 <u>designing and implementing</u> 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 <u>outermost layer of its atmosphere</u> , characterized by a faint, ghostly glow. Studying the Sun's corona is essential for <u>unravelling mysteries about solar processes</u> , enhancing space weather predictions, and gaining insights into the broader implications of solar activity on both the solar system and Earth.

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.

32. 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.

35. 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**.

36. 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**.

37. 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**

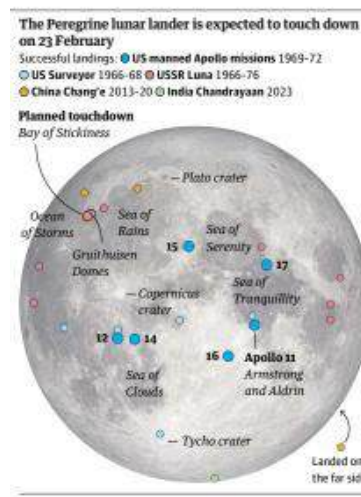
Safeguarding **researchers' rights and the larger public interest**

38. 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**.

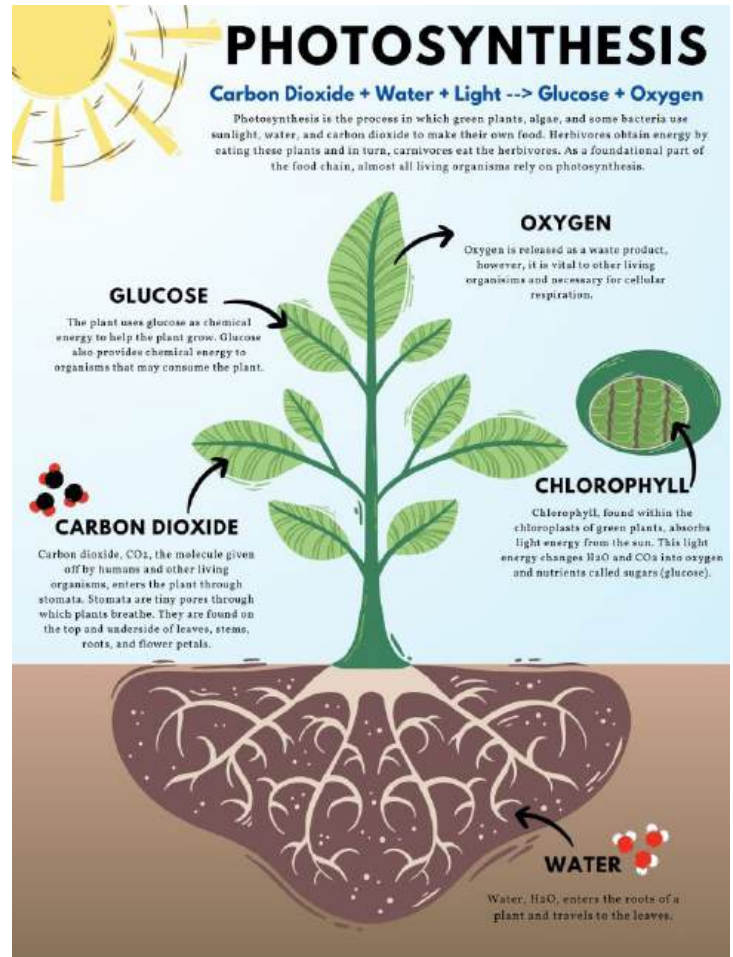


39. SISAL LEAVES

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.



40. 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.

41. 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.

42. 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 (THCDB), 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**.

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.

43. 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**.

44. 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 sector**.

- 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**.

45. 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**.

46. 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**.

47. RECENT REPORTS IN NEWS

Report	Details
Global Risk Report 2024	Released annually by the <u>World Economic Forum</u> .
	Based on the <u>Global Risks Perception Survey</u> .
	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 <u>Henley & Partners</u> .
	Ranks passports based on allowing <u>destinations without a prior visa</u> .
	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 <u>World Bank Group</u> .
	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 <u>International Labour Organisation (ILO)</u>
	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 <u>IMF, World Bank, WTO, OECD, and UNCTAD</u> .
	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.

48. 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:

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

49. 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:

1. **Stagnant prices:** Assam, responsible for 55% of India's tea production, is particularly impacted.
2. **Oversupply**
3. **A widening gap** between demand and supply
4. **Stiff competition** from other countries such as Sri Lanka, Kenya
5. **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

50. 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.

51. 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:



Prey Species




Blue Sheep

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.

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 worldwide ; 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

52. HYDROXYCHLOROQUINE

Context:

A new study published in the journal Biomedicine & Pharmacotherapy links **hydroxychloroquine, an antimalarial drug**, to an **increased mortality rate of up to 11%**, suggesting a possible link to 17,000 deaths.

- Hydroxychloroquine was briefly **promoted by former US President Donald Trump** and others as a treatment for **COVID-19 during the early stages of the pandemic**.

While hydroxychloroquine is generally safe, the **study underscores the importance of evaluating risks differently when administering it preventively to a large number of healthy people**.

Hydroxychloroquine is in a **class of drugs called antimalarials and is also an antirheumatic drug**. It works by killing the **organisms that cause malaria**. Hydroxychloroquine may work to treat **rheumatoid arthritis and systemic lupus erythematosus** by decreasing the activity of the immune system.

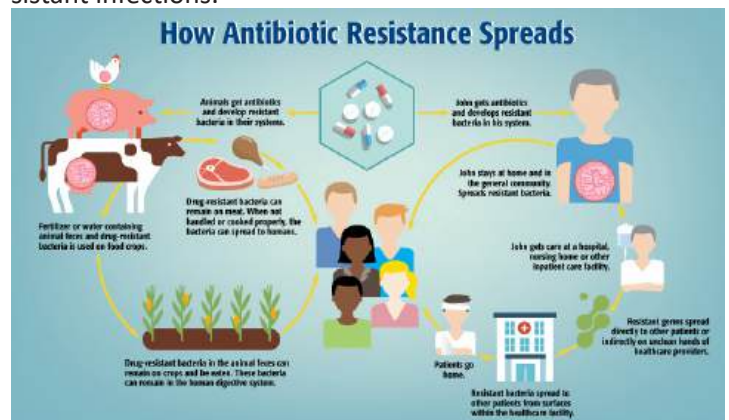
53. OPERATION AMRITH (AMRITH - ANTIMICROBIAL RESISTANCE INTERVENTION FOR TOTAL HEALTH)

Context:

The **Kerala Drug Control Department** has **initiated Operation Amrith (Antimicrobial Resistance Intervention For Total Health)** to curb the **overuse of antibiotics in the state**.

- Pharmacies are required to **maintain accurate records of antibiotic sales**, display posters stating **'antibiotics not sold without doctor's prescription'**, and comply with prescription regulations.
- Operation Amrith aligns with **Kerala's Anti-Microbial Resistance Strategic Action Plan (KARSAP)**, reflecting a multi-sectoral approach to combat antimicrobial resistance (AMR).
- The state has implemented various initiatives, including the **Antibiotic Literate Kerala Campaign, block-level AMR Committees, and the Kerala Antimicrobial Resistance Surveillance Network (KARS-NET) for surveillance**.

The move aims to **raise awareness about AMR**, ensure responsible antibiotic use, and prevent the spread of drug-resistant infections.



54. PENCH TIGER RESERVE (PTR)

Context:

Pench Tiger Reserve (PTR) in Maharashtra has been **designated as India's first Dark Sky Park**, the fifth in Asia, aimed at preserving the **night sky and combating light pollution**.

Recognized by the **International Union for Conservation of Nature (IUCN)**, this status emphasizes the importance of **natural darkness for ecological integrity and community well-being**. The Dark Sky Place certification involves **lighting policy, retrofits, education, and night sky monitoring**.

About the Pench Tiger Reserve:

Key Points	Details
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About	Located in Nagpur District, Maharashtra, named after Pench River . The river divides the park into equal eastern and western parts.
	Declared National Park in 1975 , became a tiger reserve in 1998-1999. Major Protected Area in Satpura-Maikal ranges . Designated Important Bird Area (IBA) by Birdlife International.
	The reserve, spanning Madhya Pradesh and Maharashtra, is known for its tiger conservation efforts and inspired Rudyard Kipling's The Jungle Book .
Flora	Dense green cover with Southern dry broadleaf teak forests and tropical mixed deciduous forests . Presence of shrubs, climbers, and unique medicinal plants. Bamboo plantations near water banks.
Fauna Mammals	Sloth bear, jackal, nilgai, wild dog, among others.
Fauna Birds	Peafowl, magpie robin, pintail, drongo, unia, myna, and various other bird species.

55. SAMAVESHA PROJECT

Context:

The **Indian Science, Technology, and Engineering Facilities Map (I-STEM)** is launching the **Samavesha project** at IISc., Bengaluru.

- The project aims to **enhance research collaboration in India by improving accessibility to facilities and labs**.
- The platform allows **researchers and industries to connect with institutions** that have the required **equipment, enabling them to rent it for experiments**.

The initiative aims to **save capital expenditure for researchers, industries, and startups** and prevent duplication of resources at the national level.

The Indian Science, Technology, and Engineering Facilities Map (I-STEM) is a **national web portal that helps researchers find the facilities they need for their R&D work**. The portal also aims to connect resources to researchers.

56. HUMBOLDT'S ENIGMA

Context:

The article discusses **Humboldt's enigma**, a concept proposed by Alexander von Humboldt in the 19th century that **suggests a relationship between temperature, altitude, humidity, and biodiversity**.

- Humboldt's enigma is the idea that the **Earth's tropical areas are not the only biodiverse regions**. According to this idea, many **areas outside the tropics, such as mountains, are also highly biodiverse**.

- The eastern Himalayas are cited as an example where **climate dissimilarity and diverse geological composition contribute to high biodiversity**.

57. HIMALAYAN WOLF

Context:

The **Himalayan Wolf (Canis lupus chanco)** has been assessed for the first time on the **International Union for Conservation of Nature (IUCN) Red List**.

- The assessment estimates a **population size of 2,275-3,792 mature individuals** across the Himalayan range of **Nepal, India, and the Tibetan Plateau**.

Conservation Status

- IUCN's Red List: Vulnerable
- Wildlife Protection Act, 1972: Schedule I
- CITES: Appendix I

Threats:

- **Depredation conflicts, habitat modification, encroachment, depletion of prey populations, hybridization with dogs, and illegal hunting for trade**.

Measures recommended:

- Securing **healthy prey populations**, improving **live-stock guarding methods**, managing **feral dog populations**, transboundary conservation efforts, and **incorporating the Himalayan Wolf into conservation programs to enhance protection**.



58. NEW GENERATION AKASH MISSILE

Context:

The **Defence Research and Development Organisation (DRDO)** has successfully conducted a flight test of the **New Generation AKASH (AKASH-NG) missile** from the **Integrated Test Range (ITR)**, Chandipur off the coast of Odisha.

- The test involved intercepting a **high-speed unmanned aerial target at a very low altitude**.

About AKASH NG Missile:

The AKASH-NG is a medium-range, **mobile surface-to-air missile defense system**. It's a state-of-the-art missile system that can intercept **high-speed, agile aerial threats with a**

range of around 80 km.

The AKASH-NG has advanced **technologies and features**, such as improved missiles, seekers, and radars. It also includes an indigenously developed **Radio Frequency Seeker, Launcher, and Multi-Function Radar**.

59. LITHIUM EXPLORATION

Context:

India has reached a historic milestone by signing an agreement between **Khanij Bidesh India Limited (KABIL) and Argentina's state-owned enterprise**, Catamarca Minera y Energética Sociedad del Estado (CAMYEN SE), marking the **first-ever lithium exploration and mining project** by an Indian government company.

The agreement allows **KABIL to explore and develop five lithium brine blocks** in Argentina's Catamarca province, covering approximately 15,703 hectares. Top of Form Argentina, as part of the **"Lithium Triangle"** along with Chile and Bolivia, is a significant producer of lithium, holding the world's third-largest lithium reserve.

KABIL is a joint venture, involving NALCO, MECL, and HCL, and is focused on identifying and acquiring strategic minerals overseas for India's use. It is also exploring opportunities for lithium partnerships and acquisitions in other Latin American nations like **Chile and Brazil, as well as in Australia for lithium and cobalt exploration**.

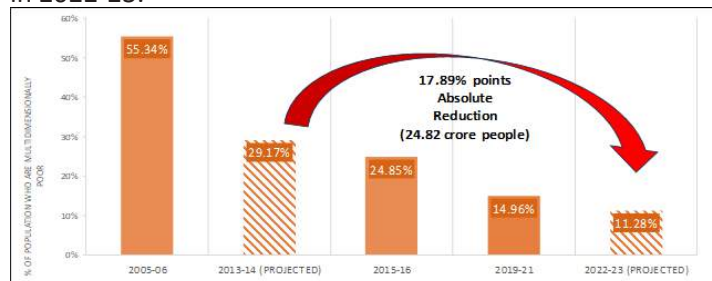
Argentina is a country in the southern half of South America. Argentina is the second-largest country in South America after Brazil. The Andes Mountains, which run through both Argentina and Chile, are known for **hosting lithium-rich brine deposits**. The region's unique geological conditions make it conducive to the formation and concentration of lithium resources.



60. MULTIDIMENSIONAL POVERTY INDEX (MPI)

Context:

A recent discussion paper by NITI Aayog reveals that in the last nine years, **over 24 crore Indians** have escaped **multidimensional poverty**, showcasing a steep decline in the Poverty Headcount Ratio from over 29% in 2013-14 to about 11% in 2022-23.



What is MPI?

The **National Multidimensional Poverty Index (MPI) is a metric assessing poverty** in a country by considering **health, education, and standard of living, represented by 12 indicators**. It employs the **Alkire Foster methodology**.



The National Multidimensional Poverty Index (MPI), a first-of-its-kind, estimates multiple deprivations at a household level **using NFHS data**. Published by NITI Aayog, it includes **three dimensions and 12 indicators**. Sub-indices measure the **Headcount Ratio (how many are poor)** and the **Intensity of Poverty (how poor are the poor)**. The Global **MPI**, published **by OPHI in collaboration with UNDP**, is a similar index addressing worldwide multidimensional poverty.

Key findings of Niti Aayog:

- 1. Steep decline in Poverty Headcount Ratio (HCR):** HCR represents the percentage of the population below the Poverty Line.
- 2. Positive Improvement in All 12 MPI Indicators**
- 3. Faster Decline in Poorer States:** Poorer states like Uttar Pradesh and Bihar show a rapid decline in poverty, suggesting a reduction in disparities.
- 4. SDG Target 1.2:** India is expected to achieve Sustainable Development Goal (SDG) Target 1.2, aiming to reduce multidimensional poverty by at least half, well before 2030.
- 5. Successful Government Initiatives:** Programs like Poshan Abhiyan and Anemia Mukht Bharat have improved healthcare access, while the Targeted Public Distribution System under the National Food Security Act (ensures food grains for over 81 crore beneficiaries), extending free food grain distribution under Pradhan Mantri Garib Kalyan Anna Yojana.

61. PUNGANUR COWS

Context:

Prime Minister Narendra Modi fed Punganur cows at his residence on Makar Sankranti. Punganur is a **unique dwarf breed native to Andhra Pradesh**, considered the **shortest-humped cattle globally**.

About the Cow:

The Punganur cow is native to **Punganur village in Andhra Pradesh's Chittoor district**. It is known for its small size, **standing at 70-90 cm tall and weighing approximately 115-200 kg**. The breed is adapted to **hot and dry climates**. Recognizing the importance of preserving this indigenous breed, the Andhra Pradesh government has initiated **“Mission Punganur”** to revive and conserve the Punganur cow.

Punganur cows are now found not only in Andhra Pradesh but also in **Telangana, Karnataka, Kerala, Maharashtra, and Tamil Nadu**.



62. FIXED-DOSE COMBINATION

Context:

India's Central Drugs Standard Control Organisation (CDSCO) has given conditional approval for the continued manufacture and sale of **five fixed-dose combination (FDC) medicines**.

- The FDC drugs in question are part of the **344 drug combinations banned by the government in 2016**.

Fixed-dose combination (FDC) refers to a pharmaceutical formulation that contains two or more active ingredients combined in a fixed ratio in a single dosage form. Each of the active ingredients in the combination maintains a constant dose.

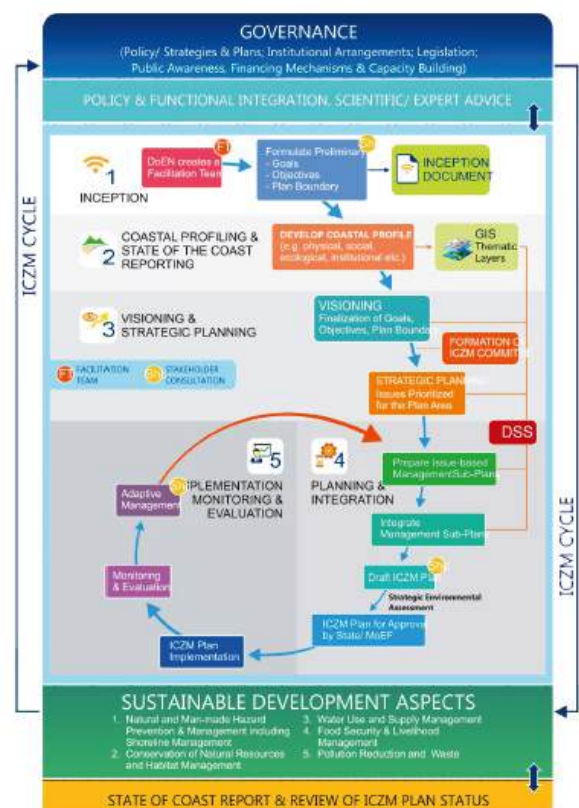
FDCs are commonly used in various **medical fields, including the treatment of infectious diseases, chronic conditions, and other health issues.**

63. COASTAL ZONE MANAGEMENT PLANS

Context:

The **National Green Tribunal (NGT)** has directed the Ministry of Environment, Forest and Climate Change to ensure that **coastal States and Union Territories promptly prepare Coastal Zone Management Plans (CZMP) or Island Coastal Regulation Zone Plans (ICRZP)** as per the **Coastal Regulation Zone notification, 2019**.

- A report submitted to the NGT revealed that only **Odisha, Karnataka, and Maharashtra, along with Great Nicobar and Little Andaman Islands**, have formulated the CZMP/ICRZP as per the 2019 notification.



64. VULTURE RESTAURANT IN JHARKHAND

Context:

In **Jharkhand**, a '**Vulture Restaurant**' has been established in **Koderma district** as part of a conservation effort to **address the declining vulture population**.

- The initiative aims to **combat the impact of livestock drugs**, particularly diclofenac, on vultures.
- The restaurant serves as a **designated feeding site for vultures**, awaiting the **completion of protocols for diclofenac-free carcasses**.



About Vultures:

It is one of the **22 species of large carrion-eating birds** that live predominantly in the tropics and subtropics. They act an important function as **nature's garbage collectors and help to keep the environment clean of waste**.

India is home to **9 species of Vulture** namely the **Oriental white-backed, Long-billed, Slender-billed, Himalayan, Red-headed, Egyptian, Bearded, Cinereous and the Eurasian Griffon**.

Bearded, Long-billed, Slender-billed, Oriental white-backed are protected in the **Schedule-1 of the Wildlife Protection Act 1972**. Rest are protected under 'Schedule IV'.

65. KASHMIR WITHOUT SNOW

Context:

This winter, Kashmir and Ladakh, including the popular tourist destination Gulmarg, have experienced a lack of snowfall, impacting winter tourism, ski resorts, and overall local livelihoods.

Reasons for Dry Winter in J&K:

Reasons	Details
Decreasing Trend of Snowfall	Attributed to a decline in western disturbance events and a gradual rise in temperatures, indicating the role of climate change.
El Nino Event	The prevailing El Nino event in the eastern Pacific Ocean is considered an additional factor affecting snowfall in the region this year.
El Nino Impact	Persistent El Nino event influencing global atmospheric circulation.
Rising Temperatures	Temperature increase observed , with a higher rate in upper elevation areas compared to plains.
	Srinagar temperatures are sometimes comparable to or higher than Delhi, contributing to the decline in snowfall.
What are Western Disturbances?	Large eastward-moving rain-bearing wind systems originating beyond Afghanistan and Iran (near the Mediterranean Sea)
	The primary source of winter precipitation in the Himalayan region.
	Pick up moisture from the Mediterranean Sea and even the Atlantic Ocean .
	About four to six western disturbance events typically occur every month during winter.
Impact of Dry Winter: Long-term Implications	Generation of less hydroelectricity.
	Increase in the rate of glacier melting.
	Adverse impact on drinking water supply due to scanty snowfall leading to minimal groundwater recharge.
Impact of Dry Winter: Short-term Implications	Increased risk of forest fires and agricultural drought.
	Drop in crop production.
	Possibility of an early spring leading to early flowering, potentially reducing crop yield.
	Winter snow is crucial for providing steady moisture to the soil, and vital for winter crops, especially in horticulture.
	Adverse effects on yields of key crops like apples and saffron, impacting the local economy.

66. CENTRE FOR FOURTH INDUSTRIAL REVOLUTION (C4IR)

Context:

Telangana has signed an agreement with the **World Economic Forum (WEF)** to establish the **Centre for Fourth Industrial Revolution (C4IR)** in the state capital, Hyderabad.

What is C4IR?

C4IR stands for the **Centre for Fourth Industrial Revolution**. It is an initiative by the **World Economic Forum (WEF)** to establish centres that focus on harnessing the potential of the Fourth Industrial Revolution (4IR) technologies and driving collaboration between governments, businesses, and academia to address global challenges and opportunities.

The collaboration aims to leverage technology for advancements in the life sciences and healthcare sector, with a **focus on reaching healthcare targets for the state's population**. **Telangana envisions becoming a health tech hub and a global destination for healthcare services.**

About 4IR:

The **Fourth Industrial Revolution (4IR)**, also known as the Digital Revolution, is characterized by the integration of technologies that **blend the physical, digital, and biological realms**. Coined by Klaus Schwab, Founder and Executive Chairman of the WEF, 4IR includes technologies such as IoT, robotics, VR, AI, quantum computing, and 3D printing. It brings about advancements in technology, boosts productivity and efficiency, contributes to economic growth, and facilitates good governance.

About WEF:

The World Economic Forum is an **international non-governmental organization** for public-private sector collaboration based in Cologny, Canton of Geneva, Switzerland. It was founded on **24 January 1971 by German engineer Klaus Schwab**.

67. STATES' STARTUP RANKING FOR 2022

Context:

Karnataka, Gujarat, and Kerala have been recognized as the **best-performing states in developing start-up ecosystems**, according to the start-up rankings for 2022 released by the **Department for Promotion of Industry and Internal Trade (DPIIT)**.

Key Findings:

- **Tamil Nadu and Himachal Pradesh** are also highlighted as best performers, while **Maharashtra, Odisha, and Telangana** are categorized as top performers.

The rankings are based on the state's initiatives to foster a conducive environment for start-ups, with a total of **33 states and Union territories participating** in the assessment **under**

five categories - best performers, top performers, leaders, aspiring leaders, and emerging start-up ecosystems.

The **States' Start-up Ranking** is a yearly capacity-building exercise created and released by **DPIIT that evaluates all of India's states and Union Territories** on their efforts to build an ecosystem conducive **to start-up growth**.

States' Start-up Ranking was launched in **February 2018** to achieve the vision of **building a robust startup ecosystem in the country**

68. PAKKE PAGA HORNBILL FESTIVAL

Context:

The **Pakke Paga Hornbill Festival (PPHF)** has begun in, Arunachal Pradesh, **emphasizing the conservation of hornbills**.

- The festival highlights the **decline in hornbill numbers** and **urges collective efforts to protect these critically endangered birds**.
- The festival **declared a 'state festival' in 2019, is held near the Pakke Tiger Reserve**, home to four hornbill species.

The Great Indian Hornbill is a bird family found **in tropical and subtropical Africa, Asia, and Melanesia**. It is the state bird of **Kerala and Arunachal Pradesh in India**.

The Great Indian Hornbill is now considered **"Vulnerable"** due to high hunting pressure, habitat loss, and deforestation.

69. E-SAKSHI MOBILE APPLICATION

Context:

The Ministry of Statistics and Programme Implementation (**MoSPI**), launched the **MPLADS e-SAKSHI Mobile Application** for the **revised fund flow procedure under the MPLAD Scheme**.

- The Mobile Application aims to **revolutionize how Members of Parliament (MPs) engage with and manage development projects in their constituencies**.

Features:

- It provides **convenience, accessibility, and real-time access for MPs to propose, track, and oversee projects**, enhancing decision-making processes and enabling swift responses to emerging needs or issues.
- The **application promotes transparency by providing instant updates** on the status and progress of proposed projects, **fostering accountability and public trust in MPLADS fund allocation and utilization**.
- The mobile app also includes **features for budget management, allowing MPs to monitor expenditures**.

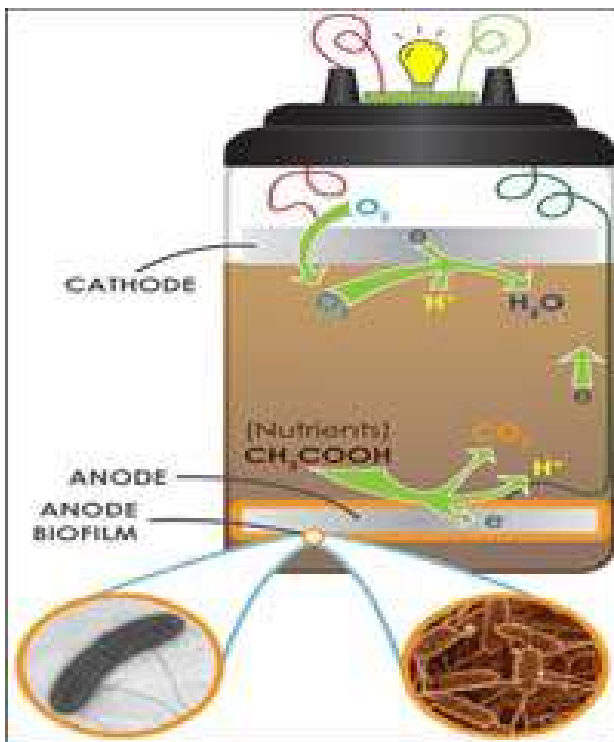
70. SOIL-POWERED FUEL CELL

Context:

A team from Northwestern University has **developed a soil-powered fuel cell** that **harvests energy from microbes in the soil**.

- This **small fuel cell**, about the size of a book, **could be used to power underground sensors in applications like green infrastructure and precision agriculture**.
- The researchers tested the **fuel cell by using it to power sensors** detecting touch and measuring soil moisture.
- The new fuel cell's design, **with a perpendicular configuration of anode and cathode**, performs **better in dry conditions**, making it more **suitable for low-moisture environments**.

The researchers claim it can **generate power indefinitely as long as there are microbes and carbon** in the soil.



71. ARTIFICIAL REEFS IN KERALA

Context:

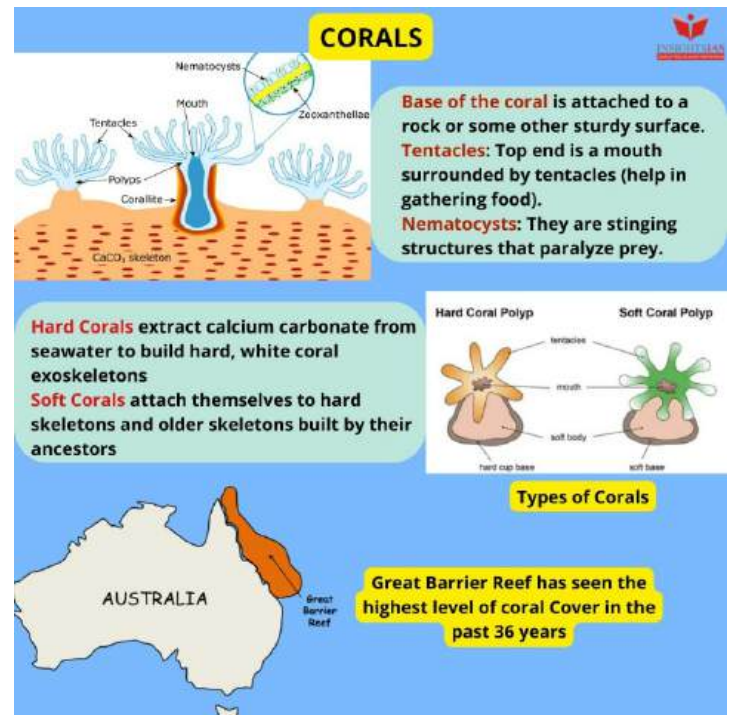
The deployment of artificial reefs off the coast of **42 fishing villages in Thiruvananthapuram district, Kerala**, commenced as part of a project aimed at enhancing fish resources and promoting sustainable fisheries management.

A total of **6,300 artificial reef units, with 150 designated** for each village, will be deployed. It intends to boost **sustainable fishing practices, improve the marine landscape, and enhance the livelihoods of the fishing community**. The initiative is implemented under the **Central Government's Pradhan Mantri Matsya Sampada Yojana**, with technical support

from the Central Marine Fisheries Research Institute.

What are Artificial reefs?

They are **man-made structures intentionally placed** on the ocean floor to mimic the characteristics of natural reefs. These structures, often made of materials **like concrete, rocks, or sunken ships, serve as habitats for marine life**. The primary purpose of artificial reefs is to enhance local marine ecosystems, promote biodiversity, and provide breeding and feeding grounds for fish, ultimately supporting sustainable fisheries and conservation efforts.



72. YELLOW RUST

Context:

The **Indian Institute of Wheat and Barley Research (IIWBR)** has urged **wheat farmers** to remain vigilant against **yellow rust**, a pest that historically appeared in some districts of Haryana during this period.

Yellow rust, a fungal disease, adversely impacts wheat crops **by creating yellow stripes on leaves, hindering photosynthesis and causing grain size reduction**. Typically prevalent in cool weather, especially in the northern hills and north-western plains zone, the recent combination of rain, temperature rise, and humidity creates favourable conditions for yellow rust development.

If yellow rust is observed, **recommended measures include spraying fungicides such as Propiconazole or Tebuconazole** to prevent further spread. The advisory emphasizes using an alternate fungicide if applied last year, especially during dry conditions.

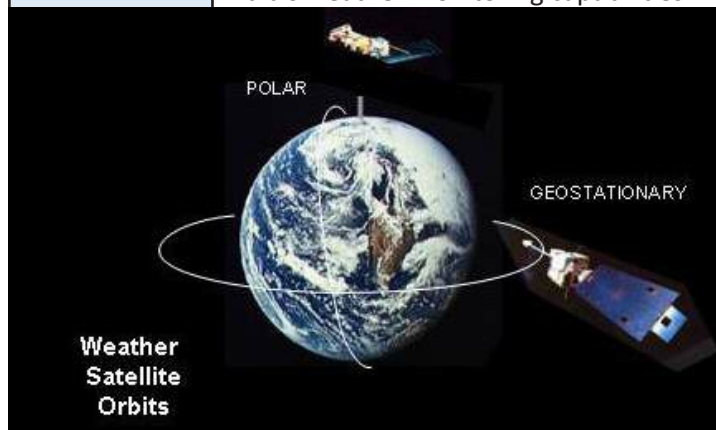
73. USE OF INSAT SATELLITES TO ANALYSE FOG

Context:

Large parts of **North India, including Bihar, Uttar Pradesh, Uttarakhand, Haryana, Delhi, and Punjab**, have been experiencing **heavy fog since** December 2023. The **India Meteorological Department (IMD)** utilizes satellite data, particularly from INSAT 3D and INSAT 3DR, to track and analyze the fog.

How Indian National Satellite (INSAT) System Help in Weather Analysis?

Key Aspects	Description
Advanced Imaging	INSAT satellites like 3D and 3DR use RGB imagers for solar reflectance and brightness temperature analysis.
Strategic Orbits	Geostationary orbits of satellites like INSAT 3D and 3DR ensure continuous monitoring over India for real-time analysis.
Day and Night Monitoring	Equipped with 'day microphysics' and 'night microphysics' , these satellites track weather changes around the clock.
Snow and Cloud Differentiation	The satellites distinguish between snow and clouds based on reflectance in different spectral bands.
Enhanced Predictions	Combining day and night data facilitates tracking cyclone formation and predicting thunderstorms, improving early warnings.
Advanced Radiometers	Upgraded radiometers in satellites like 3DR offer superior spatial resolution and functionality.
Atmospheric Sounders	Instruments measure temperature, humidity, and water vapour, providing detailed atmospheric profiles for analysis.
Continual Improvement	Each new satellite in the INSAT series incorporates improved. The INSAT 3DS meteorological satellite , expected to launch in February 2024, will further enhance India's weather monitoring capabilities.



How Satellites Analysis Color and Snow

Satellites, such as INSAT 3D, use RGB (Red, Green, Blue) imaging for colour determination based on solar reflectance and brightness temperature. This involves analyzing visible, shortwave infrared, and thermal infrared signals to represent green, red, and blue colours. The unique signature of snow, which reflects similarly to clouds in the visible spectrum **but strongly absorbs shortwave infrared radiation**, enables satellites to distinguish snow from clouds.

India has several weather satellites:

- Kalpana 1 (2002-2017):** Geostationary orbit, equipped with early VHRR and data-relay transponder, deactivated in 2017 after 15 years.
- INSAT 3A (2003):** Carried a three-channel VHRR for meteorological observations with different resolutions for visible, thermal infrared, and water vapour bands.
- INSAT 3D and 3DR:** Geostationary orbits at 82 and 74 degrees east longitudes, featuring upgraded VHRRs for improved spatial resolution and functionality. They also carry atmospheric sounders for measuring temperature, humidity, and water vapour.
- Upcoming INSAT 3DS (Scheduled for February 2024):** To be launched by the Indian Space Research Organisation using the GSLV Mk II launch vehicle. The "3DS" indicates it's a subsequent iteration following the INSAT 3D and 3DR series.

74. NUCLEAR BATTERY

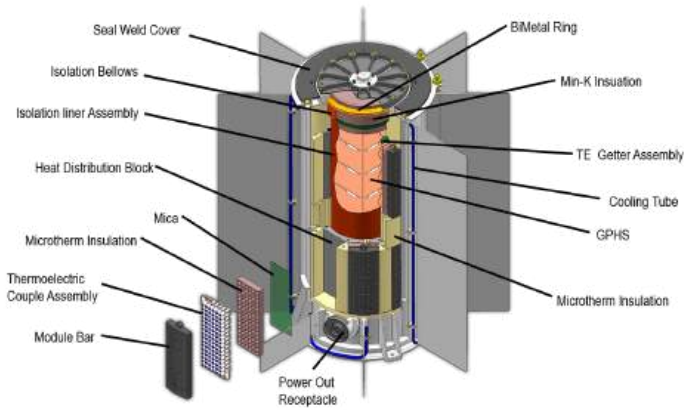
Context:

Chinese startup Betavolt has developed a **"nuclear battery"** that can produce power for 50 years without charge.

The battery, which is **smaller than a coin, contains 63 nuclear isotopes** and converts radioisotope energy into electrical energy. Betavolt claims it is the **world's first battery to achieve miniaturization of atomic energy production**, challenging traditional notions of nuclear technology.

Such batteries use **energy from the decay of a radioactive isotope (Like nickel-63)** to generate electricity. Unlike nuclear reactors, they **do not rely upon nuclear fission for power generation**.

Application: The company plans to produce batteries with 1 watt of power by 2025 and sees applications in aerospace, AI equipment, medical devices, microprocessors, sensors, drones, and micro-robots. The nuclear battery is **fire-resistant, jerk-proof, and operational in temperatures from -60°C to 120°C**.



75. FAO'S COMMITTEE ON FISHERIES (COFI)

Context:

India has been appointed as the first vice-chair of the **UN Food and Agriculture Organization (FAO) Committee on Fisheries (COFI) Sub-Committee on Fisheries Management**, marking the first time in 59 years.

Significance:

- This appointment comes as various countries raise concerns about **China's illegal fishing practices in international waters**. China has faced criticism for its illegal, unreported, and unregulated fishing practices, fishing in the exclusive economic zones of over 80 countries.
- India's inclusion in this committee is seen as **bringing balance and perspective to global narratives** on fisheries governance and management.

About COFI:

The **UN Food and Agriculture Organization Committee on Fisheries (COFI)** is the primary global intergovernmental forum addressing major international fisheries and aquaculture issues. **Established in 1965**, COFI reviews the **FAO work program** on fisheries, conducts periodic reviews of global fishery problems, and proposes solutions. It has **two sub-**

subsidiary bodies: the Sub-Committee on Aquaculture and the Sub-Committee on Fish Trade. COFI played a key role in **negotiating the Code of Conduct for Responsible Fisheries and the Agreement to Promote Compliance** with International Conservation and Management Measures by Fishing Vessels on the High Seas.

About the Food and Agriculture Organization (FAO):

It is a **specialized UN agency established on October 16, 1945**, headquartered in Rome, Italy. It aims to lead global efforts to eliminate hunger and ensure food security for all. With 195 members, including 194 countries and the European Union, FAO's goal is to provide regular access to high-quality food for active, healthy lives. **World Food Day** is celebrated annually on October 16th. FAO's sister bodies include the World Food Programme and the International Fund for Agricultural Development (IFAD).

76. HAVISURE

Context:

Indian Immunologicals Ltd (IIL), a subsidiary of the **National Dairy Development Board (NDDB)** and a leading biopharmaceutical company in India, has **launched India's first indigenously developed Hepatitis A vaccine called 'Havisure'**.

- This vaccine is expected to **play a crucial role in preventing Hepatitis A**, a highly contagious **liver infection transmitted through contaminated food or water**.
- Hepatitis is an inflammation of the liver that can cause a range of health problems and can be fatal. It's caused by swelling that occurs when **tissues of the body are injured or infected**.

THE ABCDE OF VIRAL HEPATITIS			
HEPATITIS	How it spreads	Prevention	Treatment
A	Feces Contaminated food or water	<ul style="list-style-type: none"> Vaccine Practice good hygiene 	No specific medication available Treated through supportive care (rest, adequate nutrition, and fluids) to help relieve symptoms
B	Through contact with the blood or bodily fluids of an infected person	<ul style="list-style-type: none"> Vaccine Practice safe sex Blood screening 	Combination antiviral therapies (with Tenofovir or Tenofovir derivatives plus lamivudine)
C	Blood-to-blood contact	<ul style="list-style-type: none"> Practice safe sex Avoid sharing needles, toothbrushes, razors or nail scissors 	Combination therapies with direct acting antivirals (DAAs)
D	Contact with infected blood (only occurs in people already infected with hepatitis B)	<ul style="list-style-type: none"> Hepatitis D vaccine Avoid sharing needles, toothbrushes, razors or nail scissors 	Interferon
E	Feces Contaminated food or water	<ul style="list-style-type: none"> Practice Good Hygiene Avoid drinking water that has come from a potentially unsafe source Cook food well 	No specific medication available Supportive Care

77. CORAL REEF

Context:

Scientists **have mapped the largest known deep-sea coral reef** off the US Atlantic coast, stretching about **310 miles from Florida to South Carolina**.

- Unlike tropical coral reefs, **deep-sea coral must filter food particles from the water for energy**.
- The newly discovered reef, **which provides habitat for various marine species**, has been called **“breath-taking in scale”** and covers nearly three times the size of Yellowstone National Park.

A coral reef is a **complex underwater ecosystem** made up of colonies of coral polyps held together by **calcium carbonate**. Coral reefs are often called the **“rainforests of the sea”** and support about **25% of all known marine species**.

About Deep Sea Corals:

Deep-sea corals are also called **cold-water corals**. They don't rely on photosynthesis because they're living in the dark. Instead, they use the **tentacles on their polyps to filter food out of the surrounding waters**.

78. LASER COMMUNICATION WITH CHANDRAYAAN-3 LANDER

Context:

NASA's Lunar Reconnaissance Orbiter (LRO) has **successfully pinged India's Chandrayaan-3 mission's Vikram lander** on the Moon using a laser instrument.

The laser beam was **transmitted and reflected between the LRO** and a retroreflector on the Vikram lander, located near the Moon's south pole. The **Laser Retroreflector Array on Chandrayaan-3's lander**, developed in partnership between NASA and ISRO, has started serving as a **marker or reference point on the Moon**.

Significance: This achievement opens up new **possibilities for precisely locating targets** on the lunar surface. The technique holds potential for future lunar missions utilizing retroreflectors.

About Laser communication (also known as optical communication)

It is a method of **transmitting information using laser beams**. Instead of traditional radio frequency signals, laser communication relies on light waves to carry data. It involves **modulating the intensity of a laser beam to**

encode digital data, which is then transmitted and received by specialized equipment. Laser communication offers advantages such as higher data transfer rates, greater bandwidth, and potentially more secure communication channels

79. END-TO-END ENCRYPTION

Context:

End-to-end encryption (E2E) is a **method of protecting digital information** by transforming it **into an unreadable format**, and it has significant implications for **privacy and security**.

- Encryption **fundamentally involves changing consumable information into an unconsumable** form based on specific rules.

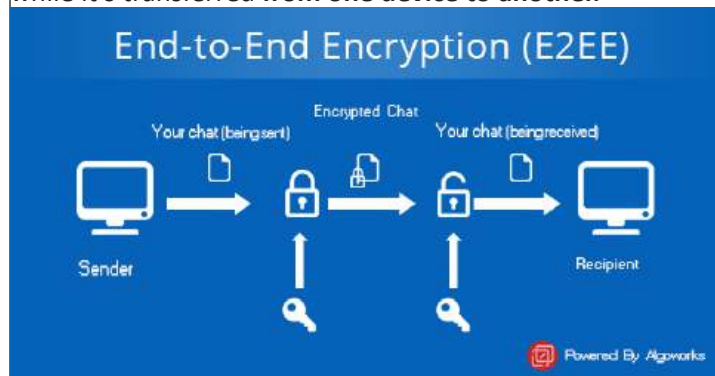
There are two main types of encryptions: **symmetric and asymmetric**.

- **Symmetric Encryption:** In symmetric encryption, **the key used to encrypt information is the same key needed for decryption**. Notable examples include **the Data Encryption Standard (DES) and the Advanced Encryption Standard (AES)**.
- **Asymmetric Encryption:** Asymmetric encryption **uses different keys for encryption and decryption**. A public key encrypts the information, and a **corresponding private key decrypts it**. The length of the key influences the level of protection. **Asymmetric encryption is useful when the sender and recipient are different, providing a higher level of security**.

Issues with E2E encryption:

- E2E encryption is **not foolproof**. It can be **vulnerable to man-in-the-middle (MITM) attacks**, where an **attacker intercepts the key and decrypts the message**.
- E2E encryption may **induce user complacency, and other vulnerabilities** like malware or backdoors **installed by service providers could compromise security**.

End-to-end encryption (E2EE) is a secure communication method that **prevents third parties from accessing data** while it's transferred **from one device to another**.



80. MPEMBA EFFECT

Context:

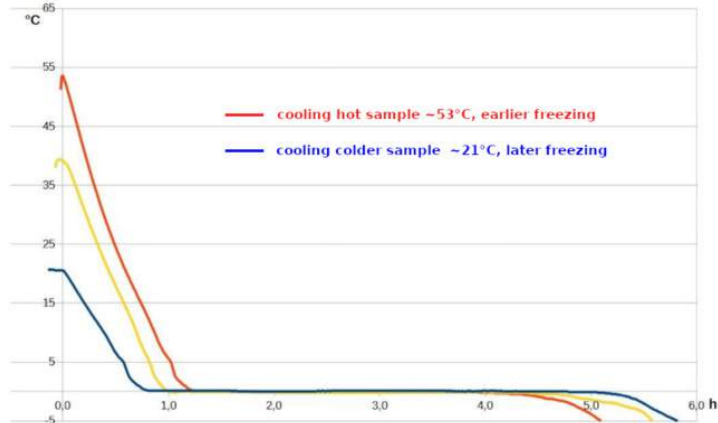
The **Mpemba effect, named after Tanzanian student Erasto Mpemba**, describes the **counterintuitive phenomenon** where **hot water can freeze faster than cold water in similar conditions**.

- Although noticed by historical figures like **Aristo-**

tle, Francis Bacon, and René Descartes, the effect gained attention after Mpemba highlighted it in 1969.

Despite various experiments, scientists have not reached a consensus on the exact causes of the Mpemba effect. Several factors are considered, such as microbubbles promoting convection and heat transfer in heated water, increased evaporation in warmer water, and the insulating effect of frost in cold water.

Compounds like calcium carbonate in water may also play a role.



81. ELUSIVE BINTURONG AND THE SMALL-CLAWED OTTER

Context:

Two new mammalian species, the elusive binturong (bearcat) and the small-clawed otter, have been added to Assam’s Kaziranga National Park and Tiger Reserve.

- The binturong, the largest civet in India, was photographed during a migratory bird count, while the small-clawed otter was spotted after a training program.
- Both species are listed under Schedule I of the Wildlife Protection Act of 1972.

Species	Binturong (Bearcat)	Small-clawed Otter (Asian Small-clawed Otter)
Description	Largest civet in India.	Primarily found in freshwater habitats.
Native	South-East Asia.	India (West Bengal, Assam, Arunachal Pradesh, Karnataka, Tamil Nadu, and Kerala), Southeast Asia, and Southern China.
Distribution	India (Meghalaya, Sikkim), Indonesia, Thailand, Malaysia, etc.	
Conservation	Vulnerable (IUCN); Appendix III (CITES).	Vulnerable (IUCN); Appendix I (CITES).



82. HYDROCARBON EXPLORATION

Context:

Wadge Bank, is under threat due to the Indian government’s proposal to offer three oil and gas blocks for exploration and development.

- The blocks identified for exploration overlap with Wadge Bank, an ideal place for nutrient-rich marine life.

About Hydrocarbons:

- Hydrocarbons are organic compounds made up of hydrogen and carbon. They are found in crude oil, natural gas, and coal.
- Hydrocarbon exploration is the search for deposits of hydrocarbons, such as petroleum and natural gas, in the Earth’s crust. It’s also known as oil and gas exploration

Wadge Bank is a 10,000 square kilometre area of the sea south of Kanyakumari. It is a shallow zone with a nearly flat bottom topography and a continental shelf. The bank is rich in biodiversity and is a fertile fishing ground.



83. PLANTS “TALKING” TO EACH OTHER

Context:

Scientists from Japan have captured real-time footage of plants communicating with each other for the first time.

- The research revealed that plants release airborne compounds, similar to smells, to warn nearby plants of danger.

About the study:

The study observed how **undamaged plants responded to volatile organic compounds (VOCs)** released by plants **damaged by insects or other factors**.

Using an air pump connected to **containers with leaves, caterpillars, and Arabidopsis thaliana (a mustard family weed)**, the researchers observed bursts of **calcium signaling in undamaged plants, indicating their response to the warning messages**.

Volatile organic compounds (VOCs) **are organic chemicals that have a high vapour pressure at room temperature**. This high vapour pressure results from a low boiling point, which allows their molecules to evaporate from the liquid to the gas phase.

VOCs are in thousands of daily use products, **including paint, varnish, wax, and various cleaning, degreasing, and cosmetic products**. Many VOCs are human-made chemicals that are used and produced in the **manufacture of paints, pharmaceuticals, and refrigerants**.

84. CAMEROON LAUNCHED MOSQUIRIX

Context:

It launched the **world's first malaria vaccine program for children (Mosquirix)**, aiming to vaccinate about 250,000 children this year and next.

The vaccine, **Mosquirix**, endorsed by the World Health Organization, is around 30% effective, requires four doses, and has been approved for use despite its imperfections. The campaign is considered a milestone in the fight against **malaria** in Africa, where the disease **accounts for 95% of global malaria deaths**. The vaccination effort is part of a broader initiative by **Gavi, involving 20 other African countries**, with hopes to immunize over 6 million children by 2025.

The R21, otherwise referred to as Matrix-M malaria vaccine, is the second vaccine ever developed for a disease, after **RTS, S or mosquirix** was approved by the WHO in 2021.

Since 2015, **9 countries have been certified by the WHO Director-General as malaria-free**, including Maldives, Sri Lanka, Kyrgyzstan, Paraguay, Uzbekistan, Argentina, Algeria, China (2021) and El Salvador (2021).

Initiatives to Curb Malaria:

Initiatives	Details
Global Initiatives	
The WHO's E-2025 Initiative	Identifies 25 countries with the potential to eradicate malaria by 2025.

WHO's Global Technical Strategy (2016–2030)	Aim to reduce malaria case incidence and mortality rates by at least 40% by 2020, 75% by 2025, and 90% by 2030 against a 2015 baseline.
High Burden to High Impact (HBHI) Initiative	Initiated in 11 high malaria burden countries, including India. Implementation of HBHI Initiative: Started in four states: West Bengal, Jharkhand, Chhattisgarh, and Madhya Pradesh.
Indian Initiatives	
Government of India's Target	Set a target to eliminate malaria in India by 2027.
National Framework for Malaria Elimination (2016-2030)	Developed to shift focus from control to elimination.
National Strategic Plan for Malaria Elimination	Launched in 2017, providing a roadmap to end malaria in 571 districts out of India's 678 districts by 2022.
Malaria Elimination Research Alliance-India (MERA-India)	Established by the Indian Council of Medical Research (ICMR), a partnership working on malaria control.

85. KUMKI ELEPHANTS

Context:

To **address the increasing human-elephant conflict** in Odisha, the state government has requested **four Kumki elephants and their mahouts from Tamil Nadu**.

- Kumki elephants are **trained captive elephants** used for **operations such as trapping, rescuing, and tranquilizing wild elephants**.

The move aims to **strategically deploy Kumki elephants in conflict-prone areas to reduce damage to crops, human habitation, and potential loss of lives**.



86. EXERCISE 'CYCLONE'

Context:

The **2nd edition of the India-Egypt Joint Special Forces Exercise CYCLONE** has begun.

- The exercise aims to familiarize both sides with operating procedures related to Special Operations in desert/semi-desert terrain under Chapter VII of the United Nations Charter.
- The exercise involves military cooperation discussions, tactical military drills, and three phases covering areas like Improvised Explosive Device (IED) training, combat first aid, and joint tactical exercises in built-up areas and hostage rescue scenarios.
- The goal is to **enhance bilateral military cooperation and strengthen** the bond between **the Indian and Egyptian armies**.

Here is the list of all [Military Exercises of India](#).

87. VAIBHAV FELLOWSHIP

Context:

The **Department of Science and Technology (DST)** announced the first recipients of the **'Vaibhav' fellowship**, a scheme designed to **attract Indian-origin scientists based abroad for short-term collaboration**.

- Twenty-two scientists **will spend one to two months annually**, for a **maximum of three years**, at **Indian institutes such as the Indian Institute of Science and the Indian Institutes of Technology**.
- The **fellows will receive a stipend, accommodation, and research grants for their host institutions**.

The scheme aims to **encourage collaborative projects, technology start-ups, and the establishment of long-term research connections** between diaspora scientists and Indian institutions.

88. INDIAN STOCK MARKET

Context:

India has surpassed **Hong Kong to become the fourth-largest equity market** globally, with the **combined value of shares listed on Indian exchanges reaching \$4.33 trillion compared to Hong Kong's \$4.29 trillion**.

- The top **three stock markets are currently the U.S., China, and Japan**.
- This achievement marks **India's ascent in the global financial landscape**, following the crossing of **the \$4 trillion mark**.
- India's stock market growth has been attributed to factors such as **strong GDP, political stability, foreign portfolio investment, and becoming an alternative to China** for global investors and companies.

In contrast, Hong Kong has faced challenges, **including COVID-19 restrictions, regulatory crackdowns, a property-sector crisis, and geopolitical tensions**, impacting its appeal to investors.

The **stock market** is a collection of exchanges where investors can **buy and sell company** shares and **other securities**. It also includes **over-the-counter (OTC) marketplaces** where investors can trade securities directly with each other.

Types of Markets	Purpose
Primary Market	Issuance of new securities by companies to raise capital. This includes processes like IPOs (Initial Public Offerings) and Rights Issues.
Secondary Market	Trading of existing securities among investors without the involvement of the issuing company through exchanges such as NSE, BSE etc. Provides liquidity to investors and allows for price discovery based on market demand and supply.

89. DYNAMIC WIRELESS CHARGING TECHNOLOGY

Context:

The **Union Ministry of Road Transport and Highways** is considering the electrification of the **Golden Quadrilateral, connecting Delhi, Mumbai, Chennai, and Kolkata**, as part of Vision 2030: **PM Public Transport Sewa**.

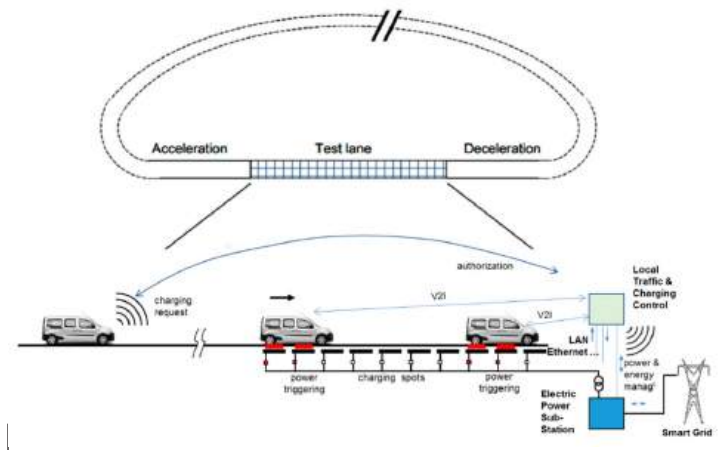
- The plan, expected to be implemented over the next seven years, **aims to boost e-mobility and deploy e-buses**.
- The proposal includes **dynamic wireless charging technology**, enabling **EVs to charge while on the move**.
- This approach could **potentially reduce the battery size, making EVs more affordable**.

About Dynamic Wireless Charging Technology:

Dynamic wireless charging technology refers to a **system that enables electric vehicles (EVs) to charge while on the move by using base pads embedded under the surface of the road**.

Unlike traditional stationary wireless charging, dynamic wireless charging **allows EVs to receive power continuously as they travel, eliminating the need to stop charging**.

This technology relies on **inductive transfer of energy, similar to stationary wireless charging**. The **base pads installed beneath the road's surface generate a magnetic field**, and a corresponding pad on the vehicle receives this energy, **facilitating charging without physical connections**.



90. EVOLUTION OF UNIVERSE

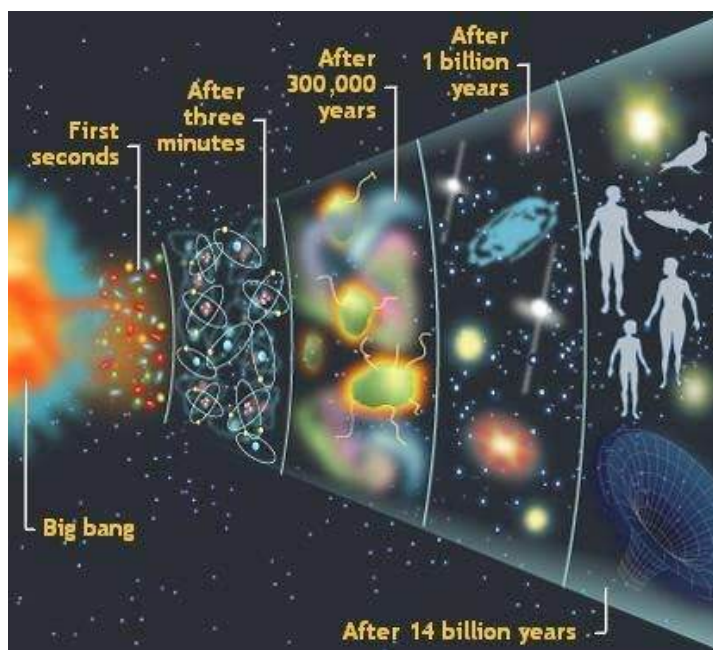
Context:

As the universe ages, its future is shaped by **fundamental laws of physics**. Utilizing a logarithmic clock, cosmologists can trace the evolution of the universe from the Big Bang to the present.

Various stages in the evolution of the universe:

Stage	Description
Initial Singularity	The universe begins as an extremely hot and dense point called a singularity . This marks the starting point of the Big Bang theory, where all matter and energy are concentrated in a tiny, infinitely dense space.
Inflationary Epoch	A brief period of exponential expansion, known as cosmic inflation , occurs within the first fractions of a second after the Big Bang. This rapid expansion helps explain the uniformity and large-scale structure observed in the present universe.
Quark Epoch	As the universe cools further, quarks and gluons combine to form protons and neutrons. This transition occurs in a matter of microseconds.
Hadron Epoch	Protons and neutrons continue to form and combine , creating a “soup” of particles called hadrons. This epoch lasts for a few minutes and is crucial for the formation of light elements like helium and deuterium .
Lepton Epoch	The universe becomes transparent as it cools, allowing photons to move freely. Electrons and positrons annihilate, leaving behind a small excess of electrons , which form the basis for the cosmic microwave background radiation.
Photon Epoch	Photons dominate the universe, interacting with charged particles. As the universe expands and cools, it enters a phase where photons no longer interact frequently, marking the transition to the era of cosmic microwave background radiation .

Formation of Structure	Over millions of years, gravitational instabilities lead to the formation of cosmic structures. Gas clouds collapse to form galaxies, stars, and other celestial structures , shaping the large-scale structure observed in the universe today.
Stellar Evolution	Stars form from collapsing gas clouds, undergo fusion, and eventually exhaust their nuclear fuel. Depending on their mass, stars may end their lives as supernovae, neutron stars, black holes, or white dwarfs . Stellar evolution contributes heavy elements to the cosmos.
Galactic Evolution	Galaxies evolve through interactions, mergers, and the continuous formation of new stars. Over billions of years, galaxies take on various forms, influencing the distribution of matter and shaping the cosmic landscape.
Dark Energy Dominance	In late cosmic history, dark energy, a mysterious force driving the accelerated expansion of the universe , becomes more dominant. It counteracts the gravitational pull, leading to an ever-faster expansion.
Beginning of End	Over time, stars will exhaust fuel, galaxies collide, and new stars will form from merging brown dwarfs . Eventually, stars will be ejected from galaxies, and black holes will dominate, consuming rogue stars until their evaporation.



91. DIRECT TAX TO GDP RATIO

Context:

During the fiscal year 2022-23, the share of direct taxes in India’s gross domestic product (GDP) reached a 15-year high of **6.11%**.

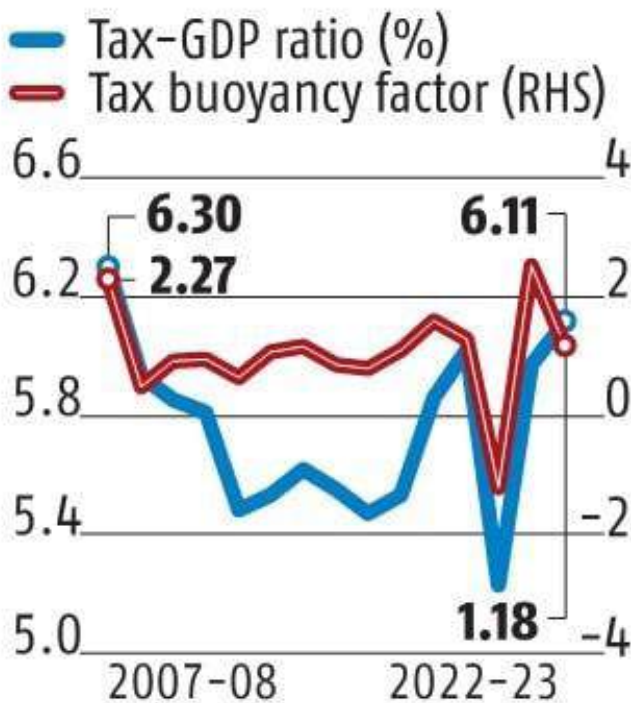
What is the Direct Tax to GDP ratio?

The Direct Tax to GDP ratio is a financial metric that represents the **percentage of a country's gross domestic product (GDP) contributed by direct taxes**. A higher ratio implies a **larger share of tax revenue** relative to the overall economic activity. It gives an estimate of a **country's ability to mobilise resources to fuel its development**. Direct taxes **contributed over 54%** to the overall tax collection during FY23.

Other facts:

The Tax Buoyancy decreased from 2.52 to 1.18 compared to the previous year. Tax buoyancy measures the **efficiency of tax collection in response to GDP growth**. It signifies buoyancy when tax revenues increase more than proportionately with GDP growth, even if tax rates remain constant.

TAX BOOST



Source: CBDT

In India, **central-level direct taxes include personal and corporate income taxes under the Income Tax Act of 1961**. However, **India's tax-to-GDP ratio is notably low**, ranking much below countries like OECD members with an average tax-to-GDP ratio exceeding 30%. This is attributed to factors such as the dominance of the informal sector, tax evasion, and various exemptions and incentives.

92. SCRAP STEEL

Context:

The Indian government aims to **raise the share of scrap in steel production to 50% by 2047**.

What is Scrap Steel?

Scrap steel refers to **recycled steel derived from discarded or unused metal products**, industrial waste, or end-of-life vehicles. It is processed and reused in steel production, contributing to sustainability by reducing the need for raw materials and minimizing environmental impact. Currently, scrap contributes around **30-35% of India's overall steel production**

Using scrap in steel production is **considered less polluting**, and it is expected to contribute to environmental sustainability. India's steel sector accounts for **12% of India's CO2 emissions**. India currently ranks as the **World's 2nd Largest Producer of Crude Steel**

Other initiatives for Scrap Steel:

National Steel Policy, 2017 aims for 300MT steel capacity by 2030, **with 35-40% from the EAF route**, utilizing mostly recycled scrap. **EAF (Electric Arc Furnaces) and BFBOF (Blast Furnace-Basic Oxygen Furnace)** are steelmaking methods. **Steel Scrap Recycling Policy, 2019** aims to enhance domestic scrap availability to reduce coal consumption in steel production.

93. EXECUTION USING NITROGEN GAS

Context:

A federal appeals court in Alabama has **ruled that the state can carry out its first execution using nitrogen gas**.

The process:

Execution by nitrogen gas involves the **administration of pure nitrogen** to the condemned person. The method typically includes placing a **respirator-type face mask** over the nose and mouth to replace breathable air with nitrogen, causing death from lack of oxygen. The state predicts that the gas will cause the **inmate to lose consciousness within seconds and death within minutes**.

Critics argue that the untested method raises unknowns and potential risks, violating constitutional prohibitions against cruel and unusual punishment.

About Nitrogen gas:

It is a **colourless, odourless gas** that makes up a significant portion of Earth's atmosphere. It is inert and **non-flammable**, commonly used in various industrial applications, including food packaging and electronics manufacturing.

94. HERMIT CRABS

Context:

Hermit crabs worldwide, known for using scavenged shells as armour, are increasingly **turning to plastic waste instead**, according to an ecological study using social media photos. The research, published in the journal Science of the Total Environment, revealed that **two-thirds of hermit crab species were pictured using "artificial shells,"** mainly discarded

plastic caps.

About Hermit Crabs:

The hermit crab (IUCN: least concern) is a **unique crustacean that lacks a hard shell** and utilizes old shells, particularly whelk shells, for protection. Unlike other crustaceans with a complete exoskeleton, the hermit crab has a soft and squishy back part where its abdomen is located.



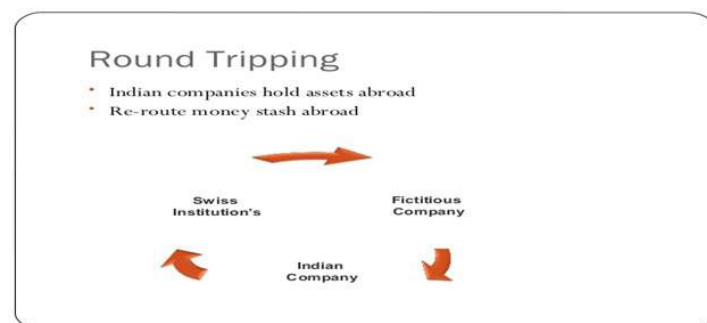
Returns	Seek returns through capital appreciation and dividends.	Aim for lasting interest, influence, and control over the company's operations.
Control and Management Involvement	Do not seek to actively control or manage the companies in which they invest.	Actively involved in the management and decision-making processes of the invested entity.

Why does SEBI want FPIs to disclose their details?

SEBI's move **aims to prevent possible round-tripping** and misuse of the FPI route. SEBI is seeking additional information from FPIs holding **more than 50%** of their Indian equity assets under management (AUM) in a single corporate group or **with over Rs 25,000 crore** in Indian equity markets. The requirement is part of efforts to address concerns that certain **FPIs may be used to circumvent regulatory requirements**. Sovereign wealth funds, listed companies on certain global exchanges, public retail funds, and other regulated pooled investment vehicles are exempted from enhanced disclosures.

What is round-tripping?

Round tripping refers to a **process where funds are sent out of a country** and then brought back into the same country through a **circuitous route**. This can involve complex financial transactions and may be done for various reasons, such as **disguising the origin of funds**, taking advantage of tax loopholes, or circumventing regulatory restrictions.



96. PANDEMIC TREATY AND DISEASE X

Context:

The World Health Organization (WHO) Director-General, **Dr Tedros Adhanom Ghebreyesus**, emphasizes the need for a **pandemic treaty to prepare for potential future outbreaks, particularly 'Disease X,'** representing an unknown disease with pandemic potential.

What is the Pandemic Treaty?

The **Draft Pandemic Treaty**, proposed by the **World Health Organization (WHO)** and member states, is an **internation-**

95. FOREIGN PORTFOLIO INVESTORS (FPIs)

Context:

The **Securities and Exchange Board of India (SEBI)** has extended the deadline for Foreign Portfolio Investors (FPIs) to disclose **granular details of entities holding ownership, economic interest, or control in the FPI**.

What are FPIs and how are they different from FDIs?

FPIs (Foreign Portfolio Investors) and FDIs (Foreign Direct Investments) are both types of investments made by foreign entities, but they differ in their nature and purpose.

Aspect	FPIs (Foreign Portfolio Investors)	FDIs (Foreign Direct Investments)
Definition	Foreign entities (e.g., mutual funds, hedge funds, pension funds) invest in financial assets like stocks, bonds, and securities in a country.	Foreign entities making a long-term investment in a business or physical assets in another country, often acquire a substantial ownership stake.
Investment Horizon	Typically short to medium-term.	Long-term.
Investment Focus	Financial assets, such as stocks and bonds.	Business or physical assets of a company.

al agreement aimed at **preventing, preparing for, and responding to pandemics and global health emergencies**. It focuses on strengthening global cooperation and solidarity, covering aspects such as surveillance, detection, notification, access to health technologies, collaboration, and accountability. The deadline for this agreement is set for the **77th World Health Assembly in May 2024**.

The treaty, based on **principles of human rights and equity**, responds to lessons learned from the COVID-19 pandemic. Its principal components include calls for:

1. Increased global cooperation
2. Strengthening of health systems
3. Investment in research and development
4. Transparency in information sharing
5. **Establishment of a Pathogen Access and Benefit-Sharing System (PABS)** under the WHO
6. Address **gender disparities in the healthcare workforce**, with emphasis on equal pay and promoting the representation and empowerment of health and care workers.

What is Disease X?

Disease X is a **hypothetical pathogen or threat that could trigger a major future pandemic**. Coined by scientists and the **World Health Organization (WHO)**, it refers to a new agent, virus, bacterium, or fungus **with no known treatment**, belonging to any of the 25 families of viruses capable of causing illness in people. Added to the **WHO's Blueprint list of diseases in 2018**, scientists believe Disease X could **be 20 times more deadly** than the recent SARS-Covid virus, emphasizing its potential as a serious microbial threat to humans in the future.

The WHO is undertaking initiatives, including the **Financial Intermediary Fund for Pandemic Preparedness and Response, the mRNA technology transfer hub, and the WHO Hub for Pandemic and Epidemic Intelligence**, to enhance global preparedness and collaboration in the face of potential future outbreaks.

97. ALPINE IBEXES

Context:

Climate change is impacting **Alpine ibexes (IUCN: Least Concern)**, a species of mountain goats in the European Alps. **Warmer temperatures** are forcing these goats to shift from **diurnal to nocturnal** (from daytime to nighttime) habits to escape excess heat, making them vulnerable to **predators like wolves**.

This shift may have negative consequences on **foraging efficiency, antipredator behaviours, and overall reproduction and survival rates**. It also presents challenges for conservation planning and population estimates, as animals become less detectable during nocturnal hours.

About Ibexes:

An ibex is any of several species of wild goat, distinguished by the **male's large recurved horns, which are transverse-ly ridged in front**. Ibex are found in Europe (Alpine Ibexes), Russia (**Siberian Ibexes**), India (Himalayan Ibexes), North Africa and East Africa.

Across Asia, Ibex **inhabits elevations from 500 m to 6,700 m** in countries like India, Kazakhstan, Tajikistan, Mongolia, Pakistan, Southern Siberia, and China, with the **least concern about IUCN status**. The Himalayan Ibex (a distinct species and NOT part of **Siberian Ibex**) is primarily found in the **trans-Himalayan ranges** of the Union Territories of Ladakh and Jammu and Kashmir, as well as Himachal Pradesh.



98. MILITARY EXERCISES IN NEWS

Recent Military Operations/Exercises:

Exercises	Details
Operation Sarvashakti	Purpose: Counter Pakistan's attempts to increase terrorist activities in Jammu and Kashmir. Target: Terrorists operating on both sides of the Pir Panjal mountain ranges. Previous Operation: Operation Sarpvish (2003-2017/18) aimed at flushing out terrorists who had infiltrated from across the border.
Exercise Desert Knight	Conducted by: the Indian Air Force, along with the French Air and Space Force and UAE Air Force. Purpose: Conduct joint military exercises.
NATO's Steadfast Defender 2024 exercises	Description: NATO's largest exercise since the Cold War involving around 90,000 troops. Objective: Rehearse how US troops could aid European allies in countries bordering Russia and on NATO's eastern flank in a conflict situation.

99. SODA LAKE AND THE ORIGIN OF LIFE

Context:

Scientists from the University of Washington discovered a **shallow “soda lake,”** Lake Chance, in Canada, resembling Darwin’s **“warm little ponds”** that might have initiated life on Earth.

These soda lakes, containing high levels of **dissolved carbonates, sodium, and phosphates,** address the long-standing **“phosphate problem”** in the emergence of life. While conventional bodies of water have low phosphate levels, soda lakes, **like Last Chance Lake** in Canada, show concentrations up to 1 million times higher. The study suggests that such environments, prevalent on early Earth, could also be common on other planets, aiding **origin-of-life research** and the search for habitable conditions beyond our solar system.

About Darwin’s “warm little ponds” hypothesis:

It proposes that **life on Earth may have originated in shallow bodies of water** with high temperatures, where complex molecules could spontaneously form. These ponds, resembling soda lakes, could provide the ideal conditions for the synthesis of key biomolecules

What is the “phosphate problem”?

It refers to a **challenge in theories about the emergence of life** on Earth. **RNA and DNA,** crucial molecules for life, as well as the membranes of living cells, require a backbone of naturally occurring **molecules of the element phosphorus,** known as phosphates. However, concentrations of phosphates needed to form these biomolecules in laboratory experiments are up to **1 million times higher** than the levels normally found in rivers, lakes, or oceans. This disparity between required and naturally occurring phosphate levels poses a hurdle in understanding **how life’s essential building blocks** could have formed under natural conditions on Earth.

About Last Chance Lake:

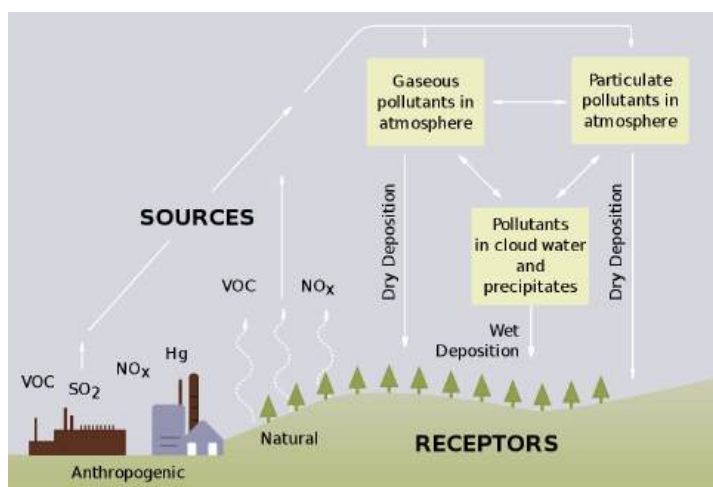
It is a shallow, murky soda lake in **British Columbia, Canada.** It’s located on federal land and sits above volcanic rock.

100. ACID RAIN

Acid rain, or acid deposition, encompasses precipitation with acidic components, like sulfuric or nitric acid, falling to the ground from the atmosphere.

Aspect	Description
What is acid rain and how does it form?	1) Acid rain is rain with high levels of acidic substances like sulfuric acid or nitric acid. 2) It forms when emissions of sulfur dioxide (SO2) and nitrogen oxides (NOx) released from burning fossil fuels, industries, and human activities mix with water vapour and chemicals in the air. 3) These acidic pollutants combine with water droplets in the atmosphere and then fall to the ground as rain, snow, fog, or dry particles. 4) The pH of acid rain is usually between 4.2 and 4.4

Effects of acid rain on the environment	<p>1) Damage to vegetation: Acid rain leaches nutrients, weakens plants, reduces water absorption, and stunts growth. It led to reduced crop yields and plant fatalities.</p> <p>2) Harm to aquatic ecosystems: Acid rain lowers the pH of water bodies. It harms aquatic life by damaging gills, reducing reproduction, and altering food availability.</p> <p>3) Soil degradation: Acid rain can disrupt soil chemistry by leaching away essential nutrients like calcium and magnesium, which are crucial for plant growth. It can also release toxic metals such as aluminium from the soil, further damaging plants and aquatic life.</p>
Efforts to minimize the effects	<p>1) Coal power plants have reduced the sulfur dioxide (SO2) content in their atmospheric emissions by more than 90% using flue-gas desulfurization. 2) The Acid Deposition Monitoring Network in East Asia (EANET) operates to address this issue.</p>
About EANET	It is an intergovernmental initiative (started in 2001; Secretariat: UN Environment Programme Asia Pacific) among East Asian countries to monitor and collect data on the deposition of acid substances, such as sulphur dioxide and nitrogen oxides, in the atmosphere and their subsequent impact on the environment.
Other programme	Monitoring programs like the National Atmospheric Deposition Program and the Clean Air Status and Trends Network track acid rain’s environmental impact, aiding policymakers and researchers



101. E INK DISPLAYS

Context: A new crowdfunded phone, called **the Minimal Phone,** has featured a **white E Ink display.** E Ink displays,

used in devices like the Kindle, are based on technology developed in the 1990s at MIT and owned by E Ink Corporation.

Functioning of E Ink Displays:

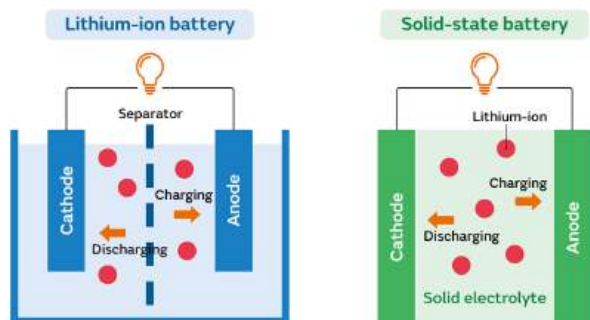
- These displays utilize **microcapsules filled with positively charged white particles and negatively charged black ones suspended in fluid.**
- By applying electrical charges, **the particles rise to the surface, creating text and images on the display.**
- E Ink reflects **light like paper, making it easier on the eyes, consuming little power** as it doesn't require backlighting, and **offering better readability under bright lighting conditions.**
- E Ink has advantages like **low power consumption and reduced eye strain** but has downsides such as a slower refresh rate, colour limitations, and higher costs.

102. SOLID-STATE BATTERY

Context:

Toyota aims to launch **next-generation solid-state batteries** within three years, with the potential for two sets of battery electric vehicles (BEVs) in its line-up—**one using existing lithium-ion batteries and another featuring the new solid-state batteries.**

- The breakthrough technology **could revolutionize EVs by doubling range** and significantly reducing **charging time compared to traditional lithium-ion batteries.**



Solid-state batteries use **solid electrodes and a solid electrolyte**, instead of the liquid or polymer gel electrolytes found in lithium-ion or lithium polymer batteries.

Solid-state batteries use a **variety of materials, including ceramics, solid polymers, and glass.**

The working principle of a solid-state battery is similar to a conventional lithium-ion battery. During discharge, the cathode is reduced and the anode is oxidized. Lithium ions move from the anode to the cathode through the solid electrolyte. The reverse process occurs during charge.

103. LAUGHING GULL

Context:

A **Laughing Gull, a migratory bird native to North America,** has been sighted for the first time in India.

- This discovery, verified by birding experts, **increases India's total bird species count to**

The bird is known for its unique **laughter-like calls, resembling human laughter.**

Protection Status:

IUCN Red List Status: Least Concern.

CITES and CMS Status: Not Evaluated

Range: They are most common on the Atlantic and Gulf coasts of North America, the Caribbean, Central America and northern South America.



SPORTS CORNER

1. KHELO INDIA YOUTH GAMES 2023

Context: PM inaugurated **the Khelo India Youth Games 2023** in Chennai, marking the 13th edition.

The **Khelo India initiative** was introduced by the **Indian government in 2017** and serves as a dynamic platform to **nurture sports talent and revive** the sporting culture of India. It encompasses the:

1. **Khelo India Youth Games (KIYG)** (commenced 2018): Annual national competition for youngsters representing states
2. **Khelo India University Games (KIUG)** (commenced 2020): Showcases university students' talent in sports
3. **Khelo India Winter Games (Commenced 2020):** Promotes winter sports in India

Khelo India State Centres of Excellence (KISCE) scheme: It aims to enhance sports infrastructure by supporting existing training facilities. It provides financial aid, staff, equipment, and resources at the grassroots level.

MAPPING

1. CHINNAR WILDLIFE SANCTUARY (KERALA)

Context:

A team of researchers in Kerala has identified the **presence of the Eurasian Otter (*Lutra lutra*)** in the state for the first time, specifically at **Chinnar Wildlife Sanctuary** in Idukki.

About Otters:

Otters, belonging to the **Mustelidae family** with 13 species, inhabit every continent **except Australia and Antarctica**. The Eurasian otter is categorized as **'near threatened'** on the IUCN Red List. Recognized as a **flagship species**, it serves as an **indicator of high-quality aquatic habitats**.

The **Eurasian otter** holds the broadest range in the world, but it faces persecution in countries like India, China, and Nepal, leading to a **decline in populations due to hunting, habitat loss, pollution**, and climate change.

This discovery adds a new member to Kerala's mammal list, making it the third species of otter found in the state, alongside the **Smooth-coated Otter and Small-clawed Otter**.

About Chinar WLS:

Aspect	Details
Location	Situated in the Idukki district of Kerala . Major rivers include Chinnar and Pambar .
Climate	Rainshadow region of Western Ghats with a 6-7 month dry season in lower areas. The average rainfall is 500mm, mostly during the NE monsoon .
Biodiversity	Home to 965 floral species, 29 mammal species including the endangered Grizzled Giant Squirrel , 225 bird species, 52 reptile species, and endemic fish like Deccan Mahseer .
Cultural Significance	Inhabited by the Muthuvan and Hill Pulaya tribes . Contains the largest megalithic sites in Kerala.

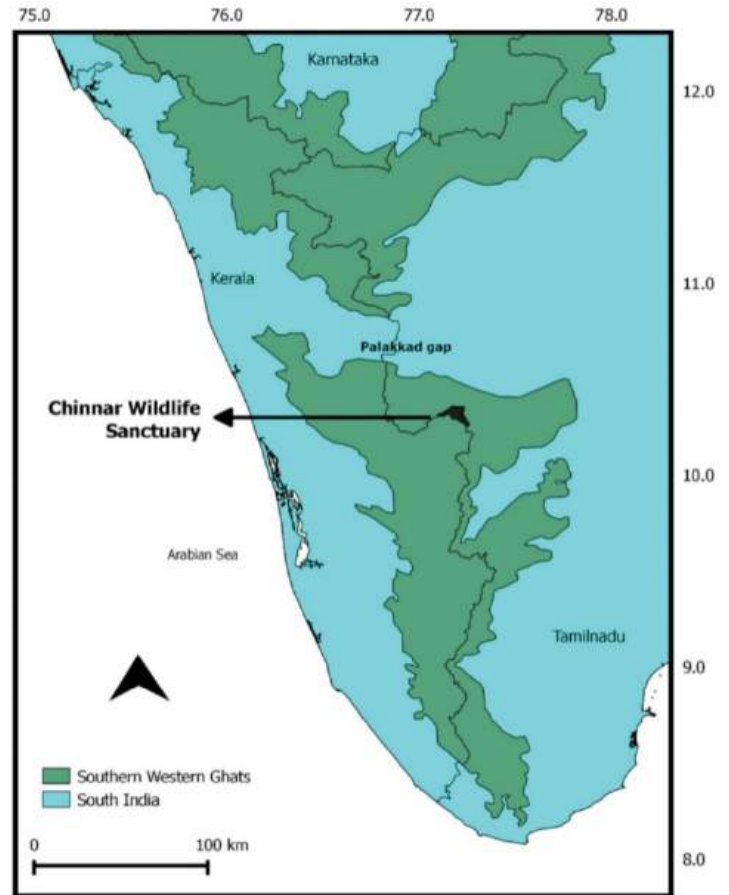


Figure 1. Location map of Chinnar Wildlife Sanctuary, southern Western Ghats

2. KALPAKKAM ATOMIC POWER STATION (TAMIL NADU)

Context:

PM dedicated to the nation's **indigenously developed Demonstration Fast Reactor Fuel Reprocessing Plant (DFRP)** at IGCAR, Kalpakkam

The plant will **reprocess spent fuel from the Fast Breeder Reactor (FBR)** at the Kalpakkam Atomic power station.

What is FBR?

A Fast Breeder Reactor (FBR) is a type of nuclear reactor that **uses fast neutrons** to cause the fission of uranium-238 (unlike conventional nuclear reactors that use slow neutrons). The term **"breeder"** refers to the ability of these **reactors to produce more fissile material than they consume**.

FBR is the key to **India's three-stage nuclear power programme**. It is the only of its kind in the world and is capable of reprocessing **both carbide and oxide fuels** discharged from the fast reactors.



Benefits	Faster and more reliable internet services. Facilitation of telemedicine, e-governance, educational initiatives, digital banking, and digital literacy. Aligns with ' Digital India ' and ' National Broadband Mission ' objectives, Strengthening services in Lakshadweep through FTTH (Fiber-to-the-Home) and 5G/4G mobile networks.
Other projects	The PM also dedicated a Low-Temperature Thermal Desalination (LTTD) plant for the conversion of seawater into potable water at Kadmat Island, Lakshadweep .
What is LTTD?	LTTD is a process under which warm surface seawater is flash evaporated at low pressure and the vapour is condensed with cold deep seawater. The National Institute of Ocean Technology (NIOT) , under the Ministry of Earth Sciences, designs, develops, and commissions LTTD plants in coastal locations.

3. KOCHI-LAKSHADWEEP ISLANDS SUBMARINE OPTICAL FIBRE CONNECTION (KLI-SOFC) PROJECT

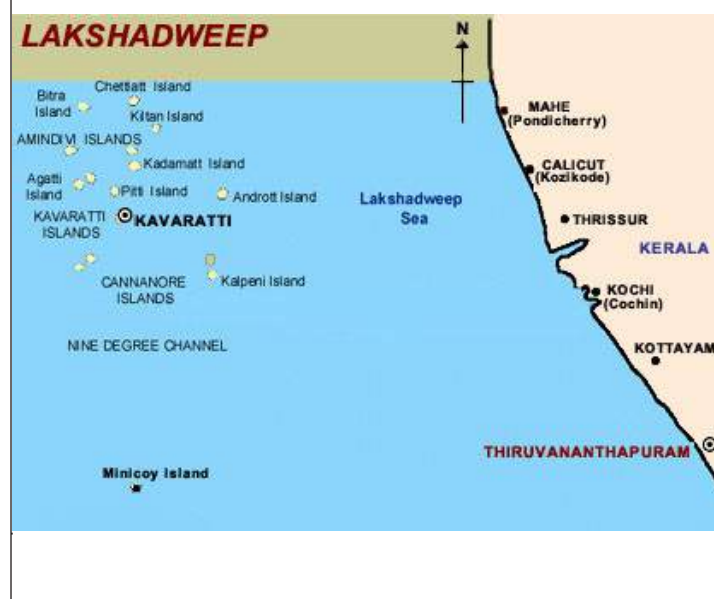
Context:

PM recently inaugurated the **Kochi-Lakshadweep Islands Submarine Optical Fibre Connection (KLI-SOFC) project** during his visit to **Kavaratti, Lakshadweep**.

About	Details
What is KLI-SOFC?	The Kochi-Lakshadweep Islands Submarine Optical Fibre Connection (KLI-SOFC) project , funded by the Universal Services Obligation Fund (Digital Bharat Nidhi) under the Department of Telecommunication, involves extending submarine cable connectivity from the mainland (Kochi) to eleven Lakshadweep Islands.
Location	Kavaratti, Lakshadweep.
Implementing Agency	Bharat Sanchar Nigam Limited (BSNL) is the Project Executing Agency.
Project Overview	KLI-SOFC project is a dedicated submarine optic fibre cable connecting Kochi to Lakshadweep Islands. Aimed at ensuring 100 times faster internet for the people of Lakshadweep.

About Lakshadweep:

It is a **union territory of India, comprising 36 islands** situated between the Arabian Sea and the Laccadive Sea. The name means "**one lakh islands**" in Malayalam and Sanskrit, though there are no more than a hundred islands. The total area is around 32 km², forming the **smallest union territory**. **Kavaratti** is the capital, and the region falls under the jurisdiction of the Kerala High Court. The Union Territory was **established in 1956** upon British departure. The majority follow **Islam**, particularly the **Shafi school**. The language spoken is **Jeseri, with Divehi in Minicoy**. The culture is similar to **Mappilas in Kerala**.



4. REJUPAVE TECHNOLOGY AT INDO-CHINA BORDER

Context:

The [Border Roads Organisation \(BRO\) plans](#) to enhance the operational capacity of the defence forces along the [Indo-China border in Arunachal Pradesh](#) by using an indigenous technology called “Rejupave.”

What is Rejupave?

Developed by CSIR-Central Road Research Institute (CSIR-CRRI), Rejupave is a [bio-oil-based asphalt modifier that reduces the heating requirement of bituminous mixes](#) and preserves their temperature during transit. This technology addresses the challenges of constructing and maintaining [bituminous roads in high-altitude areas during low and sub-zero temperatures.](#)

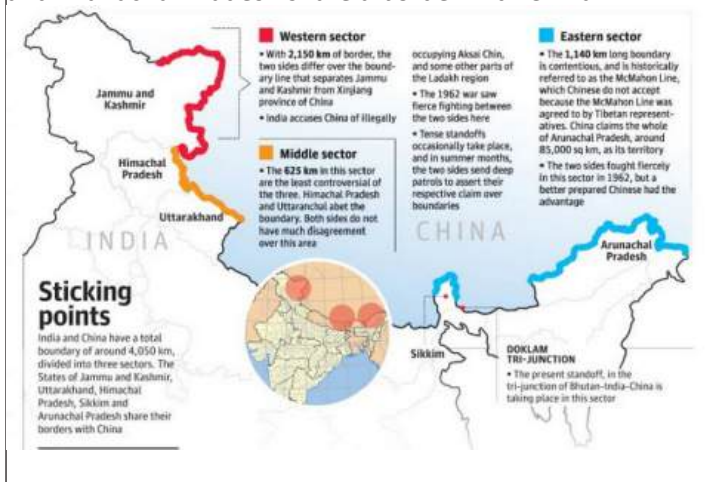
The BRO has successfully applied Rejupave at the [world’s highest Sela road tunnel](#) and LDY Road section near the China border in Arunachal Pradesh. The technology is developed using a [Bio-based eco-friendly product with 100% biooil.](#)

About Sela Road Tunnel:

The Sela Tunnel has been excavated [below the Sela Pass](#); a high-altitude mountain pass situated at an elevation of 4,200 meters (13,800 feet) above sea level. This tunnel aims to provide [“all-weather” connectivity to Tawang](#), a remote and strategically significant district in the region. It will be the [world’s longest bi-lane tunnel](#) at an altitude above 13,000 feet.

Indo-China Border:

India shares a total boundary of [around 3,488 km with China](#) (the [second largest](#) after Bangladesh). The Sino-Indian border is generally [divided into three sectors](#) namely: Western sector, Middle sector, and Eastern sector. [5 states](#) viz. Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh share a border with China.



5. ARUNACHAL PRADESH’S EAGLENEST WILDLIFE SANCTUARY

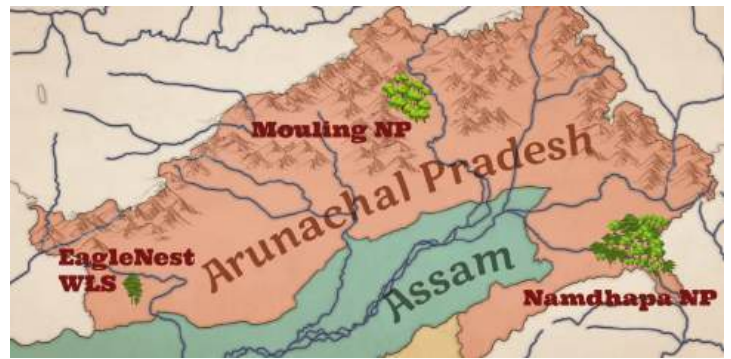
Context:

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 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.



6. 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.



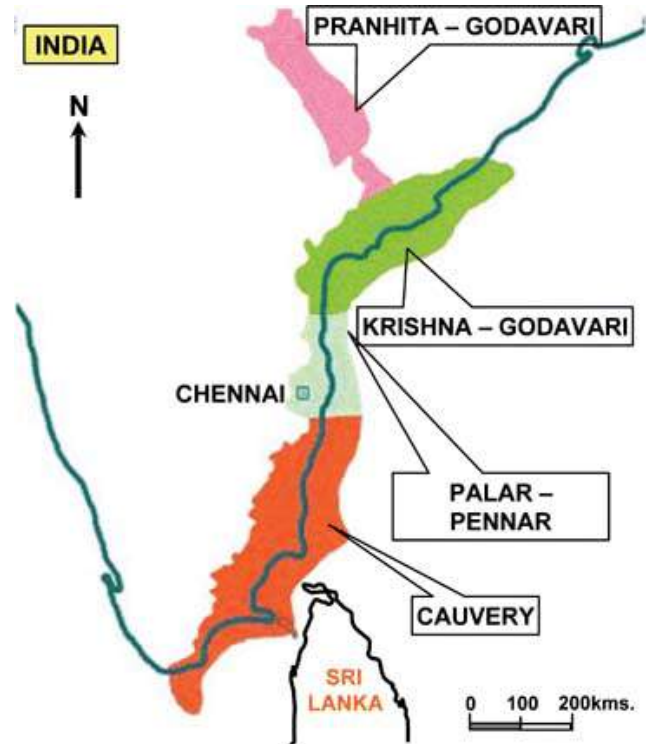
7. KRISHNA-GODAVARI BASIN

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**.



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**.
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**.



8. ANAMALAI TIGER RESERVE

Context:

The Forest Department is removing **invasive species in the Anamalai Tiger Reserve's core areas**, focusing on the **Ulan- dy range**.

Native tree saplings are being planted on 90 hectares, part of the **Restoration of Degraded Forests Landscape Project supported by NABARD**. Tribal communities from ATR are involved in removing invasive plants and planting native trees, including **Aegle marmelos, Syzygium cumini, and Pterocarpus marsupium**.

About Anamalai Tiger Reserve:

About ATR	Details
About	Carved out of the Tamil Nadu portion of the Anamalais and lies South of the Palakkad gap in the Western Ghats
	Surrounded by various wildlife reserves and forests: Parambikulam Tiger Reserve on the East, Chinnar Wildlife Sanctuary and Eravikulam National Park on the South Western side
	Ranges within the reserve include Amara- vathi, Udumalpet, Pollachi, Ulandy, Valpa- rai, and Manamboli

Anthropological Diversity	Home to over 4600 Adivasi people from six indigenous tribes living in 34 settlements, including Kadars, Malasars, Malaimalasar, Pulaiyars, Muduvars, and Eravallan (Erav- alar)
Flora	Encompasses a variety of ecosystems, in- cluding wet evergreen forests, semi-ever- green forests, montane shola-grassland , moist deciduous, dry deciduous, thorn forests, and marshes. The Kariyan shola, Grass Hills and Man- jampatti of ATR are part of the UNESCO World Heritage site
Fauna	Notable mammal species include the Asi- atic elephant, Sambar, spotted deer, Bark- ing deer, Mouse deer, Gaur, Nilgiri tahr, and Tigers.
Other Pro- tected Areas in Tamil Nadu	Mudumalai Tiger Reserve – Kalakkad – Mundanthurai Tiger Reserve – Sathyaman- galam Tiger Reserve – Nilgiri Biosphere Reserve – Mukurthi National Park – Gulf of Mannar Marine National Park – Guindy National Park

9. SAGAR ISLAND

Context:

The **Ganga Sagar Mela on Sagar Island, West Bengal**, at- tracted a record 10 million pilgrims, facing environmental challenges due to its vulnerability to cyclones and rising sea levels.

West Bengal has urged **for 'national fair' status** and financial support from the central government. The pilgrimage saw over 6 million people taking a dip in the sea, making it the **second-largest Hindu gathering after the Kumbh Mela**.

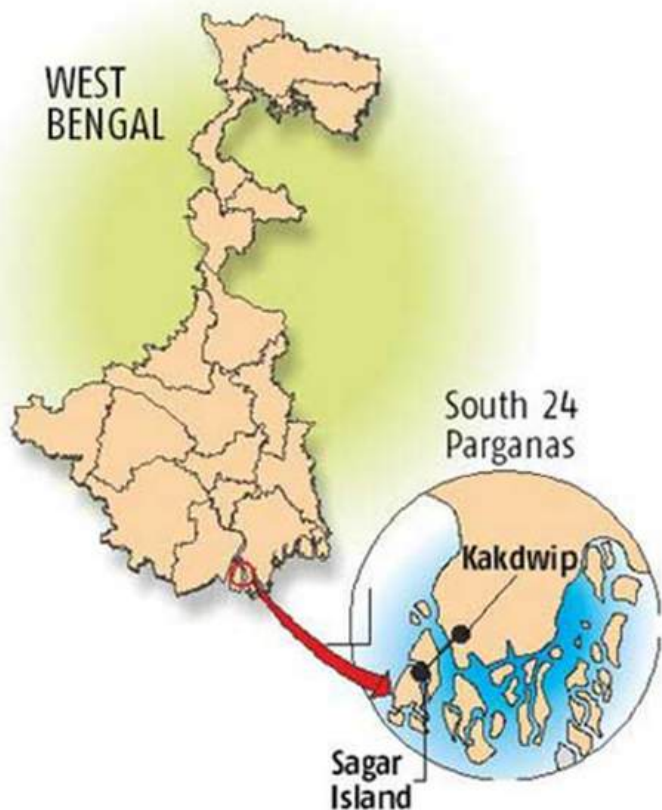
About Gan- gasagar Mela	The Gangesagar Mela is the world's sec- ond-largest human congregation , occur- ring annually during Makar Sankranti on Sagar Island, West Bengal. With roots dat- ing back to 400 BCE and mentioned in In- dian epics, pilgrims take a dip in the Ganga and visit the Kapil Muni temple . The mela is historically significant and draws mil- lions, making it a major Hindu gathering.
Who is Kapil Muni?	Kapil Muni, a Vedic sage , is considered the original proponent of the Samkhya system of Indian philosophy . Living around the 6th or 7th century C.E., he is believed to be an incarnation of Vishnu . Kapil Muni is known for teaching bhakti yoga and is recognized not only in Hinduism but also in Buddhism.

Vedic Sage	His teachings emphasize meditation, critique of Vedic gods and rituals , and a dislike for Brahmanic doctrines . Students associated with him are said to have built the city of Kapilavastu .
Where is Sagar Island Located	Sagar Island, the westernmost island of the Ganges-Brahmaputra delta , is situated in West Bengal. It lies at the mouth of the Hugli (Hooghly) River , with an arm of the river separating it from the mainland to the east.

critical components.

India's evolving stance toward Taiwan involves expanding economic relations, **direct criticism of China's actions in the Taiwan Strait in 2022**, and a departure from reaffirming the **one-China principle**, aligning more with its **QUAD partners**.

Taiwan, officially the Republic of China, is a country in East Asia. It is located at the junction of the East and South China Seas in the northwestern Pacific Ocean, with the People's Republic of China to the northwest, Japan to the northeast, and the Philippines to the south.



10. TAIWAN

Context:

Lai Ching-te, from Taiwan's ruling Democratic Progressive Party (DPP), won the presidential election, marking the DPP's third consecutive victory with a pro-independence stance.

Major powers' reactions include China asserting Taiwan as part of China, the USA welcoming the democratic process but not supporting independence, and Japan congratulating Taiwan.

Taiwan's global geopolitical importance lies in its **economic weight, being the 16th largest economy, a major source of semiconductors, and a critical point on maritime trade routes.** Taiwan **produces 92% of the world's most advanced logic chips** and 70% of smartphone chipsets, among other

11. IMPHAL RIVER

Context:

The **Manipur** government has **formed a three-member committee** to conduct a thorough investigation **into a fuel leak from a power plant (Leimakhong Power Station) in Imphal Valley**, which subsequently **spilt into a nearby stream** that converges with the Imphal River. The heavy fuel oil, a **by-product of crude oil distillation**, poses environmental concerns.

About HFO:

Heavy fuel oil (HFO) is a **residual fuel that's a byproduct of the distillation of crude oil.** It's also known as **bunker fuel or residual fuel oil.**

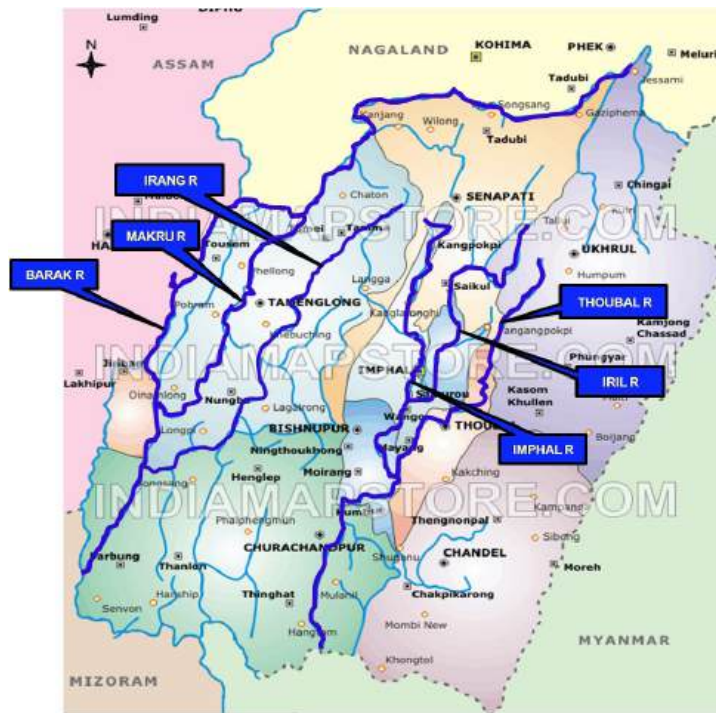
HFO is a **tar-like substance** that's used to **generate heat and motion.** It's primarily used as a **marine fuel.**

HFO is toxic and has a boiling temperature of 350–500°C. It

has a **higher viscosity than diesel**. The quality of HFO depends on the **quality of the crude oil used in the refinery**. HFO is widely used because it's **about 30% cheaper than alternatives**.

About Imphal River:

It originates from the **northern hills of Karong in Senapati District** and is joined by the Iril River at Lilong, which is a significant watercourse draining the central plain. The river, along with others, contributes to the formation of swamps and lakes, including the renowned Loktak Lake.



12. CHANCAY (PERU)

Context:

China is expanding its **trade influence in South America** with a new mega port project in the Peruvian town of Chancay.

The over \$3 billion **deep water port, majority-owned by Chinese state-owned firm Cosco Shipping**, is set to start operations late this year. This port, part of **China's 'Belt and Road' initiative**, aims to enhance trade ties with South America by providing a direct gateway to the resource-rich region.

About Peru

It is a **country in South America that's home to a section of the Amazon rainforest** and Machu Picchu, an ancient Inca city high in the **Andes mountains**. The region around Machu Picchu, including the Sacred Valley, Inca Trail and the colonial city of Cusco, is rich in archaeological sites. On Peru's arid Pacific coast is Lima, the capital.

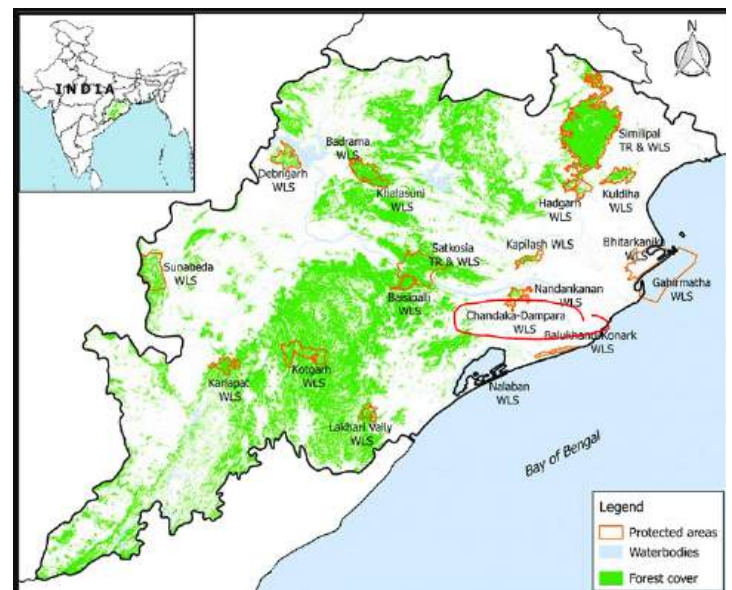
13. CHANDAKA-DAMPARA WILDLIFE SANCTUARY

Context:

The Odisha government plans to **introduce Sambar deer and Gaur (bison)** in the Chandaka-Dampara wildlife sanctuary, following the **relocation of deer from Cuttack**. Also, the Forest department is launching a **'nocturnal trail' for wildlife enthusiasts**, particularly students and researchers.

About the sanctuary:

Chandaka-Dampara Wildlife Sanctuary, **located in Khurda district, Odisha**, marks the **northeastern limits of the Eastern Ghats**. Designated in 1982, it **houses threatened wildlife and birds**. The tropical climate exhibits distinct seasons—**summer, rainy, and winter**. The flora, a mix of evergreen and deciduous elements, has been influenced by biotic factors. Notable species include Dhaman, Bankapasia, Jamu, Gandhana, Kansa, Kusum, Marua, Sidha, Karanja, and Thorny bamboo. The sanctuary's fauna includes elephants, Chital, Barking Deer, Wild Boar, Rhesus Monkey, Pangolin, Sloth Bear, Indian Wolf, Hyena, and various mammals.



14. ARAVALI RANGE

Context:

The Supreme Court expressed a preliminary opinion that if the **State of Rajasthan believes mining activities in the Aravali Range** are environmentally harmful, it has the authority to prevent such activities.

The Aravalli Range is regarded as the **"lungs" for the highly polluted air in Delhi-National Capital Region (NCR)**. **More than 25% and 31** hill ranges of the Aravallis in Rajasthan had vanished due to illegal quarrying.

SC judgement on the mining in the Aravalli region:

1. **1992:** Central government approval mandated for all mining and industrial activities in the Aravalli region.
2. **1996:** Mining lease renewal restricted **within a 2km to 5km radius of Badkhal Lake without permission** from central and state pollution control boards.
3. **2009:** Complete ban on mining throughout the Aravallis reinstated to safeguard the environment.
4. **2018:** Ordered the **total demolition of Kant enclave**, a residential complex in the Aravalli forest range.

About Aravalli Hills

It is among the **world's oldest fold mountains** and is situated in northwest India across states like Gujarat, Rajasthan, and Haryana, as well as the Union Territory of Delhi. Extending from southwest to northeast, the **highest peak is Guru Shikhar** near Mount Abu in Rajasthan. Rivers like **Banas and Sahibi** (Yamuna tributaries) and **Luni River** originate from the Aravalli region, serving as a water divide between the Indus and Ganga Basins. Known for rich mineral deposits including zinc, gold, silver, copper, dolomite, and marble, the Aravalli Hills hold significance in geological and ecological contexts.



15. UGANDA

Context:

The 19th Non-Aligned Movement (NAM) Summit was recently held in the Ugandan capital city Kampala.

- **Theme:** **'Deepening Cooperation for Shared Global Affluence.'**
- **Key Discussions:** Israel-Hamas war, [India's "Vishwa Mitra" initiative](#), Call for a multipolar world

About NAM:

The **Non-Aligned Movement (NAM)** stands as an **alliance of developing nations established in 1961 during the Cold War**, with roots traced back to the Bandung Conference held in Indonesia in 1955. Currently, NAM boasts a **membership of 120 countries, including India**, one of its founding members. Ranking as the **second-largest grouping of nations globally**, NAM operates **without a permanent secretariat** or a formal founding charter, act, or treaty. The movement convenes its summit **approximately every three years**.

Uganda is a landlocked country in East Africa whose diverse landscape encompasses the snow-capped **Rwenzori Mountains and immense Lake Victoria**. Its abundant wildlife includes chimpanzees as well as rare birds. **Remote Bwindi Impenetrable National Park** is a renowned mountain gorilla sanctuary.



16. FREE MOVEMENT REGIME (FMR) WITH MYANMAR

Context:

The Indian government is considering reevaluating the Free Movement Regime (FMR) agreement with Myanmar, which allows **residents along the India-Myanmar border to travel up to 16 km inside each other's country without a visa**.

What is FMR?

FMR, implemented in 2018, the Free Movement Regime (FMR) **permits residents on both sides of the 1,643 km India-Myanmar border** to travel up to 16 km into each other's territory without a visa. This requires a border pass with one-year validity, allowing a two-week stay. The border spans four states: **Mizoram, Manipur, Nagaland, and Arunachal Pradesh**.

The India-Myanmar border is a **1,643-kilometer international boundary** running from the tripoint with China in the north to the tripoint with Bangladesh in the south. The trijunction between India, China, and Myanmar is yet to be agreed upon, with the de facto tripoint located **just north of the Diphu Pass**. The border traverses various geographical features, including the Mishmi Hills, Patkai, Kassom Ranges, Tiau River, and Chin Hills, before reaching the Bangladeshi tripoint through irregular lines.



strengthen economic ties, enhance trade and industry, and address challenges in the export and import of goods and services.

Significance of the Agreement:

The protocol can also **serve as a gateway to the larger Latin American and Caribbean markets**. Currently, there is no bilateral institutional mechanism for trade and commerce between the two countries. India imports gold from the Dominican Republic and exports pharmaceuticals, marine products, motor vehicles, two and three-wheelers, etc. The agreement will give a boost to India's exports.

India has Joint Economic and Trade Committee (JETCO) agreements with various countries, including the **United Kingdom, Singapore, Thailand, Indonesia, Malaysia, Vietnam, South Korea, Canada, Mauritius, and Oman**.

17. LAKE VICTORIA

Context:

Efforts are being made to restore **Lake Victoria**. The lake faces environmental challenges that threaten the livelihoods of **approximately 45 million** people dependent on its resources.

Lake Victoria, **Africa's largest lake and the world's second-largest freshwater lake**, spans approximately 59,947 km² and is shared by **Kenya (6%), Uganda (43%), and Tanzania (51%)**. Fed by rivers like Kagera, Katonga, Sio, Yala, Nyando, Sondu Miriu, and Mara, it contributes to the River Nile's water. As one of the African Great Lakes, Lake Victoria holds significance as Africa's largest lake by area, the world's largest tropical lake, and the second-largest freshwater lake globally after Lake Superior in North America

18. DOMINICAN REPUBLIC-INDIA: JETCO

Context:

The Union Cabinet, led by Prime Minister Shri Narendra Modi, has approved the signing of a protocol for the establishment of a **Joint Economic and Trade Committee (JETCO) between the Department of Commerce** and the Ministry of Foreign Affairs of the Dominican Republic.

What is the Joint Economic and Trade Committee (JETCO)?

The Joint Economic and Trade Committee (JETCO) is a **bilateral mechanism** established between two countries to facilitate **economic collaboration and trade relations**. It serves as a platform for **discussions, information exchange, and cooperation between** the participating nations, aiming to

About the Dominican Republic

It is a **Caribbean nation** that shares the **island of Hispaniola with Haiti** to the west. Its terrain comprises **rainforest, savannah and highlands**, including Pico Duarte, the Caribbean's tallest mountain. Its capital city is **Santo Domingo**.



19. MODIFIED PARBATI-KALIS-INDH-CHAMBAL-ERCP LINK PROJECT

Context:

Rajasthan and Madhya Pradesh have signed an MoU with the Union Ministry of Jal Shakti for the **Modified Parbati-Kalisindh-Chambal- Eastern Rajasthan Canal Project (ERCP) Link Project**, integrating the PKC river link and ERCP under the **national interlinking of rivers program**.

About Modified PKC-ERCP:

It was approved in 2022 and **aims to integrate the PKC link project with the Eastern Rajasthan Canal Project (ERCP)** as part of the **National Perspective Plan**. It aims to optimize **water usage in the Chambal basin**, providing drinking and industrial water to 13 districts in eastern Rajasthan, and Malwa and Chambal regions of Madhya Pradesh. The ERCP focuses on **intra-basin water transfer within the Chambal Basin**, addressing deficits in sub-basins through the utilization of surplus water from the **Kalisindh, Parvati, Mej, and Chakan sub-basins**.

About Chambal River:

Originating at **Janapav south of Mhow town**, the **perennial Chambal River** flows in a northeastern direction through Madhya Pradesh, Rajasthan, and Uttar Pradesh. It converges with five rivers, including the **Chambal, Kwari, Yamuna, Sind, and Pahuj, at Pachnada near Bhareh in Uttar Pradesh**. The main tributaries are the left-hand Banas and Mej, and the right-hand Parvati, Kali Sindh, and Shipra rivers. Notable dams along its course include Gandhi Sagar, Rana Pratap Sagar, and Jawahar Sagar. The Chambal River is home to the **National Chambal Sanctuary**, a critical habitat for the **endangered Gharial**

