



# INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

## **MOUNT KANLAON**

Mount Kanlaon, located in the central Philippines, erupted recently (through a Phreatic eruption), prompting hundreds of people to seek shelter in evacuation centres.

3 JUNE - 8 JUNE 2024

# WEEKLY CURRENT AFFAIRS

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## GENERAL STUDIES – 2

Topics: Indian Constitution- historical underpinnings, evolution, features, amendments, significant provisions and basic structure; Comparison of the Indian constitutional scheme with that of other countries.

### 1. 10 YEARS OF ANDHRA-TELANGANA BIFURCATION

#### Context:

The Andhra Pradesh bifurcation underscores the **need for thoughtful handling of major changes in India's political geography**. The division, now a decade old, highlights the **impact of reconfiguration on states' political clout and federal dynamics**.

#### How are states formed?

The formation of new states in India falls **under Article 3 of the Constitution**. Parliament holds the power to **create new states through legislation**. However, such a bill can only be introduced on the **recommendation of the President**. Before recommending a bill that affects state boundaries or names, the **President must consult the respective state legislatures**. Parliament can enact laws to create new states **with a simple majority**.

**1956:** The States Reorganisation Act divided the country into 14 states and 6 union territories, not entirely agreeing with the **Fazl Ali Commission's recommendations**. States included Andhra Pradesh, Assam, Bihar, Bombay, Jammu and Kashmir, Kerala, Madhya Pradesh, Madras, Mysore, Orissa, Punjab, Rajasthan, Uttar Pradesh, and West Bengal.

Currently, India comprises **28 states and 8 Union territories**.

#### Factors on which states are divided:

- Language:** The State Reorganization Commission (SRC) led by Justice Fazal Ali, appointed by the Central Government in 1953, **recommended the formation of 14 states and 6 Union territories (UTs)** based on factors such as language, culture, financial viability, and national welfare. These recommendations were implemented through the **Constitution (7th Amendment) Act of 1956**.
- Development:** States like Uttarakhand, Chhattisgarh, and Jharkhand, formed in 2000, and Telangana in 2014, were created based on developmental considerations. These regions sought separate statehood to address issues related to development.
- Other factors:** The reorganization of states in In-

dia's northeastern region was influenced by factors such as race, culture, and customs, reflecting the diverse socio-cultural landscape of the country.

#### Do we need new states now?

There is some evidence that the **newer states performed better**.

- **The Eleventh Plan document provides** some data which support that the smaller newly carved states — specifically **Uttarakhand and Chhattisgarh — grew at a rate faster (at over 9% and 7% respectively during the period 2004-05 to 2008-09 )** than their parent states (Uttar Pradesh which grew at about 6% and Madhya Pradesh which grew at about 5% during the same five-year period)
- The existence of new states would mean the **creation of new capital cities** (such as Ranchi, Raipur and Dehra Dun) and the associated infrastructure
- **These newer cities will attract private investors**, resulting in employment opportunities and eventually better standard of living for citizens

#### However, the following issues highlight that creation of new states isn't the only solution

- Whether or not smaller states are successful in developing their regions is dependent on the extent of **decentralisation**.
  - For instance, if a **small state is unable to devolve enough funds and physical resources to a far-flung area of the state to maintain its roads**, the result would be inadequate quality of public services
- Further, the creation of one new state will lead to the demand for and creation of other new states.
- Based on the experience thus far, **linguistic homogeneity has not proven to be effective in keeping the states integrated** (the cases of Bihar, UP and Madhya Pradesh)

#### Background of Andhra-Telangana Formation?

In June 2014, **Telangana was formed by separating the northwestern part of Andhra Pradesh**. This followed the **States Reorganisation Act of 1956**, which merged Telugu-speaking areas of Hyderabad state with Andhra to create the enlarged Andhra Pradesh. **Andhra Pradesh was the first state created based on language in 1953, post the death of PottiSriramulu**. The push for a separate Telangana stemmed from perceived regional development inequalities. **Hyderabad** became the capital of Telangana when it was formed in 2014. However, the **division of assets and liabilities** between Andhra Pradesh and Telangana as outlined in the **Andhra Pradesh Reorganisation Act of 2014**, remains unresolved.

### What questions does Andhra Pradesh's split raise about the Indian republic?

1. **Unity of Telugu-Speaking Elites:** The split raises concerns about the unity of Telugu-speaking elites compared to Kannada and Marathi-speaking regions.
2. **Potential Challenges for Other Linguistic Groups:** Speculation arises about whether other linguistic groups may face similar challenges in the future due to common regional disparities.
3. **Reconsideration of Organizing Principle:** The division prompts questions about whether states should be organized based on factors like territory or population instead of language, urging India to address these fundamental questions sooner.
4. **Disorderly Bifurcation Process:** It highlights concerns about the disorderly bifurcation process, unfulfilled promises, and mishandling of asset distribution, prompting a reassessment of future state divisions.

### Impacts on Representation and Federal Structure:

1. **Unequal Representation:** Different state sizes lead to varying numbers of seats in the central legislature. This creates unequal political power and resource allocation, potentially marginalizing some regions.
2. **Shifting Power Dynamics:** State divisions can alter the balance of power between regions. Smaller states may have less influence in national decision-making.
3. **Discontent and Resource Allocation:** Unequal political power can lead to discontent among states with less power. This may affect how economic resources are allocated, potentially favouring larger states.

### Way Forward for Andhra Pradesh and Telangana

1. **Permanent Inter-State Council:** Facilitate communication and resolve disputes.
2. **Special Financial Assistance:** Grant special status and economic packages for both states.
3. **Judicial Mechanism for Asset Division:** Establish a fast-track court to resolve disputes.
4. **Governance Reforms:** Fixed terms for governors, better representation, and continuous dialogue.
5. **Development of Backward Regions:** Allocate grants for development in both states.
6. **Prioritize Infrastructure Projects:** Focus on road connectivity, power, and education.

### Conclusion:

The responsibilities assigned to the **Inter-State Council by the Constitution** (in terms of resolving inter-state disputes) need to be fulfilled in reality and not just in papers to resolve the continuing dispute between Andhra and

Telangana. Similarly, **Zonal councils need to be revived to discuss the matters of common concern** to states in each zone—matters relating to social and economic planning, border disputes, inter-state transport, etc. India is the **epitome of unity in diversity**. However, to strengthen this unity furthermore, both the Centre and state governments need to imbibe the ethos **of cooperative federalism**.

### Insta Links:

- [Water dispute between Andhra Pradesh and Telangana](#)

### Prelims Link:

**Q. The power of the Supreme Court of India to decide disputes between the Centre and the States falls under its (UPSC 2014)**

- (a) advisory jurisdiction
- (b) appellate jurisdiction
- (c) original jurisdiction
- (d) writ jurisdiction

**Ans: C**

## **2. ANALYSIS OF NOTA (NONE OF THE ABOVE)**

### Context:

In Indore, NOTA (None of the Above) emerged runner-up with **more than 200,000 votes**

### What happened in Indore?

In Indore, **BJP's Shankar Lalwani won with a significant margin of 10.09 lakh votes, receiving 12,26,751 votes**. Surprisingly, NOTA emerged as the closest competitor with 2,18,674 votes, marking the highest-ever NOTA count in any constituency. The previous record was in **Gopalganj, Bihar, in 2019, with 51,660 NOTA votes**.

### What is NOTA?

**NOTA** allows voters to reject all candidates, indicating dissatisfaction. Even if it wins the majority, the runner-up candidate wins. The Supreme Court specifies it's for universal adult suffrage and direct elections. It's also used in countries like **France, Belgium, Brazil, Finland, and Sweden**. NOTA was introduced in 2013 after a Supreme Court (SC) direction in a public interest litigation filed by the **Peoples Union for Civil Liberties (PUCL)**.



**What happens if NOTA receives the highest number of votes in a constituency?**

If **NOTA receives the highest number of votes in a constituency**, currently, there are no legal consequences attached to it. The **second most successful candidate wins**. However, there's a petition under consideration by the apex court to declare elections "**null and void**" if **NOTA wins the majority**. The petitioner advocates for guidelines ensuring consequences for candidates failing to surpass **NOTA**.

Some states (states like Maharashtra, Haryana, Puducherry, Delhi, and Chandigarh) have already declared **NOTA as a "Fictional Electoral Candidate,"** triggering fresh elections if it surpasses individual candidates' votes. The petitioner argues for uniform rules nationwide, suggesting that **NOTA's introduction in 2013 hasn't achieved its intended purpose of enhancing voter participation or candidate quality**.

E.g., In the Maharashtra local body election, **re-election may be conducted when majority votes are NOTA**.

**Significance of NOTA option:**

Significance	Explanation
Disapproval	NOTA allows <b>dissatisfied voters to express disapproval towards contesting candidates</b> . For example, women activists in Kerala advocated for <b>NOTA</b> when no female candidate was present. In Tamil Nadu, youth groups used <b>NOTA</b> as a protest against corruption.
Participation in voting	Studies suggest that <b>NOTA can increase voter turnout by motivating citizens to participate in elections</b> .
Prevent bogus votes	By encouraging more people to cast their votes, even if they don't support any candidate, <b>NOTA helps reduce the count of bogus votes</b> .

Enable the right to reject	NOTA enables <b>voters to exercise their right to reject</b> all candidates and register a vote of rejection.
Right to secrecy	Previously, voters had to inform the <b>presiding officer if they chose "None of the above,"</b> compromising ballot secrecy. <b>NOTA ensures the maintenance of voters' right to secrecy</b> .

**Is NOTA allowed in Rajya Sabha Polls?**

No, the Supreme Court had previously, **ruled out the use of the 'None Of The Above' (NOTA)** option in the Rajya Sabha elections. The court observed that **NOTA is intended for universal adult suffrage and direct elections**, not for proportional representation, as in Rajya Sabha polls. This decision aligns with **Article 80(4) of the Constitution** and the Supreme Court's 2013 judgment in PUC v Union of India, which states that Rajya Sabha representatives are elected by state legislative assembly members through proportional representation by means of the single transferable vote.

**Issues with NOTA:**

- No electoral value:** NOTA votes are merely symbolic and do not affect the outcome of the election. Even if **NOTA** receives a majority, the candidate with the highest vote share still wins.
- Not a right to reject:** Critics argue that **NOTA** does not provide the right to reject candidates but rather registers a negative opinion.
- Lack of awareness:** Many voters are unaware of **NOTA's** existence or its implications, leading to underutilization of this option.
- Caste bias:** In some cases, high **NOTA** votes in reserved constituencies suggest a bias against candidates from certain castes, potentially undermining the purpose of **NOTA**.

**Suggestions for Improvement of NOTA:**

- Re-elections:** If **NOTA** wins the majority, re-election should occur with new candidates. Maharashtra and Haryana have implemented similar measures.
- Barring candidates:** Those receiving fewer votes than **NOTA** should be barred from re-election. Haryana treats **NOTA** as a "fictional candidate" in municipal polls.
- Cost on candidates:** Parties losing to **NOTA** should cover re-election costs, and disabling the **NOTA** button during re-elections may prevent repeated cycles.
- Short-term ban:** Candidates losing to **NOTA** could face a temporary ban on contesting elections.
- Awareness:** Alongside **NOTA**, efforts to enhance voter awareness are crucial to prevent its misuse.

**Conclusion:**

The Supreme Court expects NOTA to prompt a systemic change, compelling parties to nominate candidates of integrity. Strengthening NOTA by empowering it to reject and call for re-elections if it wins the majority is crucial.

**Insta links:**

- [Insights into Editorial: NOTA and the Indian voter](#)

**Mains Links:**

**Q. Discuss the role of the Election Commission of India in the light of the evolution of the Model Code of Conduct. (USPC 2022)**

**Prelims Links:**

**Q. Consider the following statements: (USPC 2017)**

1. The Election Commission of India is a five-member body.
2. The Union Ministry of Home Affairs decides the election schedule for the conduct of both general elections and bye-elections.
3. Election Commission resolves the disputes relating to splits/mergers of recognised political parties.

Which of the statements given above is/are correct?

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

**Ans: (d)**

Topics: Parliament and State Legislatures – structure, functioning, conduct of business, powers & privileges and issues arising out of these.

## 3. WOMEN MPS IN LOK SABHA

**Context:**

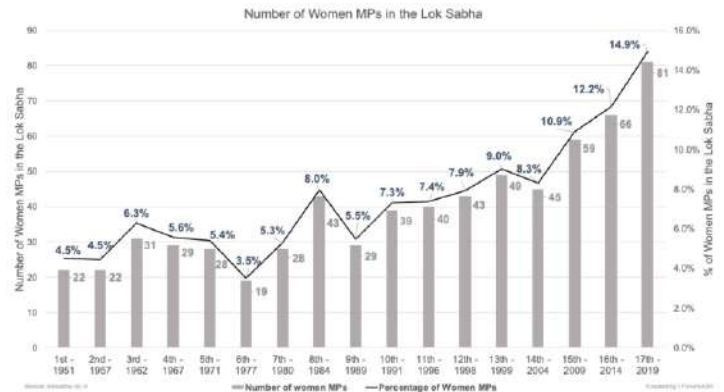
The 18th Lok Sabha will **have 74 women Members of Parliament (MP)**, a slight decrease from 2019 when 78 women were elected.

**Status of women in legislatures:**

1. **Women will now constitute 13.6% of the new Lok Sabha**, down from **14.3% in the previous term**. (although increasing from **5% in the first Lok Sabha**)
2. **India's representation of women in the Lok Sabha, at 13.63%**, falls behind several other countries, with South Africa, the UK, and the US boasting higher percentages.
3. **In the 2024 elections, women MPs were elected from 14 parties**, with the BJP leading with 31 MPs, followed by Congress with 13, and TMC with 11.
4. **Of the 74 women MPs elected, 43 are first-time**

**MPs**, and the average age is 50 years. **Around 10% of candidates in the 2024 elections** were women, marking an increase from previous years.

5. **Compared to other countries like Rwanda and Cuba**, India's representation of women in legislatures remains relatively low.

**Reasons for low women representations:**

1. **Gender conditioning:** Women may lack political ambition due to factors like less encouragement to run for office, self-doubt about qualifications, reluctance towards competition, fear of 'big politics', and family considerations.
2. **Patriarchal society:** Gender disparities, sexual division of labour, cultural and social expectations, and illiteracy hinder women's participation in politics.
3. **Gatekeepers:** Party leaders may show bias in promoting male candidates over female candidates, affecting the selection process and hindering women's chances of election.
4. **Lack of political education, growth in criminalization**, and corruption further contribute to the underrepresentation of women in politics.
5. **Structural Disadvantages:** Election campaigns are expensive, time-consuming, and fraught with issues like inappropriate commenting, hate speeches, abusive threats, and use of muscle power, which disproportionately affect women candidates.

**Benefits of High Representation of Women in Legislature:**

1. **Focus on gender issues:** Stronger attention to women's concerns and implementation of women-sensitive policies.
2. **Gender equality:** Essential for genuine democracy and ensuring women's interests are on government agendas.
3. **Accountability:** Direct engagement leads to better representation and accountability for women.
4. **Gender-sensitive governance:** Promotes reforms for gender equality in public policy.
5. **Encourage inclusive initiatives:** Supports pro-

grams and subsidies to enhance women's decision-making.

6. **Change stereotypes:** Collaboration with media to portray women as effective politicians, challenging stereotypes.

### Steps Taken for Increasing Women's Political Representation:

1. **Nari Shakti Vandan Adhiniyam, 2023:** Amends the Constitution to reserve one-third of seats in Lok Sabha and State Legislative Assemblies for women.
2. **Constitutional Amendments:** The [73rd and 74th Amendments](#) reserve one-third of seats in Panchayats and Municipalities for women.
3. **SDG Target 5.5:** India pledged to achieve women's full and effective participation at all levels of decision-making in politics and public life.
4. **Constitutional Measures:** [Articles 14, 15, 46, and 243D](#) ensure equality, protection against social injustice, and reservation of seats for women in Panchayati Raj Institutions.
5. **Legislative Initiatives:** Establishment of the Parliamentary Committee on Empowerment of Women and gender-neutral rules in the Lok Sabha.
6. **International Commitments:** Agreements such as the [Convention on the Elimination of All Forms of Discrimination against Women](#) and the [Beijing Platform for Action](#) emphasize enhancing women's political representation globally.

### Suggestions for Enhancing Women's Representation in Legislatures:

1. **Implement Quotas:** Establish clear, well-structured regulations with effective enforcement mechanisms to increase female representation. Quotas can significantly boost women's presence in parliament.
2. **Combat Violence:** Address psychological and physical violence against women in politics by establishing cross-party working groups, developing policies to combat sexism and harassment, and creating a fair complaints system.
3. **Mentorship Programs:** Provide mentorship opportunities for women politicians to connect with experienced counterparts, enabling them to gain valuable insights and leadership skills.
4. **Media Participation:** Increase women's participation in media by educating journalists, addressing bias, and monitoring press coverage to promote fair representation of women in politics.
5. **Women's Caucuses:** Support women's parliamentary caucuses to foster gender equality legislation and policy agendas, amplifying women's voices and influence in parliament.

### Insta Links:

- [Women in the Indian political system](#)

[Topics: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.](#)

## 4. DISPARITIES IN EDUCATION OUTCOMES IN INDIA

### Context:

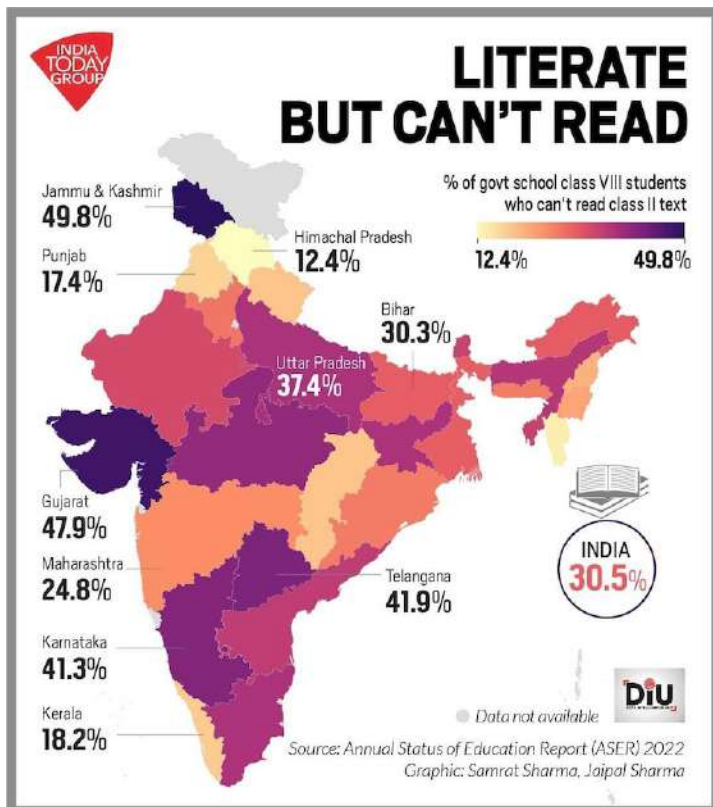
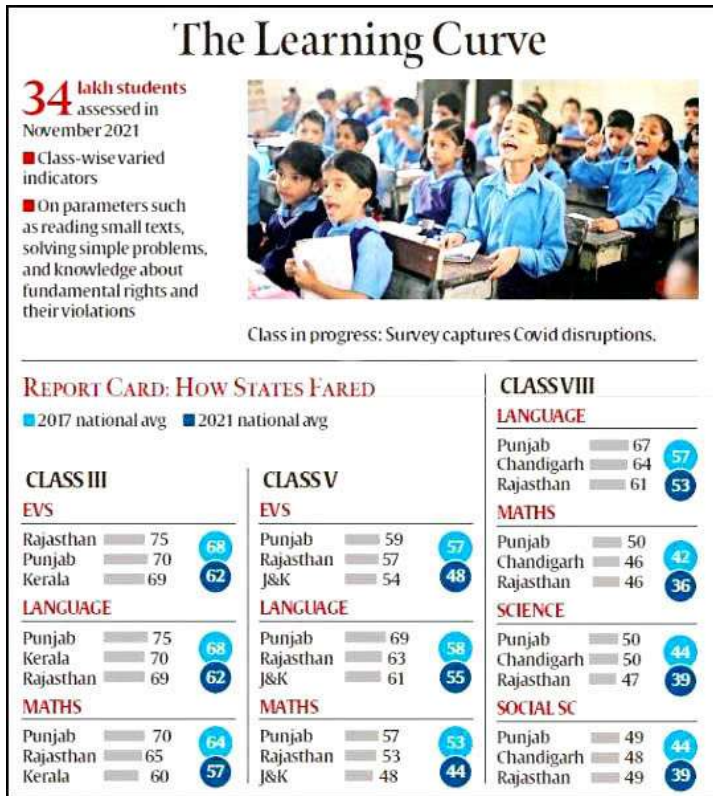
[National Achievement Survey \(NAS\) 2021](#) highlights the **disparities in educational outcomes** among Indian states, advocating for improved teaching methods and targeted interventions to enhance learning outcomes for all students.

### What is NAS 2021?

NAS 2021 is a **nationwide assessment conducted** (by the Ministry of Education) **to gauge** the academic performance of students across India.

### Findings:

1. **Performance Decline:** NAS 2021 shows a significant decline in student performance compared to NAS 2017. Class 3 scores dropped by **3.9%** in Language, **4.7%** in Mathematics, and **4.4%** in Environmental Studies (EVS). Class 10 scores fell by **13.4% in Mathematics, 18.6% in Science, and 9.1%** in Social Science.
2. **Disparities Across States:** Some states like Punjab, Rajasthan, and Haryana perform well, while Meghalaya, Mizoram, Nagaland, and Chhattisgarh lag behind in educational outcomes.
3. **Performance Drop with Progression:** Scores decline as students progress from Class 3 to Class 10. Language scores fell from **64.6%** in Class 3 to 52% in Class 10, and Mathematics scores dropped from **61.2%** in Class 3 to 44% in Class 10.
4. **According to UNESCO,** India has the **highest number of children out of school globally**, with an estimated 17 million children between the ages of 6-14 still out of school.



**Reasons for the decline:**

- Inequality:** Marginalized groups like **Dalits and tribal communities** face discrimination and lack opportunities compared to privileged students.
  - A study by NCERT** shows these students often experience abuse and mistreatment in schools.
- Shift in Assessment Style:** The transition from

**rote learning to competency-based assessments** poses challenges for students accustomed to traditional methods.

- Impact of COVID-19 Pandemic:** Disruptions caused by the pandemic, including school closures and remote learning, have significantly contributed to learning setbacks.
- Inadequate Foundational Learning:** Weak foundational skills in early grades result in difficulties that accumulate as students advance.
- Insufficient Reinforcement of Concepts:** Lack of regular revisiting and reinforcement of core concepts, as per Bruner's Spiral Curriculum Theory, leads to knowledge gaps as students progress.

**Other Issues with Education in India:**

Issues	Description
<b>Education Sector Crisis</b>	Reckless <b>commercialization and politicization</b> have led to a crisis in the education sector, lacking a coherent strategy and focusing on quick-fix solutions like technology.
<b>Limits of Edu-tech</b>	Despite the hype around technology in education, start-ups like Byju's have failed to deliver, highlighting <b>the need for quality teachers' over-reliance on technology.</b>
<b>Preference for Tuition Centers</b>	Parents increasingly favour tuition centres over regular schools, <b>contributing to mental health</b> issues among students and furthering the educational divide.
<b>Quality Variance in Schools</b>	Disparities <b>between public and private schools</b> persist due to poorly trained teachers in government schools, neglecting efforts for quality improvement.
<b>Widening Educational Divide</b>	The <b>gap between rich and poor students</b> widens within a failing education system, underscoring the need for innovative teaching methods and greater societal involvement.
<b>Lack of Societal Involvement</b>	Education should be a societal concern, but there is a <b>lack of community engagement and volunteerism</b> , hindering efforts for meaningful change in the education sector.
<b>Insufficient Education Spending</b>	<b>India's education spending remains low</b> , stagnating at <b>2.61%</b> of GDP, far below the recommended 6% by the <b>Education 2030 Framework for Action</b>

<b>Political Leadership and Fiscal Imagination</b>	There is a lack of <b>political commitment and imagination</b> in allocating sufficient funds for education, hindering India's potential for global leadership in the sector.
<b>Inadequate Infrastructure in Schools</b>	Many schools <b>lack basic infrastructure like internet facilities</b> , computers, furniture, electricity, ramps for the disabled, and proper WASH facilities, impacting the learning environment.
<b>High Dropout Rate</b>	<b>NFHS-5: 21.4% of girls, and 35.7% of boys</b> dropped out due to lack of interest in studies.

**Legal and Constitutional Safeguards:**

- Legal provisions** include [Sarva Shiksha Abhiyan \(SSA\) under the Right to Education Act](#) for primary education, [Rashtriya Madhyamik Shiksha Abhiyan](#) for secondary education, and [Rashtriya Uchhattar Shiksha Abhiyan \(RUSA\)](#) for higher education, now part of Samagra Shiksha Abhiyan.
- Constitutional provisions** include [Article 45](#) ensuring free and compulsory education up to 14 years, later amended to include early childhood care and education, and the 86th Constitutional Amendment Act of 2002 introducing [Article 21A](#), making elementary education a fundamental right.

**Suggestions for Improvement:**

- Experiential Learning Approach:** Introduce problem-solving subjects for hands-on learning, and utilize Artificial Intelligence for experiential learning.
- Implementation of National Education Policy (NEP):** Shift to a 5+3+3+4 system, ensuring uniformity across states.
- Education-Employment Corridor:** Integrate vocational learning, and provide mentorship in government schools, especially in rural areas.
- Reducing the Language Barrier:** Give equal importance to Indian languages, and establish special agencies for translation.
- Taking a Note From Past to Future:** Learn from the ancient 'Gurukul' system, emphasize holistic development and values education, and adopt practical assessment methods.

**Mains Link:**

**Q1. How have digital initiatives in India contributed to the functioning of the education system in the country? Elaborate on your answer. (UPSC 2020)**

**Q2. Discuss the main objectives of Population Education and point out the measures to achieve them in India in detail. (USPC 2021)**

**Prelims Link:**

**Q. Which of the following provisions of the Constitution does India have a bearing on Education? (UPSC 2012)**

- Directive Principles of State Policy
- Rural and Urban Local Bodies
- Fifth Schedule
- Sixth Schedule
- 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)**

## 5. CHILD NUTRITION REPORT, 2024

**Context:**

UNICEF has released its **Child Nutrition Report 2024**, highlighting the severe level of **Child Food Poverty** globally.

**What is Child Food Poverty (CFP)?**

The inability of children, especially in early childhood (first five years), to access and consume a nutritious and diverse diet.



**Source of Image: UNICEF Report**

**Key Findings of the Report:**

- Prevalence:** 27% of children globally; 40% in India (2nd highest in South Asia).
- Systemic Failure:** CFP results from failing governance systems, not failing families.
- Poor Diet:** Rise in unhealthy food consumption replacing nutrient-rich options.
- Income and CFP:** Affects both poor and non-poor households, showing income isn't the sole factor.
- Slow Progress:** Global efforts are slow in ending CFP
- Diet Quality:** Children in severe CFP lack nutri-

ent-rich foods; unhealthy foods dominate.

7. **Crisis Impact:** Global food/nutrition crises, conflicts, and climate shocks worsen CFP.
8. **Undernutrition Link:** Higher CFP correlates with higher stunting rates.
9. **Drivers:** Poor food environments, poor feeding practices, climate crisis and household income poverty.

#### Status of CFP in India:

1. **Prevalence of Malnutrition (NFHS-5):** Children Under 5: **35.5% stunted, 19.3% wasted, 32.1% underweight, 3% overweight**
2. **Prevalence of Anaemia:** Pregnant Women (15-49 years): **52.2%**; Children (6-59 months): **67.1%**
3. **State of Food Security and Nutrition in the World Report (2023):** Diet Affordability: 74% of the population cannot afford a healthy diet; 39% lack a nutrient-adequate diet.
4. **Global Hunger Index (2023):** GHI Score: **28.7** (serious); Child Wasting Rate: **18.7%** (highest in the report)

#### Consequences of CFP in India

1. **Health Implications:** Stunted Growth; Weakened Immune System; Micronutrient Deficiencies
2. **Educational Consequences:** Cognitive Impairment; Higher School Dropout Rates
3. **Economic Impact:** Productivity Loss; Increased Healthcare Costs
4. **Inter-generational Impact:** Maternal and Child Health Issues; Long-term Health Effects
5. **Social Consequences:** Increased Vulnerability; Stigma and Discrimination
6. **Impact on National Development:** Reduced Human Capital; Increased Healthcare Burden

#### Key Challenges in Handling CFP in India

1. **Economic Inequality:** 74% can't afford a healthy diet.
2. **Inadequate Dietary Intake:** Shift to low-quality, processed foods lacking essential nutrients.
3. **Poor Sanitation:** Only 69% use improved sanitation facilities.
4. **Lack of Health Infrastructure:** Low doctor (**0.73**) and nurse (**1.74**) density per 1000 people.
5. **Delayed/Inconsistent Delivery:** Only **50.3%** of children receive Anganwadi services.
6. **Inadequate Monitoring:** Poor assessment of program effectiveness.

#### Initiatives taken by India:

Initiative	Description
<a href="#">Mission Poshan 2.0</a>	Focuses on improving maternal nutrition and child feeding norms, integrating multiple schemes.
<a href="#">Integrated Child Development Services (ICDS) Scheme</a>	Provides food, preschool education, and primary healthcare to children under 6 and their mothers.
<a href="#">Pradhan Mantri Matru Vandana Yojana (PMMVY)</a>	Offers financial incentives to pregnant and lactating mothers for health and nutrition.
<a href="#">Mid-Day Meal Scheme (PM Poshan)</a>	Supplies nutritious meals to school children; introduces millets to enhance dietary diversity.
<a href="#">Scheme for Adolescent Girls (SAG)</a>	Aims to improve the nutritional and health status of adolescent girls.
<a href="#">Mother's Absolute Affection (MAA)</a>	Promotes breastfeeding to improve child health and nutrition.
<a href="#">Poshan Vatikas</a>	Establishes nutrition gardens to provide locally grown nutritious food for children and mothers.

#### Recommendations of the Child Nutrition Report 2024:

1. **Enhance data systems** to assess CFP severity.
2. **Reform food systems to make nutritious** foods accessible, affordable, and desirable.
3. **Utilize health systems for essential nutrition services**, including child feeding counselling.
4. **Transform food, health, and social protection** systems for children.

#### What more needs to be done:

1. **Fortification:** Add essential nutrients to staple foods (e.g., iodised salt).
2. **SBCC Plan:** Develop a targeted Social and Behavior Change Communication (SBCC) plan.
3. **Healthcare Infrastructure:** Improve facilities, especially in rural areas; train healthcare workers.
4. **Monitoring:** Use robust systems like the Poshan Tracker for real-time data.
5. **Local Foods:** Promote consumption of nutritious, locally available foods.
6. **Community Empowerment:** Involve communities in nutrition programs.
7. **Communication:** Use local languages and various channels (radio, videos, outreach).

**Insta Links:**

1. [Acute malnutrition risking 30 million children's lives](#)

**Mains Links:**

**Q. How far do you agree with the view that the focus on lack of availability of food as the main cause of hunger takes the attention away from ineffective human development policies in India? (UPSC 2018)**

**Prelims Links:**

**Q. Which of the following is/are the indicators/ indicators used by IFPRI to compute the Global Hunger Index Report? (UPSC 2016)**

1. Undernourishment
2. Child stunting
3. Child mortality

**Select the correct answer using the code given below:**

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

**Ans: C**

[Topics: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.](#)

## 6. US-CHINA TRADE WAR AND ITS IMPACT ON INDIA

**Context:**

A potential US-China trade war presents both opportunities and challenges for India.

**Background:**

The [US-China trade tensions](#) have escalated with **President Biden's decision to increase tariffs on \$18 billion worth of Chinese imports**. These tariffs target various sectors, including steel, aluminium, semiconductors, batteries, critical minerals, solar cells, and cranes. The move aims to bolster American industries and reduce reliance on Chinese imports, with significant tariff hikes planned for electric vehicles and lithium-ion batteries. This escalation **underscores the ongoing trade disputes between the two economic giants**.

Notably, tariffs on **electric vehicles will surge from 25% to 100%**, and tariffs on lithium-ion **EV batteries will rise from 7.5% to 25%**. Further tariff increases are anticipated in the future, impacting sectors like semiconductors and solar panels.

**Reasons behind the Tariff:**

These proposals are part of the **US's broader strategy outlined in Section 301 of the Trade Act of 1974**. The reasons behind these tariff increases include China's un-

fair practices related to technology transfer, intellectual property, innovation, and its large manufacturing capacities. Additionally, **China's dumping of low-priced exports** into global markets has negatively impacted American businesses and workers. In response, Chinese officials have vowed to retaliate, warning that this could severely impact bilateral cooperation with the US.

**Economic and Political Implications**

Aspects	Description
<b>Domestic Industry</b>	The tariffs will bolster U.S. domestic manufacturing by making Chinese imports less competitive.
<b>Election Politics</b>	With an election looming, President Biden is likely aiming to appeal to voters sceptical of his economic policies.
<b>Inflation Concerns</b>	While intended to protect American jobs, tariffs could lead to higher consumer prices and contribute to inflation.
	Companies may find it difficult to operate with huge taxes, leading to increased product prices, and burdening consumers.
<b>On developing Countries</b>	The trade war between the U.S. and China could hurt the economic prospects across developing countries.
<b>On Global Economy</b>	A trade war could <b>weaken investment, depress spending, unsettle financial markets</b> , and slow the global economy.
	Other countries could <b>face disruptions in their supply chains</b> , and multinational companies may need to rethink their production and sourcing strategies.

**Implications for India:**

**1. Positives:**

- a. **Indian exporters stand to benefit from the trade war**, especially in categories like face masks, syringes, medical gloves, and natural graphite, where both China and India have a significant presence in the US market.
- b. **India can seize opportunities to enhance its exports to the US** and bridge the trade deficit by focusing on sectors like information and communication technology, eCommerce, chemicals, outsourcing, and automotive.

**2. Negatives:**

- a. Indian authorities must ramp up efforts to **prevent the influx of low-priced Chinese goods into India**, which could harm domestic manufacturing.
- b. **The risk of cheap electric vehicles (EVs) flooding** the Indian market due to potential EU tariffs on Chinese EV imports could negatively impact Indian businesses.
- c. **US tariffs on products like lithium-ion batteries and semiconductors** from China might divert these goods to India, impacting local industries.
- d. **India's significant trade relationship with China**, which already faces a trade deficit, could pose challenges in managing the repercussions of the US-China trade war.

#### Protection measures available with India:

India has measures in **place to address imports sold below the country of origin's price**, with the **Directorate General of Trade Remedies** imposing anti-dumping duties. However, there are delays in accessing and analyzing trade data, hindering prompt action.

#### Way forward:

To address the new US-China trade tensions, both sides have agreed to engage in talks. However, **China has not committed to specific actions to address American concerns** yet. China defends its cheap solar panels and green products as crucial in the fight against climate change. Nonetheless, Beijing recognizes challenges such as **manufacturing overcapacity and weak consumer spending**, hindering sustainable growth. The rapid growth in electric vehicle (EV) production has led to intense price competition, potentially causing some manufacturers to exit the market. Consequently, **China requires better policy coordination** to foster new technology development without causing overinvestment or regional disparities.

**US tariffs on Chinese imports may impact global trade, prompting vigilance from DGTR.** Establishing a department for daily trade data analysis could expedite action. A trade policy strengthening India's manufacturing growth while diversifying from China warrants attention for **India's 'China plus one' strategy**.

#### Insta Links:

- [US-China Trade War](#)
- [2023 World Trade Report: Re-globalization](#)

#### Mains Links:

**Q. What are the key areas of reform if the WTO has to survive in the present context of the 'Trade War', especially keeping in mind the interest of India? (UPSC 2018)**

## 7. BIOPHARMACEUTICAL ALLIANCE

#### Context:

**India, South Korea, the United States, Japan, and the European Union (EU)** have formed a **Biopharmaceutical Alliance** to **address drug supply shortages** during the COVID-19 pandemic.

#### Aim of the Alliance:

The alliance aims to **coordinate bio policies, regulations, and research and development support measures** among participating countries. Inaugural meeting held in **San Diego during the Bio International Convention 2024**, emphasized the importance of a **reliable and sustainable supply chain**. The initiative originated from discussions between South Korea and the U.S. and expanded to include Japan, India, and the EU.

#### Drug supply shortages during the Covid-19 pandemic

1. **Vaccines:** Shortages of Covid-19 vaccines occurred globally, impacting various countries' vaccination efforts.
2. **Therapeutics:** Drugs such as **Remdesivir**, used for treating severe Covid-19 cases, experienced shortages in many countries.
3. **Medical Oxygen:** As COVID-19 cases surged, many countries faced shortages of medical oxygen, crucial for treating severe respiratory symptoms.
4. **Personal Protective Equipment (PPE):** Shortages of PPE, including masks, gloves, and gowns, occurred worldwide, posing risks to frontline healthcare workers.

#### Free equitable and fair drug supply ensures:

1. **Access to essential medicines** for all populations.
2. **Availability of affordable treatments**, especially in developing countries.
3. **Equitable distribution of medications**, reducing disparities in healthcare.
4. **Promotion of public health** by addressing global health challenges.
5. **Supports disease prevention**, treatment, and eradication efforts worldwide.

#### India as pharmacy of the world:

India has earned the title "**Pharmacy of the World**" due to its **robust generic pharmaceutical industry, supplying affordable** and quality medicines globally. This reputation grew during the HIV/AIDS pandemic when Indian companies provided **affordable antiretroviral drugs to African countries**. India's generic industry became a major supplier after the establishment of the Global Fund to

Fight AIDS, Tuberculosis, and Malaria.

**India's Vaccine Diplomacy:**

- Widespread Vaccine Access:** India ensures COVID-19 vaccines are globally accessible.
- IPR Waiver:** Proposes a WTO waiver on intellectual property rights to make vaccines more affordable.
- Major Supplier:** Becomes a significant vaccine supplier, notably through partnerships with Serum Institute of India (SII) and Bharat Biotech International Ltd.
- Neighbourhood Focus:** Implements a "Neighbourhood First" policy, prioritizing vaccine assistance to South Asian countries.
- Global Assistance:** Provides vaccine aid to African countries and UN health workers through COVAX.

**Significance of India's Vaccine Diplomacy:**

- Development Partnership:** Reflects India's long-standing commitment to global health and development.
- Commercial Terms:** Exports vaccines on commercial terms to upper-middle-income countries.
- Diplomatic Relations:** Restores strained relations, as seen with Canada, through vaccine diplomacy.
- Countering Vaccine Nationalism:** India's sharing policy contrasts with the trend of vaccine hoarding by other nations.
- Global Health Diplomacy (GHD):** Positions India as a key player in GHD, contributing to peace, equity, and global health security.

**Additional Points:**

**Recent Issues with the substandard drugs of India:**

Impact	Example
<b>Adverse health effects</b>	In 2022, the World Health Organization linked the deaths of almost 60 children in <b>Gambia</b> to substandard cough syrups manufactured in India.
<b>Loss of trust in the healthcare system</b>	In 2019, the case of supplying substandard and falsified antiretroviral drugs to the government in South Africa.
<b>Economic losses for patients and the healthcare system</b>	Patients may have to spend more money on healthcare due to the need for additional treatments and hospitalizations.

<b>Legal and regulatory consequences for manufacturers</b>	In 2021, a firm was seized in Agra City (UP) for purchasing expired drugs at low costs and reselling them with new packaging. The company may face legal consequences for these actions.
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**Insta Links:**

- [Law to recall bad drugs](#)

**Mains Link:**

**Q. How is the Government of India protecting traditional knowledge of medicine from patenting by pharmaceutical companies? (UPSC 2019)**

**8. AUKUS ALLIANCE AND ITS PIVOT TO FRANCE**

**Context:**

The [article](#) discusses the AUKUS alliance among the US, UK, and Australia to bolster military capabilities against China, **including sharing nuclear submarine technology.**

**What is AUKUS?**

AUKUS, a **trilateral partnership formed in 2021**, aims to bolster security and defence interests, primarily countering China's influence in the **Indo-Pacific region**. It entails deeper information and technology sharing, along with the integration of security-related industries. **India is not a member but has engaged in informal talks** with the AUKUS bloc on emerging technologies, though no formal dialogue has taken place yet.

**Technologies shared among AUKUS:**

AUKUS shares **nuclear submarine propulsion technology with Australia**, marking the first time the U.S. has done so outside the UK. Additionally, the partnership spans **eight high-tech military domains**, including AI, quantum technologies, cyber warfare, undersea warfare, hypersonic technologies, electronic warfare, and innovation/information sharing. For instance, an **algorithm enhancing sonobuoy data** sharing from P-8 Poseidon aircraft is among the initial technologies utilized.

**AUKUS's impact on India:**

Despite operating similar aircraft to AUKUS nations, **India wasn't offered participation** in AUKUS's nuclear technology sharing. Traditionally, the US reserves such technology for closer allies.

**What can be an alternative for India?**

France could be a **strategic partner for India**, especial-

ly in developing nuclear submarine technology. **France's use of low-enriched uranium aligns** with non-proliferation standards, making it a suitable option. The existing strategic relationship between France and India could support this partnership.

### **Significance of Indo-Pacific:**

The **Indo-Pacific region has emerged as a critical geopolitical and geoeconomic space**, capturing the attention of major powers around the world. India being the source of the name "Indo" in the region, has been a key partner of various like-minded stakeholders, led by the USA.

### **Elements of India's Indo-Pacific Approach:**

- **Security and Défense Cooperation:** India emphasizes the importance of a free, open, and inclusive Indo-Pacific region, with a focus on maritime security and defence cooperation.
- **Connectivity and Infrastructure Development:** India promotes connectivity and infrastructure development in the Indo-Pacific, emphasizing the principles of transparency, sustainability, and respect for sovereignty.
- **Economic Cooperation and Trade:** India advocates for enhanced economic cooperation and trade in the Indo-Pacific, aiming to foster economic growth, shared prosperity, and sustainable development. Initiatives like the Act East policy and East Asia Summit, focus on strengthening economic linkages with Southeast Asian countries.
- **People-to-People Exchanges:** India emphasizes people-to-people exchanges, cultural diplomacy, and soft power initiatives as essential components of its Indo-Pacific approach.
- **Multilateralism and Regional Cooperation:** India believes in the importance of multilateralism and regional cooperation in addressing common challenges and it actively engages in forums such as ASEAN-led mechanisms, QUAD, BIMSTEC et al to promote dialogue, cooperation, and collective action.

**The extent to which India's approach aligns with the objectives and initiatives of the QUAD and AUKUS:**

### **Positive alignment:**

- **Free and open Indo-Pacific:** India's Indo-Pacific approach aligns with the objective of the QUAD and AUKUS to promote a free and open Indo-Pacific region.
- **Defence and maritime security focus:** India's emphasis on security cooperation and maritime security aligns with the objectives of the QUAD and AUKUS.
- **China's aggression in the region:** India's Indo-Pacific approach aligns with the concerns of the QUAD and AUKUS regarding China's assertive actions in the Indo-Pacific region. All three entities share a common objective of maintaining a balance of power.

- **US alignment:** India's Indo-Pacific approach aligns with the US's strategic vision for the Indo-Pacific region. The QUAD and AUKUS are initiatives driven by the US, and India's alignment with these entities demonstrates its commitment to strategic partnerships and cooperation with the US.

### **Limitations:**

- **Going over security:** While India's Indo-Pacific approach emphasizes multi-sectoral cooperation, the QUAD and AUKUS have a stronger focus on defence and military cooperation.
- **Regional focus:** India's Indo-Pacific approach encompasses a more regional focus limited to the Indian Ocean, whereas the QUAD and AUKUS have a broader focus on the Indo-Pacific as a whole with the Pacific side in focus.
- **Engagement with China-led groupings:** India's approach to engaging with China-led groupings, such as the Shanghai Cooperation Organization (SCO) and the BRICS, may differ from the positions of the QUAD and AUKUS.
- **ASEAN Centrality:** The ASEAN countries play a central role in the Indo-Pacific region, and their centrality gets tacit approval from India's vision. However, QUAD-AUKUS do not recognise ASEAN centrality to the same degree.

### **Insta Links:**

- [AUKUS Alliance](#)

### **Mains Links:**

**Q. The new tri-nation partnership AUKUS is aimed at countering China's ambitions in the Indo-Pacific region. Is it going to supersede the existing partnerships in the region? Discuss the strength and impact of AUKUS in the present scenario. (UPSC 2021)**

## GENERAL STUDIES – 3

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.

### 1. CHALLENGES FACED BY FARM SECTOR IN INDIA AND REFORMS NEEDED

**Context:**

The farm sector faces the challenge of sharing growth gains sustainably, beyond just boosting productivity.

**Significance of Agriculture Sector in Indian Economy:**

Significance	Description
<b>Contribution to GDP</b>	Agriculture contributes around <b>15-16% to India's Gross Domestic Product (GDP)</b> , showcasing its pivotal role in economic growth and development.
<b>Resilience during Covid-19</b>	Despite economic downturns in other sectors during the COVID-19 pandemic, agriculture remained resilient, <b>contributing 18.8% to Gross Value Added (GVA) in 2021-22.</b>
<b>Employment Generation</b>	The farm sector <b>employs over 45% of the country's labour force</b> , especially vital in rural areas where most engage in agricultural activities, according to the <b>Periodic Labour Force Survey (PLFS) report for 2021-22.</b>
<b>Food Security</b>	India's agriculture sector plays a <b>vital role in ensuring food security for its 1.3 billion population</b> , producing staple crops like rice, wheat, pulses, and vegetables.
<b>Foreign Exchange Earnings</b>	Agricultural exports contribute significantly to foreign exchange earnings, surpassing <b>USD 56 billion in 2021.</b> India ranks as the <b>largest producer of milk and pulses</b> , and the second-largest producer of wheat and rice globally.
<b>Raw Material Provider for Industries</b>	Agriculture supplies raw materials for various industries such as cotton for textiles, sugarcane for sugar, and oilseeds for edible oils, fostering strong linkages within the economy and supporting the Ethanol Economy.
<b>Strategic Significance</b>	A robust agricultural sector reduces dependence on imports, ensuring food security, especially vital for a populous nation like India.

### Agriculture at the Time of Independence



### Current Major Challenges Related to India's Agriculture Sector:

1. **Fragmented Landholdings:** 89.4% of agricultural households own less than two hectares of land.
2. **Menace of Climate Change:** Erratic monsoon patterns and rising temperatures disrupt crop yields.
3. **Water Scarcity:** Over-exploitation of groundwater and inadequate irrigation infrastructure limit productivity.
4. **Market Inefficiencies and Price Fluctuations:** Lack of access to well-developed markets and fair pricing affects farmers. Middlemen and complex supply chains lead to price gaps.
5. **Inadequate Storage and Transportation Facilities:** Poor storage infrastructure and transportation networks result in post-harvest losses. **Around 74 million tonnes of food is** lost annually in India.
6. **Limited Access to Credit and Insurance:** Small farmers struggle to access affordable credit and crop insurance.
7. **Soil Degradation and Resource Depletion:** Overuse of chemical fertilizers and inadequate soil conservation practices lead to soil degradation.
8. **Inefficient Agriculture Policy:** Complex policies and ineffective implementation hinder progress. The gap between policy and reality is highlighted by controversies like Minimum Support Prices (MSPs).
9. **Stagnated Growth:** Despite employing a significant labour force, agriculture's contribution to GDP is low.

### Agrarian Reforms role in driving Socio-Economic Change

1. **Land Redistribution:** Reforms like the **West Bengal Land Reforms Act** aimed to **redistribute land to landless farmers**, reducing **inequality and poverty** in rural areas.
2. **Improved Credit Access:** Initiatives like **Kisan Credit Cards** have enhanced farmers' access to credit, **boosting their purchasing power and stimulating rural economies**.
3. **Promotion of Farmer Cooperatives:** The establishment of **AMUL (Anand Milk Union Limited)** as a **cooperative model has empowered farmers**, ensuring **fair prices and market access**.
4. **Agricultural Insurance:** The **Pradhan Mantri Fasal Bima Yojana (PMFBY)** offers insurance against **crop failures**, providing **economic stability to farmers**.
5. **Direct Benefit Transfers (DBT):** Schemes like **PM-KISAN** provide **direct financial support to farmers**, enhancing their **economic status and reducing reliance on informal credit**.
6. **Rural Infrastructure Development:** Programs like the **Pradhan Mantri Gram Sadak Yojana (PMGSY)** have improved **rural infrastructure**, facilitating **better market access and socio-economic growth**.

### Agrarian Reforms serves as a Pivotal tool for Agricultural Modernization

1. **Green Revolution:** Introduced in the **1960s**, it transformed India's agriculture through **high-yield crops and advanced farming techniques**, significantly increasing food production.
2. **Water Management:** Initiatives like the **Pradhan Mantri Krishi Sinchayee Yojana** focus on **efficient water use, and improving irrigation** and crop yields.
3. **Technological Advancements:** The introduction of **digital technologies** through the Digital India movement enhances **agricultural practices and information access**.
4. **Crop Diversification:** Government schemes promote **diversification into high-value crops**, reducing dependency on traditional crops and increasing income.
5. **Organic Farming:** The **Paramparagat Krishi Vikas Yojana** encourages **organic farming**, reducing chemical usage and promoting **sustainable agriculture**.
6. **Skill Development:** Programs like **Skill India Mission** provide **agricultural training**, enhancing farming skills and **modernizing agricultural practices**.

### Government Initiatives:

Initiative	Description
<a href="#">National Mission on Sustainable Agriculture</a>	Aims to promote sustainable agriculture practices, and enhance soil health, and water efficiency.
<a href="#">Paramparagat Krishi Vikas Yojana (PKVY)</a>	Promotes organic farming and supports farmers in adopting traditional farming methods.
<a href="#">Submission on Agro-Forestry (SMAF)</a>	Encourages the integration of trees into farming systems to enhance productivity and sustainability.
<a href="#">Rashtriya Krishi Vikas Yojana</a>	Focuses on improving agricultural productivity and ensuring the development of the agricultural sector.

<b>AgriStack</b>	Digital platform to provide comprehensive information and services to farmers for better decision-making.
<b>National e-Governance Plan in Agriculture (NeGP-A)</b>	Aims to improve the efficiency and transparency of agricultural services through digital technology.
<b>Pradhan Mantri Kisan Samman Nidhi</b>	Provides financial assistance to farmers in the form of direct income support.
<b>Agriculture Infrastructure Fund</b>	Facilitates the creation of agricultural infrastructure to improve productivity and competitiveness.
<b>World's largest grain storage plan</b>	The plan aims to transform <b>Primary Agricultural Credit Societies (PACS) into Multi-Service Societies</b> . The pilot project, implemented in 11 states, focuses on creating agricultural infrastructure at the PACS level, including warehouses and processing units, through various government schemes.

### The potential of AI in Agricultural Reforms:

- Precision Farming:** AI algorithms can analyze soil data, weather patterns, and crop health to tailor fertilizer and water application, maximizing yields and minimizing waste.
- Pest and Disease Control:** AI-powered drones can survey fields, identify early signs of infestations, and recommend targeted interventions, reducing crop losses and reliance on harmful pesticides.
- Market Analytics:** AI can analyze market trends and predict prices, helping farmers choose the right crops and negotiate better deals, leading to improved income and reduced vulnerability.
- Automation and Labor Efficiency:** AI-powered robots can handle tedious tasks like weeding and harvesting, freeing up valuable time for farmers to focus on other aspects of their operations and potentially alleviating the labour shortage in agriculture.
- Climate Resilience:** AI models can predict weather patterns and advise farmers on adaptation strategies, making agriculture more resilient to climate change and extreme weather events.

### Way Forward and Conclusion

To revitalize India's agriculture sector, **several measures can be adopted**. Implementing **agroecological intensification** methods like **permaculture and regenerative agriculture** can enhance biodiversity and resilience. Establishing **agricultural innovation** clusters fosters collaboration among research institutions, startups, and farmers. **Drone-based precision agriculture** improves efficiency and reduces resource wastage. Genetic editing techniques like **CRISPR-Cas9** offer precise crop improvements. **Public-private partnerships** in agricultural extension services can provide localized support. **Developing agri-logistics and cold chain infrastructure** minimizes post-harvest losses. A model agricultural policy can guide sustainable practices and empower farmers. **Placing agriculture marketing** in the Concurrent list and forming an inter-ministerial committee can ensure better oversight and responsiveness to market dynamics.

### Insta Links:

- [rstv: the big picture- need for agricultural reforms](#)

### Mains Links:

Q. How is science interwoven deeply with our lives? What are the striking changes in agriculture triggered by science-based technologies? (USPC 2020)

Q. Given the vulnerability of Indian agriculture to vagaries of nature, discuss the need for crop insurance and bring out the salient features of the Pradhan Mantri Fasal Bima Yojana (PMFBY). (UPSC 2016)

### Prelims links:

Q. Under the Kisan Credit Card scheme, short-term credit support is given to farmers for which of the following purposes? (UPSC 2020)

- Working capital for maintenance of farm assets
- Purchase of combine harvesters, tractors and mini trucks
- Consumption requirements of farm households
- Post-harvest expenses
- Construction of family house and setting up of village cold storage facility

Select the correct answer using the code given below:

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

Ans: (b)

Q. Consider the following statements: (UPSC 2017)

- The nation-wide 'Soil Health Card Scheme' aims at expanding the cultivable area under irrigation.
- Enabling the banks to assess the quantum of loans to be granted to farmers on the basis of soil quality.
- Checking the overuse of fertilizers in farmlands.

Which of the above statements is/are correct?

- 1 and 2 only

- (b) 3 only  
 (c) 2 and 3 only  
 (d) 1, 2 and 3  
**Ans: (b)**

## The reason behind the change in the cropping pattern

Reason	Details
<b>Nutrient deficiency in soil</b>	Continuous mono-cropping depletes soil nutrients, as exemplified by the rice-wheat system in Northwestern India.
<b>State laws</b>	Punjab and Haryana enacted the <b>Punjab Preservation of Subsoil Water Act (PPSWA)</b> and the <b>Haryana Preservation of Subsoil Water Act (HPSWA)</b> : They had an unintended consequence of increasing stubble burning and air pollution in northern India.
<b>Resource use efficiency</b>	Mono-cropping reduces resource efficiency; diversification revitalizes soil health.
<b>Urbanisation</b>	Population growth and urbanisation stress agricultural land, leading to intensified and commercial crop cultivation.
<b>Infrastructure facilities</b>	Improved irrigation, transport, and post-harvest handling allow farmers to diversify crops.
<b>Government incentives</b>	Programs like Paramparagat Krishi Vikas Yojana incentivize crop pattern changes.
<b>Erratic rainfall</b>	Unpredictable weather patterns force farmers to alter cropping strategies.
<b>Changing consumption patterns and market conditions</b>	Increasing demand for protein-rich foods has led to a rise in soybean cultivation, while the growing preference for meat and dairy has shifted focus to commercial fodder crops
	Market conditions, including a push for exports and the rise of food processing products, have influenced farmers' choices towards high-value crops.

## Significance of crop diversification

- **For farmers:**
  - It **increases crop portfolio** so that farmers are not dependent on a single crop to generate their income.
  - Farmers who plant different kinds of crops are able to tap into their regional markets and contribute to strengthening their **local economies**. This helps farms thrive and provides them with greater financial security.
- **Government:** Most of the Indian population suf-

## 2. ISSUES WITH THE SHIFT IN CROPPING PATTERN

### Context:

Shift in paddy sowing may not aid despite normal monsoon, as groundwater depletion persists.

**India anticipates a normal monsoon, enhancing agricultural output**, yet groundwater depletion poses challenges. Punjab and Haryana's wheat-paddy cycle exacerbates this issue, with paddy consuming significant water. **Groundwater extraction** rates in these states surpass national averages, aggravating the situation.

### What is a Cropping Pattern?

**Cropping pattern** can be defined as the proportion of area under various crops at a point in time. In other words, it is a **yearly sequence and spatial arrangement** of sowing and fallowing in a given area. In India, the cropping pattern is determined by **rainfall, climate, temperature, soil type and technology**.

### Change of cropping pattern in India

- **Cash crops:** The crop pattern has changed with a very satisfactory trend, i.e. growing more cash crops like fruit and vegetables instead of food grains.
- **Shifted to horticulture:** Since good inputs (seeds and know-how) are available, farmers are growing horticultural crops along with or as an alternative to food grains.
  - **India produces 10% of the world's production of fruits** and holds the first place in the case of fruits like papaya, mango, and banana, among others.
- **Water intensive to water efficiency patterns:** Some water intensive Food grains (paddy) and cash crops (such as sugarcane) losing interest in favour of water-efficient crops or pulses and oil seeds.
  - These are not only water-efficient but also climate-resilient.
- **Organic farming:** Many regions of the country have also seen an increase in cropping area under organic farming. States like **Sikkim** have become fully organic states.
- **ZBNF:** Many states like **Maharashtra, and Telangana** are promoting Zero Budget Natural farming, under it use of chemicals for growing crops is discouraged.

fers from **malnutrition**. Most of the girl children have anaemia. Including crops like pulses, oilseed, horticulture, and vegetable crops can improve socio-economic status by **adding quality to the food basket** ensuring **food safety and nutritional security**.

- **Environment;** - It makes farms more environmentally friendly. This is because planting a variety of crops makes the **soil healthier, along with reducing chemical use**.
- **Disease resistance:** The traditional way to grow crops is to plant a single cultivar in a given area. However, this results in entire fields that are susceptible to the same hazard, be it **a pest or disease**.
- **Availability of water;** -it promotes efficient use of water thereby reducing the demand for water for irrigation purposes.
- **Trade;** - India is one of the largest importers of pulses, oilseeds etc. and diversification of crops can potentially reduce India's import dependence thereby reducing the burden on exchequer.

### Conclusion

India, being a vast country of continental dimensions, presents wide variations in agroclimatic conditions. Such variations have led to the evolution of regional niches for various crops. Historically, regions were often associated with the crops in which they specialize for various agronomic, climatic, hydro-geological, and even, historical reasons.

But, in the aftermath of technological changes encompassing biochemical and irrigation technologies, the agronomic niches are undergoing significant changes.

### Insta Links:

- [Emerging Trends in Cropping Pattern](#)

### Mains Link:

Q. Explain the changes in cropping patterns in India in the context of changes in consumption patterns and marketing conditions (UPSC 2023)

[Topics: Conservation related issues, environmental pollution and degradation, environmental impact assessment.](#)

## 3. STATE OF THE OCEAN REPORT 2024

### Context:

Recently, **UNESCO's State of Ocean Report 2024** was released

### More about the State of Ocean Report:

**The UNESCO State of Ocean Report 2024**, initiated by the **Intergovernmental Oceanographic Commission (IOC-UNESCO)** during the **2022 United Nations Ocean Conference**, serves as a comprehensive overview of the ocean's current condition. Its primary aim is to **track the progress of the UN Decade of Ocean Science for Sustainable Development (2021-2030)** and inspire efforts towards ensuring a sustainable future for our oceans.

Initially **introduced in 2022**, the report enlisted insights from over **100 marine science experts, covering critical topics** such as ocean acidification, pollution, and tsunami warnings. Released **annually on World Oceans Day (June 8)**, each edition of the report aligns with the **seven goals of the UN Ocean Decade**, aiming to foster global collaboration and action for the protection and preservation of our oceans.

### Key Findings of the Report:

1. **Ocean Warming:** Rate doubled in 20 years; 2023 saw a significant increase; Hotspots above 2°C in the Mediterranean, Tropical Atlantic Ocean, and Southern Oceans
2. **Rising sea level:** Sea levels rising, with **ocean heat absorption contributing 40%**; Accelerated ice mass loss from Greenland and West Antarctica
3. **Declining Oxygen Levels:** The Ocean lost 2% oxygen since the 1960s; coastal areas are heavily impacted.; Rising acidity threatens coastal species' survival.
4. **Blue Carbon and MPAs:** Marine forests are crucial for carbon absorption; Marine Protected Areas protect bio-

diversity; However, many countries lack marine forest conservation in their plans.

5. **Acidification:** Ocean absorbs 25% of annual anthropogenic CO<sub>2</sub>; Reduces seawater pH (ocean acidification); Expected to increase by over 100% by the century's end.

#### Challenges in protecting the ocean:

1. **Illegal, Unreported and Unregular (IUU) Fishing:** Depletes fish stocks; disrupts marine ecosystems; Approx. **33% of global fish stocks overfished**
2. **Climate Change:** Rises Ocean temperatures; increases acidity; Oceans absorbed over 90% of excess heat since the 1970s; 30% of carbon dioxide, increasing acidity.
3. **Pollution:** Includes plastic waste, oil spills, and agricultural runoff; Harms marine life; creates dead zones.
4. **Unsustainable Tourism:** High demand for activities like snorkeling, and diving; Leads to habitat destruction, pollution, and overfishing.
5. **Invasive Species:** Disrupts marine ecosystems; harms native species; Invasive species are Introduced via ballast water, accidental release.
6. **Lack of Governance:** Only 16% of oceans are covered by MPAs; high seas lack protection and coordination.

#### Key recommendations of the Report:

1. **Coastal Blue Carbon Ecosystems:** Mangroves, seagrasses, and tidal marshes provide refuge against a warmer, more acidic ocean.
2. **Marine Spatial Planning:** Implement to alleviate pressures on marine ecosystems.
3. **Increase Seafloor Knowledge:** Globally enhance efforts; 75% of the ocean floor remains unmapped.
4. **Engage Indigenous Peoples:** Involve in marine policy and planning for a sustainable ocean future.
5. **Promote Ocean Literacy:** Foster universal appreciation of the ocean's vital role in society.
6. Adaptation to **local changes is vital.**

#### Initiatives for Ocean Protection:

1. **BBNJ (Biodiversity Beyond National Jurisdiction) Treaty (2023):** Also known as the Treaty of the High Seas, aims to conserve and sustainably use marine biological diversity beyond national jurisdiction.
2. **Marine Carbon Dioxide Removal (mCDR) Technologies:** Capture CO<sub>2</sub> from the air and store it durably.
3. **Marine Biodiversity: The UN 2030 Agenda** emphasizes marine biodiversity protection for sustainable food security.

4. **Kunming-Montreal Global Biodiversity Framework** aims to protect 30% of the ocean by 2030.
5. **Creation of Marine Protected Areas (MPA):** 50% of catalogued marine species are found in Marine Protected Areas (MPAs), covering 9% of the ocean.
6. **Case Study: Marine Protected Area (MPA) Success in the Coral Triangle:** The success story of Marine Protected Areas (MPAs) in the **Coral Triangle**, a marine region in Southeast Asia renowned for its biodiversity, showcases the efficacy of conservation efforts. Through the establishment and meticulous management of a network of MPAs, the Coral Triangle has witnessed a significant recovery of coral reefs, has augmented fish populations, and enriched biodiversity within the protected areas.



**Fig: Coral Triangle**

#### About UNESCO-IOC

The Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO) was established in **1961 by resolution 2.31 of the General Conference of UNESCO**. It assists governments in addressing ocean and coastal management needs through knowledge sharing, technology, and capacity building. The IOC plays a crucial role in the sustainable development discourse, supporting the creation of **Sustainable Development Goal 14 and engaging in partnerships for ocean sustainability** with organizations like the CBD, UN-Oceans, and **the World Ocean Assessment**.

#### Insta Links:

3. [How to save our high seas from overfishing and pollution?](#)

#### Mains Link:

**Q. With respect to the South China sea, maritime territorial disputes and rising tension affirm the need for safeguarding maritime security to ensure freedom of navigation and overflight throughout the region. In this context, discuss the bilateral issues between India and China. (UPSC 2018)**

**Prelims Link:**

**Q. With reference to the United Nations Convention on the Law of Sea, consider the following statements:**

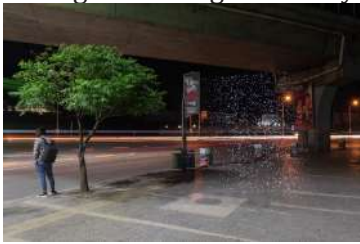
1. A coastal state has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baseline determined in accordance with the convention.
2. Ships of all states, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.
3. The Exclusive Economic Zone shall not extend beyond 200 nautical miles from the baseline from which the breadth of the territorial sea is measured.

**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)**

## CONTENT FOR MAINS ENRICHMENT

CONTEXT	USAGE
<b>1. CRYONICS PRACTICE FOR FREEZING THE HUMAN BODY</b>	<p><b>Context:</b> Southern Cryonics, an Australian company, has successfully frozen its first client in hopes of reviving him in the future. The process involves cryonics, where the body is <b>preserved at -196°C, aiming for eventual restoration</b> using advanced medical technologies.</p> <p>The first client, an 80-year-old man from Sydney, underwent the procedure after his death, involving <b>cooling, perfusion with cryoprotective solution</b>, and storage in dry ice before reaching the final temperature of around -200°C in a specialized cooling chamber.</p> <p><b>The experiment involving cryonics raises several ethical concerns.</b></p> <ol style="list-style-type: none"> <li>1. <b>Firstly, there's the issue of consent</b>, as the decision to freeze one's body after death may not fully reflect the wishes of the individual or their loved ones.</li> <li>2. <b>Secondly, there's uncertainty about the efficacy of the procedure</b> and whether it can truly revive individuals in the future, potentially leading to false hope and exploitation of vulnerable individuals.</li> <li>3. <b>Additionally, the high cost of cryonics raises</b> questions about equity and access to potentially life-saving technologies.</li> <li>4. <b>Moreover, the long-term impact on society</b> and the environment of storing frozen bodies indefinitely is uncertain and raises broader ethical questions about the manipulation of life and death.</li> </ol>
<b>2. "AIR OF THE ANTHROPOCENE" PROJECT</b>	<p><b>The "Air of the Anthropocene" project utilizes light painting</b> to visually represent air pollution in India, Ethiopia, and the UK, highlighting <b>significant health risks and initiating global conversations</b> on air quality. Created by <b>artist Robin Price</b> and an environmental scientist at the <b>University of Birmingham</b> to document air pollution levels around the world through photography.</p> <p>This international initiative <b>combines art and science to create photographic evidence</b> of air pollution using <b>digital light painting techniques</b> and low-cost air pollution sensors.</p> <p><b>Particulate matter (PM), including PM10 and PM2.5</b>, is a key focus of the project, with PM concentrations measured in <b>real-time using sensors and visualized</b> through a moving LED array.</p> 

## FACTS FOR PRELIMS

## GS-1

## Geography

## 1. STROMATOLITES

**Context:**

Researchers have discovered living stromatolites on **Sheybarah Island in the Red Sea, Saudi Arabia**.

**What are Stromatolites?**

Stromatolites are **layered rock formations created by microbial communities**, representing some of the earliest evidence of life on Earth. These structures are formed as layers of sediment accumulated over time, trapping and binding microorganisms like **cyanobacteria**.

As these **microorganisms grow and photosynthesize**, they produce layers of carbonate minerals, gradually building up the **stromatolite structure**. Despite their simple appearance, stromatolites played a crucial role in **shaping Earth's early environment** and are considered significant in the study of early life and evolutionary history.



**Modern stromatolites are rare**, found mostly in extreme environments like Shark Bay, Australia. The discovery on Sheybarah Island provides a new site for studying these ancient life forms. Understanding these stromatolites can offer insights into **early life on Earth and aid in the search for life on other planets like Mars**.

## 2. AUTOMATIC WEATHER STATION (AWS)

**Context:**

Recently, an automatic weather station (AWS) in Mungeshpur, Delhi, recorded a **temperature of 52.9°C**, which quickly made headlines. However, the India Meteorological Department (IMD) discovered that this reading was **3°C higher than the actual temperature** due to a faulty sensor.

**What is AWS?**

An **Automated Weather Station (AWS)** is a **meteorological station that transmits observations automatically**. It uses four main sensors: wind, temperature/humidity, pressure, and rainfall. Air temperature is measured in degrees Celsius using an electrical resistance thermometer, which operates on the principle that electrical resistance varies with temperature changes.

**Challenges with AWS:** AWS accuracy becomes unreliable beyond certain temperature thresholds. Issues include improper calibration, incorrect placement on concrete structures, and lack of regular maintenance.

**Other Heat Measuring Devices:** High temperatures can be measured using a thermometer in a Stevenson Screen, a wooden enclosure that protects instruments from precipitation and direct heat radiation while allowing air circulation.

**About India Meteorological Department (IMD):** Established in 1875, IMD is the principal government agency for meteorology and related subjects. It is one of six Regional Specialized Meteorological Centres of the World Meteorological Organization, under the Ministry of Earth Sciences. Headquarters are in New Delhi, with six regional meteorological centres.

GS-2

Functioning of Parliament and State Legislatures

1. CENTRAL EXCISE BILL, 2024

Context:

The Central Board of Indirect Taxes & Customs (CBIC), operating under the **Department of Revenue, Ministry of Finance**, has issued an invitation for stakeholders to provide input on the draft '**Central Excise Bill, 2024**' by June 26, 2024.

- The Bill aims to **enact a comprehensive modern central excise law** repealing old and redundant provisions and promoting ease of doing business.

About Excise duty:

**Excise duty is an indirect tax** collected by retailers or intermediaries from customers at the point of sale. It is paid when goods move from manufacturing units to warehouses. Governed by two key acts, the **Central Excise Act of 1944** handles levy and collection, while the **Central Excise Tariff Act of 1985** classifies goods and sets duty rates. With the implementation of Goods and Services Tax (GST), many excise duties were subsumed, **leaving only petroleum and liquor subject to excise duty**. Central GST replaced excise duty in most cases, while state governments collect excise duty on alcohol, alcoholic preparations, and narcotic substances, referred to as **"State Excise" duty**.



Judiciary

2. HIGH COURT JUDGE REGISTERS GOA'S FIRST "LIVING WILL"

Context:

Justice M.S. Sonak, of the Bombay High Court's Goa Bench, became **the first person in Goa to register a "living will"—an advance medical directive specifying actions for when he cannot make decisions.**

About Living Will (Advance Medical Directive):

A living will is a written document where a **person outlines their medical treatment preferences** in advance, to be followed if they become incapacitated or unable to communicate. It's a voluntary decision. The **Supreme Court, in the Common Cause vs. Union of India & Anr. (2018)** case, ruled that a person in a persistent vegetative state can opt for passive euthanasia, such as withdrawing life support. A living will **allows individuals to refuse medical treatment** in the event of a terminal illness.

Goa is the first state to implement these directives formally. The living will **must be drafted in the presence of two witnesses**, certified by a gazetted officer or notary, and sent to the District Collector for safekeeping.

3. DOCTRINE OF MERGER AND THE RULE OF STARE DECISIS

Context:

The Supreme Court emphasized that its power under Article 142 of the Indian Constitution is an exception to the doctrine of merger and the rule of stare decisis, aiming to achieve complete justice between parties.

What is the Doctrine of Merger and the Rule of stare decisis?

The doctrine of merger is founded on the **principles of court decorum and propriety**. It holds that when **an appellate court issues an order**, the lower court's order becomes absorbed into it. This principle ensures **clarity in enforcing decisions when multiple orders exist from different levels of the judiciary**. Essentially, it dictates that the superior court's ruling takes precedence, merging with and superseding the lower court's decision. **Although not codified**, this doctrine maintains judicial discipline, guiding subordinate courts in their proceedings.

**In contrast, the doctrine of stare decisis** mandates that courts adhere to prior judicial decisions when faced

with similar legal issues. These decisions, known as precedents, serve as guiding principles for future cases, creating a legal framework for consistent judicial decisions based on past rulings.

### "Stare Decisis"

*The principle that lower court rulings should be governed by the precedent rulings of higher courts*

## 4. SELF-DECLARATION CERTIFICATE MUST FOR ADVERTISERS

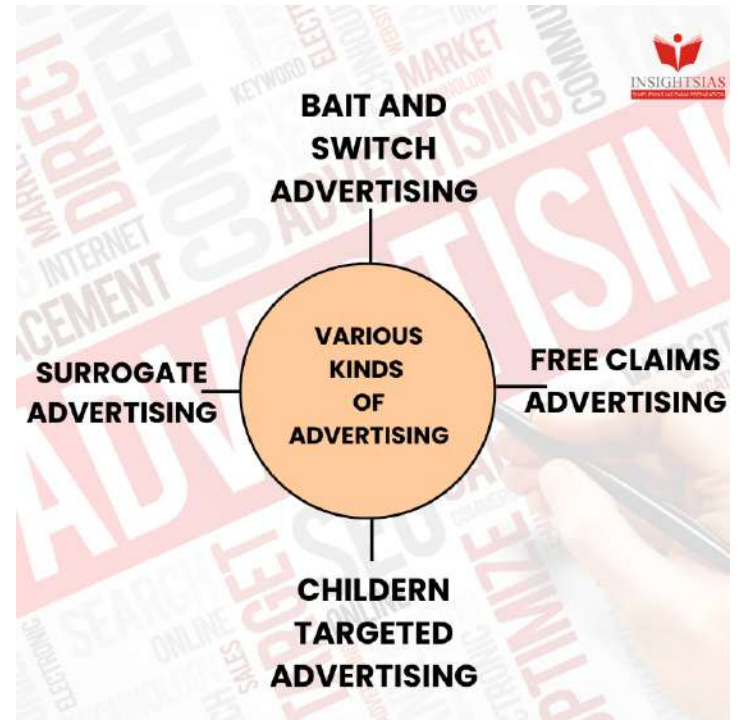
### Context:

The Supreme Court has mandated that all advertisers and advertising agencies submit a **'Self-Declaration Certificate' before releasing any advertisements** starting from June 18, 2024.

**For TV and radio ads, this** certificate must be submitted on the **Broadcast Seva Portal**, and for print and digital media ads, on the **Press Council of India Portal**. This certificate must confirm that the advertisement does not contain **misleading claims and complies** with regulatory guidelines. The portals for submission will be activated on June 4, 2024, and ongoing ads are currently exempt from this requirement. This directive aims to enhance transparency and responsible advertising practices.

### Significance:

**The Self-Declaration Certificate (SDC) for advertisements** is significant as it ensures transparency and accountability by preventing misleading advertisements and holding manufacturers, promoters, and advertisers responsible. It also protects consumers by preventing violations of their rights, unfair trade practices, and false advertisements that harm public interest. Additionally, it supports **better implementation of legislation and rules, such as the 2022 guidelines** for preventing misleading advertisements.



**About the Press Council of India (PCI):**  
It was **established in 1979 under the Press Council Act, 1978**, and is a statutory quasi-judicial autonomous authority that preserves press freedom and maintains high standards in newspapers and news agencies in India. The PCI consists of a Chairman, who is typically a **retired Supreme Court judge, and 28 members**, with the Chairman nominated by a committee including the Chairman of the Rajya Sabha, the Speaker of the Lok Sabha, and an elected member from the Council.

### Related information:

## Constitutional and Non-Constitutional Bodies

### 5. NHRC ON HUMAN TRAFFICKING

#### Context:

**NHRC** recommends **all states appoint an 'anti-human trafficking nodal officer'** not below the rank of a state government secretary or inspector general of police to combat trafficking effectively.

The Commission also calls for **setting up District Anti-Human Trafficking Units (DAHTU)** headed by a **deputy SP to monitor** and prevent trafficking incidents. It urges state governments to take stringent measures, including **rehabilitation of victims and spreading awareness to eradicate these practices.**

#### About Human trafficking:

It is defined as the **recruitment, transportation, transfer, harbouring, or receipt of people through force**, fraud, or deception to exploit them for profit (UN). It remains a challenge with **2,250 cases reported in India in 2022**. Economic, political, and cultural factors contribute to trafficking. Initiatives like the **Immoral Traffic Prevention Act, Anti-Human Trafficking Units, Cri-MAC, and Mission Shakti** aim to prevent and combat trafficking at global and national levels.

#### About NHRC:

NHRC-India	
About	It is a statutory body established on 12 October 1993 (in conformity with the Paris Principles), under the Protection of Human Rights Act (PHRA) 1993 [ <a href="#">Amended in 2019</a> ].
Objective	A watchdog for the promotion and protection of the human rights of citizens of India. The PHRA defines Human Rights as the rights relating to life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the International Covenants and enforceable by courts in India.
Composition (13)	A Chairperson, who has been a Chief Justice of India or a Judge of the SC. 1 member, who is, or has been, a Judge of the SC. 2 member, who is, or has been, the Chief Justice of an HC. 3 Members, out of which at least one shall be a woman to be appointed from amongst persons having knowledge or practical experience in matters relating to human rights. 7 ex officio members – NCSC, NCST, NCBC, NCW, National Commission for Minorities, National Commission for Protection of Child Rights and the Chief Commissioner for Persons with Disabilities.
Appointment	By the President of India, on the recommendation of a committee consisting of – The PM (Chairperson), The Union Home Minister, The LoP in the Lok Sabha, The LoP in the Rajya Sabha, The Speaker of the Lok Sabha, The Deputy Chairman of the Rajya Sabha. The sitting Judge of the SC or sitting Chief Justice of any HC can be appointed only after consultation with the CJI.
Functions	The protection of human rights and recommend measures for their effective implementation. Enquiry into complaints of violation of human rights or negligence in the prevention of such violation by a public servant. Studies treaties and international instruments and makes recommendations for their effective implementation to the GoI. Review factors that inhibit the enjoyment of human rights and recommend appropriate remedial measures. Undertake and promote research in the field of human rights. To visit jails and study the condition of inmates. Engage in human rights education among various sections of society and promote awareness among the masses. Encourage the efforts of NGOs and institutions working in the field of human rights literacy, etc.

## 6. FSSAI

### Context:

FSSAI directs companies to stop claiming “**100% fruit juice**” on labels and ads due to high sugar content. As per [FSSAI](#), **there is no provision of such claims as per Food Safety and Standards (Advertising and Claims) Regulations, 2018**. The products must be labelled in accordance with the **Food Safety and Standards (Labelling and Display) Regulations, 2020**. In the ingredient list, the word “**reconstituted**” must be mentioned against the name of the juice. If added nutritive sweeteners **exceed 15 gm/kg, product must be labelled as ‘Sweetened juice’**.



### About FSSAI:

The Food Safety and Standards Authority of India (FSSAI) is an **autonomous body established under the Food Safety and Standards Act of 2006**. It consolidates various food-related laws and aims to ensure food safety and quality in India. FSSAI regulates food businesses, enforces safety laws, monitors quality, conducts research, provides training, and promotes food fortification and organic food. It operates under the **Ministry of Health & Family Welfare**, with headquarters in New Delhi and regional offices across the country.

### Governance

## 7. IMPLEMENTATION MANUAL OF TOBACCO-FREE EDUCATIONAL INSTITUTIONS (TOFEI)

**Context:** The Ministry of Education launched the Implementation Manual of Tobacco-Free Educational Institutions (ToFEI) on **World No Tobacco Day 2024** (May 31), in collaboration with the Socio-Economic and Educational Development Society (SEEDS).

Aligned with the theme “**Protecting children from tobacco industry interference,**” the manual aims to as-

**sist schools in adhering to ToFEI guidelines**, creating a healthier environment, and empowering stakeholders to protect students from tobacco dangers. Event highlights include dignitaries taking an oath against tobacco use and participation from senior officials.

Initiatives to prevent tobacco consumption include the **WHO Framework Convention on Tobacco Control (FCTC)**, which was adopted in 2003 and includes measures such as price and tax increases, graphic warnings on packages, smoke-free public spaces, marketing bans, and support for quitting. **MPOWER, introduced by WHO**, provides technical measures corresponding to FCTC provisions. Additionally, the **National Tobacco Control Programme (NTCP) in India** aims to raise awareness, reduce production and supply, enforce regulations, assist with quitting, and implement WHO-recommended strategies.

## 8. SPECIAL CATEGORY STATUS (SCS)

### Context:

The strong showing of Chandrababu Naidu’s Telugu Desam Party (TDP) and Nitish Kumar’s Janata Dal-United (JD(U)) in the 2024 Lok Sabha elections has reignited their calls for **special category status (SCS)** for their respective states, Andhra Pradesh and Bihar.

### About SCS:

Special Category Status (SCS)	Description
About SCS	Special Category Status (SCS) is a <b>classification granted by the Centre to assist in the development of states</b> facing geographical and socio-economic disadvantages. Introduced in 1969 on the recommendations of <b>the Fifth Finance Commission</b> , it was initially granted to <b>Jammu &amp; Kashmir, Assam, and Nagaland</b> . Later, states like <b>Sikkim and Tripura</b> were also included. The SCS States used to receive grants based on the <b>Gadgil Mukherjee formula</b> . However, after the recommendations of the <b>14th Finance Commission</b> , <b>SCS was stopped for any new states</b> .
Current Status	Currently, <b>no new states have been granted SCS</b> . Special funding patterns for North Eastern and Himalayan states are based on <b>recommendations from a Sub-Group of Chief Ministers, not through SCS</b> .

<b>Factors for SCS</b>	<b>Before granting SCS to a state, five factors were considered:</b> hilly and difficult terrain, low population density and/or significant tribal population, strategic location along international borders, economic and infrastructural backwardness, and non-viable nature of state finances.
<b>States with SCS</b>	<b>Currently, 11 states in India have SCS:</b> Arunachal Pradesh, Assam, Himachal Pradesh, Jammu and Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, and Uttarakhand.
<b>Benefits of SCS</b>	States with SCS receive <b>Centre-State funding from centrally sponsored schemes in a more favourable ratio of 90:10</b> compared to general category states. They also <b>enjoy tax concessions</b> and exemptions to attract investment.
<b>Demand from Bihar and Andhra Pradesh</b>	Bihar and Andhra Pradesh have been demanding SCS. Bihar's demand is based on its <b>low per capita income</b> and high poverty rates. Andhra Pradesh demands SCS due to <b>revenue loss after the 2014 bifurcation</b> , as promised by former Prime Minister Manmohan Singh.



International Relations

**9. DAG HAMMARSKJÖLD MEDAL**

**Context:**

Naik Dhananjay Kumar Singh, an **Indian peacekeeper who served with the UN Stabilisation Mission in the Democratic Republic of Congo (MONUSCO)**, will be posthumously honoured with the **prestigious Dag Hammarskjöld medal**.

**Dag Hammarskjöld Medal:**

- Purpose:** The Dag Hammarskjöld Medal is a posthumous award given to members of peacekeeping operations who have lost their lives in service under the UN flag.
- Inception:** The first medal was presented in 1998 to the family of Dag Hammarskjöld.
- Namesake:** Dag Hammarskjöld served as the Secretary-General of the United Nations from 1953 until his death in 1961.

**India, the second-largest contributor to UN Peacekeeping**, has deployed over 6,000 personnel across various missions and has seen nearly 180 peacekeepers make the ultimate sacrifice.

International Day of UN Peacekeepers

- Established:** By the UN General Assembly in 2002
- Purpose:** To honour all peacekeepers and those who have lost their lives in the line of duty
- 2024 Theme:** *'Fit for the future, building better together'* focuses on the adaptability of UN Peacekeeping for future conflicts

**About MONUSCO**

- Establishment:** By the UN Security Council.
- Transition:** It took over in 2010, from an earlier UN peacekeeping operation that is the **United Nations Organization Mission in the Democratic Republic of the Congo (MONUC)**
- Scale:** Employs approximately 16,300 individuals, making it one of the largest UN peacekeeping efforts.
- Primary Role:** Protects civilians from violence, especially in conflict-prone areas like North Kivu.
- Innovation:** First UN mission to use UAVs for monitoring.
- Intervention Brigade:** Authorized in 2013 for targeted offensive operations against armed groups.

**10. PAKISTAN OCCUPIED KASHMIR (POK)**

**Context:** Pakistan's government has **acknowledged before the Islamabad High Court** that **Pakistan Occupied Kashmir (PoK) is a foreign territory**.

**About PoK:**

- PoK was historically part of the **princely state of Jammu and Kashmir**, which acceded to **India in 1947 after the Partition**.
- It consists of two **ethnically and linguistically** different regions: **Mirpur-Muzaffarabad region** and **Gilgit-Baltistan region**.
- However, the region was **illegally occupied by Pakistan in 1947** following an invasion by **Pash-tun tribesmen and the Pakistani Army**.



## 11. UN ASSISTANCE MISSION FOR IRAQ (UNAMI)

**Context:**

The UN Security Council **voted to end the UN mission in Iraq (UNAMI) that was set up after the 2003 US-led invasion**.

UNAMI's job was to **help Iraq rebuild after the war and restore a government**. The resolution doesn't mention the geographical features of Iraq.

**Key points:**

- UNAMI will cease operations by **December 31, 2025**.
- Iraq wants to **manage its own security and stability**.
- The resolution **supports Iraq's reform efforts** and helps with remaining issues from the Saddam Hussein era.
- Both the US and Russia agree **Iraq is ready for self-reliance**.

## 12. INTERNATIONAL HEALTH REGULATIONS (IHR 2005)

**Context:**

The 77th **World Health Assembly adopted amendments to the International Health Regulations (IHR 2005)**, incorporating 300 proposals by member states following the Covid-19 pandemic.

- Also, decided to extend the **mandate of the Inter-governmental Negotiating Body (established**

**in 2021)** to finish its work to negotiate a **Pandemic Agreement within a year**.

**Aim:** These amendments aim to **enhance countries' readiness and response to Public Health Emergencies of International Concern** and Pandemic Emergencies.

**About International Health Regulations (IHR):**

- Successor:** International Sanitary Regulations (1951).
- Aim** Legally binding framework defining countries' rights and obligations in handling cross-border public health events and emergencies.
- Members:** Includes 194 WHO Member States, plus Liechtenstein and the Holy See.
- Need for Amendments:** Experience from epidemics like Ebola and COVID-19 emphasized the necessity for enhanced public health surveillance, response, and preparedness mechanisms globally.

**Key Amendments:**

- Definition of Pandemic Emergency:** Defined as a communicable disease with wide geographical spread or high risk, exceeding national health system capacities.
- Coordinating Financial Mechanism:** Addressing needs and priorities of developing countries.
- States Parties Committee:** Facilitate effective IHR implementation.
- National IHR Authorities:** Improve coordination among countries.

**About World Health Assembly (WHA):**

The World Health Assembly (formed in 1948) is the forum through which the **World Health Organization** is governed by its 194 member states. It is the world's highest health policy setting body and is composed of health ministers from member states



### 13. WORLD SUMMIT ON THE INFORMATION SOCIETY (WSIS)

**Context:**

India played a significant **role in the ITU's WSIS+20 Forum High-Level Event and the 'AI for Good' Global Summit**. During these events, India showcased its leadership in drafting global standards for responsible and trustworthy AI.

**The WSIS+20 Forum commemorates 20 years of progress** since the World Summit on the Information Society (WSIS), which occurred in **Geneva in 2003 and Tunis in 2005**. This annual forum, co-organized by **ITU, UNESCO, UNDP, and UNCTAD**, aims to create a multi-stakeholder platform addressing issues raised by information and communication technologies inclusively at national, regional, and international levels. Its goal is to foster a people-centric, inclusive, and development-oriented Information Society, enabling universal access, utilization, and sharing of information.



### 14. NON-PERMANENT MEMBERS OF THE UNSC

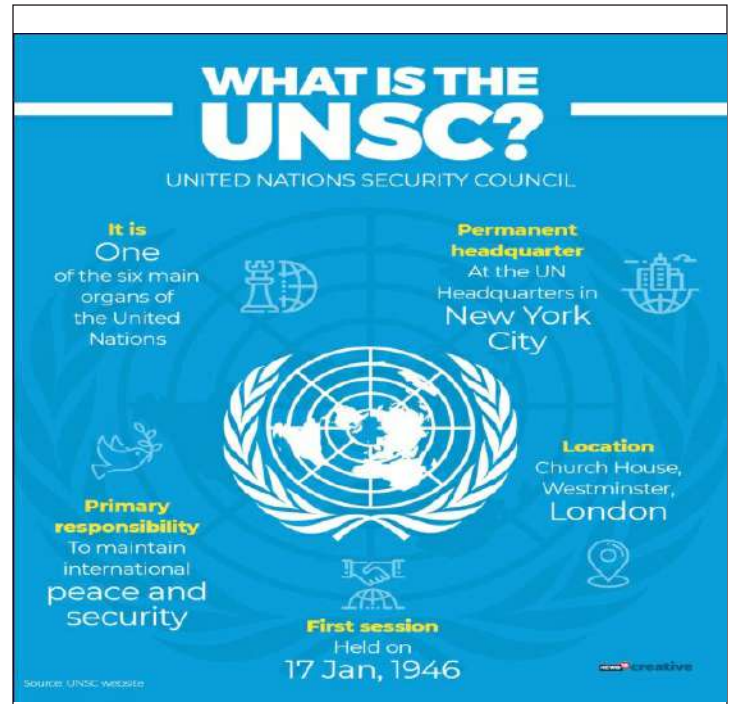
**Context:**

**Pakistan, Panama, Somalia, Denmark, and Greece** have been elected as non-permanent members of the **UN Security Council** for a two-year term starting in 2025. This marks **Pakistan's 8th term** as a non-permanent member

1. **India** has been elected as a **non-permanent member of the UN Security Council 8 times**, the last being 2021-2022.

**About UNSC:**

The UNSC is one of the six principal organs of the UN, along with the **UNGA, Economic and Social Council, Trusteeship Council, International Court of Justice**, and UN Secretariat. **It consists of 15 members, with five permanent members** (China, France, Russia, the UK, and the US) holding veto power. The UNSC has primary responsibility for maintaining international peace and security. **United Nations General Assembly (UNGA) annually elects five non-permanent members of the United Nations Security Council (UNSC) for a two-year term** through a secret ballot.



**GS-3**

Indian Economy

### 15. VARIABLE RATE REPO (VRR)

**Context:**

The Reserve Bank of India's (RBI) variable rate repo (VRR) auction attracted significant interest from banks, with bids totalling ₹1,13,915 crore, surpassing the RBI's offer of ₹50,000 crore.

This underscores the **growing demand for liquidity in the banking sector** amid an estimated deficit **of around ₹1.54-lakh crore**.

**What is VRR, or Variable Rate Repo?**

**It is a mechanism where the RBI permits** banks to borrow funds at rates determined by the market, differing from the fixed Repo Rate at which banks borrow directly from the RBI.

Typically lasting up to 14 days, VRR serves as a means to **inject short-term liquidity** into the banking system. Conversely, Variable Rate Reverse Repo (VRRR) is employed to absorb surplus liquidity from the system.

### 16. FDI INFLOWS INTO INDIA DECREASED

**Context:** **Foreign Direct Investment (FDI)** inflows into India fell **3.5% to \$44 billion in FY24 due** to reduced investments in services, telecom, and pharma sectors.

However, **January-March FY24 saw a 33.4% rise to**

**\$12.38 billion.** Total FDI, including reinvested earnings, declined marginally to **\$70.95 billion from \$71.35 billion in FY23.** Notably, Maharashtra (which received the highest FDI) and Gujarat saw increased inflows, while Karnataka and several other states experienced declines.

In FY 2023-24, **Singapore was the top source of FDI inflows into India**, followed by Mauritius and the USA. From 2000-2024, the top **five countries for FDI were Mauritius, Singapore, the USA, the Netherlands, and Japan.** The leading sectors for FDI in FY 2023-24 were **Computer Software & Hardware, Services, and Construction.** Over the 2000-2024 period, the top sectors were Services, Computer Software & Hardware, Trading, Telecommunications, and the Automobile Industry.

### About FDI

- Definition:** Investment by a company or individual in one country into business interests in another country.
- Policy:** Formulated by the Department for Promotion of Industry and Internal Trade (DPIIT).
- Routes:
- Automatic Route:** No government approval is required.
- Government Route:** Approval required.
- Inclusions:** Foreign Currency Convertible Bonds, Foreign Institutional Investment (with conditions), and Global Depository Receipts.
- Prohibitions:** Lottery Business, Gambling and Betting, Chit Funds, Nidhi Company, Trading in Transferable Development Rights, etc.

### Significance of FDI

- Stimulates economic growth.
- Promotes development in backward areas.
- Ensures exchange rate stability.

## 17. UNIFIED PAYMENTS INTERFACE (UPI)

### Context:

The **Reserve Bank of India (RBI)** in collaboration with **NPCI International Payments Ltd. (NIPL)** has planned to take the **Unified Payments Interface (UPI)** to over **20 nations by financial year 2029.**

- RBI also aims to explore collaboration on the **Fast Payment System** with groups of countries such as the **European Union and SAARC, along with multilateral linkages.**

### About Unified Payments Interface (UPI):

- Unified Payments Interface (UPI) is a system that **powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments**

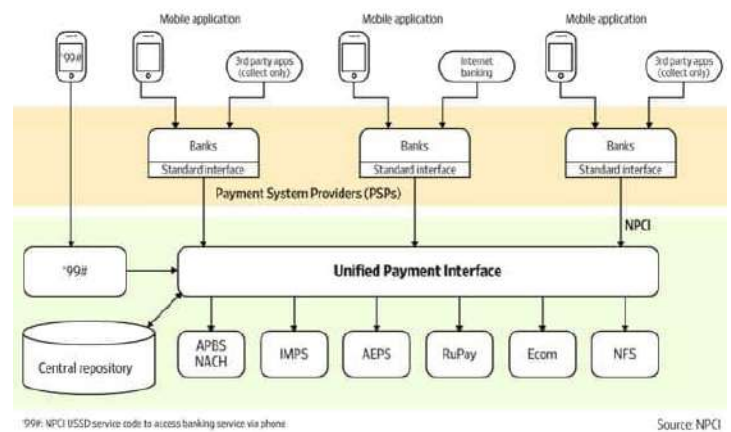
### into one hood.

- It also caters to the **“Peer to Peer” collect request** which can be scheduled and paid as per requirement and convenience.
- Currently, several countries, including **Bhutan, Nepal, UAE, France, Mauritius, etc., support UPI payments.**

### Measures for Internationalization of UPI:

- NIPL:** A wholly owned subsidiary of the National Payments Corporation of India (NPCI), incorporated in 2020, for the **deployment of RuPay and UPI outside of India.**
- UPI One World:** Prepaid payment instrument linked to **UPI provided to foreign nationals/NRIs coming from G20 countries.**

### THE ARCHITECTURE OF UPI



## 18. INDIA'S GOLD RESERVE

### Context:

The **Reserve Bank of India (RBI)** recently **moved 100 metric tonnes of gold from the UK to domestic vaults**, a significant shift reflecting geopolitical concerns and risk diversification strategies.

India's total **gold holdings stand at 822 metric tonnes**, with a portion stored in foreign vaults for international trade facilitation and risk spreading (around 50% is stored locally in India). These reserves are primarily held in the **Bank of England, the Bank for International Settlements (BIS) in Switzerland, and the Federal Reserve Bank of New York.** This move aims to mitigate risks associated with geopolitical tensions and ensure greater control over gold reserves for economic stability and inflation management.

### Why has RBI hoarded Gold in recent years?

The **Reserve Bank of India (RBI)** is **accumulating gold as a counter-strategy against negative interest rates and geopolitical uncertainties.** In times of inflation and economic stress, gold offers a good return compared to US government bonds. Additionally, gold provides a **hedge against geopolitical uncertainty**, especially amid conflicts like the Russia-Ukraine war and tensions between

the US and China. Diversifying forex reserves with gold adds security, liquidity, and value during crises. **Gold's historical significance in the economy includes its role as a reserve currency**, intrinsic value, and its ability to boost a nation's currency value. It can also serve as a substitute for government securities in central bank operations.

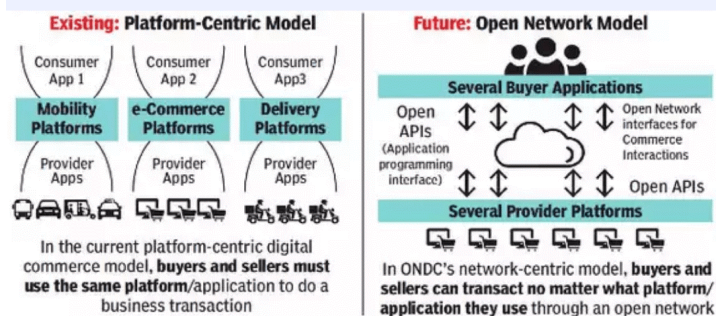
**All banknotes issued by RBI are backed by assets such as gold**, Government Securities and Foreign Currency Assets, as defined in Section 33 of the RBI Act, 1934.

Forex Reserves Component	Billion \$	%
1. Foreign Currency Assets	519.5	88.22%
2. Gold	45.7	7.76%
3. SDRs	18.5	3.14%
4. Reserve Position in IMF	5.2	0.88%
<b>Total Forex Reserves</b>	<b>588.9</b>	<b>100.00%</b>

## Open Network for Digital Commerce (ONDC)



Once ONDC is implemented, a user shopping on any app that is registered with the network will see products from the catalogs of multiple sellers — e-commerce apps, listed local stores, small merchants, among others— and can choose who they want to purchase from



## 19. OPEN NETWORK FOR DIGITAL COMMERCE (ONDC)

### Context:

The Open Network for Digital Commerce (ONDC) achieved a record **8.9 million** transactions in May, a **23% increase from April**.

### What is ONDC?

**The Open Network for Digital Commerce (ONDC)** is a government initiative aimed at transforming the e-commerce market in India by shifting from a platform-centric model to an open-network model.

**Similar to the success of the Unified Payments Interface (UPI) project**, which enables seamless money transfers across different payment platforms, the ONDC seeks to facilitate transactions between buyers and sellers regardless of the platforms they are registered on.

### Explanation using an example:

Let's imagine you want to buy a product online, like a smartphone. You are registered on Amazon, but you find a better deal on Flipkart for the same smartphone you want to buy. In the current system, you wouldn't be able to purchase it from Flipkart because you're not registered there.

But ONDC is like a big network that connects all the different e-commerce platforms together. So instead of being limited to one specific platform, you can buy products from different platforms, even if you are registered on only one of them.

### About ONDC:

- Section 8 Company:** Non-profit organization.
- DPIIT Initiative:** Launched by the Department for Promotion of Industry and Internal Trade.

### Benefits of ONDC:

- Sellers:** Compete fairly with big players, and become discoverable online.
- Buyers:** Seamless shopping with a wide product range in one checkout.
- Tech Companies:** Faster product/service adoption and scalability.
- FinTech:** Offer credit and financing to e-commerce entities.

### Challenges:

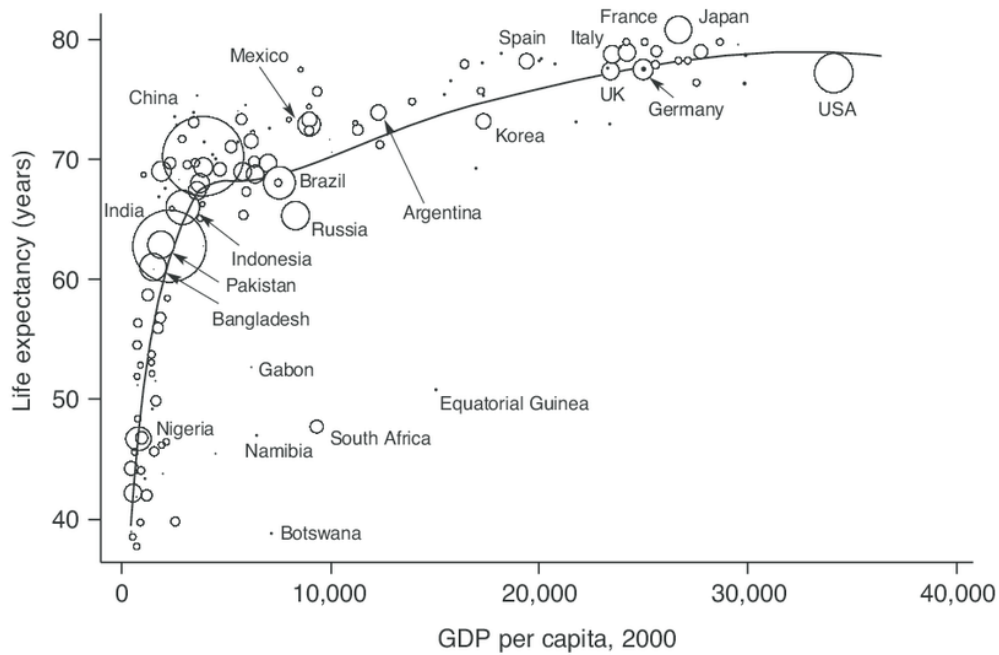
- Resistance from established players.
- Transitioning offline businesses to online.

## 20. PRESTON CURVE

### Context:

The Preston curve gives a **positive empirical relationship** between a country's life expectancy and its per capita income. It was **first identified by Samuel H. Preston in 1975**.

It suggests that as **poor countries grow and their per capita income increases**, life expectancy rises significantly due to better access to healthcare, education, nutrition, and living conditions. However, this relationship flattens out at higher income levels, indicating diminishing returns on life expectancy gains with further income increases.



## 21. CLEARING CORPORATION

### Context:

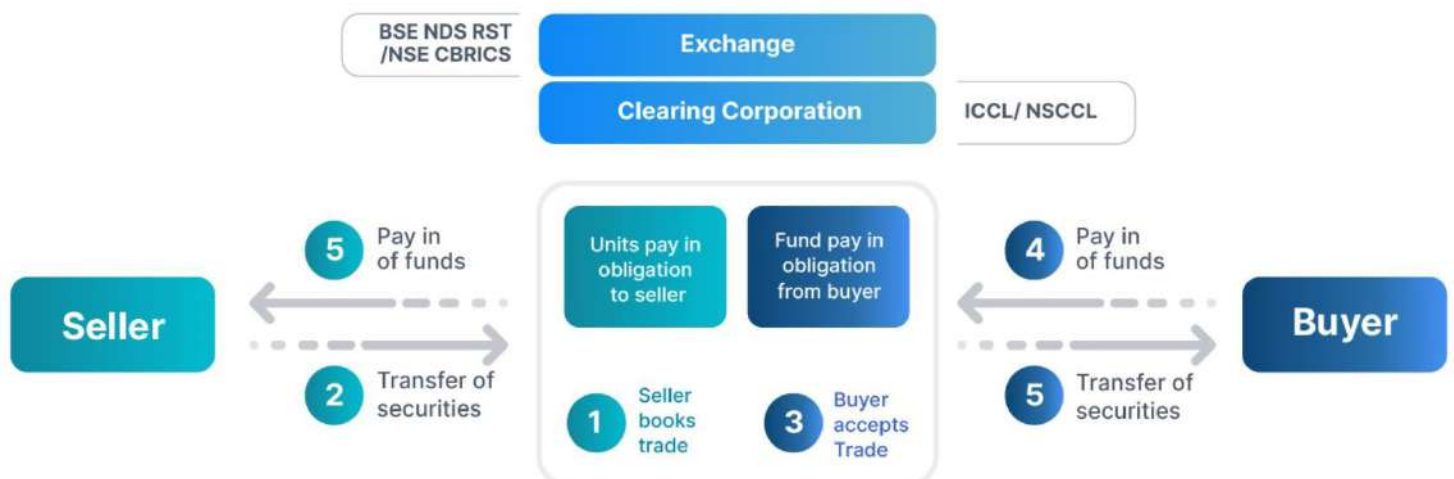
SEBI forms a committee, chaired by **Usha Thorat**, to review the ownership and economic structure of **clearing corporations**.

**Aim:** Ensure resilience, independence, and neutrality. Previous norms by SEBI focused on **dispersed ownership and governance framework**. The current structure is dominated by parent exchanges, raising concerns about independence and capital infusion. Globally, major clearing corporations have diversified shareholding models.

### What are CCs?

**Clearing Corporations (CC)** handle the clearing and settlement of trades in securities or other instruments traded on stock exchanges. They are integral to the financial market infrastructure, serving as central risk management institutions and first-line regulators.

CCs serve as **central risk management institutions and play a regulatory** role. **The Securities Contracts (Regulation) (Stock Exchanges and Clearing Corporations) Regulations, 2018**, outline the norms for the ownership and governance framework of CCs.



## 22. DUTY DRAWBACKS

### Context:

Starting from June 5th, 2024, the **Central Board of Indirect Taxes and Customs** (CBIC) has initiated electronic **disbursal of duty drawback** amounts directly to exporters' bank accounts through the **Public Finance Management System (PFMS)**.

### What are Duty Drawbacks?

Duty drawback, governed by **section 75 of the Customs Act, 1962**, refunds customs duty on imported or excisable materials used in the **production of export goods**. This mechanism assists exporters in **mitigating some of the expenses incurred during the export process**, particularly within the supply or value chain.

Electronic disbursal of duty drawback **aims to streamline the process, reduce processing time, eliminate manual intervention, and enhance transparency** in customs operations. This initiative aligns with **CBIC's commitment to paperless customs** and trade facilitation, building upon its implementation of the **WTO Trade Facilitation Agreement (TFA)**.

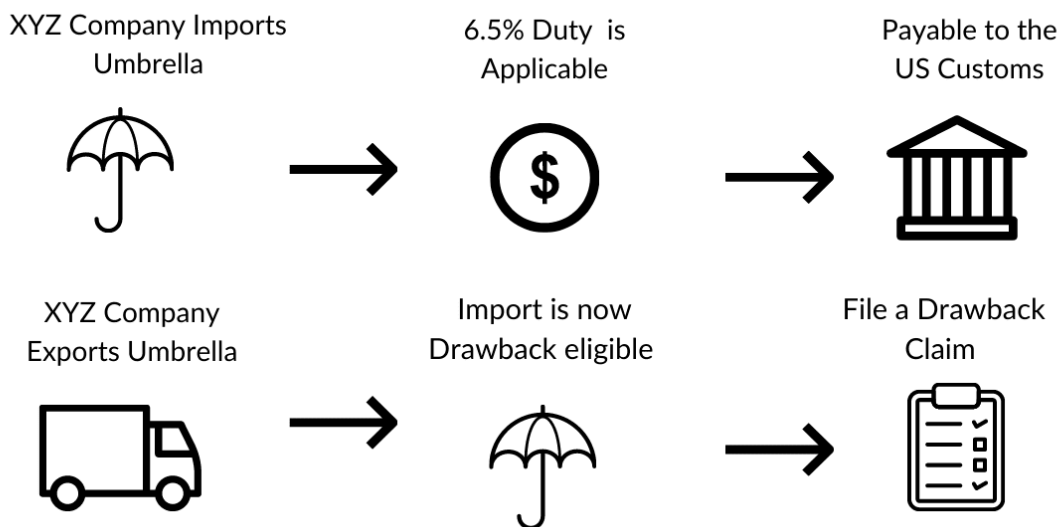


Fig: Mechanism of duty drawback (a similar mechanism is followed in India)

### Agriculture

## 23. UNIFIED INDIA ORGANIC LOGO

### Context:

FSSAI and APEDA have **developed a new "Unified India Organic" logo** to replace the existing **India Organic and Jaivik Bharat logos**.

This move aims to bring uniformity in the implementation of **organic regulations by NPOP and FSSAI**. The new logo is expected to come into force in the near future, and certification bodies will be **given a 3-month transition period for implementation**. It will **distinguish organic products from non-organic communicating** adherence to the National Standards for Organic Production.

Currently, the **India Organic logo is used on organic products** complying with the National Programme for Organic Products (NPOP), while **Jaivik Bharat** is used on organic products certified by FSSAI.

### Regulator of Organic Products:

**Food Safety and Standards Authority of India (FSSAI)** (under the Ministry of Health and Family Welfare) regulates the manufacture, distribution, sale or import of Organic products through the **Food Safety and Standards (Organic Foods) Regulations, 2017** (under FSSA 2006).

### Certification of Organic products:

Certification	Description
<b>Participatory Guarantee System (PGS)</b>	Implemented by the <b>Ministry of Agriculture and Farmers Welfare</b> . Ensures organic product production adheres to quality standards. Does not require third-party certification agencies. Certification is carried out by local groups consisting of producers and consumers and is based on trust. Involves a documented logo or statement as proof of certification.
<b>National Programme on Organic Production (NPOP)</b>	Implemented by APEDA, under the <b>Ministry of Commerce &amp; Industries</b> . <b>Regulates organic farming certification</b> . Involves accreditation of Certification Bodies. Sets standards for organic production. Promotes organic farming and marketing. Its Standards have been recognized by the EU, Switzerland, and the US.
<b>Other Programs for Organic Production</b>	<b>NMSA (National Mission for Sustainable Agriculture)</b> : Promotes sustainable agriculture, including organic production.
	<b>Mission Organic Value Chain Development for North East Region (MOVCD-NER)</b> : Supports the development of organic value chains in the North East region of India.
	<b>Paramparagat Krishi Vikas Yojna (PKVY)</b> : Promotes organic farming.

## 24. WORLD'S LARGEST GRAIN STORAGE PLAN

### Context:

The National Level Coordination Committee (NLCC) for the **world's largest grain storage plan held its first meeting in Delhi**.

The plan aims to transform **Primary Agricultural Credit Societies (PACS) into Multi-Service Societies**. The pilot project, implemented in 11 states, focuses on creating agricultural infrastructure at the PACS level, including warehouses and processing units, through various government schemes.

### About the World's largest grain storage plan

Implementation	The <b>Ministry of Cooperation</b> will implement a pilot project in at least 10 districts to gather regional insights for nationwide implementation. An IMC will modify guidelines and implementation methodologies for creating infrastructure at Primary Agricultural Credit Societies (PACS) using available schemes.	
	The ministry will implement it through the <b>National Cooperative Development Corporation with support from NABARD, FCI</b> , and others	
Schemes for Convergence	Ministry of Agriculture and Farmers Welfare	<b>Agriculture Infrastructure Fund</b> , <b>Agricultural Marketing Infrastructure Scheme</b> , <b>Mission for Integrated Development of Horticulture</b> , Sub Mission on Agricultural Mechanization.
	Ministry of Food Processing Industries	<b>Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme</b> , <b>Pradhan Mantri Kisan Sampada Yojana</b> .
	Ministry of Consumer Affairs, Food and Public Distribution	Allocation of food grains under <b>the National Food Security Act</b> , Procurement operations at Minimum Support Price.
Benefits	The plan aims to address the agricultural storage infrastructure shortage and enable PACS to function as procurement centres, fair price shops, custom hiring centres, and processing units. It will reduce food grain wastage, enhance food security, prevent distress sales, reduce transportation costs, and strengthen PACS.	
Implementation Timeline	The National Level Coordination Committee was formed within one week of approval. Implementation guidelines are issued within 15 days of approval. Portal for PACS linkage rolled out within 45 days of approval. Implementation starts within 45 days of approval.	

**FCI is a nodal agency responsible for procurement, storage and movement of food grains**, public distribution and maintenance of buffer stocks. **FCI**, set up under the Food Corporation's Act 1964, works under the Ministry of Con-

sumer Affairs, Food and Public Distribution. CWC established under Warehousing Corporations Act, 1962 for warehousing of agricultural produce and other notified commodities



CABINET DECISION 31 MAY 2023



## World's Largest Grain Storage Plan in Cooperative Sector

- Cabinet approves Inter Ministerial Committee for facilitation of the ***“World's Largest Grain Storage Plan in Cooperative Sector”***
- Plan to see convergence of various schemes of the following ministries:

(a) *Ministry of Agriculture and Farmers Welfare*

(b) *Ministry of Food Processing Industries*

(c) *Ministry of Consumer Affairs, Food and Public Distribution*

1/4



## 25. HYDROXYUREA

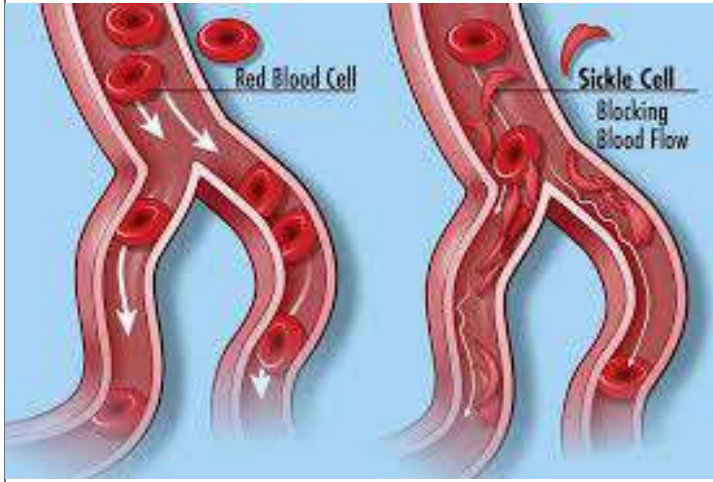
**Context:** The [Indian Council of Medical Research \(ICMR\)](#) is seeking to develop a pediatric oral formulation of hydroxyurea to treat sickle cell disease in India, where over 20 million individuals are affected.

Currently, **hydroxyurea is mainly available in 500 mg capsules or 200 mg tablets**, making dosing for children challenging.

This initiative is crucial, especially with the launch of the [National Mission to eliminate Sickle Cell Anemia/SCD by 2047](#).

### What is SCD (Sickle Cell Disease)?

Sickle Cell Disease (SCD) is **a genetic disorder that affects the shape of red blood cells**, causing them to become sickle-shaped instead of round. This abnormal shape can lead to various complications, including pain, anemia, and organ damage. SCD is one of the most common inherited blood disorders and can result in serious health issues, including stroke and organ failure.



## 26. REVERSE TRANSCRIPTASE

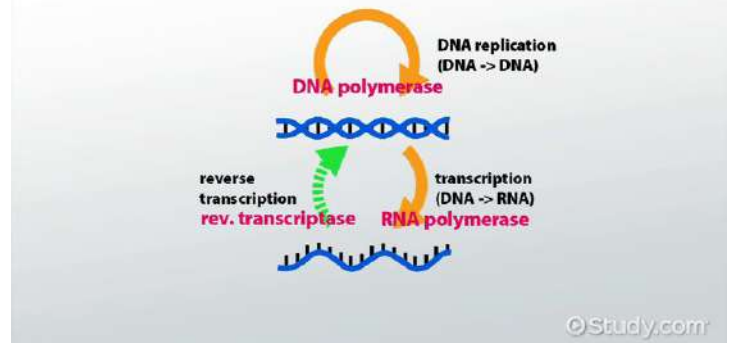
### Context:

Researchers have discovered that **the bacteria *Klebsiella pneumoniae*** may use a **newly identified protein, *Neo***, to counter **bacteriophage infections**. This protein, created through a **process involving Reverse Transcriptase (RTs) and non-coding RNA**, can halt the replication of both the bacterium and the invading bacteriophage, effectively stopping the infection.

### What are RTs?

**Reverse transcriptase (RT) is an enzyme that synthesizes DNA from an RNA template.** This process reverses the usual flow of genetic information, which typically goes from DNA to RNA to protein. RTs play a crucial role in the replication of retroviruses, like HIV, and are used extensively in molecular biology research and diagnostics to study and detect RNA viruses.

### DEFINITION OF REVERSE TRANSCRIPTASE



This finding highlights the **versatile role of reverse transcriptase in bacterial defence mechanisms** and hints at potential applications in biotechnology and medicine, particularly in addressing antimicrobial resistance

Science & Technology

## 27. RECOMBINANT PROTEINS

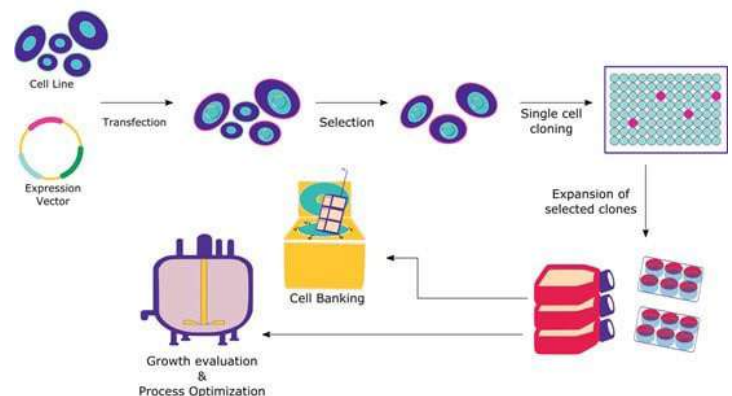
### Context:

Researchers at the Indian Institute of Science (IISc), Bengaluru, have devised a groundbreaking method for **mass-producing recombinant proteins**, which include vital substances like **vaccine antigens, insulin, and monoclonal antibodies**.

### What are Recombinant Proteins?

Recombinant proteins are **proteins that are artificially produced through genetic engineering** techniques. These proteins are created by introducing specific DNA sequences, encoding desired protein products, into host organisms such as bacteria, yeast, or mammalian cells. The host cells then use their own cellular machinery to produce the recombinant proteins according to the inserted genetic instructions.

### RECOMBINANT PROTEIN EXPRESSION



**Recombinant proteins have a wide range of applications**, including in medicine (such as vaccine antigens, insulin, and therapeutic antibodies), agriculture, industry, and research. They are crucial for various biotechno-

logical and pharmaceutical purposes due to their precise control over protein structure and function.

### What are Proteins?

Proteins serve as the **backbone of biological systems**, driving essential processes like gene expression, cell growth, and communication within cells. The blueprint for protein synthesis resides in DNA, guiding the tightly regulated transcription process to generate messenger RNA (mRNA) for protein production.

## 28. TMESIPTERIS OBLANCEOLATE

### Context:

The new Caledonian fern species, **Tmesipteris oblaceolata**, boasts the largest genome known to date at **160.45 billion base pairs (Gbp)**, surpassing previous records. This discovery sheds light on **genomic gigantism** and offers insights into evolutionary dynamics.

### What are Genome?

Genomes are the complete **set of genetic material within an organism, including DNA sequences** that encode its traits and functions. They serve as the blueprint for an organism's development, growth, and behaviour.

### About the fern species:

Tmesipteris oblaceolata, **with its 160 billion base pairs**, surpasses the human genome by **over 50 times**. It's part of an ancient plant lineage predating dinosaurs. Exclusive to New **Caledonia and neighbouring Pacific islands**, it flourishes on rainforest tree trunks and branches.

## 29. ROLE OF NUCLEAR TECHNOLOGIES IN FOOD SYSTEM

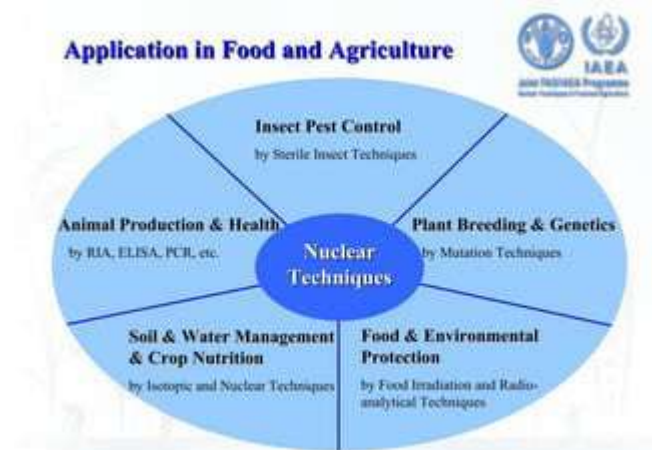
### Context:

At the International Symposium on Food Safety and Control: **FAO** Director-General underscores the importance of nuclear technologies for measuring, managing and controlling food safety. It was organized by **FAO** and **IAEA**.

### Role of Nuclear Technologies in Food System:

1. **Animal Health:** PCR tests for rapid disease detection.
2. **Soil and Water Management:** Use of radioactive nuclides to assess soil health and erosion rates.
3. **Insect Pest Management:** Sterile Insect Technique (SIT) for pest control. Mass-rearing and sterilizing insects through ionizing radiation before release.
4. **Food Safety and Control:** **Food irradiation** to improve safety and extend shelf life by reducing/eliminating microorganisms and insects.

5. **Plant Breeding and Genetics:** Inducing desired genetic changes via irradiation.



### Key Initiatives:

1. **Global:** Atoms4Food Initiative by FAO and IAEA; Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture.
2. **India:** Technology demonstration plants for irradiation: KRUSHAK at Lasalgaon, Nashik (low dose radiation); Radiation Processing Plant (RPP) in Navi Mumbai (high dose radiation); **FSSAI's Food Safety and Standards** (Food Products Standards and Food Additives) Sixth Amendment Regulations, 2016, to align food irradiation rules with international standards.

## 30. PHENOME INDIA-CSIR HEALTH COHORT KNOWLEDGEBASE (PI-CHECK) PROJECT

### Context:

**CSIR's 'Phenome India' project**, a pioneering longitudinal health monitoring initiative, has achieved its target of collecting 10,000 samples, marking a **significant step towards precision medicine in India**.

### What is Precision Medicine?

Precision medicine refers to an **approach to healthcare that tailors medical treatment and prevention strategies** to the individual characteristics of each patient. This approach takes into account factors such as **genetic makeup, lifestyle, environment, and other personal data to customize healthcare decisions**. By considering individual variability, precision medicine aims to optimize treatment outcomes and minimize adverse effects, leading to more effective and personalized patient care.

The **Phenome India-CSIR Health Cohort Knowledgebase (PI-CHeCK) project** was launched in 2023 by the **Council of Scientific and Industrial Research (CSIR)**.

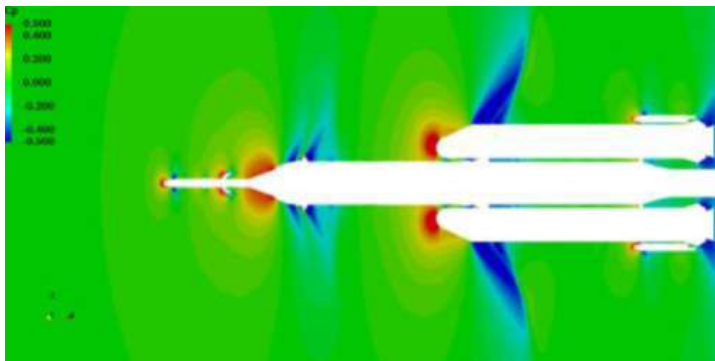
It aims to assess **risk factors in non-communicable diseases**, particularly cardio-metabolic conditions, within the Indian population. It aligns with the **vision of “Swasthya Bharat Viksit Bharat”** by promoting health and wellness checks. Additionally, the project underscores **CSIR’s** dedication to advancing precision medicine through **Predictive, Personalized, Participatory, and Preventive healthcare approaches**.

### 31. PRAVAHA SOFTWARE

#### Context:

SRO’s Vikram Sarabhai Space Centre (VSSC) develops **PraVaHa** (Parallel RANS Solver for Aerospace Vehicle Aero-thermo-dynamic Analysis), a **Computational Fluid Dynamics (CFD) software** for aerodynamic design and analysis of aerospace vehicles.

PraVaHa simulates **external and internal flows on launch vehicles**, winged, and non-winged re-entry vehicles, aiding in the evaluation of aerodynamic and aero-thermal loads during launch and re-entry. It is extensively used in the **Gaganyaan program** for analyzing human-rated launch vehicles and is designed to utilize CPU and GPU architectures for efficient simulation.



### 32. FUNGUS PARENGYODONTIUM ALBUM

#### Context:

Recently, the marine fungus **Parengyodontium album** was discovered to break down oceanic polyethylene (PE) plastic.

#### About Parengyodontium album:

This **fungus converts PE-derived carbon** into fungal biomass, using it as an energy source, a process that requires the initial photodegradation of PE by UV sunlight. This discovery highlights the potential of **P. album to degrade floating oceanic plastic litter**.

**With over 400 billion kilograms** of plastic produced

annually, much of which ends up in the ocean, researchers are optimistic that other plastic-degrading fungi may exist in the deeper parts of the ocean, given fungi’s reputation as **“masters of degradation”** due to their diverse digestive enzymes.



*P. album* V-4-L-1 on rice medium



### 33. MILGROMIAN DYNAMICS (MOND) THEORY

#### Context:

The Cassini mission’s findings **challenge Milgromian dynamics (MOND)**, an alternative theory to **dark matter**, which predicts subtle deviations in celestial orbits due to weak gravity.

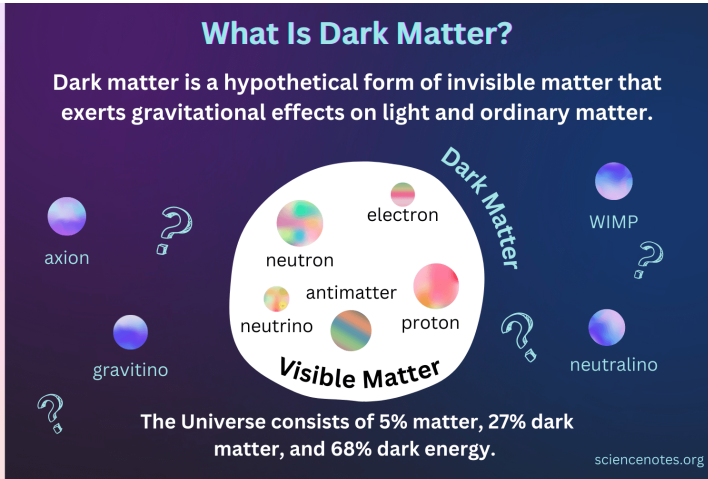
1. **Cassini is a joint endeavour of NASA, the European Space Agency, and the Italian Space Agency** to study Saturn and its complex system of rings and moons.

#### What is the theory of Dark Matter and what is its alternative theory?

The theory of dark matter **proposes that there is an unseen form of matter in the universe**, which does not emit light but exerts gravitational forces, explaining phenomena like the **faster-than-expected rotation of galaxies**.

In contrast, **Milgromian dynamics (MOND)** says that those deviations from Newton’s laws of gravity occur at very weak gravitational fields, such as those found at the edges of galaxies. MOND suggests modifying gravity rather than invoking unseen dark matter. It seeks to **replace Newtonian dynamics and General Relativity**.

However, **recent observations, including those from the Cassini mission and studies of celestial bodies**, have cast doubt on MOND’s predictions, indicating that it **fails to explain various phenomena accurately**. Therefore, MOND is not considered a correct alternative to the theory of dark matter.



Environment & Ecology


### 34. ASSAM'S HOLLANGAPAR GIBBON SANCTUARY

**Context:**

The Northeast Frontier Railway (NFR) plans to **construct canopy bridges in Assam's Hollangapar Gibbon Sanctuary** to help India's only ape, the hoolock gibbon, safely cross railway tracks dividing its habitat.

The sanctuary, **home to about 125 gibbons**, faces fragmentation due to a railway track. These bridges, designed by the **Wildlife Institute of India (WII) and NFR**, will facilitate the arboreal species' movement. Safety measures, including nets, will be implemented to prevent accidents.

**Key Facts about Hoolock Gibbon:**

Facts	Description
About	Gibbons, the <b>smallest and fastest of all apes</b> , inhabit tropical and subtropical forests in Southeast Asia. They have high intelligence, distinct personalities, and strong family bonds. They are one of the 20 gibbon species found worldwide.
	

<b>Population and Habitat</b>	The current population of hoolock gibbons is around 12,000. They are found in <b>Northeast India, Bangladesh, Myanmar, and Southern China</b> .
<b>Gibbon Species in India</b>	Two distinct species in India's north-east: the <b>eastern hoolock gibbon (Hoolock leuconedys)</b> and the <b>western hoolock gibbon (Hoolock hoolock)</b> .
<b>Threats</b>	All 20 gibbon species, including hoolock gibbons, are at high risk of extinction due to conservation challenges. Significant population and habitat decline due to deforestation for infrastructure projects in India.
<b>Conservation Status</b>	International Union for Conservation of Nature's Red List: Western Hoolock Gibbon: <b>Endangered</b> ; Eastern Hoolock Gibbon: <b>Vulnerable</b> . Both species are listed on Schedule 1 of the <b>Indian (Wildlife) Protection Act 1972</b> .
	The <b>Global Gibbon Network (GGN)</b> recently convened its inaugural meeting in Haikou, China's Hainan province, to address its critical situation. The GGN was initiated at the <b>International Gibbon Day 2020 event</b> , with representatives from 20 gibbon conservation organizations.
<b>About Hollongapar Gibbon Sanctuary</b>	The Hollongapar Gibbon Sanctuary, formerly known as the Gibbon Wildlife Sanctuary or <b>Hollongapar Reserved Forest, is an isolated evergreen forest in Assam</b> , India. Established in 1997, the sanctuary was initially set aside in 1881, with its forests once extending to the Patkai mountain foothills. It is home to India's only ape and gibbon species, the hoolock gibbons, and the Bengal slow loris, Northeastern India's only nocturnal primate. The forest's upper canopy is dominated by <b>hollong trees, the middle by nahar trees, and the lower by evergreen shrubs and herbs</b> .

**Prelims Link:**

Q. Consider the following pairs: (UPSC 2010)

Protected area	Well-known for
----------------	----------------

1.	Bhiterkanika, Orissa	Salt Water Crocodile
2.	Desert National Park, Rajasthan	Great Indian Bustard
3.	Eravikulam, Kerala	Hoolock Gibbon

Which of the pairs given above is/are correctly matched?

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

### 35. BIOCOVER

#### Context:

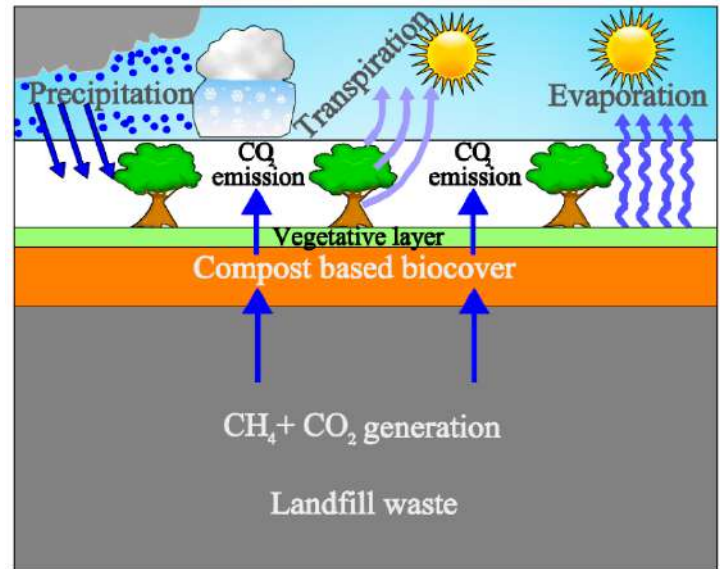
The use of microbial methane oxidation systems, specifically biocovers utilizing fine fractions from landfill mining, presents a promising model for methane control.

#### What is Biocover?

Biocovers are a **type of methane oxidation system** that utilizes the fine fraction material from landfill mining to effectively control methane emissions. These are porous material layers laid directly on top of a landfill which is then covered by an **oxidizing layer of mature compost**. It provides optimal conditions for **methanotrophic (methane-utilizing) bacteria** to thrive and act as biofilters, hence **controlling methane emissions** by converting methane to CO<sub>2</sub>.

#### The key points about biocovers are:

1. They reduce **methane emissions from landfills and dumpsites**.
2. The **fine fraction material recovered** from landfill mining is used to construct the biocover system. This fine fraction would otherwise be difficult to repurpose due to high contaminant levels.
3. By using the fine fraction in the biocover, it provides a **sustainable solution for methane control**, especially for smaller to medium-sized landfills and dumpsites.
4. This method shows promise for application in **India's over 3,000 legacy dumpsites**, which continuously generate methane and are prone to fires, making effective methane control critical for climate change mitigation.



### 36. MUSANKWA SANYATIENSIS

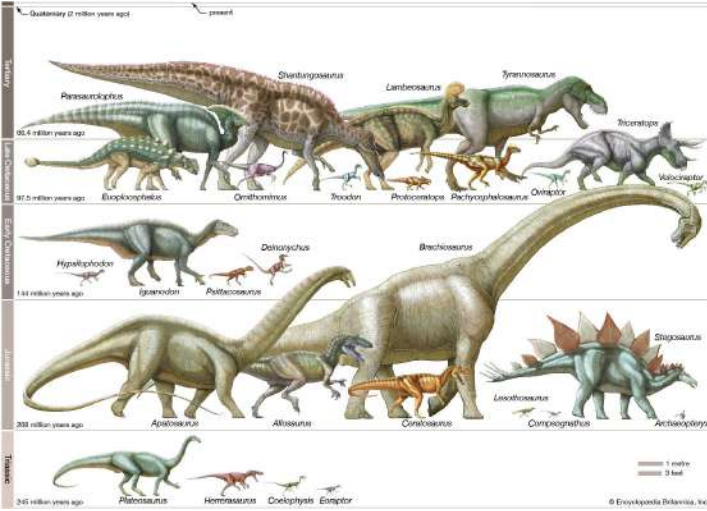
#### Context:

Scientists have discovered **fossils of a new dinosaur species, Musankwa sanyatiensis**, along the shores of **Lake Kariba in Zimbabwe**.

This plant-eating dinosaur lived in swampy areas during the **Late Triassic period, about 210 million years ago**. It is named after the houseboat used during the expeditions and the Sanyati River flowing into Lake Kariba. Musankwa sanyatiensis is the **first dinosaur named from the Mid-Zambezi Basin in over 50 years** and only the fourth ever named from Zimbabwe.

#### What are Dinosaurs?

**Dinosaurs (a diverse group of reptiles), originating around 243 to 233 million years ago, diversified into various forms during the Jurassic and Cretaceous periods.** They include birds, which evolved from theropods, and extinct non-avian dinosaurs. Over 900 genera and 1,000 species of non-avian dinosaurs have been identified. Once thought sluggish, modern research indicates dinosaurs were active with varied adaptations. They ranged in size, from small to the largest land animals ever known.



### 37. NAGI AND NAKTI BIRD SANCTUARIES: TWO MORE SITES ADDED TO RAMSAR LIST

**Context:**

Nagi and Nakti bird sanctuaries in Bihar’s Jamui district are now recognized under the Ramsar Convention, **bringing India’s total Ramsar sites to 82.**

**About Nagi-Nakti Wetland:**

**Nagi-Nakti Wetlands in Bihar’s Jamui district**, nestled within the **Jhajha forest range**, are man-made reservoirs surrounded by dry deciduous forests and hills. Developed primarily for irrigation, they **host diverse flora and fauna, including over 150 bird species**, mammals, fish, aquatic plants, reptiles, and amphibians.

They are also designated as **Important Bird and Biodiversity Areas by BirdLife International**. They provide habitat for various migratory and resident bird species. The



**About Ramsar Convention:**

It was adopted in 1971 and aims to conserve and wisely use wetlands and their resources, with India becoming a party in 1982.

**India and China rank third globally for Ramsar Sites, each with 82 sites.** The **United Kingdom leads with 175**, followed by Mexico with 144. India’s Ramsar Sites have increased from 26 to 82 in the last decade, with 40 added in the past three years.

**Defence**

### 38. MINUTEMAN III

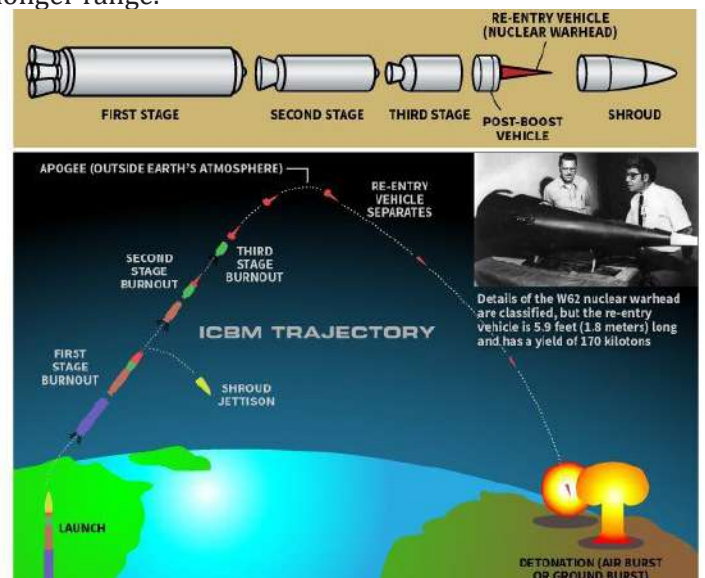
**Context:**

The US conducted an **unarmed Minuteman III inter-continental ballistic missile (ICBM) test from Vandenberg Space Force Base, California.**

The LGM-30G Minuteman III, **a solid-fueled ICBM** first deployed by the USAF in the 1960s, serves as the sole land-based component of the U.S. nuclear triad. Designed and manufactured by **Boeing**, it was initially intended for a ten-year service life but has been continually modernized.

**What are ICBMs?**

Intercontinental ballistic missiles (ICBMs) are **long-range missiles capable of delivering nuclear warheads across continents**. They are a key component of a nation’s nuclear deterrent strategy due to their ability to strike distant targets quickly. In India, examples of ICBMs include the **Agni series, such as Agni-V**, which has a range of over 5,000 kilometres, and **Agni-VI**, which is currently under development and is expected to have an even longer range.



[Reports in News](#)


Reports	Description
Global Purchasing Power Parities (PPP) 2021	<p>The <b>International Comparison Program (ICP)</b> has released data covering <b>176 economies on their Purchasing power parities</b>.</p> <p><b>Key findings reveal</b> that in 2021, China, with a <b>GDP of \$28.8 trillion</b> based on Purchasing Power Parity (PPP), was the largest economy, followed by the United States. India, with a GDP of \$11 <b>trillion, was the third largest, accounting for 7.2% of global GDP</b>. In terms of GDP ranking by nominal values, <b>India is currently the 5th largest economy</b>.</p> <p><b>PPP, or Purchasing Power Parity</b>, is an exchange rate at which one nation's currency would be converted into another to purchase the same amounts of a large group of products. It provides a more accurate measure of living standards across countries compared to the <b>Market Exchange Rate (MER)</b>, which often inflates the buying power of high-income countries (where prices are high) and underestimates that of low-income countries (where prices are lower).</p> <p>The <b>ICP is a worldwide statistical initiative</b> that collects comparative price data and detailed GDP expenditures to produce PPPs for the world's economies. Coordinated by the <b>World Bank under the auspices of the United Nations Statistical Commission</b>, the program was initiated in 1968 and has been a permanent element of the global statistical program since 2016. The ICP also measures the <b>Price Level Index (PLI)</b>, which is the ratio of a PPP to its corresponding exchange rate.</p>
ICRIER's Policy Brief on Post-Harvest Losses (PHL) in India	<p>The policy brief highlights the benefits of <b>reducing post-harvest losses (PHL)</b>: increasing farmers' income, enhancing food security, and ensuring sustainability in agrifood systems.</p> <p><b>Key highlights include India's production growth</b>, with food grain increasing from 74.23 million metric tonnes (MMT) in 1966-67 to over 330 MMT in 2022-23, and horticulture rising from about 96 MMT in 1991-92 to over 355 MMT in 2022-23. India's storage capacity expanded from about 108 MMT in 2010 to over 219 MMT in 2021. Globally, about 30% of food produced never reaches consumers, and <b>India faces higher PHL in cereals, pulses, and oilseeds</b>, leading to an annual loss of about \$18 billion from 2020 to 2022.</p> <p><b>Initiatives to reduce PHL include the Private Entrepreneurs Guarantee (PEG) Scheme</b> for enhancing food storage capacity, <b>PM Kisan Sampada Yojana</b> for reducing PHL in horticulture and non-horticulture produce, the <b>Agriculture Infrastructure Fund</b> for financing post-harvest management projects, and the <b>National Cooperative Grain Storage Project launched in 2023</b> to expand cooperative storage facilities by 700 lakh tonnes.</p>

Reports	Description
A World of Debt Report 2024	<p>The "A World of Debt Report 2024" by <b>UN Trade and Development (UNCTAD)</b> highlights a significant surge in global public debt, which reached a historic peak <b>of \$97 trillion in 2023</b>. <b>India's public debt reached \$2.9 trillion in 2023</b>, amounting to <b>82.7%</b> of its GDP.</p> <p>To address the current debt crisis, the report outlines several initiatives, including <b>the Heavily Indebted Poor Countries (HIPC)</b> Initiative by the IMF and World Bank, the <b>Debt Management and Financial Analysis System (DMFAS)</b> programme by UNCTAD, and the <b>Global Sovereign Debt Roundtable (GSDR)</b>, launched in February 2023 by the IMF in coordination with the World Bank and India's G20 presidency.</p>
Global Annual to Decadal Climate Update (2024-2028)	<p>This annual report by the <b>World Meteorological Organization (WMO)</b> synthesizes <b>global annual</b> to decadal predictions. Key highlights include an 80% likelihood that the annual average global temperature will temporarily <b>exceed 1.5°C</b> above pre-industrial levels for at least one year between 2024-2028; Predicted reductions in sea-ice concentration in the Barents Sea, Bering Sea, and the Sea of Okhotsk.</p>

<p><b>Environmental Performance Index (EPI), 2024</b></p>	<p>The <b>Yale Center for Environmental Law &amp; Policy</b> recently published the EPI 2024, ranking 180 countries on climate change performance, environmental health, and ecosystem vitality using 58 indicators across 11 categories. <b>Estonia tops the list</b>. India is ranked 176th, being the world's third-largest <b>greenhouse gas emitter</b> with a 32% increase in emissions over the past decade. In 2022, <b>India surpassed China as the largest emitter of anthropogenic sulfur dioxide</b>.</p>
<p><b>Nature Geosciences projects study on Groundwater</b></p>	<p>A study in <b>Nature Geosciences projects a 2.1°C rise in groundwater temperature from 2000 to 2100</b> due to climate change. This warming reduces oxygen levels, causing hypoxic conditions that harm species growth and distribution, trigger harmful algal blooms, and impact food and reproductive cycles of temperature-sensitive species, threatening biodiversity.</p> <p>India has the <b>largest area under groundwater irrigation globally</b>.</p>

## MAPPING

### INTERNATIONAL

Place in news	Context
<p><b>1. TECHO FUNAN CANAL (CAMBODIA)</b></p>	<p><b>Context:</b> Cambodia will start constructing the Chinese-backed Techo Funan Canal. The 180-km canal aims to connect the <b>Mekong River basin to the Cambodian coast</b>. Despite tensions with Vietnam and concerns about potential military use by China, Cambodia asserts the canal will <b>reduce reliance on Vietnamese ports</b>, lower transportation costs, and benefit millions of people through improved irrigation.</p> <p><b>About Cambodia:</b> It is a <b>Southeast Asian country bordering Thailand, Laos, and Vietnam</b>, with a coastline along the Gulf of Thailand. A 1997 coup established Hun Sen and the Cambodian People's Party's dominance, making <b>Cambodia a de facto one-party state</b> despite being constitutionally multi-party. <b>Designated a least developed country by the UN</b>, Cambodia is a member of ASEAN, WTO, and other international organizations. Its economy is primarily agricultural, with growing sectors in textiles, construction, garments, and tourism, making it vulnerable to climate change.</p> <p><b>Cambodia's Planned Canal to the Ocean</b></p> 

## 2. ABU MUSA, GREATER TUNB, AND LESSER TUNB ISLANDS

**Context:** Iran summoned China's ambassador to protest a China-UAE statement on the sovereignty of **Abu Musa, Greater Tunb, and Lesser Tunb islands**, which are also claimed by the UAE but have been held by Iran since 1971.

**On 30 November 1971, the Imperial Iranian Navy seized Abu Musa and the Greater and Lesser Tunbs after British forces withdrew.** Iran claimed these islands, while the Emirate of Ras al-Khaimah and the Emirate of Sharjah claimed the Tunbs and Abu Musa, respectively. After joining the UAE, these emirates passed the dispute to the UAE. Despite international attempts by the UAE, Iran has maintained control over the islands since 1971. The dispute remains unresolved as of 2022.

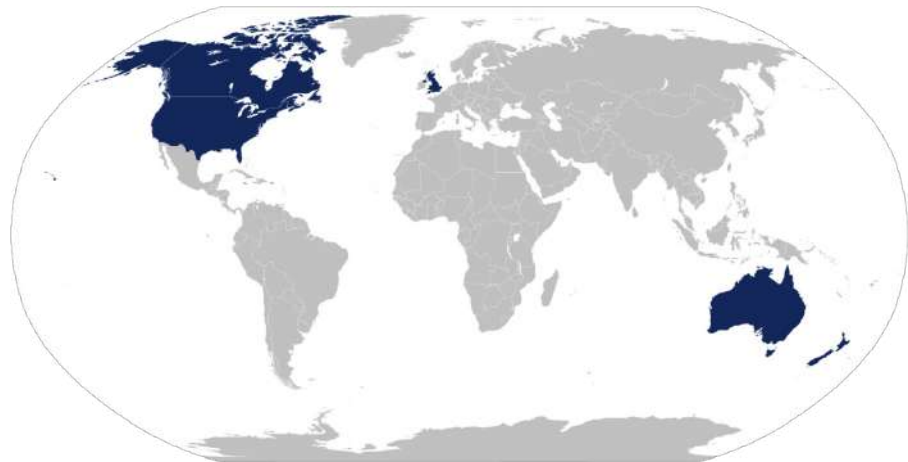
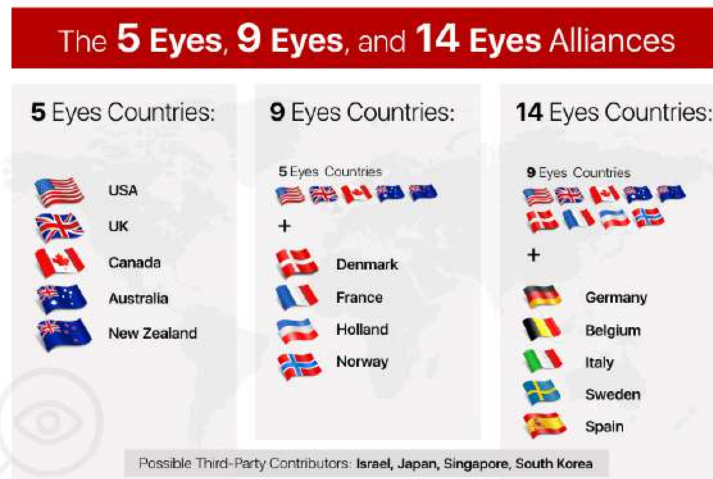


### 3. FIVE EYES ALLIANCE

**Context:** Australia will allow non-Australian citizens from Five Eyes countries to join its armed forces, in order to meet the shortage of personnel.

**About Five Eyes Alliance:**

1. **Five Eyes Alliance:** The Five Eyes Alliance refers to an intelligence-sharing partnership among five countries: the United States, the United Kingdom, Australia, Canada, and New Zealand.
2. **These nations collaborate closely on intelligence matters,** sharing information to protect their shared national interests.
3. **Origins of the Alliance:** The alliance traces its origins back to World War II when the UK and the US decided to share intelligence after successfully breaking German and Japanese codes.
4. **It began as the Britain-USA (BRUSA) agreement,** later evolving into the UK-USA (UKUSA) agreement, with Canada joining in 1949 and New Zealand and Australia in 1956.



**Fig: Five Eye countries**

## 4. MOUNT KANLAON

**Context:** Mount Kanlaon, located in the central Philippines, erupted recently (through a **Phreatic eruption**), prompting hundreds of people to seek shelter in evacuation centres.

### **About Mount Kanlaon/ Canlaon:**

It stands as the **highest peak on Negros Island** and is one of the **active volcanoes** within the **Philippines' Pacific Ring of Fire**. The volcano comprises various **pyroclastic cones and craters**, with its summit boasting a broad caldera and a crater lake. **Phreatic eruptions**, characterized by steam-driven explosions resulting from heated groundwater, are typical occurrences, often preceding or following traditional volcanic eruptions.

