

MONTHLY

EPIC!

*Supplementary reading material for MGP and Current Affairs classes of
ForumIAS Academy*

AN EXCLUSIVE CURRENT AFFAIRS MAGAZINE FOR

PRELIMS + MAINS

PREPARATION

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Congratulations

Celebrating our CSE 2022 Topper's Remarkable Achievement!

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8 Selections in Top 10

64 Selections in Top 100

I was a part of MGP at Forum IAS. Apart from this I also took Current Affairs classes for mains by Dipin Dandekar Sir. The top notch quality of the content and the versatile perspectives I got from Sir's classes really boosted my score in GS. One on one interaction with Ayush Sir during my interview preparation helped me.

I am really grateful to Forum IAS especially Dipin Sir and Ayush Sir for their valuable inputs.


Garima Lohia
AIR 2

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I enrolled myself in multiple courses at ForumIAS – SFG, ANFG, MGP, current affairs classes and Ethos+ classes. The quality of content, the consistency of classes and availability of mentorship right when I needed it helped me throughout my preparation journey.

A special thanks to Ayush Sir and Dipin Sir for their efforts and constant support, even though I was practically invisible!

Smriti
SMRITI MISHRA
AIR 4, CSE 2022



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AIR 4, CSE 2022

5 students in Top 5, 8 students in Top 10 and 64 students in Top 100 Ranks List of CSE 2022 are ForumIAS Academy students.

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Mains: Focus Article

Issues Associated with Electoral Bonds

News: A 5-Judge Constitution Bench of the Supreme Court has reserved the verdict on validity of Electoral Bonds.

What is the significance of Electoral Bonds Scheme 2018?

- **Transparency in Political Funding:** Electoral bonds provide a transparent route for parties to collect funds, as electoral bonds are allowed to be sold only through SBI and to KYC validated individuals and entities.
- **Reduced Chances of Misuse:** A limited window for the sale of these bonds and a very short maturity period (life of bonds is only 15 days), makes the misuse of these bonds difficult.
- **Protection of Privacy:** The bearer bonds provide anonymity to donors which prevent their post-poll intimidation or harassment by political opponents.
- **Political Accountability:** The political parties are required to submit the details about contributions received through electoral bonds to the Election Commission which ensures their accountability.
- **Check Black Money in Political Funding:** Under the Electoral bond scheme, the amount of money that a party can accept in cash from anonymous sources has reduced from INR 20,000 to INR 2,000.

Aspect	Details
Definition	<ul style="list-style-type: none"> • Electoral bonds are interest-free bearer instruments • Bearer Instruments are similar to promissory notes. These are payable to the bearer on demand. • Electoral Bonds were introduced with the Finance Bill 2017. The scheme was notified on January 29, 2018.
Eligibility of Donors	<ul style="list-style-type: none"> • Any citizen of India or entities incorporated or established in India can purchase these Bonds. • Citizens can buy electoral bonds either individually/jointly with others.
Eligibility of Political Parties	<ul style="list-style-type: none"> • Only political parties registered under Section 29A of the Representation of the People Act, 1951 are eligible to receive electoral bonds. • Such parties must have secured not less than 1% of votes polled in the last General Election to the House of the People or the Legislative Assembly of the State.
Working of the Bonds	<ul style="list-style-type: none"> • The State Bank of India (SBI) issues electoral bonds in the months of January, April, July and October. • The bonds are available in denominations from INR 1,000; INR 10,000; INR 1 Lakh; INR 10 Lakh and INR 1 crore. • The donors can buy electoral bonds and transfer them into the accounts of the political parties as a donation. • The name of the donor is kept confidential. • Political parties create a specific account. This account is verified by the Election Commission. The political parties encash the electoral bonds only in this verified account. • The bonds remain valid for 15 days. Within that time, the political parties have to encash the electoral bond in the designated accounts.

What are the challenges/drawbacks with the Electoral Bonds Scheme 2018?

- **Against the 'Right to Know':** Donations to political parties through the Electoral bonds hide the identity of the donors and recipients. Electoral bonds compromise the citizen's 'Right to Know', which is part of the right to freedom of expression under Article 19 of the Constitution.
- **Information Asymmetry:** Principle of anonymity does not apply to the Government, which can always access the donor details by demanding the data from the State Bank of India (SBI). This can be exploited by the Government (ruling party) to threaten the donors of the opposition party.
- **Transparency for Corporate Entities:** Prior to the launch of this scheme, corporate entities could donate only 7.5% of their net profit of the last 3 years. The removal of this clause has raised concerns of black money in political funding through shell companies.
 - Electoral bonds may become a convenient channel for businesses to round-trip their cash parked in tax havens to political parties for a favour through shell companies.
 - More than 90% of the bonds have been of the highest denomination (INR 1 crore). This indicates higher share of corporate donors.
- **Legislation:** The scheme was introduced through Finance Bill, 2017 (Money Bill). Hence, the process of legislation bypassed the scrutiny of the Rajya Sabha.
- **Foreign Funds:** The Representation of the People Act, 1951, prohibits political parties from accepting contributions from foreign sources. Section 3 of the Foreign Contributions (Regulation) Act, 2010 restricts foreign contributions to candidates, legislative members, political parties and party office holders. The Union Government passed a retroactive amendment which shields foreign financing of elections from scrutiny.
- **Undermines the Basic Structure:** Free and fair elections and the integrity of our electoral process have been declared as a part of the Basic Structure by the Supreme Court. Free and fair elections are impossible without transparency in political funding.

What should be the approach going ahead?

- **State Funding of Elections:** The **Indrajit Gupta Committee** on State Funding of Elections has supported partial state funding of recognised political parties. State funding has proved effective in countries like Germany, Japan, Canada, Sweden etc. The Union Government should explore this possibility with consultation with all stakeholders including opposition parties.
- **National Electoral Fund:** Experts

have proposed an alternative to electoral bonds in the form of National Electoral Fund to which all donors can contribute. The funds can be allocated to political parties **in proportion to the votes they get**. This will protect the identity of donors. Apart from that, it would also weed out black money from political funding.

- **Disclosure of Anonymous Donations:** The **Law Commission of India (255th Report)** has recommended to disclose donations less than INR 20,000 if such donations exceed INR 20 crore or 20% of party's total contributions whichever is lower.
- **Ban on Cash Donations:** Cash donations can be completely banned. This can check use of black money and enhance transparency. At present, political parties can receive cash donation below INR 2000.

Law Commission's Recommendations on Electoral Finance (255th Report)

- Extend regulation of election expenses from date of nomination to **date of notification**.
- Authorization of political funding by a corporate should be done at the Annual General Meeting (AGM) and not Board of Director (BoD) meeting.
- Extension of norms of disclosures by candidates about their election expenses including funding received from non-Government corporate or a person and from the parent political party.
- **Public disclosure of electoral expenses documents** submitted by the candidates.
- Submission of **audited annual reports** by Political Parties detailing all the funds received and the expenditure incurred which shall be **disclosed publicly** by the ECI.
- **Disclose contributions** less than INR 20,000 if such contributions exceed INR 20 crore or 20% of the party's total contributions, whichever is less.
- Failure to disclose expenses results in disqualification for 3 years. This should be **extended to 5 years** to render the candidate ineligible for next election.
- **Penalty of 5 times the contribution received**, if such contribution is received from an ineligible donor under Companies Act and RoPA.
- **State funding of elections not feasible.** In-kind subsidies should be provided.

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- **Audit of Political Parties: Venkatachaliah Committee Report** (2002) has recommended strict regulatory frameworks for auditing and disclosure of party income and expenditure.
- **Global Best Practices**
 - The **Publicity Act** (US), **Elections and Referendums Act, 2000** (UK) and the EU regulations have all set restrictions on the donations to political parties and mandates the disclosure of source of the donations.
 - France has banned all forms of corporate funding in 1995 and capped individual donations at 6,000 Euros.
 - Brazil and Chile have also banned corporate donations after a series of corruption scandals emerged related to corporate funding. (Refer EPIC September 2022 (click) for Issues in Electoral Funding in India).

State Funding of Elections

News: Experts have attributed the rise in criminalization of politics to rapid rise of influence of money in elections. Funding of elections by State has been proposed as a possible solution to check the criminalization.

What is the meaning of State Funding of Elections?

- It is an election funding mechanism, where the funds to political parties or candidates for contesting elections are provided by the Government (State). Since the Government raises the money from the public through taxes, State Funding can also be termed as **Public Funding of elections**.
- As the State (public) pays for expenses for contesting elections (election rallies, political canvassing), the need for raising money for political parties and candidates is reduced.

What is the need for State Funding of Elections?

• **Transparent Funding:**

Large proportion of electoral funding comes from unknown sources. Even, the electoral bonds do not disclose the donors' details to the public. This violates the basic transparency

Political Parties	Income from Unknown Sources (as per IT Returns) **	Income from Known Sources (donations details declared to ECI)	Income from Known Sources*	Other	Total Income
National Parties	426.742	593.748	353.293		Rs 1373.783 cr
Percentage share	31.06%	43.22%	25.72%		100%
Regional Parties	263.928	119.395	147.38		Rs 530.703 cr
Percentage share	49.73%	22.50%	27.77%		100%
Grand Total	690.67	713.143	500.673		Rs 1904.486 cr
Percentage share	36.30%	37.40%	26.30%		100%

Source: ADR. ~36% of the electoral funding of National and Regional Parties (combined) is from unknown sources. Share is Regional parties is ~50%.

principles, as the electorate has a right to know whether funds are being raised through legitimate means.

- **Corruption:** The opaque system of funding by 'unknown donors' allows large corporate houses to provide huge funding to political parties. The party that comes in power is then obligated to make favorable policies to the corporate benefactors. This gives rise to crony capitalism and institutionalised political corruption.
- **Fairness:** The Supreme court, in **Kanwar Lal Gupta vs Amar Nath Chawla** case, had observed that access to large financial resources translates into electoral advantage. Richer candidates and parties have a greater chance of winning elections, which distorts the level playing field.
- **Contravention of Laws:** The non-disclosure of sources of electoral funding goes against the guidelines of the Election Commission, rulings of the Central Information Commission (CIC) and the judgment of the Supreme Court in the **PUCI vs Union of India** case. The political parties have refused to submit themselves to the transparency that comes with Right to Information.

State Funding of elections will bring in **transparency** in the process and help **make elections fairer**. It will **reduce incentive for indulging in corruption** (while being in power). It can also help **check criminalization** of politics as influence of money in winning elections is reduced. It can **break corporate-bureaucratic nexus** and aid **accountability** and **citizen-centric policymaking**.

Committee	Recommendations
Indrajit Gupta Committee on State Funding of Elections (1998)	<ul style="list-style-type: none"> It recommended partial funding by the State, considering the economic situation of the country. It put two conditions on funding: <ul style="list-style-type: none"> Only recognized national and regional parties should be provided with the funding. Independent candidates should be excluded. Funding should be in the form of kind (certain facilities) and not in cash.
Law Commission Report on Electoral Law Reforms (1999)	<ul style="list-style-type: none"> State funding of elections is 'desirable' as long as political parties are not allowed to accept money from other sources. It concurred with the Indrajit Gupta Committee's recommendation of 'partial funding' by the State. It recommended setting up of a strong regulatory procedure.
2nd Administrative Reforms Commission (2008)	<ul style="list-style-type: none"> It recommended partial state funding to reduce 'illegitimate and unnecessary' electoral expenses.
National Commission to Review the Working of the Constitution (2001)	<ul style="list-style-type: none"> It did not endorse state funding. It concurred with the 1999 Law Commission report that the appropriate framework for regulation of political parties would need to be implemented before State funding is considered.

What are the challenges in the implementation of State Funding of Elections?

- **Fiscal Challenge:** State funding will add to Government's expenditure. The Government is struggling with high fiscal deficit. The fiscal position of State finances will worsen, and the Government may be forced to cut down on welfare expenditure to meet fiscal targets. According to a report by the Centre for Media Studies, ~ INR 55,000 crore was spent during 2019 General Elections (excluding State Legislative Assemblies).
 - It will divert funds away from social sectors like health, education and skill development.
- **Consensus:** It will be difficult to build consensus on the criteria to disburse funds among political parties and candidates.
- **Misuse:** State funds for elections can be misused as many frivolous political parties may crop up to receive State subsidies, rather than running for political office and engage in development work.
- **Implementation Challenges:** The Election Commission has opposed the State funding of elections on the ground that it would not be able to prohibit or check candidates' expenditure, over and above which is provided for by the State.
- **Negative Impact:** According to a study, the state funding of election using 'Democracy Vouchers' method tried in Seattle resulted in election of more extremist candidates. *(Under the Democracy Voucher System, the government distributes a certain number of vouchers worth a certain amount to eligible voters. The voters can use these vouchers to donate to the candidate of their choice. The voucher is publicly funded. The decision to allocate the money is taken by individual voters).*

What has been the global experience?

- State funding of elections has been implemented in 34 countries, in one form or the other. The highest proportion of state funding is in Norway, which is about 74% of the total expenses on the election.
- There are different models of State funding of elections. In some countries, only parties get the fund instead of the candidates.

The implementation of State funding of election, is a desirable goal to introduce transparency in electoral funding. However, there is need to devise a proper procedure for distribution of funds, with the consensus of all major political parties. In the meantime, other reforms can be implemented like **National Electoral Fund, regular audit of accounts of political parties, and capping electoral expenditures by political parties** as well as **donations to political parties**.

General Studies Paper I

1. Project Udbhav: Adopting Military Strategies from Ancient Indian Texts

News: The Defense Minister has launched the Project Udbhav.

What is the Project Udbhav?

- It has been launched by the Indian Army and the United Service Institution of India (USI). USI is a defence think tank.
- The aim of the project is to **revive and integrate India's ancient military wisdom** with contemporary military practices.
- The project involves organizing events and workshops focusing on various aspects of India's strategic culture.

What are the inspirations for Project Udbhav?

- **Arthashastra:** Chanakya's **Arthashastra** emphasizes strategic partnerships, alliances, and diplomacy. This aligns with modern military practices like international cooperation and projection of soft power.
- **Thirukkural:** It is authored by Tamil philosopher **Thiruvalluvar**. It promotes ethical conduct in all endeavors, including warfare. This aligns with modern military codes of ethics and principles of the Geneva Convention.
- **Nitisara:** It is an ancient Indian treatise on politics and statecraft. It was authored by **Kamandaka** who was a disciple of Chanakya, though some historians attribute it to Gupta age (3rd-6th century AD). Apart from general governance issues, it talks about interstate relationships, ethics of envoys and spies, application of different political expedients, varieties of battle arrays etc.
- **Military Leaders and Campaigns:** It will examine historical examples like the empires and campaigns of Chandragupta Maurya, Ashoka and the Cholas.
- **Diplomacy and Military Intelligence:** The project will also explore instances of clever diplomatic negotiations, psychological warfare and military intelligence. This includes the Naval Battle of Saraighat in 1671, led by Lachit Borphukan.

Objectives of Project Udbhav

- ★ Understanding ancient military systems and India's indigenous military culture.
- ★ Studying the evolution of the Indian military system and strategic ideas.
- ★ Educating junior and senior military leaders about concepts in classical texts.
- ★ Creating a knowledge resource for scholars and defense personnel.
- ★ Inclusion of historical military concepts in modern practices.

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What are the challenges in utilizing ancient wisdom in modern warfare?

- **Complexity:** Modern warfare has intricacies that ancient texts might not address. Modern day weapons are much more sophisticated than those used in the ancient times. Moreover, expected changes in warfare with the advent of Artificial Intelligence and autonomous weapons, may necessitate new approaches rather than looking for ancient practices.
- **Evolution of Warfare:** Military strategy has evolved since the Napoleonic era, influenced by advancements like mobile artillery, muskets, and sophisticated logistics.
- **Influential Thinkers:** Modern strategists like Carl von Clausewitz and Antoine-Henri Jomini have shaped current military strategies, focusing on the nuances of contemporary warfare which is very different from ancient practices.

2. Tamil Indentured Labour in Sri Lanka

News: November 2023 marked the 200th year of the arrival of indentured labor from Tamil Nadu in Sri Lanka.

What is indentured labour?

- It is a form of contract labour in which laborers enter into an official agreement with their employer certifying that they will work for the employer either for a **fixed length of time** or **until a debt has been paid**.

- The debt usually included the cost paid by the employer for housing and food, training costs as well as transportation to the place of work.
- Indentured labour was both “**voluntary**” e.g., in order to repay a debt; or “**involuntary**” e.g., as a punishment of servitude imposed on criminals in exchange for a commutation of their sentence.
- Like slavery, the indentured labourers were also exploited by the employers and could be traded. Unlike slavery, **an indentured worker was free to go when the debt was repaid**. Enslaved people were permanently denied their freedom unless they could obtain the means to purchase themselves or successfully escape.

Indentured labour from India between 1838 and 1917



Source: BBC. Movement of indentured laborers from the British India between 1838 to 1917.

When did the shift to indentured labour happened?

- The indentured labour is thought to have emerged in the 16th century AD with the beginning of the European colonization. However, till the 18th century European colonizers predominantly relied on slavery to meet the requirement of labour in their colonies.
- A wave of liberal humanism swept through Europe in the 18th century and the British banned slavery in their colonies. The abolition of slavery in British colonies led to a soaring demand for workers causing a labour crisis.
- The demand for workers was met through a shift to indentured labour. A large number of labourers were shifted from India to work in the plantations in the Caribbean, Fiji, Réunion, Malaysia, Singapore and Sri Lanka.
- In the 1870s, spread of fungal disease led to the disappearance of coffee from Sri Lankan plantations. Coffee was replaced by tea plantation which increased the requirement of labour. Consequently, a large number of labourers were shifted from Tamil Nadu to Sri Lanka.

What were the challenges faced by Tamils in Sri Lanka?

- Colonial practices and policies deemed them ‘foreigners’, thus rendering them **Stateless** (under Sri Lanka’s Citizenship Act of 1948). The policies of the British prevented their assimilation. Their grievances eventually led to a bloody civil war.
- The indentured Tamils **could not buy land and build houses**, for colonial laws restricted landholding to those “domiciled” in Ceylon only.
- The indentured labourers lived in squalor, with no access to sanitation, running water, medical facilities or schools for their children.
- The women workers had to work long hours, without access to any toilet facilities.
- System of sub-contractors called **kanganies**, labour recruiters and overseers played a dominant role in the **exploitation** of Indian labourers on plantations. The vague contracts led to greater abuse.
- The indentured labourers also faced issues like misleading promises about the work, wages or even the countries they were sailing to.

What is the way forward for Sri Lanka?

- The Sri Lankan Government should promote integration of Sri Lankan Tamils into the mainstream.

- Sri Lanka should take effective steps to decolonise from the practices, laws and attitudes of colonizers, to forge a post-colonial, inclusive identity for all its people.

3. Addressing Various Types of Social Inequalities

News: Inequalities manifest in various forms. Addressing inequalities in the society can help in inclusive growth.

What are the common forms of inequality?

- **Gender Inequalities:** It involves unequal treatment or perceptions based on gender. It manifests itself in the forms of gender pay gaps, unequal representation of women in educational, economic and political activities (especially in leadership positions), gender stereotypes etc. among others.
- **Caste Inequalities:** This is discrimination based on caste. It is visible in the form of prevalent caste-based violence, unequal access to various resources (education, assets) etc. SCs/STs still have poor representation at leadership levels in the Government jobs or educational institutions. Poverty rate is higher among the 'lower' castes.
- **Corporate Inequalities:** They manifest in terms of seemingly unfair practices in corporations. It is usually visible in the form of disproportionate emoluments of high Executives, laying-off of workers without compensation, poor compensation and work conditions of gig workers etc.
- **Economic Inequalities:** This is related to unequal access to income and wealth and the rising concentration of wealth among the rich. Rising economic inequalities is a global phenomenon. According to the World Inequality database, income inequality in India has sharply increased from 1990 to 2018. The top 10% saw their share of pre-tax income rise from 34.4% to 57.1%, while the bottom 50%'s share dropped from 20.3% to 13.1%. The top 1% accounts for nearly half of the increase in the top 10%'s income share.

There is an overlap among these inequalities and some individuals may suffer from multiple inequalities.

What are the consequences of inequality?

- Women are unable to achieve their full potential. Their contribution in the economic growth process remains low. Differential access to healthcare leads to greater mortality rates among women. (Refer EPIC October 2023 (click) for Higher Mortality due to Cancer Among Women). The cases of gender-based violence are rising. (Refer EPIC August 2023 (click) for Supreme Court's Handbook on Combating Gender Stereotypes and Gender Justice).
- Caste inequalities hinder social and economic mobility. This perpetuates poverty, limits access to education and livelihood opportunities to lower caste groups. It fosters social divisions and discrimination.
- Corporate inequalities lead to worker dissatisfaction, lower wages and poor economic status of workers. It can lead to trust deficit and decrease in employee morale and productivity.

What should be done to reduce inequalities?

- While caste-based reservations may still be necessary, the primary approach should be **improving education and skill development access**.
- **Enhancing intergenerational mobility** through quality education and skill development is key to reducing inequality and ensuring equitable economic growth.
- **Reducing Caste-Based Barriers:** Following B.R. Ambedkar's advice, the focus should be on eliminating occupational specialization linked to caste and enhancing skill acquisition.
- **Correcting Corporate Injustices:** There is a need to practice more empathetic and understanding leadership in corporations, and ensure fair treatment of workers, including the gig workers.
- **Tackling Gender Inequality:** Social change in attitude towards women is necessary to address gender bias.

4. Benefits of Geographical Indicator (GI) Tags

News: As of May 2023, 478 items have been awarded Geographical Indicator (GI) Tags.

What is the importance of a GI Tags?

- **Revenue Generator:** GI protection of products result in higher economic gains, fostering quality production and better distribution of profits.
- **Employment Creation:** The labour-intensive nature of GI-tagged products can help generate livelihood opportunities.
- **Consumer Rights:** GIs protects producers and their reputations and reassures consumers that a product is authentic.
- **Preserve intellectual property:** They authenticate and symbolise an IPR owned collectively by producers in a region.
- **Global Reach:** GI Tags help in global recognition e.g., Amazon's 'local to global' programme has taken Indian GI-tagged products to the global market. A strong GI ecosystem can be a source of exports and soft power.
- **Women Empowerment:** Many GI products involve women workers. GI tag status promote sales of such products which can lead to women empowerment.
- **Reverse Urban Migration:** GI Tags can help conserve India's ancient crafts, culture and food and may also rejuvenate local MSMEs.
- **Benefits for Local Communities:** GI Tags encourage the preservation of biodiversity, local know-how and natural resources.

Geographical Indicator Tag

- ★ It is a sign used on products that have a specific geographical origin and possess qualities or a reputation that is due to that origin.
- ★ A GI tag right prevents use by third parties whose products do not conform to the applicable standards.
- ★ In India, GI tags are issued under Geographical Indications of Goods (Registration and Protection) Act, 1999.

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What are the challenges with respect to GI Tags?

- There has been a lack of a strategy for using the GI tags to commercial advantage, especially in global markets. There has been lack of organised effort, governmental or institutional; to **go beyond merely establishing distinctiveness**.
- There is a lack of quality control in GI tagged products. Ensuring quality is an essential feature necessary to develop international markets.
- Lack of marketing, branding, advertising and trade promotions have meant that GI tagged products from India have little awareness and recognition at the global level.

What should be the way forward?

- Providing digital literacy skills to GI producers can enhance their ability to access pan-India and global markets. Digital literacy should be a priority agenda item for NGOs and stakeholders like the DPIIT.
- The Government should launch initiatives for ensuring quality control. This can be done through regular audits and aiding GI producers in enhancing quality levels.
- Focused marketing and brand campaigns highlighting the exclusiveness and 'premiumness' of the products can help popularize them among the users, expanding their reach.
- The Indian GI economy can showcase to the world a model for **ethical capitalism, social entrepreneurship, de-urbanisation**, and bringing **women to the workforce**.

5. Mining Industry in India

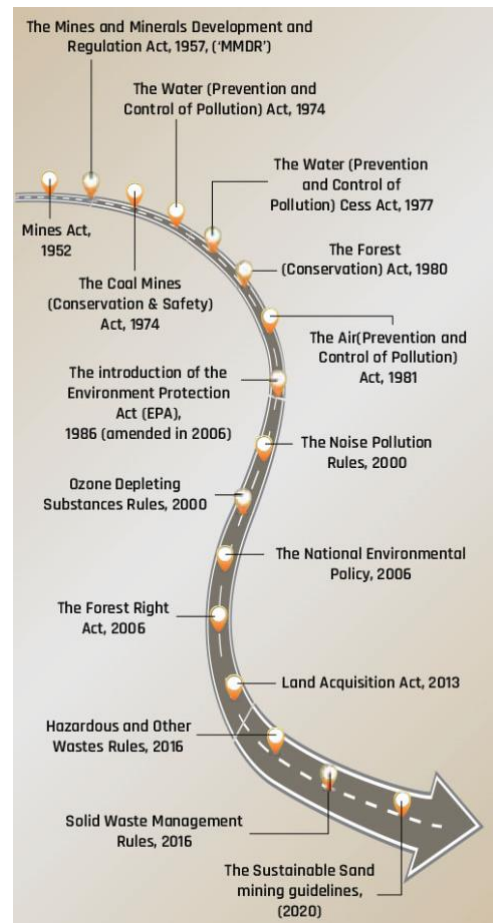
News: India has rich mineral wealth. The challenges faced by the mining industry hinder efficient utilization of the mineral wealth.

What are the challenges faced by the mining industry in India?

- **Government-Led Exploration:** The majority of exploration projects are carried out by Government agencies like the Geological Survey of India and PSUs. There is minimal private sector involvement, leading to inefficiencies.
- **Underexplored Territory:** Only 10% of India's landmass has been explored and just 2% has been mined.
- **Regulatory Challenges:** The Mines and Minerals (Development and Regulation) Act 1957, despite several amendments, has not fully liberalized the sector for private investment. The Mines and Minerals (Development and Regulation) Amendment Act, 2023, seeks to address this by introducing new types of licenses to encourage private exploration, but concerns remain about its efficacy. (Refer EPIC August 2023 (click) for The Mines and Minerals (Amendment) Act, 2023).
- **Exploration Risks:** Mineral Exploration is a high-risk venture, requiring specialized, time-intensive operations. Aerial surveys and geological mapping are costly and often yield less than 1% commercially viable mines. The failure rate is high (i.e., small proportion of explored mines are commercially viable).
- **Import Dependency:** India heavily relies on imports for many critical minerals, such as lithium, cobalt, and rare earth elements. In 2021-2022, India's lithium imports were worth US\$ 22.15 million.
- **Geopolitical Events:** Global events like wars, unrest in mining regions (especially Africa), significantly affect mineral supply chains, demonstrating **vulnerability to external shocks**.
- **Environmental Concerns:** Mining activities can be harmful to the environment, necessitating a balance between ecological protection and mining.

What are the benefits of investing in the mining sector?

- **Job Creation:** Mining generates more employment compared to other sectors. According to the 12th-Five Year Plan, mining creates **13 times more jobs than agriculture** and **6 times more than manufacturing** per percentage point of economic growth.
- **Support for New Technologies:** Mining critical minerals like lithium aids the development of new cutting-edge technologies including batteries for Electric Vehicles, electronic devices and defence equipment.
- **Economic Diversification:** Investing in mining can reduce burden on the agriculture sector for employment opportunities. It can support growth of manufacturing sector.
- **Strategic Global Positioning:** By entering the global mining race, India can position itself as a key player in the critical minerals market.
- **Deep-Sea Mining Prospects:** India's extensive coastline offers opportunities in the emerging field of deep-sea mining.



Source: TERI. Environmental Regulations applicable to the mining sector in India.

What should be done going ahead?

- **Broader Exploration:** The exploration activities should be expanded to increase the coverage from current 10% of India's landmass. It can help uncover more mineral resources.
- **Strengthen Mining Regulations:** There is a need for robust environmental, labour, and land laws to regulate mining and prevent exploitation.
- **Balance Environmental Concerns:** It should be ensured that environmental concerns are addressed while undertaking new mining projects. Ecological conservation should be ensured.
- **Reimagine Economic Policies:** Harvard's Kennedy School's 'Reimagining the Economy' initiative focusing on job-centric economic development over GDP growth can be adopted to ensure sustainable growth.

6. Preserving Groundwater in India

News: Groundwater is depleting fast in India due to over-exploitation. Adoption of sustainable practices is necessary to replenish the groundwater levels.

What severe is the groundwater depletion in India?

- According to the United Nations University, 27 out of 31 aquifers in India are depleting faster than they can be replenished. India extracts more groundwater than China and the US combined.
- ~70% of India's water usage comes from ground-water. In Punjab, 78% of wells are overexploited.

What are the possible solutions to address Groundwater crisis?

- **Water-Efficient Crops:** The crop patterns should be adjusted to local agro-ecological conditions. Millets should be promoted, especially in regions facing rapid groundwater depletion in Southern Punjab.
- **Efficient Watering:** Sustainable irrigation practices minimizing wastage and over-extraction should be promoted.
- **Technology:** Introducing technologies that allow individuals to monitor the water levels in their borewells can help raise awareness and promote responsible usage.
- **Awareness and Education:** Farmers need to be made more aware about the impending crisis. This will facilitate adoption of sustainable agriculture practices.
- **Institutional Innovations:** As pointed out by the Mihir Shah Committee, there's a need to innovate institutionally in the water sector to ensure sustainable water management.
- **Demand-Side Management:** Addressing the connection between power subsidies and excessive groundwater extraction, especially in states like Punjab, can help in resource conservation.

Groundwater Regulatory Framework

- ★ **Indian Easement Act, 1882:** It determined groundwater rights and linked rights to land ownership.
- ★ **Central Ground Water Board (CGWB):** It was established in 1970. It develops groundwater policies and programs.
- ★ **Environment (Protection) Act, 1986:** It recognized groundwater as a public resource.
- ★ **Central Ground Water Authority (CGWA):** It was formed under the Environment Protection Act, 1986. It can declare 'notified areas' with strict regulations.
- ★ **Model Groundwater Bill:** It was first introduced in 1970 and revised in 2011, 2016, 2017. It empowers State Boards to create laws and manage water.
- ★ **National Green Tribunal (NGT):** It directs CGWA to regulate extraction. It mandates permission for extraction.
- ★ **Public Trust Doctrine:** It was established by an SC judgement in 2004. It emphasizes public access to groundwater.
- ★ **Polluter Pays Principle:** Groundwater contamination addressed case-by-case. According to this principle, Polluters bear remediation costs.

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Atal Bhujal Yojana

- ★ **Launch:** It was launched in 2019 under the Ministry of Jal Shakti to address groundwater management and conservation.
- ★ **Objective:** To ensure the long-term sustainability of ground-water resources by combining both top-down (government-driven) and bottom-up (community-driven) approaches.
- ★ **Key Features**
 - Encourage community participation, such as through the formation of Water User Associations.
 - Emphasize monitoring and data dissemination.
 - Focus on water budgeting and panchayat-level plans.
 - Engage in Information, Education & Communication (IEC) activities.
- ★ **Main Components**
 - **Institutional Strengthening:** This involves fortifying institutional arrangements for sustainable groundwater management. This includes enhancing monitoring networks, capacity building, and strengthening Water User Associations.
 - **Incentive Component:** This aims to reward States for achieving better groundwater management practices, like preparing water security plans, data dissemination and implementing demand side management practices.
- ★ **Achievements**

Groundwater extraction decreased by 6 billion cubic metres from 2020 to 2022.

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General Studies Paper II

1. Ethics Committee of the Lok Sabha

News: The Ethics Committee of the Lok Sabha investigated the allegations of 'cash for query' (accepting bribe to ask questions in the Parliament) against a Lok Sabha MP.

What is the Lok Sabha Ethics Committee?

- Both the Houses of the Parliament have an Ethics Committee. The Ethics Committees of the Lok Sabha and Rajya Sabha have 15 and 10 members respectively.
- The members of the Lok Sabha Ethics Committee are appointed by the Speaker for one year.

What are the Functions of the Ethics Committee?

- It oversees the moral and ethical conduct of the members.
- It prepares a Code of Conduct for members, which are amended from time to time.
- It examines every complaint relating to unethical conduct of a member of Lok Sabha referred to it by the Speaker. The Committee may make such recommendations as it may deem fit.

What actions can be taken by the Ethics Committee?

- If the Ethics Committee finds merit in the complaint, it can make recommendations. The potential punishment it can recommend typically involves Suspension of the MP for a specified period.
- The House, which includes all MPs, ultimately decide whether to accept the committee's recommendation and determine the nature and extent of the punishment, if any.

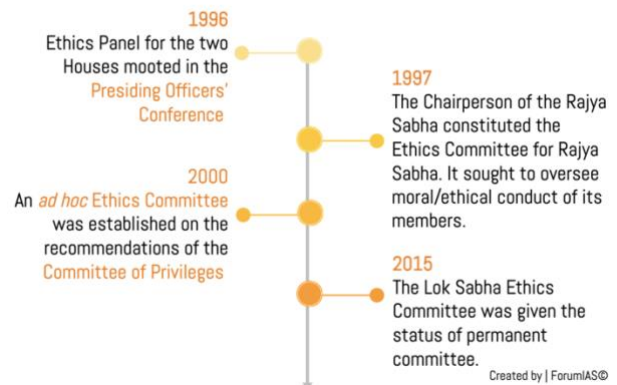
What are the differences between the Ethics and Privileges Committee?

- The work of the Ethics Committee and the Privileges Committee often overlap. An allegation of corruption against an MP can be sent to either body, but usually more serious accusations go to the Privileges Committee.
- The Ethics Committee can take up only cases of misconduct that involve MPs.
- The Privilege Committee can interrogate a non-MP also for actions that attack the authority and dignity of the House.

What is the significance of the Lok Sabha Ethics Committee?

- Advice:** The Committee helps Members of Parliament understand and abide by the code of conduct required of them as elected officials by offering them advice and guidance on ethical issues.

Evolution of the Ethics Committee



Process of Enquiry

- The complaint of unethical conduct can be initiated by a Member or other person. But only a Member can forward the complaint.
- The Speaker of the Lok Sabha can forward the complaint to the Committee. The Committee does not entertain complaints based on media reports or sub-judice matters.
- The Committee first conducts a preliminary enquiry. If there is a *prima facie* case, the Committee takes the case for further investigation.
- After detailed enquiry, the Committee presents its report to the Speaker.
- Any Member can ask the House to take up the report for consideration.
- The House can pass a resolution whether it agrees or disagrees with the recommendations.

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- **Investigation:** In cases where unethical conduct is established, the Committee can recommend appropriate action or sanctions against the erring MPs, including suspension or expulsion from the Lok Sabha. This helps in ensuring that MPs take ethical decisions.
- **Guide MPs:** The 'Code of Conduct' devised by the committees provides clarity to the 'MPs in their conduct' to uphold the 'principle of transparency' and 'clarity and consistency'.

What are the issues associated with the functioning of the Ethics Committee?

- **Functioning:** The term 'unethical conduct' has not been defined. It is left entirely the discretion of the Committee to examine a particular act of conduct as ethical or unethical.
- **Standards:** Ethical standards often evolve with time. A rigid view of these standards by the Lok Sabha Ethics committee limits the ability of the MP to adapt to changing norms and expectations.
- **Special/Privileges Committee:** Complaints of MPs accepting money for parliamentary work are usually referred to the privileges committee or special committees appointed by the House for that purpose e.g, a Special Committee (Bansal Committee) was constituted on the "Cash for query case 2005". However, the present case of cash for query has been referred to the Ethics Committee. There are chances of partisanship in the investigation.

Judicial Probe	Parliamentary Probe
It is conducted by judicially trained persons.	It is conducted by Members of Parliament who are not judicial experts.
It is conducted based on statutes (laws) and associated rules.	The Committee(s) investigating an issue works under the Rules of the House.
The Indian Evidence Act, 1872 is applicable to judicial probe.	The Indian Evidence Act is not applicable to a probe by a parliamentary committee. The question of the relevance of the evidence is finally decided by the Speaker.


The Committee's role in interpreting and applying ethical standards, while taking into account the evolving nature of ethics, is crucial to maintain the integrity of parliamentary proceedings and the conduct of MPs. The committee can use a variety of techniques, such as seminars and workshops, to increase MPs' understanding of moral principles and encourage moral behaviour.

2. The Issue of Governors Assent to Bills

News: Several States have filed petitions in the Supreme Court regarding delay by Governors in providing assent to the Bills passed by the State Legislative Assemblies.

What are the Constitutional Provisions regarding Governor's assent to Bills?

- Article 163 of the Constitution deals with the discretionary powers of the Governor. Article 200 deals with the matter of granting assent to the Bills. Both provisions are read together to determine the powers of Governor with respect to the Bills passed by the State Legislative Assemblies.
- The Governors have been accused of misusing their powers and unfairly withholding their assent to Bills, leading to friction with State governments. This is due to the following factors:


Options Under Article 200

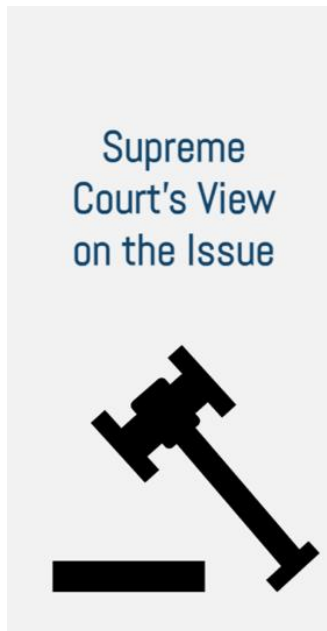
- ★ When a Bill is presented to the Governor after its passage by the State Legislative Assembly, the Governor can:
 - Give assent to the Bill.
 - Withhold assent to the Bill.
 - Return the Bill for reconsideration of the Assembly (if not Money Bill).
 - Reserve the Bill for the consideration of the President of India.

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- **Discretionary Powers (Article 163):** The Constitution allows the Governor to decide whether a particular matter falls within her discretion or not. Such decision can't be questioned on the ground that the Governor ought or ought not to have acted in her discretion.
- **No Time Limit:** The Constitution has not prescribed a time limit within which the Governor has to make a decision regarding assent to a Bill. The Governor can exercise a pocket veto by keeping the Bill pending, without taking any decision. The Governor can return the Bill for reconsideration 'as soon as possible' (Article 200), but no time limit has been specified. The ambiguities have been exploited to keep the Bills pending for a long time.
- **'Partisan' Behaviour:** Governors have been accused of acting as agents of the Centre and not as an independent Constitutional Office.

What are the issues with Governors withholding assent to Bills?

- **Undermines the Democratic Process/Federalism:** Delaying assent to the Bills by Governors (mostly due to political reasons) undermines the will of the elected Legislature by an agent of the Centre. This goes against spirit of federalism and democracy.
- **Lack of Accountability:** The Governors are not responsible to the electorate of the State. They can withhold the Bill without providing any reason for the same.
- **Abuse of Power:** The grant of assent is a routine function of the titular head of State. The exceptional power to withhold assent to the Bills should be exercised reasonably and not be abused.
- **Policy-making:** It affects the effective functioning of the State Governments. The legislation/schemes of State Governments face delay, which can affect the poor section disproportionately.



- *Rameshwar Prasad vs Union of India (2005):* SC ruled that Article 361 (grants Governors complete immunity from Court proceedings for any actions taken in the exercise of their powers) does not prevent the Court from examining the validity of the action, including on the grounds of malicious intent.
 - If the grounds for refusal reveal malicious intent, the Governor's decision to refuse assent could be deemed unconstitutional.
- *Shamsher Singh vs State of Punjab (1974):* The Court held that the expression "in his discretion" is used only in those Articles of the Constitution that confer special responsibilities on the Governor and does not extend to Article 200.
 - It held the view that the **principle of Cabinet responsibility** is firmly entrenched in our constitutional democracy.
- *Nabam Rebia vs Deputy Speaker (2016):* The SC clarified that a Governor's discretion under Article 200 is limited to deciding whether a Bill should be reserved for the President's consideration.
 - The Court emphasized that actions by the Governor regarding Bill assent can be subject to judicial review.

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What are the Supreme Court's Observations on recent petitions?

- **Telangana's Petition:** Referring to the first proviso to Article 200, the SC mentioned that the **Governors should not act slowly on Bills presented to them for assent**. The phrase '**as soon as possible**' in the Article 200 has a significant Constitutional intent and must be borne in mind by the constitutional authorities.
- **Punjab's Petition:** The SC observed that in the Parliamentary Democracy, the real power vests with the elected representatives. The Governor could either assent to the Bills, withhold assent and send them back to reconsider or refer them to the President, but **cannot sit on Bills passed by a State Legislature**.

- The SC has held that the Governor should necessarily return a Bill back to the House for re-legislation after deciding to withhold consent. The first proviso of Article 200 lays down the procedure of mandatory follow-up to the Governor's choice of withholding consent. Thus, the SC has **inextricably linked the withholding of consent with the return of the Bill to the House for reconsideration** (i.e., the Governor has to necessarily return the Bill for reconsideration instead of just withholding assent).
- According to the SC, the **final decision regarding a legislation belongs to the Legislature and not the Governor**. If the House re-passes the returned Bill, with or without amendments, the Governor has no choice but to grant consent.

What are the possible solutions?

- **Accountability:** The Governor must provide a valid reason if she decides to withhold assent. Their actions cannot be arbitrary.
- **Neutrality:** The Governor is supposed to be an independent, non-partisan person. It is important that the Governor must act judiciously and impartially while exercising her discretion.
- **Code of Conduct:** There is a need to devise a 'Code of Conduct' that should define certain 'norms and principles' that should guide the Governor's actions.
- **Spirit of Federalism:** Federalism is a basic feature of the Constitution, and the Governor's office should not undermine the powers of elected Governments of States.
- **International Best Practices:** The practice followed in the UK can be replicated, where the veto could only be exercised on Ministerial advice. The refusal of Royal assent on controversial grounds is considered unconstitutional.
- **Clarity by SC:** The SC must decide on the issue comprehensively to remove ambiguities in the Article 200. The SC can prescribe a time limit for the Governor to provide her assent.
- **Committee Recommendations:** The recommendations of Sarkaria Commission, Punchhi Commission and NCRWC must be implemented.

Commission	Recommendations
Sarkaria Commission	<ul style="list-style-type: none"> • Barring exceptional cases where the Bills are outrightly unconstitutional, the Governor must discharge functions under Article 200 according to the advice of Council of Ministers. • The Governor should be a detached figure without intense political links or should not have taken part in politics in the recent past. She should not be a member of the ruling party.
Punchhi Commission	<ul style="list-style-type: none"> • The Governor should decide on a Bill within 6 months. • The Governor should be removed from Office by a process of impeachment (like the President) by the State Legislature. • A Committee with the respective Chief Minister as a member should choose the Governor.
NCRWC	<ul style="list-style-type: none"> • It proposed a 4-month time limit for the Governor to decide on a Bill. • It suggested the removal of the Governor's power to withhold assent except in cases explicitly stipulated in the Constitution.
2 nd ARC	<ul style="list-style-type: none"> • The Inter-State Council should formulate guidelines on how governors should exercise discretionary power.
Rajamannar Committee on Centre-State relations	<ul style="list-style-type: none"> • It emphasised that the Governor should not consider herself as an agent of the Union but play her role as the constitutional head of the State.

3. Politicization of Bureaucracy

News: Critics have expressed concerns that the *Viksit Bharat Sankalp Yatra* may politicize the bureaucracy. The Bureaucracy must stay neutral to ensure a fair and functional democracy.

What is the meaning of Politicization of Bureaucracy?

- Politicization of bureaucracy refers to the **dilution of the principle of non-partisanship** (neutrality) and implies a politically committed bureaucracy.
- With politicization, the bureaucracy loses its public-orientation and become subservient to the political party in power; or to a particular ideology.
- Critics have expressed concerns regarding *Viksit Bharat Sankalp Yatra* initiative of the Union Government. Under this initiative, the Union Government has requested all Ministries to assign officials to present its accomplishments and achievements (over the last 9 years) nationwide, reaching the rural areas. Joint Secretaries, Directors, and Deputy Secretaries will be appointed **Rath Prabharis** (chariots in-charge) for the roadshow.
- Appointing Government officials for roadshows will distort the level-playing field in the elections.

What are the harmful effects of politicization of bureaucracy?

- **Separation of Powers:** Politicization goes against the spirit of **separation of power** among the three organs of the State.
- **Neutrality:** It goes against the separation of bureaucracy (permanent Executive) from the political Executive (elected Representatives who are Ministers). Bureaucracy should stay neutral and provide impartial advice to the Ministers. Politicization leads the bureaucrats to assume partisan positions.
- **Fairness:** The party in power can (mis)use the Government machinery to its advantage. This impacts fairness and independence of elections.
- **Institutional Damage:** It damages independence of institutions and makes them vulnerable to exploitation by the Government.

What should be done to avoid politicization of bureaucracy?

- **Merit:** The appointments and promotions in the bureaucracy should be based on merit, rather than political leanings or partisanship.
- **Policies:** The process of transfer of bureaucrats should be made transparent.
- **Autonomy:** Institutional and legal measures should be strengthened to secure and promote autonomy and independence of the bureaucracy e.g., measures to protect whistle-blowers.
- **Code of Conduct:** Civil servants should strictly adhere to the code of conduct.
- **Moral Education:** Moral education right from schools can lead to strong foundational values. Regular training for bureaucrats should be undertaken to keep them aware of morals/ethics related to their profession.
- **Civil Society:** Civil society organizations should play a more central role in holding bureaucrats and politicians accountable.

4. Vacancies in Information Commissions

News: The Supreme Court criticized governments for not filling vacancies in Information Commissions.

What are the Supreme Court's Directives regarding appointment of Information Commissioners?

The SC had issued certain directions to the Union Government on Appointments of Information Commissioners (ICs) in 2019:

- **Start Early:** The appointment process should begin 1-2 months before a vacancy arises.

- **Advance Advertisement:** The vacancies should be advertised well before the retirement of the incumbent.
- **Comparable Terms:** The Chief Information Commissioner (CIC) and other Information Commissioners (ICs) should be appointed on terms similar to the Chief Election Commissioner and Election Commissioners.
- **Transparency Measures:** The criteria of appointment should be clearly stated in the advertisements and on the websites. The Search Committee's decisions should be made public on the website.
- **Diverse Qualifications and Broader Representation:** The appointees should be eminent individuals from varied fields like journalism, law, public service, etc. The SC noted a trend of appointing only Government employees and stressed broader representation.

What changes were made to Central Information Commission (CIC) and State Information Commission (SIC) under the RTI Amendments Act 2019?

- **Term Changes:** The Union Government will decide the term for Chief Information Commissioner and Information Commissioner.
 - The term for State Chief Information Commissioner and State Information Commissioner will also be set by the Union Government.
- **Salary and Conditions:** The Union Government will determine the salary, allowances, and service conditions for the Chief Information Commissioner and Information Commissioners as well as the pay and conditions for State Chief Information Commissioner and State Information Commissioner will be set by the Central Government.

Why has the Supreme Court remarked that the RTI Act has become a dead letter law?

The Supreme Court said the Right to Information Act has become a 'dead letter law' because:

- Governments haven't filled vacancies in information commissions. 7 out of 11 commissioner posts in CIC are vacant.
- Commissions in Telangana, Tripura, and Jharkhand are defunct.
- Despite a 2019 judgment ordering timely filling of vacancies, the Governments haven't complied.
- The RTI Act's role in promoting transparency and exposing scams has been undermined. The RTI, born from a grassroots movement, risks subversion by the government's inaction.

5. Odisha's Public Education Model

News: Initiatives like Odisha Adarsh Vidyalayas, 'Mo School' Abhiyan and 5T-High School Transformation Programme (focused on infrastructure, affordability and quality) by the Odisha Government have transformed the public education. 81% students in the State currently study in the Government schools.

What is the Odisha Adarsh Vidyalayas (OAV) Initiative?

- Odisha's OAV model aims to bridge the **rural-urban gap** by providing **accessible, qualitative and affordable English-medium education**. This is being achieved through:
- **Inclusive Education:** They ensure representation for SC, ST, and female students through reservations.
- **Education for the Vulnerable:** Rescued Children who had been victims of child abuse, trafficking, child labour, and child marriage are trained and prepared for the OAV entrance.
- **Coaching Facilities:** Students are trained to crack national-level tests.
- **Teacher Training:** To address pedagogical gaps, the initiative focuses on continuous teacher education programmes and maintains a teacher-pupil ratio of 1:25.
- **Use of Technology:** Digital tools help track the progress of each child alongside monitoring the performance of each school. The regular monitoring enables timely strategic interventions and ensuring transparency and accountability.

What is the Mo School Abhiyan?

- It is a one-of-its-kind initiative that strives to **motivate and mobilise the alumni community** to contribute towards revamping the government schools in Odisha.
- It is founded on 5 pillars: **Connect, Collaborate, Contribute, Create and Celebrate**.
- It facilitates students' exposure to exchange programmes, sports and cultural events, and also helps in creating stronger infrastructure.
- The **School Adoption Programme (SAP)** (under this initiative), enables the alumni to make financial contributions to the schools adopted by them. More than 5.5 lakh contributors including Ministers, Members of Legislatures, Bureaucrats, Professionals, and Judges have contributed to this initiative.

What is the High School Transformation Programme?

- The 5T-High School Transformation Programme is rooted in the **5T concept of Transparency, Technology, Teamwork, and Timeliness** leading to **Transformation**.
- **Leverages Education Technology**: It is focused on the adoption of educational technology, in the form of smart and digital classrooms, e-libraries, modern science laboratories, etc. in all high schools.
- **Needs of Specially-abled Children**: It provides **assistive devices and tailored teaching-learning materials** for students with autism, cerebral palsy, and intellectual disabilities.
- **Focus on Holistic Development**: Campaigns like 'Mo School Hockey Clubs' and 'Football for All' enable holistic development of students' personalities.

6. Combating Anti-Microbial Resistance

News: The Delhi Declaration during the G20 Summit under India's Presidency included a commitment to strengthen the global health architecture; prioritising the tackling of Antimicrobial Resistance (AMR). AMR is emerging one of the most potent threat to global healthcare; a coordinated approach is needed to tackle it.

What is Antimicrobial Resistance (AMR)?

- Antimicrobials are agents intended to **kill or inhibit the growth of microbes**. They include **antibiotics, fungicides, antiviral agents and parasiticides**. Disinfectants, antiseptics, other pharmaceuticals and natural products may also have antimicrobial properties.
- AMR occurs when microbes such as bacteria, viruses, parasites and fungi **become resistant to antimicrobial treatments** to which they were previously susceptible. **Superbugs** are strains of micro-organisms that are **resistant to most of the medications**.

Kinds of Anti-Microbial Resistance (AMR)

Natural (intrinsic, structural) Resistance

- Caused by the structural characteristics of microbes.
- Not associated with the (over)use of antimicrobials.
- Develops as a result of natural resistance.

Acquired Resistance

- Develops due to changes in genetic characteristics of microbes.
- Occurs due to a microbe being unaffected by the antimicrobial it was responsive to earlier.
- Occurs mainly due to structure of chromosomes or extra-chromosomal materials.

Cross Resistance

- Resistance to all antimicrobials belonging to the same class with a single mechanism.
- Such antimicrobials have similar structure and have same target action in the cell.
- Microbes are resistant to all antimicrobials in the class.

Multi-drug Resistance and Pan-resistance

- Microbes become resistant to most or all antimicrobials.
- Occurs due to indiscriminate and inappropriate use of antimicrobials.

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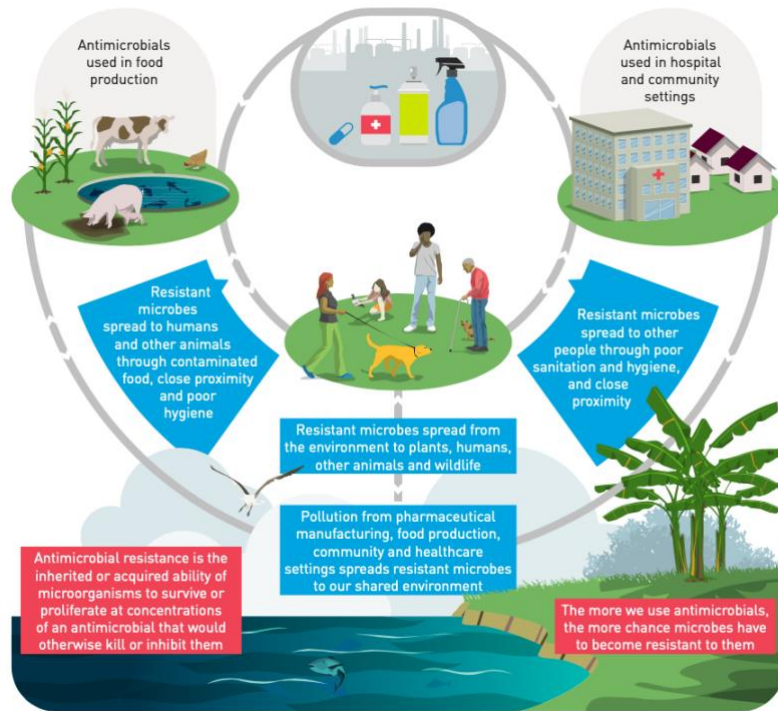
What are the reasons behind the growth of Antimicrobial Resistance?

- **Misuse of Antimicrobials**: This happens due to overuse through self-medication or improper course of medication (e.g., the course is left incomplete mid-way).
- **Inappropriate use in Agriculture**: Antibiotics are used to boost productivity of livestock. Over-use leads to resistance in microbes.

- **Contamination:** The untreated waste discharged from the pharma manufacturing sites releases large amounts of active antimicrobials into the environment.

- **Slow Development of New Antimicrobials:** Very few new classes of antibiotics have made it to the market in the last three decades. This is a result of inadequate incentives for their development and production. A recent report from the non-profit PEW Trusts found that over 95% of antibiotics in development today are from small companies. The exit of big pharma from antibiotic development coupled with a lack of investment from venture capitalists to support the commercial viability of antibacterial agents has pushed AMR into a global health crisis.

- **Easily Availability:** Antimicrobials are easily available as 'over the counter drugs' in many countries. This ease facilitates more consumption and development of AMR.



How antimicrobial resistance can spread (adapted from Government of Australia 2017)

Source: UNEP. Spread of AMR through indiscriminate use of antimicrobials.

What are the challenges posed by spread of AMR?

- **Threat to the Healthcare System:** Antimicrobials prevent infections post a routine surgery or other treatments. Ineffectiveness of antimicrobials would increase chances of infections post medical procedures and impair the healthcare system. The problem is graver for low- and middle-income countries (LMICs) of Asia and Africa where cheap antimicrobials have significantly reduced the mortality rates.
- **Loss of Human Lives:** Severe infections can cause loss of

Summary of the major pollution sources affecting AMR in the environment

Major sources	Type and nature of potential environmental releases
Poor sanitation, sewage and waste effluent	<ul style="list-style-type: none"> Preventable use of antimicrobials due to disease burden caused by poor WASH conditions Lack of sanitation or poorly functioning sanitation or fragmented systems (e.g. open defaecation, poorly contained pit latrines, septic tanks and sewers) that contaminate water sources and spread AMR Effluent from septic tanks and wastewater treatment plants Faecal sludge and wastewater biosolids Releases from unused drugs disposed of in toilets, bins or waste dumps Leaching from open waste dumps Urban runoff
Effluent and waste from pharmaceutical manufacturing	<ul style="list-style-type: none"> High concentrations of antimicrobials in untreated effluent Residual antimicrobials in solid wastes discharged from pharmaceutical fermentation processes Resistant microbes in effluent if biological treatment is applied
Effluent and waste from healthcare facilities	<ul style="list-style-type: none"> Antimicrobial products and residues in hospital solid wastes Resistant microbes (including those with more abundant and diverse ARGs) and antimicrobial residues (particularly antimicrobial compounds of last resort) in hospital wastewater/effluent
Use of antimicrobials and manure in crop production	<ul style="list-style-type: none"> Fungicides, herbicides, heavy metals and antibiotics used in the production of food, feed and raw materials Untreated manure and wastewater that may contain pharmaceutical residues, ARGs and resistant microbes intentionally applied to soil and crops Inappropriate disposal of unused antimicrobials (e.g. fungicides)
Releases, effluent and waste in animal production	<ul style="list-style-type: none"> Manure and effluent from aquatic and terrestrial animal production that may contain pharmaceutical residues, ARGs and resistant microbes Application of antibiotics and parasiticides in aquaculture that go directly into the environment Improper disposal of unused drugs

life. e.coli and MRSA (Methicillin Resistant Staphylococcus Aureus) are among the drug-resistant bacteria that led to most deaths. It is estimated that ~10 million annual deaths would be caused by AMR post-2050.

- **Economic Costs:** Abundant capital would be required to manage the AMR crisis in future. A study has estimated that AMR may cost from US\$ 300 billion to US\$ 1 trillion by 2050.
- **Possibility of Next Pandemic:** Scientists are worried that the next global pandemic might be caused by a superbug e.g., in 2021 researchers found a superbug (C. Auris) on remote sandy beaches of Andaman Is. that was multi-drug resistant. C Auris can cause severe bloodstream infections, illness and can lead to sepsis.

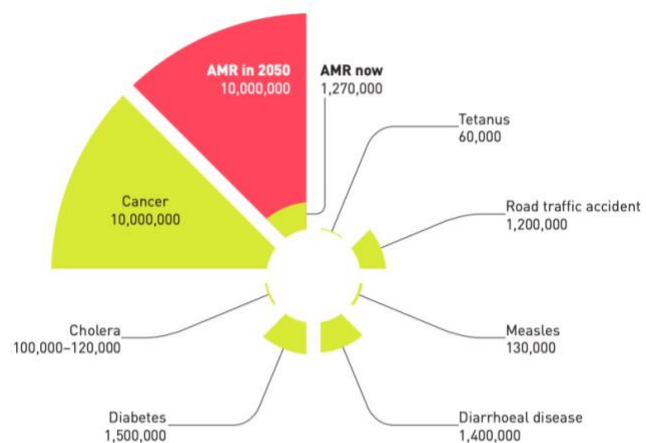
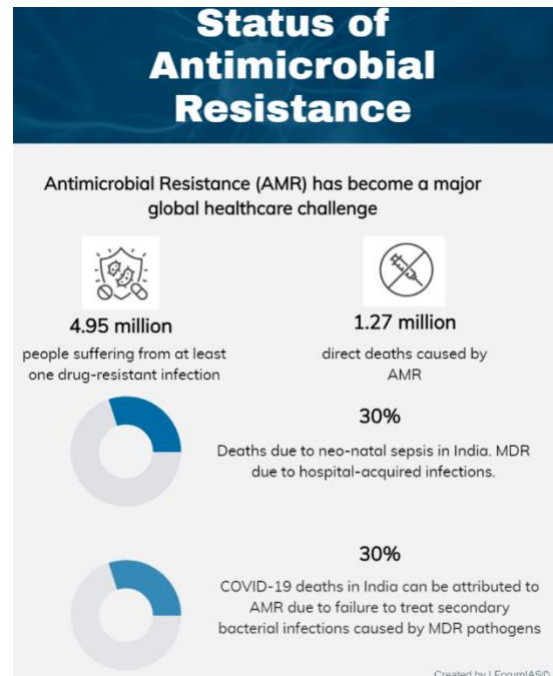
What steps have been taken towards controlling AMR?

India

- **Banning usage in Agriculture:** The Government of India **banned the use of streptomycin and tetracycline in agriculture** and the growth promotional use of colistin in poultry farming.
- **National Programme on AMR Containment:** Under this programme, AMR Surveillance Network has been strengthened by establishing labs in State Medical Colleges. 30 sites in 24 States have been included in this network till 30th March 2021.
- **Delhi Declaration on AMR (2017):** An Inter-ministerial consensus was signed by various Ministries of the Government that reaffirmed the roadmap for containment of AMR through the National Action Plan on Antimicrobial Resistance.
- **Red Line Campaign:** To prevent irrational use of prescription-only antibiotics and create awareness on the dangers of taking antibiotics without being prescribed.

Global

- Small companies are getting early-stage funding from **public-private partnerships like CARB-X** (the Combating Antibiotic Resistance Bacteria Bio-pharmaceutical Accelerator). It has provided ~ US\$ 360 million in funding for 92 projects over the past 5 years.
- The US enacted the **Generating Antibiotic Incentives Now Act (GAIN Act) of 2012**. It provides benefits to manufacturers of Qualified Infectious Disease Products (QIDPs) including 5 years of additional non-patent exclusivity.



Predicted mortality from AMR compared to common causes of death today (adapted from O'Neill 2016)

Source: UNEP. AMR is expected to cause significant mortality by 2050 primarily through diseases like tetanus, measles, cholera and infections post surgeries and cancer treatment.

- The WHO launched the **Global Action Plan (GAP) on AMR** in 2015. It outlines 5 objectives:
 - Improve awareness and understanding of AMR through effective communication, education and training.
 - Strengthen the knowledge and evidence base through surveillance and research.
 - Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures.
 - Optimize the use of antimicrobial medicines in human and animal health.
 - Develop the economic case for sustainable investment in new medicines, diagnostic tools, vaccines and other interventions.

What further steps can be taken going ahead?

- The **environmental governance, planning** and regulatory frameworks must be enhanced. Ministries of Environment and environmental agencies must be included in developing and implementing all **National Action Plans (NAPs)**. Specific actions could include developing legislation, codes of good practice and policy guidance to support action to reduce and minimize environmental releases of AMR relevant pollutants.

AMR in G20 Delhi Declaration (2023)

- **Combating AMR with a Unified Approach:** The Declaration commits to the One Health approach and enhancing pandemic preparedness, crucial for tackling AMR.
- **Prioritizing AMR:** The Declaration seeks to reduce the estimated 4.95 million deaths associated with AMR.
- **Supporting Low-Income Countries:** It aims to provide equitable access to medical resources, essential for countries with higher AMR death rates, like those in Sub-Saharan Africa and South Asia.
- **Implementing National Action Plans:** The Declaration encourages the adoption and implementation of National Action Plans, drawing from India's efforts like the NAP-AMR for Research and Surveillance.
- **International Collaboration and Funding:** It proposes an international funding mechanism for AMR research and development and promotes patent reforms to make treatments more affordable.

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- The **surveillance, reporting and monitoring systems** must be improved. Baseline information on the antibiotic type, the extent of usage, tracking agricultural practices that promote resistance needs to be generated. This will aid in better decision making and improve follow up actions.
- A novel approach, such as '**One Health**', is required to better understand the environmental dimensions of AMR and take science-based decisions and actions. It is a holistic approach that links the health of humans with the shared environment. This includes domestic and wild animals, plants, and the wider environment to achieve better public health outcomes.
- There is a need for **robust investment in research and development of new antibiotics**, rapid and affordable diagnostics, strengthening infection control etc. to swiftly tackle the AMR crisis. In this regard **support can be taken from AMR Action Fund**. It aims to invest more than US\$ 1 billion to address the current funding gaps in the development of new antibiotics.
- There must be appropriate and judicious use of antimicrobial drugs. The learning experience from existing programmes can be shared globally:
 - **Peru's efforts on patient education** to reduce unnecessary antibiotic prescriptions.
 - EU-supported **VALUE-Dx programme** that has increased the use of point-of-care diagnostics. This has resulted in prudent drug intake.

7. India-Qatar Relationship

News: The relationship between India and Qatar has become strained after Qatar sentenced 8 retired Indian Naval personnel to death on espionage charges.

What is the significance of India-Qatar Relationship?

- **Strategic Significance:** Qatar's membership of the Gulf Cooperation Council (GCC) is politically significant for India, especially concerning issues like Kashmir. India needs support of Qatar for UNSC permanent membership.

- India and Qatar have signed a Defence Cooperation Agreement for stronger defence cooperation. The maritime relations are further strengthened by Exercise Zair-Al-Bahr.
- **Energy Security:** Qatar is the largest supplier of LNG to India and provides ~48% of India's LNG imports. LNG forms ~50% of India's imports from Qatar.
- **Economic and Trade Ties:** The bilateral trade stood at US\$ 18.77 billion in 2022-23; India's imports US\$ 16.8 billion and India's exports US\$ 1.96 billion. India is among the top 4 export destinations for Qatar (Qatar exports LNG, LPG, chemicals and petrochemicals, fertilisers, plastics to India). India is also among the top 3 sources of Qatar's imports (India's key exports to Qatar include cereals, copper articles, iron and steel articles, vegetables, fruits).
- Indian Companies like L&T, Wipro, TCS and Tech Mahindra have setup operations in Qatar. There are over 15,000 big and small Indian companies operating in Qatar.
- Qatar Investment Authority (QIA) has invested over US\$ 2 billion in Indian companies/start-ups since 2019.
- **Indian Diaspora:** ~8 lakh Indian expatriate community live and work in Qatar. The flow of remittances (~US\$ 750 million) and safety of Indian expatriate community, makes Qatar vital for India's interest.
- Cultural events are regularly organised by community organizations affiliated to Indian Cultural Centre (ICC). Qatar was a co-sponsor of India's resolution for declaration of June 21 as International Yoga Day.

India was one of the earliest countries to recognize the State of Qatar after it got independence from the British in 1971. India established full diplomatic ties in 1973. Since then the relationship has progressed steadily. The Emir of Qatar has visited India in 1999, 2005, 2012 and 2015. The Indian PM had visited Qatar in 2016.

Arrest of Indian Naval Personnel in Qatar

In August 2022, 8 Indian Naval personnel were arrested by the Qatari Authorities on charges of espionage of Qatar's submarine program for Israel. They were sentenced to death on October 26, 2023. The Government has pursued the case to get the personnel released, but the espionage charges amidst the Israel-Palestine conflict, limit the options before the Government.

Agreement on 'Transfer of Sentenced Persons': India and Qatar signed the agreement in March 2015. Under this agreement, Indian prisoners convicted in Qatar can be brought to India to serve the remaining part of their sentence.

Leveraging the Defence Ties: India must leverage the strong defence ties with Qatar (Defence Cooperation Agreement) to secure relief for the personnel.

Legal Appeal: India can pursue legal appeals through international courts like ICJ like in the Kulbhushan Jadhav Case.

Deft Diplomacy: India can resolve the case through 'deft diplomacy' involving the political intervention, including at the highest level (like the Prime Minister, if needed).

Campaign Diplomacy: Building an international campaign to appeal for clemency.

What are the Challenges in the India-Qatar Relationship?

- **Divergence:** India and Qatar have divergent views on several strategic issues e.g., on support to Taliban or Hamas in the Israel-Palestine conflict. In addition, Qatar has very conservative stance of religious issues which may be at divergence with India's secular ethos.
- **Radicalism:** Qatar has supported several Islamist groups like the Muslim Brotherhood which has been designated terrorist group by several countries including the UAE, Egypt and Saudi Arabia etc.
- **Anti-India View:** Qatar-financed Al-Jazeera channel has often taken anti-India stance e.g., on the abrogation of Article 370 in 2019.
- **Treatment of Indian Workers:** Qatar has been notorious for harsh treatment, forced labour and human rights violation of foreign workers including Indian workers. Hundreds of Indian workers died in Qatar while

working on construction projects for the FIFA World Cup, 2022 (hosted by Qatar). They were not compensated for the loss.

- **Latest Controversy:** The award of death sentence to the navy personnel is the latest challenge in the relationship.

What should be done to strengthen the India-Qatar Relationship?

- In the recent times, India has strengthened its relationship with the countries in the West Asia especially the UAE and Saudi Arabia. A similar approach should be adopted with Qatar to promote ties in strategic sectors like energy, trade and defence.
- At the same time, deft diplomacy is required to establish common ground on contentious issues like terrorism, radicalization etc. The Israel-Palestine conflict has complicated the issue for India and would require careful use of every diplomatic channel to secure India's interests in the region.

8. Attracting Foreign Students in Indian Universities

News: India struggles to attract and retain foreign students in Higher Education Institutions (HEIs). This is primarily due to restrictions on work. Changes in visa policies can help change the trend.

What is the meaning of Internationalization of Higher Education?

- According to the International Association of Universities, Internationalization of higher education is the process of **integrating an international/intercultural dimension** into the teaching, research and service elements of an institution.
- This ensures that students, faculty, and the community experience a **globalized curriculum and environment**, preparing them for a more interconnected world.
- It also helps one to understand and appreciate diverse cultural and ethnic groups, including those within one's own country.
- Internationalization of education is one of the goals of NEP 2020. It aims to achieve it by making the Indian education system self-reliant and compliant to global standards & norms. It would help India in attracting students from abroad, in large numbers.

India's Student Visa (S) Policy

- India's student visa policy allows foreign students to pursue education in recognized institutions.
- The Student Visa duration is either the course length or 5 years, whichever is shorter.
- Working on a student visa is prohibited, but NRIs, OCIs, and PIOs are exempted.

What is the significance of internationalizing higher education?

- **Raising Standards:** It can help raise standard of education in Indian HEIs through collaboration as provided in the NEP 2020. This includes updating syllabi, offering joint degrees with foreign institutions, and enhancing campus diversity.
- **Domestic Demand:** A large number of Indian students are studying abroad due to quality issues (13.2 lakhs in 2022, according to the

UGC Guidelines for Internationalization of Higher Education

- **Objective:** The guidelines are intended to make India an attractive destination for foreign students; promote linkage between Indian and Foreign HEIs and foster international competencies in faculties and students.
- The Guidelines propose several strategic programmes and initiatives:
 - **Internationalization at Home** through capacity building in internationalization initiatives, collaborative communication between Indian and foreign faculty, international dimension in curricula, quality residential facilities for students among others.
 - **Credit Recognition under Twinning Arrangement** will allow Indian students enrolled with an HEI in India to complete part of their programme at a partnering institution from another country complying with relevant national regulations.
 - **Global Citizen Approach** will empower students with understanding of how the world works economically, politically, socially, culturally, technologically and ecologically; and inculcate essential values such as diversity, interdependence, empathy and perspective in students.
 - **Brand Building Abroad** will enhance global standing of the Higher Education Institutions and also for attracting students from abroad.
 - **Academic and Research Collaboration** will encourage HEIs to enter into collaborating with Foreign HEIs and enhance quality of education in India.

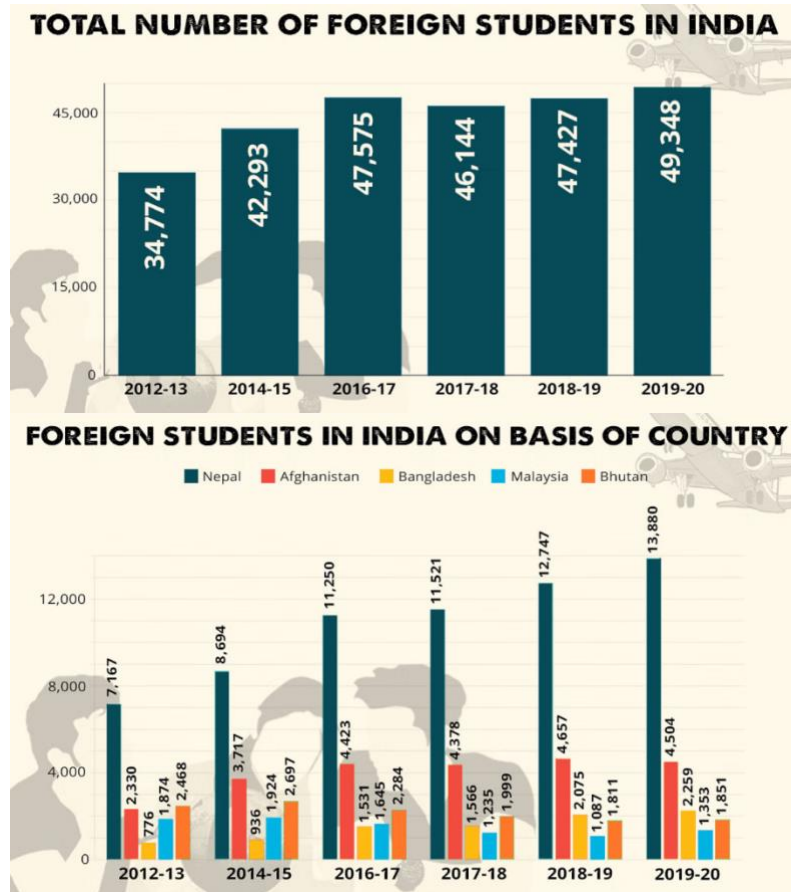
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Ministry of External Affairs). Improvement in quality of education can help reverse or halt the rising trend of Indian students moving abroad.

- **Economic Opportunities:** It will boost domestic economy and provide foreign exchange.
- **Global Network:** Indian companies can benefit from hiring foreign talent. Students which move back to their home countries can help build stronger network and goodwill for India.

What are the concerns associated with permitting foreign students to work?

- **Competition for Jobs:** Permitting foreign students to work in India may stiffen the competition for jobs, creating further pressure on the domestic job market to provide livelihood opportunities.
- **Procedural Changes:** Allowing foreign students to work will require significant policy and procedural changes like changes in visa policy, taxation laws (treatment of taxes on incomes earned by foreign students) etc.
 - Multiple ministries, including Education, Home Affairs, and Finance, must coordinate closely to implement such changes, which can be a complex task.
- **Long-term Residency Concerns:** While the idea is to offer work status to foreign students, it might lead to concerns about whether this could be a pathway to longer-term residency in India.



Source: The Print. The number of foreign students coming to India remained largely stagnated between 2016-2020. Between 40-50% of foreign students come from Nepal, Afghanistan, Bangladesh, Malaysia and Bhutan.

What should be done in this regard?

- The Government should consider amending the visa policy to allow foreign students to work post completion of their studies. The implications (tax, security etc.) should be thoroughly deliberated among all concerned Ministries and stakeholders including the industry.
 - The concerns can be addressed through suitable policy measures including restrictions on kind of work allowed or duration of stay etc.
 - The Ministry of Education, through bodies like the UGC and AICTE, should issue guidelines for on-campus hiring of foreign students.
- Simultaneously, Indian institutions should expand their reach by opening new campuses abroad. IITs and IIMs can take a lead here. Similarly, reputed private institutions like BITS Pilani (have a campus in the UAE) can share insights and best practices.
- India's corporates can play their role by hiring the best foreign talent. It will be beneficial for the Indian economy in the long run.

9. Vienna Convention on Diplomatic Relations, 1961

News: There has been a diplomatic crisis between India and Canada, after the allegations by the Canadian PM about agents affiliated to the Government of India killing a Khalistani separatist leader (a Canadian Citizen) on the Canadian territory. India has retaliated by sending back 41 Canadian diplomats in India leading to accusations about violation of principles of Vienna Convention by Canada.

What is Vienna Convention on Diplomatic Relations, 1961?

- The Convention was signed in 1961 and came into force in April 1964.
- The Convention defines a **framework for diplomatic relations** between independent countries. It provides a comprehensive basis for the establishment, maintenance and termination of diplomatic relations with the consent of independent Sovereign States.
- As of June 2021, it had 193 parties.

Article	Description
	'Inviolability' of Mission Premises
Article 22	<ul style="list-style-type: none"> • Bars the entry of law enforcement officers of the 'Receiving/Host State' in the mission premises. • Imposes a special duty on the 'Receiving/Host State' to protect the premises against intrusion, damage, disturbance of the peace or infringement of dignity.
	'Inviolability' of Mission Archives and Documents
Article 24	The 'Receiving/Host State' may not seize or inspect the mission archives and documents or permit their use in legal proceedings.
	Free communication between a Diplomatic Mission and the Sending State
Article 27	The diplomatic bag carrying such communications may not be opened or detained even on suspicion of abuse.
	'Inviolability' for the Person of Diplomats
Article 29	Provides for their immunity from civil and criminal jurisdiction . A diplomat should not be liable to any form of arrest or detention.
	Exemption from customs duties and other charges on diplomatic imports throughout a diplomat's posting.
Article 36	

What is the Significance of the Vienna Convention on Diplomatic Relations?

- **Codification of 'diplomatic immunity':** The Convention has codified the privileges of 'diplomatic immunity'. This has allowed diplomats to carry out their duties **without fear of coercion or harassment**.
- **Concept of 'Inviolability' of Diplomatic Missions:** The Convention guarantees freedom of expression and dignity, right to life and liberty to the diplomatic mission through these provisions. The provisions ensure the **efficient performance of the functions of diplomatic missions**.
- **Development of 'friendly relations':** The rules of the Convention are intended to facilitate the development of friendly relations among nations, irrespective of their differences of constitutional and social systems.

What are the challenges associated with the Vienna Convention?

- **Unilateral Changes by Western Countries:** The developed western countries have violated the 'immunity' granted to the diplomats in their countries. They have applied their domestic humanitarian and labour laws, to selectively target the diplomats of developing countries e.g., the arrest of Indian Diplomat Devyani Khobragade by the US on account of domestic help's abuse in 2013-14.

- **Abuse of 'diplomatic immunity':** 'Diplomatic immunity' has been misused as it has been allowed to shield crimes like sexual abuse, molestation and human trafficking by the diplomats e.g., The Consul General of Bahrain invoked 'diplomatic immunity' to avoid his arrest in the molestation case in Mumbai (2013).
- **Espionage:** The Convention provides a safety cover to the undercover intelligence officers posted under cover in Embassies who are mainly involved in espionage in the host country soil.
- **No Definition of 'household/family':** The official definition of family differs from country to country. Dependent parents or university going children may be 'excluded' from the family in the western countries, while live-in partners of the diplomats may not be accepted in most 'non-western' countries.
- **Unfair application of the 'Principle of Reciprocity':** Principle of reciprocity is applied if a diplomatic privilege is restricted or denied to one country, (even though it is provided to diplomats of all other countries); and the other country responds proportionately (e.g., Country A expels 2 diplomats of Country B. In retaliation, Country B expels 2 diplomats of Country A).
 - On account of their power and economic clout some countries, unfairly apply the 'principle of reciprocity' e.g., India sending back the 41 Canadian diplomats has been termed as unfair application of the 'principle of reciprocity' by the Canadian authorities.
- **Freedom of Movement of Diplomats:** Many countries require that diplomats seek the clearance of the Foreign Ministries before leaving the capital city e.g., Indian Supreme Court's decision to not allow the Italian Ambassador in India to leave India (2012) was termed as a violation of the Convention's principles of freedom of movement.
- **Violation of the Principles of the Convention:** The Convention principles have been entirely violated at times, rendering the convention as totally ineffective e.g., the attack on the American Embassy in Iran in 1979 and Iran took US diplomats as hostage.

The Vienna Convention has been operational for almost 60 years now. It has been one of the most successful treaty under the UN. Despite its success, the rising instances of its misuse or ineffectiveness (in multiple circumstances) necessitate a review of the Convention and the need to take corrective steps.



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General Studies Paper III

1. Applicability of Lewis Model of Economic Development to the Indian Economy

News: The Lewis Model (Dual-Sector) explains the economic growth of a developing economy and the transition of labour from agriculture to the industrial sector (two sectors). Economists note that the model has worked well for China, but the labour transition has been missing in India, despite economic growth.

What is the Lewis Model (Development with Unlimited Supply of Labour)?

- The model was proposed in 1954 by economist William Lewis.
- The model links the surplus labour in agriculture and its transition towards the manufacturing sector; leading to industrial growth and rise in the productivity and economic development.

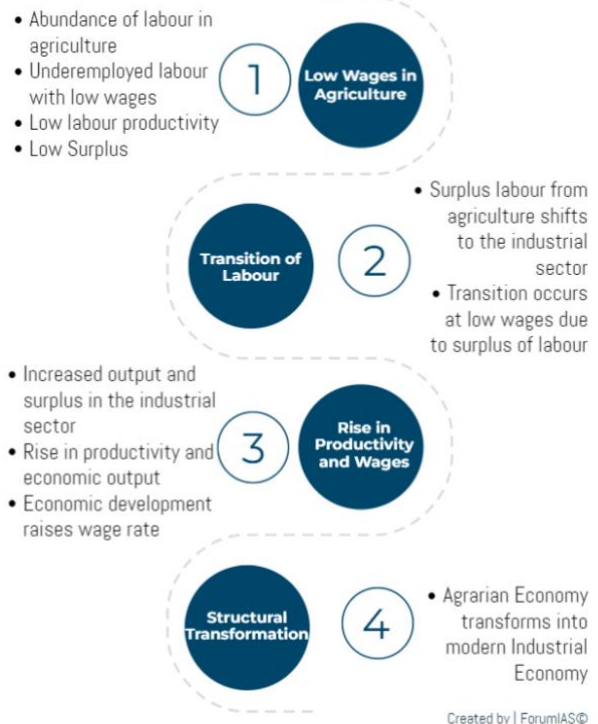
How has the Lewis Model worked in China?

- The **model's application in China was successful**.
- China successfully utilized the surplus labour and favourable demographics. They employed dual system by merging State Planning with (regulated) market forces.
- The mixed approach attracted foreign investment, supported domestic industries and boosted exports.
- Extensive investments in infrastructure, education, and research and development enhanced **China's productivity and competitiveness**. This resulted in **rapid industrialization and poverty reduction**.
- It also contributed to the structural transformation of economy from primary agrarian to one driven by the manufacturing and the industrial sectors

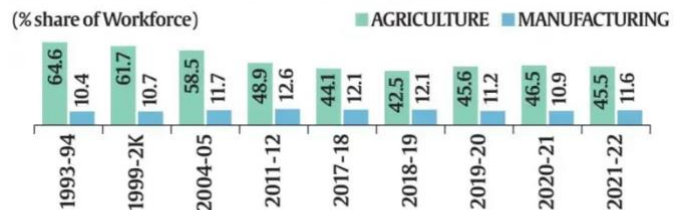
How has the Lewis Model worked in India?

- Agriculture has been traditionally the largest employment sector in India. The transition of labour away from the agriculture sector has been gradual. According to the official estimates, percentage of workforce engaged in agriculture has declined from 64.6% in 1993-94 to 45.5% in 2021-22.
- However, the share of manufacturing has risen marginally, from 10.4% in 1993-94 to 11.6% in 2021-22.
- The transition of labour has occurred primarily towards services and construction sector. The labour transition in India has not conformed to the trajectory predicted by the Lewis Model.

Development Process Under the Lewis Model



AGRICULTURE VERSUS MANUFACTURING



Source: NSSO Employment & Unemployment Surveys (till 2011-12) and Periodic Labour Force Surveys (from 2017-18)

Source: Indian Express. The proportion of labour force in manufacturing sector has remained nearly stagnant in the last 3 decades. The fall in agriculture's share has been taken up the tertiary sector.

Why has India's transition not conformed to the Lewis Model?

- **Capital Intensive Manufacturing:** The manufacturing sector in India has remained capital intensive which has failed to create commensurate employment opportunities. Consequently, its share in labour market has remained low. Extensive use of technology has reduced the need for manual labour.
- **Underperformance of the MSME Sector:** The MSME sector in India has remained constrained by several policy and structural factors. Its ability to generate employment has remained limited.
- **Skilling:** A large proportion of low-skilled agrarian workforce lacks adequate skills to be gainfully employed in the industrial sector. Poor status of public education (quality gap in Government schools) has constrained the expansion of the skilled workforce.
- **Low Wages:** Low wages combined with inadequate social security cover in urban manufacturing facilities has checked the transition away from agriculture.
- **Structural Issues:** Manufacturing sector has failed to expand due to several constraints like poor infrastructure (connectivity, electricity etc.), lack of adequate finance, complex bureaucratic processes (land acquisition, permits, environmental clearances etc.).

What can be India's approach going ahead?

- **Promoting Farm-based Industries:** They can add value to the agriculture sector (food processing can reduce wastage), while being located near production areas (reducing need for migration) providing livelihood opportunities near rural areas. It can enhance agricultural productivity and raise wage levels.
- **Enhancing Capabilities:** The Governments should focus on improving public education and providing useful industrial skills. It will enhance employability of the workforce.
- **MSME Sector:** With adequate policy support, the sector has the ability to create large number of jobs in the manufacturing sector. (Refer EPIC August 2023 (click) for MSMEs: Significance and Challenges).

2. India and the RCEP

News: India had opted out of the RCEP in November 2019. Several economists have suggested that India should reconsider the decision and think about joining the pact.

What are the latest developments with respect to the RCEP?

- **Slower economic growth** and increasing **geopolitical fragmentation** has led to slowdown of global trade. In this context, **Sri Lanka** and **Bangladesh** are **considering joining the RCEP**.
- Sri Lanka is dealing with an economic crisis. Easier access to regional markets could help it become more competitive.
- Bangladesh may soon have to exit the group of Least Developed Countries (LDCs). RCEP could help to compensate for export loss as trade concessions to LDCs are withdrawn for Bangladesh.
- Sri Lanka and Bangladesh's joining of RCEP will **open markets for China in India's neighbourhood**.

What has been India's position on the RCEP?

India exited from the negotiations for the RCEP in 2019 due to various concerns. These include:

Regional Comprehensive Economic Partnership (RCEP)

- It is Free Trade Agreement between 10 ASEAN countries along with Australia, China, Japan, New Zealand and South Korea.
- The 15 member countries account for:
 - 30% of world's population
 - 30% of global GDP
- It is the largest trade bloc in the world.
- The Agreement was signed in November 2020.
- It is expected to eliminate tariffs on imports between its signatories within 20 years of coming into force.



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- Potential increase in the **import of cheaper goods** from member countries, particularly China. India had complained about lack of clarity regarding **Rules of Origin** which could have led to flooding of Chinese goods in India through other markets. (Refer EPIC July 2023 (click) for Rules of Origin).
- There were geopolitical and national security considerations vis-à-vis China. India's relationship with China has only worsened since India exited the negotiations in 2019; particularly after the 2020 border skirmishes in the Galwan valley.
- India had cited the grouping's refusal to accede to its requests on certain safeguards as a deal breaker.

Why should India reconsider its position?

Some economists have argued for India to reconsider the stance on joining the RCEP.

- Countries like **Australia and Japan** have joined the RCEP **despite ongoing geopolitical tensions** with China.
- India has lost the opportunity to be part of the world's largest and most dynamic trade bloc. Joining the RCEP could have **promoted India's integration with Global Value Chains (GVCs)** and improve its share in the global trade. It could have boosted local manufacturing and generate employment. (Refer EPIC September 2022 (click) for Building Resilient Global Value Chain (GVC) Linkages in India).
- Economists have argued that the final RCEP Agreement has tried to clarify India's concerns (even though India had exited in 2019) on Rules of Origin and trade in Services (financial, telecom and professional services).
 - Other countries had raised some objections as well. The Agreement has separate chapter on these objections which are expected to be resolved in the next few years.
- India's **trade deficit with China has been rising** despite India exiting the group.
- Countries like Japan and Australia had wanted India to join as the large size of the Indian economy and its negotiating heft would have posed a valuable counterpoint to China within the grouping. Japan had led the drafting of the special statement on India, which would waive the 18-month mandatory waiting period if India applied formally to re-join the group.

The Government of India has recently adopted the new Trade Policy and has reviewed its approach to the FTA trade negotiations. In this context, the Government must reconsider its approach to the RCEP as well. (Refer EPIC April 2023 (click) for India's Foreign Trade Policy, 2023).

3. India's FTA 2.0 Approach

News: Several economists had criticized India's poorly negotiated FTAs for India's rising trade deficits. The Government has altered its approach to FTA negotiations, FTA 2.0, to plug those gaps.

What were the shortcomings of India's FTAs?

- **Uneven Benefits:** The margin of preference (actual tariff cuts) given by India to its FTA partners in the old FTAs were higher than the margin of preference given by partner countries.
- **Low Utilization:** India's FTA utilisation remained very low at around 25%. On the other hand, developed countries utilise the FTAs to the maximum (~70–80%).
- **Rising Imports:** The earlier FTAs resulted in increase in imports from FTA partner countries. It proved detrimental to the domestic industry e.g., between 2017–2022, India's exports to its FTA partners increased by 31%, while its imports increased by 82%. (Refer EPIC April 2022 (click) for India's Merchandise Exports. Refer to the case study on reversal in zinc trade between India and South Korea post the India–South Korea CEPA).

Reasons for Poor Utilization of FTAs

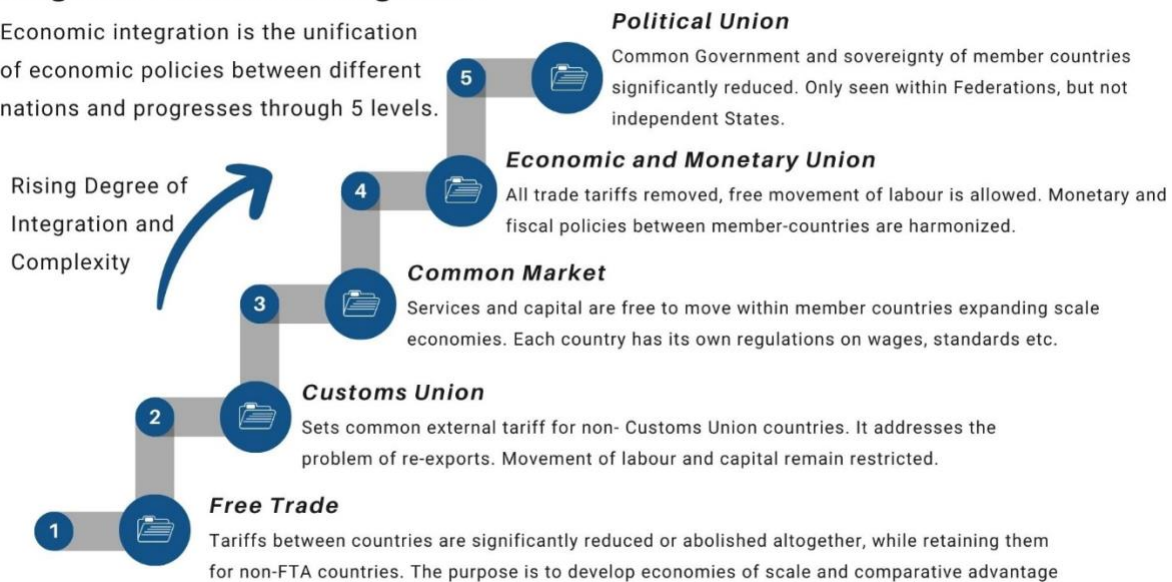
- **Low awareness** about FTAs and Rules of Origin in the industry about the benefits under the FTAs
- **Poor participation of the industry** in trade negotiations.
- Lack of skills, specialization and focus on setting up auditable FTA origin management system by the industry.
- **High cost** of FTA compliance.
- **Misaligned benefits and costs:** Exporter country bears the cost of obtaining Country of Origin (COO) while the benefits of duty reduction accrue to importers.
- **Non-tariff barriers** in importing countries.

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- **Misuse of Rules of Origin:** The earlier negotiated FTAs had relaxed provisions related to the Rules of Origin (ROO), which were misused by the FTA partners to dump their products in Indian market e.g., imports of Chinese electronics via ASEAN FTA. However, the complexity of certification requirements of ROO, under these FTAs hindered India's ability to streamline processes for its exporters.
- **Involvement of Industry:** Stakeholders from the domestic industry were not consulted during the FTA negotiation process. Their concerns were not addressed in the final FTAs.
- **Non-Tariff Barriers:** The Government focused more on reducing tariff barriers, and the aspect of non-tariff barriers was overlooked e.g., India's exports to Japan remained poor due to the requirement of high-quality standards (non-tariff barrier) on imported products in Japan which Indian products failed to meet.
- **Awareness:** The Government failed to undertake comprehensive outreach and marketing activities to raise awareness among the Indian industry, resulting in under-utilization of Agreements.
- **Services Sector:** The Government failed to take advantage of India's strong services sector capabilities by not including services sector in some FTAs.

Stages of Economic Integration

Economic integration is the unification of economic policies between different nations and progresses through 5 levels.



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What is the new approach with respect to the FTAs (FTA 2.0)?

- The Government is holding more consultations with the industry and other stakeholders to address their concerns.
- The new FTAs being negotiated have stricter 'local value addition' and 'country of origin' rules e.g., the India-UAE FTA had 40% value-addition limit compared to 30% in the earlier FTAs.
- Introduction of Mutual Recognition Agreements is making the FTAs more balanced by taking care of technical barriers to trade.

Types of Trade Deals

- **Preferential Trade Agreement (PTA):** Countries agree on preferential import tariffs on certain products. Each country has mutually accepted positive list of tariff lines (products) eligible for Zero Tariffs.
- **Free Trade Agreement (FTA):** Broader in scope than PTAs, cover more diverse set of products and services. Each country maintains a negative list of products/services that are excluded from exemptions.
- **Comprehensive Economic Cooperation Agreement (CECA):** More comprehensive than FTAs. It covers negotiations on trade tariffs and tariff rate quotas that allow mutually agreed concessional (reduced) import rate up to a certain quantity.
- **Comprehensive Economic Partnership Agreement (CEPA):** Most comprehensive Agreement. It includes services, investment, Government procurement, IPRs and regulatory aspects of trade like trade facilitation measures. Also termed as Economic Cooperation and Trade Agreement (ECTA)

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- The Government has linked export growth to schemes for boosting overall competitiveness of Indian industry.
- The Government has expanded the scope to include labour, innovation, anti-corruption, gender and investment initiatives.

What should be the approach going ahead?

- **Trade Infrastructure:** The Government must improve the trade infrastructure, set up fast track dispute settlement mechanism and digitise trade procedures and customs clearances processes.
- **Enhance Competitiveness:** Continuous focus is required on providing conducive ecosystem to the domestic industry to enhance their competitiveness at the global level.
- **Stakeholder Consultation:** The Government must continue to engage stakeholders from the industry in order to take feedback with respect to the functioning of the FTAs and take any corrective steps required in their better implementation.
- **New Trade Paradigm:** Trade in services, e-commerce, labour, climate/environment, digital trade, public procurement etc. have become central issues in international trade. The Government must be prepared to adjust to this new paradigm in FTA 2.0 rather than skirting these issues.

India-UK FTA Benefits	India-UK FTA Challenges
<p>Benefits to India</p> <ul style="list-style-type: none"> • Tariffs on Labour intensive sectors like textiles/gems will come down. • Exports from services sector like Education, healthcare will improve. • Non-tariff barriers to Indian exports will be eliminated or reduced. • India's trading partners will become more diverse. • India-UK strategic relationship will be strengthened. <p>Benefits to the UK</p> <ul style="list-style-type: none"> • FTA will reduce UK's dependence on China. • Industries like Automobiles and Beverages will benefit; they face high duties in India. • UK is struggling post-Brexit. Improvement in trade will boost their domestic economy. • Companies based in the UK will get new investment opportunities in India. 	<ul style="list-style-type: none"> • India is pushing for stronger Rules of Origin to prevent dumping of goods from the EU. • India is pushing for more relaxed work-permit requirements for Indian workforce. The policy had been made stringent post-Brexit. • The UK is looking to impose Carbon Tax on imports of metals from India. • The UK is pushing for a stronger IPR regime. • India is yet to finalize domestic laws on digital data protection and trade. • An interim or incomplete FTA may violate the MFN principle of the WTO. • India is negotiating hard in order to become a major player in global value chains (GVCs). • There is some political opposition within the UK about granting concessions to India. • India is concerned about increased competition to its domestic industry especially alcoholic beverages.

4. India's Labour Productivity and Suggestion of 70-hour Workweek

News: Infosys founder Mr. Narayan Murthy recently suggested '70-hour workweek' to improve India's labour productivity and competitiveness. The suggestion has received both support and criticism.

What is the status of India's Labour Productivity and Working Hours?

- According to the ILO, India's hourly output stands at US\$ 8.47. Indians work ~48 hours/week (average).
- In contrast, France's hourly output stands at US\$ 58. The French work ~30 hours/week.
- Time Use Survey (TUS, 2019) data in India shows that young Indians (15-29 years) currently work ~7.2 hours a day in rural areas and ~8.5 hours a day in urban areas.

How did Japan and Germany enhance productivity post-World War II?

- After the World War II, Germany and Japan encouraged their workforce to put in extra hours of work per day to boost the economic productivity.
- The average working hours was between 2,200 to 2,400 hours per year, which came down to 8.5 to 9.2 hours of work per day (assuming 260 working days with a 5-day work week).
- However, Mr. Murthy's suggestion of 70-hour workweek far exceeds this limit. 70-hour workweek translated to 14 hours/day assuming a 5-day work week.

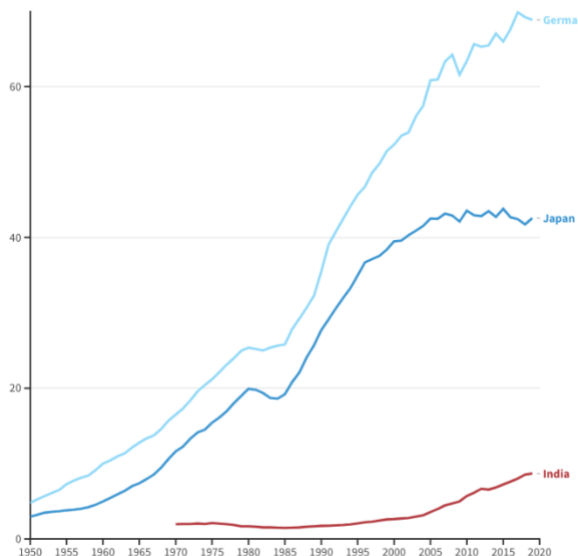
What are the arguments in favour of 70-hour Workweek?

- **Output:** Long working hours will enhance output as employees will spend more time on tasks and projects.
- **Economic Growth:** Increase in output will contribute to increased production and economic growth.
- **Competitiveness:** It will make Indian professionals and companies more competitive in the international market. Individual skills would be enhanced by putting-in longer work hours.
- **Government Revenues:** The Government can earn more tax revenues through increased output. The money can be used for welfare services and infrastructure development, creating further positive externalities for the economy.
- **Demographic Dividend:** It will help India realize its demographic dividend by productively engaging the young workforce. It will also help in nation-building.

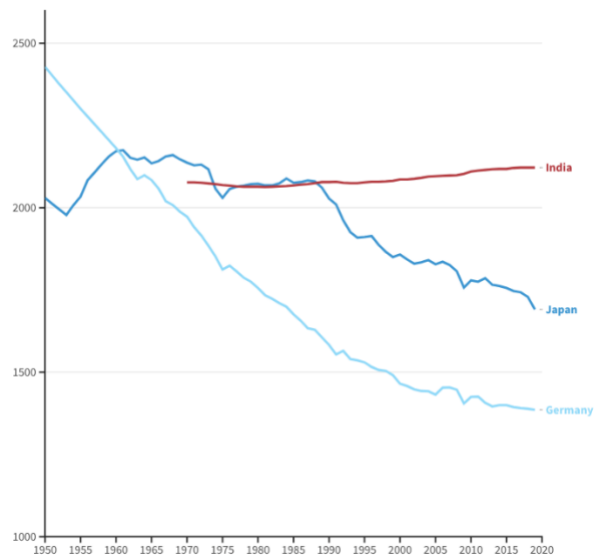
What are the arguments against 70-hour Workweek?

- **Productivity:** Several studies have pointed out that productivity declines after 50 hours of work per week (or 10 hours/day with 5-day workweek). It often reduces the quality of work as well.
 - Even Germany and Japan reduced the working hours to 1,400-1,600 hours a year eventually.

Productivity: Output per hour worked (\$/hour)



Annual working hours per worker



Source: The Hindu. The productivity in Germany (US\$ 69/hour) and Japan (US\$ 43/hour) has improved with reduction in the working hours (1386 hours Germany, 1691 hours Japan). India has labour productivity of US\$ 9/hour with 2122 annual hours.

- **Innovation:** Mental exertion due to long workhours may impair the ability to think creatively and stifle innovation.
- **Burn-out and Mental Health:** Workers who put long work-hours are more prone to experience burnout, higher levels of stress and mental health problems.
 - Extended workhours may negatively impact individual's health and work-life balance.

- It may make it difficult to meet personal and family obligations leading to strained relationships.
- **Lifestyle Diseases and Healthcare Costs:** Long working hours may force individuals to neglect the health. It can give rise to lifestyle diseases and consequently higher expenditure on healthcare.
- **Gender Aspect:** Women have extra-burden of domestic and care responsibilities. Hence, they have lesser ability to put in long work hours. Consequently, they'll face discrimination.
- **Workers' Rights:** Overtime without due compensation and subpar working conditions abuse worker's rights.

What should be the way forward to increase productivity?

- **Technology:** Adoption of modern technologies can enhance productivity. However, the workforce has to be skilled suitably for the same.
- **Skill Enhancement:** Proper implementation of skilling initiatives can help improve the productivity.
- **Infrastructure:** Improvement of infrastructure in urban areas (e.g., urban connectivity, public transport, metro etc.) can reduce the commute time for workers and hence improve productivity.
- **Innovation:** R&D initiatives can drive innovation leading to improved products and services.

Type of Productivity	Description
Productivity measures how efficiently inputs like labour and capital are used to produce outputs; goods and services.	
Labour/Work Productivity	<ul style="list-style-type: none"> • It measures the output produced per hour of work e.g., for a GDP of US\$ 1 trillion with its people working 20 billion hours, the labour productivity is US\$ 50 per hour. • It is directly linked to wages, living standards, and the purchasing power of the consumers.
Capital Productivity	<ul style="list-style-type: none"> • It measures the output produced by using physical assets like machinery, buildings and equipment. • It indicates how efficiently investments in physical assets are used, impacting profitability and competitiveness.
Total Factor Productivity	<ul style="list-style-type: none"> • It measures the output produced by advancements in innovation and technology. • It reflects improvements in efficiency, technological progress, and innovation in an economy.

5. Regulating Digital Lending in India

News: The spread of illegal loan apps and their aggressive lending and recovery practices has led to several incidents of suicides. The RBI has released a set of guidelines, but there is a need for a comprehensive regulation in the sector.

What is the Digital Lending Landscape?

- It refers to lending through web platforms or mobile apps through the use of technology.
- It utilizes automated technologies and algorithms for customer acquisition, credit evaluation, decision making, authentication, disbursements and recovery. Digital lending helps in lowering costs and ensures a speedy disbursal.
- **Lending Service Providers (LSPs)** act in partnership with Non-Banking Financial Companies (NBFCs) who disburse credit to the customer using the former's platform, making it a **multi-sided platform**.



What is the status of Digital Lending in India?

- Digital lending is one of the fastest-growing fintech segments in India. It has grown from US\$ 9 billion in 2012 to ~US\$ 110 billion in 2019. The digital lending market is expected to touch ~US\$ 350 billion by 2023.
- This business is mainly covered by fintech startups, neo-banks and NBFCs.
- Its customers particularly include **small borrowers without a documented credit history** and thus, **not served by traditional financial institutions**.
- Their product mix primarily includes **short-term loans**, especially those with tenures of less than 30 days.
- Commercial banks are also rapidly joining the genre of financial intermediaries either lending digitally on their own or joining with NBFCs to share the synergies.

Expansion of Digital Lending

Technology and Fintech

- Rapid advancements in cloud computing, artificial intelligence, and blockchain.
- Access to faster and more affordable internet connectivity.
- Expansion in FinTech start-ups.
- Lending has undergone transformation to become "digital".

User Base

- Rapid expansion in the user-base after the launch of Pradhan Mantri Jan Dhan Yojana (PMJDY).

Investments

- Sector has witnessed rapid investments. The digital lending platforms have witnessed a compound annual growth rate of 19.6% over the previous 7 years.

Digitalisation and Financial Inclusion

- Rapid digitisation of the economy and services has improved financial inclusion.

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What are the key benefits of Digital Lending?

- Disbursement of Loans:** The digital lending platforms have minimized the geographical barriers allowing borrowers to quickly take up loan applications. They have simplified procedures.
- Less Errors:** With the use of technology, the chances of human errors are minimal as it is easier to capture an applicant's details.
- Efficiency:** A digital lending platform can cut down overheads by half and increase efficiency at the same time. Digital lending saves time, boosts revenue, growth and improves lender borrower relationships.
- Customer Experience:** Digital lending has a quick turnaround time, is transparent, and relieves applicants from the long waiting period for a credit decision.
 - For banks, it reduces the cost of managing loans and time spent on underwriting loans. Banks can process more loans and products and offer a better experience to borrowers with quick loan approval and funds.

Difference between a Traditional & Digital lender		
Digital lending is advantageous over traditional lending with lesser paperwork, lesser processing time and lesser qualification requirements.		
	Traditional Lenders	Digital Lenders
Qualification	❖ Stricter requirements to qualify for a loan. For example, business owners should have excellent credit score	❖ Minimal requirements to qualify for a loan. For example: Minimum credit score or revenue requirement are much lower for some digital lenders
Paperwork	❖ Requires significant amount of paperwork and documentation	❖ Requires less paperwork and documentation
Funding Time	❖ Takes anywhere from few days to a few weeks to provide the loan	❖ Takes 2-3 days to provide the loan

What are the concerns associated with Digital Lending?

- Reckless Lending:** In order to capture greater market share, LSPs resort to **reckless lending practices** by providing credit beyond a borrower's repayment capacity. The risk is mitigated by spreading it to all users by charging **higher interest rates**.

- **Lack of Regulation:** Absence of **standardized disclosure and regulatory norms** made it cumbersome to assess lender's or Apps legitimacy. According to an estimate ~600 of 1,100 apps operational in 2021 were illegal. They were either unregulated by the RBI or had NBFC partners with an asset size of less than INR 1,000 crore.

- **Unprofessional Conduct:** Apps have indulged in unethical conduct like misselling, breach of data privacy, unfair business conduct, charging of exorbitant interest rates, and coercive recovery practices. Coercive practices including threats of physical violence have forced several borrowers to commit suicides (> 60 suicides according to a BBC Documentary).

RBI Guidelines to Regulate Digital Lending

- **Regulated Entities:** Lending must be carried out by entities that are either regulated by the RBI or possess permission to operate under a relevant law.
- **Transparency About Costs:** The lenders would have to inform the borrower in a standardised format about all fees, charges and the all-inclusive cost of digital loans.
- **Key Fact Statement:** It has to be provided for all products before signing the contract. It will enable borrowers to make **better comparisons** with other products in the industry.
- **Automatic Increase of Credit Limit:** There cannot be automatic increase in credit limits without the **borrower's on-record explicit consent**.
- **Due Diligence:** Financial entities partnering with LSPs need to conduct an **enhanced due diligence process** taking into account LSP's technical abilities, data privacy policies and storage systems etc.
- **Grievance Redressal:** The entities would have to appoint a **grievance redressal officer**.
- **Data Collection and Sharing:** All data collection should be '**need-based**' and must be with prior and explicit consent of the borrower. The information to be collected must be stated in the privacy policy during enrolment.
 - Sharing of information with 3rd-parties would mandatorily require user consent.

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What should be approach going ahead?

- **Broader and Stricter Regulation:** The regulation should be extended for unregulated entities, not covered under the RBI guidelines. The RBI should assert a direct role in supervising digital lending.
 - State-level institutions and other relevant entities can be included in the regulation process.
 - App-Stores should be roped-in to design better safety and security checks to eliminate unscrupulous elements from launching fraud apps on their platforms.
- **Public Education:** Raising awareness about the risks associated with unauthorized loan apps and the importance of responsible borrowing will reduce unfortunate incidents like suicides.

6. Bletchley Declaration: On Regulation of Artificial Intelligence

News: 29 countries, including India, have agreed to work together to prevent "catastrophic harm, either deliberate or unintentional" which may arise from artificially intelligent computer models and engines.

What is Bletchley Declaration?

- The central objective of the Bletchley Declaration is to **address risks and responsibilities associated with frontier AI** in a comprehensive and collaborative manner.
- It emphasizes the necessity of **aligning AI systems with human intent** and urges a deeper exploration of AI's full capabilities.

What are the Challenges posed by Frontier AI?

- 'Frontier AI' is defined as highly capable foundation generative AI models that could **possess dangerous capabilities** that can **pose severe risks to public safety**. This includes usage of AI related to automation or biometric authentication.
- As noted by OpenAI, Frontier AI models pose a distinct regulatory challenge.
- **Inability to Predict Outcomes:** Dangerous capabilities can arise **unexpectedly**. According to various tech industry leaders, AI labs are in an uncontrolled race to develop systems that no one can fully control.
- **Misuse:** It is difficult to robustly prevent a deployed model from **being misused**.

- **Proliferation:** It is difficult to stop a model's capabilities from **proliferating** broadly.
- There are also concerns regarding: **privacy**, **system bias**, and **violation of intellectual property rights**.

What has been India's stance on AI Regulation?

- Various nations have taken a varied stance. EU has taken a tough approach, the UK has adopted a 'light-touch' approach, while the approach of the US is somewhere in between.
- The Union Minister of State for IT has clarified India's stance on AI:
 - India looks at AI through the prism of **openness**, **safety**, **trust** and **accountability**. AI represents a big opportunity.

Approaches to Regulating AI

1 Soft Law	2 Graduated Regulation	3 Regulatory Sandbox	4 Collaboration
<ul style="list-style-type: none"> • Guidelines, best practices, industry standards, etc. • Flexible and adaptable to the rapidly evolving AI landscape. • Provide initial guidance without imposing rigid regulations. 	<ul style="list-style-type: none"> • Differentiate between large firms and smaller start-ups. • Apply stringent regulations on large firms. • Allow flexibility to start-ups to encourage innovation. 	<ul style="list-style-type: none"> • Controlled environments for start-ups/small firms to experiment with AI technologies under supervision. • Allows for innovation and ensure compliance with ethical and safety standards. 	<ul style="list-style-type: none"> • Engage with the tech community, seek feedback to understand challenges. • Ensure regulations are practical and effective. • International cooperation to create a unified global regulatory framework. • Develop universal guidelines, principles, and standards.

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- India believes that steps should be taken to ensure **AI safety and trust**. India's Prime Minister has also called for a **global framework on the expansion of "ethical" AI tools**.
- India maintains that steps should be taken to **mitigate the downsides of AI** or any emerging technology. India's position is of **actively formulating regulations** based on a '**risk-based, user-harm**' approach.
- According to TRAI, the Union Government should set up a **domestic statutory authority to regulate AI**.
- At present the Government is not considering bringing a law or regulating the growth of AI in India.

What is the significance of Bletchley Declaration?

The Agreement has resolved to establish '**a shared understanding of the opportunities and risks posed by frontier AI**'. It includes:

- **Identifying Misuse:** Acknowledgment of substantial risks from potential intentional misuse or unintended issues of control of frontier AI especially cybersecurity, biotechnology, and disinformation risks.
- **Identifying Risks:** The declaration noted the potential for serious harm stemming from the most significant capabilities of these AI models, as well as risks beyond frontier AI, including those of **bias and privacy**.
- **International Cooperation:** The risks are best addressed through international cooperation. As part of the agreement on international collaboration on frontier AI safety, future summits will be held annually.
- It has highlighted the importance of safeguarding human rights, transparency, explainability, fairness, accountability, regulation, safety, human oversight, ethics, bias mitigation, privacy, and data protection.

What are challenges/concerns associated with the Declaration?

- **Long-term Risks Consensus:** Founders and chief executives of major tech companies did not reach an agreement on the severity of long-term risks posed by AI.
- **Regulatory Challenges:** The rapid pace of AI development makes it difficult to establish effective regulatory measures, and there's a concern that regulations might **not effectively control individual developers**.
- **Global Consensus:** With AI's international spillovers, reaching a worldwide agreement on AI use and safety is complex, highlighted by the fact that only 28 countries signed the Bletchley Declaration.
- **Equality in AI Development:** The declaration doesn't fully address how smaller countries will engage in AI development and regulation, despite stating that all countries have equal rights to develop and use AI. (Refer EPIC June 2023 (click) for Regulation of Artificial Intelligence (AI) and 7PM Article for Regulation of AI).

7. Air Pollution in Mumbai and Delhi

News: While high level of air pollution in the winter months in Delhi has become a norm, this year witnessed dangerously high level of air pollution in Mumbai as well.

What are the reasons for the rise in air pollution in Mumbai and Delhi?

Air Pollution in Mumbai

- **Rise in Temperature:** Unusually high temperatures in October resulted in a steep temperature gradient between the city and nearby hilly regions. Winds from the hills moved towards the Mumbai City, picked up dust from the major construction projects (Navi Mumbai and surrounding areas) and brought them into the city.
- **Wind Pattern:** Altered wind pattern has delayed the reversal of sea wind (land-to-sea and sea-to-land wind pattern). The pollutants in the atmosphere could not be taken away to the sea.
- **Industrial Pollution:** Polluted air from refineries, industries and due to burning of garbage made the problem worse.

Air Pollution in Delhi

- **Stubble Burning:** Burning of stubble in Punjab, Haryana and parts of UP/Rajasthan emit large amounts of toxic pollutants (methane, carbon monoxide etc.) which remain suspended over the NCR.
- **Wind Pattern:** After the withdrawal of monsoons, wind direction in northern India is north-westerly. These winds bring the dust from the gulf region, northern Pakistan and Afghanistan.
- Low-speed winds in winters are unable to disperse the pollutants effectively. Delhi lacks the advantage of sea-breeze and wind reversal pattern as prevalent in coastal regions.
- **Inversion:** With the decrease in temperature, inversion height lowers down, leading to concentration of pollutants in the lower atmosphere. (Inversion height is the layer beyond which pollutants cannot disperse into the upper layer of the atmosphere).
- **Anthropogenic Pollution:** Delhi has one of the highest number of registered private vehicles in India. Official estimates indicate that vehicles emit ~40% of the particulate load in Delhi. This is further enhanced by burning of waste in landfills and the suspended particles from the construction waste.

Other Factors

Other factors that have contributed to rise in pollution, in general, in Indian cities include

- Diversion of green cover (trees, parks) and water bodies (lakes etc.) for development activities.
- Unchecked expansion of real estate projects and lack of proper construction debris management.
- Expanding access to private vehicles and related emissions.

Harmful Impacts of Air Pollution

Economic	<ul style="list-style-type: none"> • Loss of labour productivity, GDP and per capita income levels. CII estimates that air pollution costs Indian businesses US\$ 95 billion, or 3% of India's GDP every year. • Air pollution reduces agricultural crop yields and commercial forest yields.
Health	<ul style="list-style-type: none"> • It can lead to multiple health conditions including respiratory infections, heart and lung diseases. • The Global Burden of Disease comparative risk assessment noted that air pollution exposure contributes to ~1.8 million premature deaths and loss of 49 million disability adjusted life-years (DALYs) in India
Environment	<ul style="list-style-type: none"> • Acid Rain damages crops, natural vegetation, soil chemistry. • Eutrophication of water bodies increases nitrogen intake of freshwater bodies leading to Eutrophication.

What should be done to check air pollution?

- **Improve Monitoring:** Adequate numbers of AQI monitoring stations as mandated by the NCAP must be installed. Sensor-based AQI monitoring units that give hyper-local data must be set up.

- **Action by Local Authorities:** Enhanced power to local authorities will help them to take **pre-emptive actions** e.g., penalizing construction activities not adhering to norms

- **Nodal Authorities for Air Pollution:**

There is a need to establish a nodal authority with powers to ensure collaborative pre-emptive action on air pollution with timelines.

- **Independent Commission:** Independent commissions like the Commission for Air Quality Management (CAQM) for NCR, should be set up in other major cities like Mumbai and Chennai. It will help in taking actions against the violators irrespective of the geographical region.
- **Regional or airshed approach** must be used to counter the geographical challenge to air pollution management as done in Los Angeles, Mexico City and many mega-urban regions in China.
- **Stricter Norms:** SEBI's Business Responsibility and Sustainability Report (BRSR) framework can lay down tighter guidelines to ensure **uniformity in reporting pollutant emissions**, declaration of air pollution mitigation targets (like companies do for carbon emissions), and **reporting of disaggregated emissions data**.
- **Clean Energy Transition:** The pace of transition away from fossil fuels to more sustainable solutions (including for mobility and domestic use (cooking etc.)) should be accelerated.
- **Strengthen ULBs:** Urban Local Bodies should be provided with more funds to combat air pollution and climate change.
- **Change in Lifestyle:** Public should be made aware about harmful impact of air pollution and nudge them to adopt public transport. Public transport system must be augmented. The use of private vehicles can be disincentivised by introducing ward-wise parking management area plans and parking tax.
- **Waste Management:** End-to-end construction waste management will be pivotal to reducing tonnes of dust and waste released in the air and water bodies.
- **Check Stubble Burning:** Solutions like shifting to less water-intensive crops, altering irrigation arrangements, timing, harvesting, baling practices and building a wider year-round market for straw can help check stubble burning.
- **Global Best Practices:** Learning from other cities can be adopted. London does not allow private vehicles in areas well-connected by public transport. China uses 'fixed number of car sales per year' in Beijing. Similar approaches, suitably adapted, should be implemented in India as well.

Measurement of Air Pollution

- Air pollution is the presence of chemicals, particulates or biological materials in the atmosphere that can cause discomfort, disease or death in humans.
- In India, air pollution is measured according to the **National Air Quality Index (NAQI)** developed by Central Pollution Control Board (CPCB) in 2014

- The AQI is based on 8 pollutants:

- Particulate Matter (PM10)
- Nitrogen Dioxide (NO2)
- Carbon Monoxide (CO)
- Ammonia (NH3)
- Particulate Matter (PM2.5)
- Sulphur Dioxide (SO2)
- Ozone (O3)
- Lead (Pb)

AQI	Remark	Color Code	Possible Health Impacts
0-50	Good		Minimal impact
51-100	Satisfactory		Minor breathing discomfort to sensitive people
101-200	Moderate		Breathing discomfort to the people with lungs, asthma and heart diseases
201-300	Poor		Breathing discomfort to most people on prolonged exposure
301-400	Very Poor		Respiratory illness on prolonged exposure
401-500	Severe		Affects healthy people and seriously impacts those with existing diseases

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Steps Taken to Combat Air Pollution

- **Crop Residue Management (CRM):** Crop Residue Management (CRM) scheme provides subsidy to farmers for buying 'Turbo Happy Seeder', 'Super SMS attachment', 'rotavators' and 'superseeder' that eliminate need to burn stubble.
- **Commission for Air Quality Management (CAQM):** It is a statutory body formed under the Commission for Air Quality Management in National Capital Region and Adjoining Areas, Act 2021. CAQM has provided a framework to tackle the problem of air pollution due to stubble burning.
- **Vehicular Pollution:** The shift from BS-IV to BS-VI, push for Electric Vehicles (EVs), Odd-even Policy have all been implemented to reduce Vehicular pollution.
- **Graded Response Action Plan (GRAP):** GRAP measures like shutting down thermal power plants and a ban on construction activities are implemented to curb air pollution.

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8. Cloud Seeding and Artificial Rain

News: The Government of Delhi considered inducing artificial rains through Cloud Seeding to combat dangerously high level of air pollution in Delhi.

What is Cloud Seeding and how does it induce Artificial Rain?

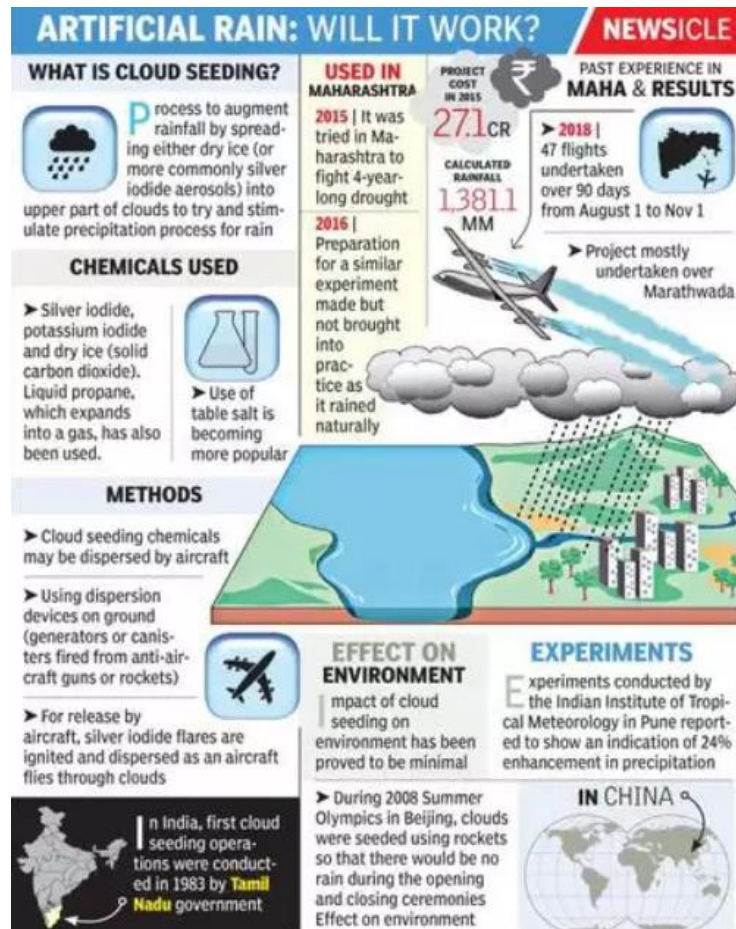
- Cloud seeding is a **weather modification technology** to create artificial rain.
- To induce rain, the 'seeds' of rain like the **iodides of silver or potassium**, **dry ice** (solid carbon dioxide), or **liquid propane** are inserted into the clouds. The seeds can be delivered by plane or simply by spraying from the ground.
- These 'seeds' of rain provide a chemical 'nuclei' around which the **condensation of water droplets is accelerated**.
- Rain happens when the condensed water droplets reach at a level when it can no longer be held around the nucleus.
- Countries like the UAE and China have used this technology in the past. The UAE used it cause rainfall in the arid regions.
- In India, cloud seeding was used in Solapur (Maharashtra) to increase rainfall by ~18%.

What are the advantages of artificial rain induced by cloud seeding?

- **Controlling Pollution:** Raindrops capture airborne particulate matter like PM 10 and pollutants like dust, smoke and chemicals. Thus, the pollutants are washed out from the atmosphere by this method. China employed this to clean Beijing's air during the Beijing Olympics, 2008.
- **Control Forest Fires:** In regions prone to wildfires, cloud seeding is used to induce rainfall and help extinguish fires. This also prevents the release of smoke and pollutants into the atmosphere.
- **Use in Agriculture:** Artificial rain can provide moisture for the crops in drought-prone areas. It can mitigate the impact of droughts to some extent. Project Varshadhari was launched by Karnataka in 2017.
- **Power Generation:** Cloud seeding experiments has helped to augment the production of hydroelectricity during the last 40 years in Tasmania, Australia.
- **Dispersal of Fog and Cyclone Modification:** The US launched 'Project Sky Water' in 1962 for weather modification through cloud seeding. The project aimed at fog dispersal, hail suppression, and cyclone modification.

What are the challenges associated with the process of Cloud Seeding?

- **Pre-Conditions:** The process of cloud seeding requires pre-existing clouds with suitable level of moisture. In the absence of such clouds, the process may fail. This was the concern in Delhi where there is a lack of moisture laden clouds in the month of November.



- **Unintended Environmental Impacts:** The chemicals used in the process like the silver iodide or potassium iodide carry the risk of bioaccumulation and potential toxicity. The use of dry ice (solid carbon dioxide) can further contribute to global warming.
- **Interference with Weather Pattern:** Altering weather patterns in one region can affect weather patterns in neighbouring areas, potentially causing droughts or excessive rainfall in unintended places.
- **High Cost:** This method entails huge logistic costs as it involves release of expensive chemicals into the sky with help of flare shots or aircraft.
- **Cross-Country Impacts:** Weather systems do not adhere to political borders. Cloud seeding in one region can affect weather patterns in neighbouring countries, leading to potential diplomatic and international concerns.
- **Ethical and Legal Challenges:** There are ethical concerns about artificially modifying weather patterns, as it may affect the **natural balance of ecosystems** and disrupt the environment. Legal issues related to liability and compensation for potential damages can arise in future.

What should be the way Forward?

- **Scientific Consensus:** The scientific community must debate on the effectiveness of the technology and build universal consensus on its efficacy. The long-term impact of cloud seeding on ecosystems like water resources, air quality and climate, must be thoroughly researched.
- **Proper Regulatory Mechanism:** Proper regulatory mechanism must be evolved to ensure accountability and transparency of these programs.

9. National Security Strategy for India

News: The Government has initiated the process of formulating a National Security Strategy for India. The exercise is being undertaken by the National Security Council Secretariat (NSCS).

What is the National Security Strategy?

- A National Security Strategy document outlines the **country's security objectives** and the methods to be adopted to achieve these objectives.
- The strategy document defines the traditional and non-traditional threats to a country's security interests. It establishes accountability of agencies dealing with these threats.
- Many militarily advanced nations like the US, UK, Russia and China have published their National Security Strategies which are updates regularly. Pakistan had also brought out its National Security Policy in 2022. (Refer EPIC January 2022 (click) for Pakistan's National Security Policy and Implications for India).
- There have been 3 previous attempts to formulate a National Security Strategy for India, but they were was an inability to bring them a logical end.

What is the need for National Security Strategy of India?

- **Rapidly Changing Geopolitics:** Security strategy is needed to address the uncertainties arising from the recent geopolitical developments like the Israel-Hamas or Russia-Ukraine war or China-Taiwan tensions.
- **Modern Threats:** The security strategy will help in addressing the **emerging non-traditional threats** endangering the various aspects of national security including the financial and economic security, food and energy security, critical information infrastructure security & supply chains and environment security.
- **Traditional Threats:** Porous international borders, rising threat of terrorism, domestic insurgencies and hostile neighbours like China and Pakistan, necessitate the need for a National Security Strategy.
- **Military Reforms:** The security strategy will serve as a guidebook for military modernisation and theaterization.

- Goldwater-Nichols Act 1986 in the US (US military reform), reforms in the UK military, or the Chinese People's Liberation Army (PLA), have all been driven by their national security strategy.
- **Political Direction to the Armed Forces:** In the absence of a comprehensive security strategy of India, Raksha Mantri's **Operational Directive of 2009** is the only document providing political direction to the Armed Forces. This document has become out-dated and needs to be revised.
 - It will enhance the political accountability in the management of defence forces and national security.
- **Clarity of Roles:** The security strategy will clarify the precise operational and advisory roles of national security related institutions like the National Security Council (NSC), the National Security Advisor (NSA), Chief of Defence Staff (CDS) and the Chiefs of Staff Committee.
- **Inter-Agency Cooperation:** The security doctrine would help to maintain active cooperation between security establishments at the Union and state levels and would help in inter-ministerial coordination in tackling any threat to national security.

Significance of National Security Strategy

- It would help make **timely decisions** because the decision-making process will be guided by a documented strategy.
- The Strategy would guide various sub-strategies related to external and internal security. It will fill a huge void in the higher defence management of the country.
- The Strategy would ensure a **uniform security response** taken during times of crises.
- It would help in **maintaining effective coordination among security establishments** at both the Union and State levels. It can help plug gaps in coordination among intelligence agencies.
- National Security Strategy would help protect India's national interests that would ensure peace, growth, and development of the country.

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What are the possible challenges in the implementation of the National Security Strategy?

- **Diverse and Evolving Challenges:** Creating a doctrine that comprehensively addresses all the ever-evolving security challenges like Cyberattacks, crypto-terrorism is a complex task.
- **Consensus:** Balancing the competing interests and ideologies of all stakeholders including the Government officials, policymakers and security agencies is a significant challenge e.g., there is a difference between the 3 wings of the Armed Forces regarding Theaterization of Commands.
- **Resources:** Efficient and effective allocation of resources for the implementation of comprehensive security doctrine will be a challenge especially for modernization of forces.
- **Political Will:** It has been difficult to arrive to a **consensus on India's national interests** under the current political system. A multi-party democracy with representatives from across the ideological spectrum leads to differences over perceptions of national security. **Pre-occupation with electoral politics** and outcomes has led to compromise on some aspects of national security to an extent

What should be the way forward in drafting the National Security Strategy?

- **Learn from Earlier Attempts:** Previous exercises undertaken to promote national security like the Kargil Review Committee report (2000), the Report of the Naresh Chandra Task Force on Security (2012) could serve as useful reference material for the National Security Strategy.
- **Consensus:** Concerns of all stakeholders should be addressed holistically before finalizing the draft. Close cooperation between all responsible agents will be vital for the successful implementation of the Strategy. It will be possible only through consensus.

Factly

Polity

1. Procedure for Asking Questions in the Lok Sabha

News: A Lok Sabha member has been accused of asking questions in the Parliament in exchange for cash

About the Procedure for Asking Questions

- The procedure for raising questions is governed by **Rules of Procedure and Conduct of Business in Lok Sabha** and **Directions by the Speaker, Lok Sabha**.
- **Notice:** MPs must submit a notice addressed to the Secretary-General of the Lok Sabha to ask a question.
 - The notice includes the question text, the Minister's designation to whom it's directed, the desired answer date, and order of preference if multiple questions are submitted.
 - Typically, the notice period for a question is **at least 15 days**.
- **Limit on Notices:** MPs can submit up to 5 notices for both oral and written answers for a single day. Excess notices are considered for the following day during the session.
- **Examination by Speaker:** The Speaker of Lok Sabha reviews the notices according to specified rules.
 - **The Speaker decides if a question or part of it is admissible.**

Admissibility of Questions

- **Word Limit:** Questions usually should not exceed 150 words. They must not contain arguments, defamatory statements, or reference to an individual's character or conduct, except in their official or public capacity.
- **Policy Questions:** Questions raising broad policy issues are generally not allowed because policy matters can't be fully addressed in a brief answer.
- **Pending Matters:** Question isn't admissible if its subject matter is pending judgment before any court of law (or tribunal etc.) or is under consideration before a Parliamentary Committee.
- **Threatens Unity:** A question can't seek information on matters which may weaken the unity and integrity of the country.

Importance of Raising Questions

- **Legislative Control:** Asking questions is an inherent parliamentary right of MPs. It allows Legislative control over Executive actions.
- **Information and Critique:** Questions are used to obtain information about Government activities and criticize policies. They shed light on Government's shortcomings and encourage action for common good.
- **Public Feedback:** The Government uses questions to gauge public reactions to their policies.
- Sometimes, questions can lead to the formation of a Parliamentary Commission, a court of enquiry or even the enactment of a legislation.

2. Right to Privacy and Right to Know

News: The Supreme Court is hearing the case on the validity of Electoral Bond Scheme. The case involves a conflict between two important rights: Right to Privacy and Right to Know.

The Conflict in the Electoral Bond Case

- **Voters Right to Know** the source of political funding for ensuring transparency in the electoral process.
- **Right to Privacy** and confidentiality of companies/donors in exercising their right to choose which party to fund.

About the Right to Privacy

- **Privacy is a human right** enjoyed by every human being by virtue of his or her existence.
- The Right to Privacy was not directly envisaged by the makers of the Constitution, and is not mentioned in Part III of the Constitution.
- However, the Supreme Court in **Justice K.S. Puttaswamy vs Union of India (2017)** Judgment ruled that Right to Privacy is “intrinsic to life and personal liberty”. It is inherently protected under Article 21 and as a part of the freedoms guaranteed by Part III of the Constitution.
- The Court also ruled that the right to privacy is not absolute, but is subject to **reasonable restrictions**. The restrictions by the State must pass the triple test of:
 - State action must have a legislative mandate.
 - It must be pursuing a legitimate state purpose.
 - It must be proportionate i.e., such state action (both in its nature and extent) must be necessary in a democratic society and the action ought to be the **least intrusive of the available alternatives** to accomplish the ends.

The Test of Proportionality

The Supreme Court had adopted the proportionality test proposed by Aharon Barak, the former Chief Justice, Supreme Court of Israel in the *Modern Dental College vs State of Madhya Pradesh* (2016) and reiterated it in the *K.S. Puttaswamy vs Union of India* (2017). The Puttaswamy Judgment had slightly altered the criteria as originally proposed by Justice Barak.



- | | |
|---------------------------|---|
| 01 Legality | There must be a law in existence. |
| 02 Legitimate Aim | The law must have a legitimate need. |
| 03 Proportionality | Proportionality of the legitimate aims with the object sought to be achieved. |
- Justice Chandrachud gave the above three dimensions.
 - Justice Kaul had added 'fourth prong' of '**procedural guarantees against abuse of measures**'.

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About the Right to Know

- Right to know is the species of the right to speech and expression provided by the Article 19(1) (a) of the constitution of India.
- A citizen has a fundamental right to access towards information.
- It is the duty of the state to protect the fundamental right.

3. Appointment of State DGPs: UPSC Guidelines

News: UPSC has amended the guidelines for appointment of the State Director General of Police (DGP).

Current Procedure for Appointment of DGPs

- UPSC had framed guidelines for the appointment to the post of State DGPs in 2009.
- These guidelines were made on the basis of the Supreme Court judgment on police reforms in **Prakash Singh vs Union of India (2006)**. The Guidelines include:
 - States must provide the UPSC with a list of officers eligible for consideration.
 - Officers must have a minimum of 30 years of service. Information required to be sent to UPSC include service records, performance appraisals and vigilance clearance.
 - Eligible officers should hold the rank of Additional Director General (ADG) or the rank of police chief or one rank below, as specified by the State.
 - This list must reach the UPSC 6 months before the incumbent DGP is set to retire.
 - The Committee, chaired by the UPSC Chairperson and consisting of the Union Home Secretary, State Chief Secretary, State DGP, and a Central Police Organization Chief will select 3 officers based on merit.
 - The State Government has to immediately appoint one person from the panel prepared by the UPSC.

Amendments to the Guidelines

Aspect	Description
Minimum Service Left	Only police officers with at least 6 months of service left before retirement will be considered for appointment as the DGPs.
Central Deputation	If an IPS officer is serving on a central deputation and the Union Ministry of Home Affairs (MHA) informs the respective State government that it cannot relieve the officer, that individual will not be considered for the position of DGP.
Experience	The previous requirement of 30 years of service for DGP eligibility has been reduced to 25 years.
Officer Shortlisted	The number of shortlisted officers cannot exceed three, but may consist of less than three officers in “exceptional circumstances”.
Consent/Willingness	Officers will not be included in the shortlisted list unless they themselves are willing.

4. Preventive Detention Law in India

News: The Supreme Court has expressed concerns about the use of Preventive Detention Law by the Government of Telangana.

About Preventive Detention

- Preventive detention means detention of a person by the State on suspicion, **without trial and conviction by court of law**.
- In countries such as Britain, United States and Canada, preventive detention is a wartime measure. In India, preventive detention is dealt with in the **Article 22 of the Constitution**.
- The State can order preventive detention under various laws.
- At the national level, examples of such laws include the **National Security Act** and the Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974 (COFEPOSA).
- The State Governments have their own laws that allow for preventive detention.

Procedure for Preventive Detention

- The district magistrate would issue an order to detain a person when it is necessary to maintain “public order.” The State can delegate this power to the police as well.
- If the detention ordered is for **more than 3 months**, such a detention requires the **approval of an Advisory Board**.
- These Advisory Boards are set up by States and normally consist of retired judges and bureaucrats. A detainee is generally **not allowed legal representation before the Board**. If the Board confirms the detention, the detainee can move Court challenging the detention order.
- The detainee is entitled to know the grounds of his detention. However, the State may refuse to divulge the grounds of detention if it is in the **public interest** to do so.
- The detaining authorities must also give the detainee earliest opportunities for making representation against the detention.

Courts’ Assessment of Detention Orders

- For preventive detention, there are **very narrow grounds of judicial review** because the Constitution emphasizes the State’s subjective satisfaction when ordering a detention.

- Judicial review in such cases is often limited to whether the Advisory Board applied its mind, considered all material facts and whether the **State showed malicious intention** in ordering detention.
- However, courts have invalidated detention orders based on technical issues. These include delays in the Advisory Board's decision, timely communication of detention grounds etc.

5. Advocates-On-Record (AoR)

News: An Advocate-on-Record was pulled up the Supreme Court for filing a frivolous PIL. The SC also called for a 'comprehensive plan' for reforming and improving the AoR system of the SC.

Specifications	Details
Advocate-on-Record	<ul style="list-style-type: none"> • It is a title given to an advocate who can represent a cause or pleading before the Supreme Court (SC). • Only AoRs are entitled to file any matter or document before the SC. • They can also file an appearance or act for a party in the SC. • AORs serve as the link between litigants and the SC. • AORs can also appear before other courts.
Basis	<p>AoR system is based on the British model of barristers and solicitors where barristers argue cases and solicitors handle client matters.</p> <ul style="list-style-type: none"> • The Supreme Court Rules, 2013 prescribe eligibility criteria for an AoR. • An advocate has to clear an examination set by the Supreme Court and has to meet specific criteria such as: <ul style="list-style-type: none"> ◦ An advocate must undergo training with a court-approved AoR for at least one year before taking the examination. ◦ The advocate should have at least 4 years of legal practice before beginning the training. ◦ An AoR must have an office located in Delhi within a 16-kilometer radius of the Supreme Court.
Rules	<ul style="list-style-type: none"> • The Supreme Court creates the rules for the AoR system based on the authority given to it under Article 145 of the Constitution. • Under Article 145 of the Constitution, the Supreme Court is empowered to make rules and regulate its own procedure for hearing cases.

6. DNA and Face-matching Systems in Police Stations

News: The Government of India is all set to implement the DNA and Face-matching Systems at 1,300 police stations across India.

Legal Backing for the Step

- The Government of India is implementing DNA and face-matching systems at police stations under the **Criminal Procedure Identification Act, 2022**.
- The Act allows the police and the Central investigating agencies to collect, store and analyze physical and biological samples including retina and iris scans of arrested persons.
- This Act replaced the **Identification of Prisoners Act, 1920** whose scope was limited to capturing finger impressions, footprints and photographs of convicted prisoners and a specific category of arrested and non-convicted persons under the orders of a Magistrate.
- The **National Crime Records Bureau (NCRB)** has been given responsibility to implement this Act.

Implementation

- The Union Home Ministry has established a Domain Committee with representatives from State police, Central law enforcement agencies, and other stakeholders to ensure the successful implementation of the Act. (Refer EPIC April 2022 (click) for the Criminal Procedure (Identification) Act, 2022).
- The **National Automated Fingerprint Identification System (NAFIS)** is being integrated with the Criminal Procedure Identification Act. NAFIS has created a **central database of fingerprints** of criminals which can be accessed by users from all States, Union Territories and Central Agencies.
- The implementation of the system has to address the challenges like lack of training of Police Officials, lack of funds etc. It has to be ensured that the tools and systems used by the police should be technologically, legally and forensically sound.

7. Judgments by Chief Commissioner of Persons with Disabilities

News: The Court of Chief Commissioner of Persons with Disabilities delivered two significant judgments on the rights of *Divyangjan* (persons with disabilities) in India.

About the Commissioner of Persons with Disabilities

Aspect	Description
Basis	Section 74 of Rights of Persons with Disabilities Act, 2016 provides for appointment of a Chief Commissioner for Persons with Disabilities.
Controlling Authority	The Office comes under the Department of Empowerment of Persons with Disabilities under the Ministry of Social Justice and Empowerment.
Mandate	The office has been mandated to take steps to safeguard the rights of persons with disabilities.
Composition	The Office consists of One Chief Commissioner and two Commissioners to assist the Chief Commissioner at the Centre.
Functions	<ul style="list-style-type: none"> • Identify the provisions of any law or policy, programme and procedures, which are inconsistent with this Act and recommend necessary corrective steps. • Inquire deprivation of rights of persons with disabilities and safeguards available to them. (can take suo motu action on both the above).

About the Judgments

- **Equitable Access to Divyangjans to Offices:** The Court of Chief Commissioner mandated that any government office that is not accessible to *Divyangjan*, must **relocate their services to the ground floor or another accessible location** for them.
- **Air Travel Access:** The Court of Chief Commissioner emphasized that **all airlines are responsible for implementing** the provisions of the Rights of Persons with Disabilities Act 2016.

Rights of Persons with Disabilities Act, 2016

- The Act replaced the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995.
- The Act fulfils India's obligations to the **United National Convention on the Rights of Persons with Disabilities (UNCPRD)**, to which India is a signatory.
- The Act covers **21 types of disabilities**.
- The Act provides for certain **Rights and Entitlements** for the disabled:
 - Benefits such as **reservation in higher education** (not less than 5%), **government jobs** (not less than 4%), reservation in **allocation of land, poverty alleviation schemes** (5% allotment) etc.
 - Every child with benchmark disability between the age group of 6 and 18 years shall have the **right to free education**.
- The Act provides for establishment of **Office of Chief Commissioner of Persons with Disabilities**, who will be assisted by 2 Commissioners and an Advisory Committee comprising of not more than 11 members who have expertise in various disabilities.
- **Penalties:** Any person who violates provisions of the Act shall be punishable with imprisonment up to 6 months and/ or a fine of INR 10,000 or both.

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8. Central Consumer Protection Authority (CCPA)

News: The Central Consumer Protection Authority (CCPA) has sent notices to 20 Civil Services coaching institutes for publishing 'misleading' advertisements.

Aspect	Description
Basis	It is a regulatory authority set up under Section 10(1) of the Consumer Protection Act, 2019 .
Mandate	<ul style="list-style-type: none"> • Keep a check on matters affecting rights of consumers. • Protect the consumer's interest, from individuals or entities who follow improper trade practices or display inappropriate or wrong advertisements.
Composition	<p>It consists of following members appointed by the Union Government:</p> <ul style="list-style-type: none"> • Chief Commissioner. • Two Commissioners: One commissioner will represent goods, the other will represent services.
Functions	<ul style="list-style-type: none"> • Inquire on the violation of customer rights either by suo-motu, on complaint or when referred by Union Government. • The Commission can direct to discontinue advertisements which are wrong or misleading to consumers, and impose penalties up to INR 10 lakhs payable in cash.

Salient Features of the Consumer Protection Act, 2019

- The Act replaced the **Consumer Protection Act, 1986**.
- The Act provides several rights to the consumers:
 - Protection against marketing of goods and services which are **hazardous to life and property**.
 - **Right to be informed** on the quality, quantity, purity, standard and price of goods and services.
 - **Assurance of access** to a variety of goods or services at competitive prices.
 - Redressal against **unfair and restrictive trade practices**.
 - **Right to receive adequate compensation** or consideration from respective consumer forums.
 - Right to **receive consumer education**.
- The important provisions under the Act include:
 - The Act establishes **consumer protection councils** to protect the rights of the consumers at both the National and State levels.
 - The Act has made it **mandatory for every e-commerce entity to display the country of origin**.
 - **Consumer Disputes Redressal Commission:** CDRCs will be set up at the District, State, and National levels.
 - **Product Liability:** A manufacturer or product seller will be held responsible to compensate for injury or damage caused by defective product or deficiency in services
 - **Punishment for Manufacture or Sale of Defected or Adulterated Goods:** In case of the **first conviction**, a competent court may **suspend the license** for a period of up to **2 years** and in case of **second or subsequent convictions**, may **cancel the license permanently**.

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Policy

1. UGC Norms for Campuses of Foreign Universities in India

News: The UGC has notified the regulations for foreign universities to set up and operate their campuses in India.

Specification	Description
Eligibility Criteria	<ul style="list-style-type: none"> It must be ranked among the top 500 universities in the world according to a list approved by the UGC. It must be ranked among the top 500 universities in a specific subject according to a list approved by the UGC. It must have exceptional expertise in a particular field, as determined by the UGC.
Application Process	<ul style="list-style-type: none"> The application should be submitted on the UGC portal. The UGC will constitute a Standing Committee to examine it. The recommendations of the Committee shall be placed before the UGC within a period of 60 days from the date of receipt of the application.
Foreign Contribution	To receive or utilize foreign contributions, the foreign university will have to obtain registration or prior permission under the Foreign Contribution (Regulation) Act, 2010 .
Setting up Campus	<ul style="list-style-type: none"> Two or more universities can collaborate to set up campuses in India, provided each institution meets the eligibility criteria individually. Each foreign university can set up more than one campus in India. They shall make a separate application for each proposed campus to the UGC.
Programmes/Courses	<ul style="list-style-type: none"> No programmes can be offered online or in Open and Distance Learning modes. However, lectures in online mode not exceeding 10% of the programme requirements are allowed. The foreign universities are not allowed to open learning centers, study centres or franchises that may act as representative offices of the parent entity.
Faculty	Foreign universities shall have autonomy to recruit faculty and staff as per their recruitment norms.
Fee Structure	Foreign Universities can decide their fee structure. But the regulations suggest they provide “free concession” to Indian citizens.

2. APAAR ID: ‘One Nation, One ID’ for Students

News: The Union Ministry of Education has introduced the APAAR ID, a unique ID for school students across India.

About APAAR ID

- It stands for ‘Automated Permanent Academic Account Registry’.
- It is a **12-digit digital identification system** for school students in India. It will give each student enrolled from pre-primary to higher education a unique identification number.
- It will **digitally store** academic qualifications, credit scores, certificates, and other academic data of students.

Process of Enrolment

- The enrolment process will be carried out by the school, with the **consent of the students' parents**.
- The **parents can withdraw their consent** at any given point in time.
- The data will be shared only with concerned government agencies if and when required.
- The data collected on each student by the schools will be stored in a centrally functioning District Information for Education portal.

Benefits of APAAR ID for Students

- APAAR is like a lifelong ID that will help to keep track of one's school journey and achievements.
- It will store exam results, learnings, additional accomplishments (like Olympiad rankings) or specialized skill training etc.
- It **makes switching schools** easier because all the documents for admission are in one place.

APAAR REGISTRY OF ACADEMIC FEATS

➤ It will help track educational progress and achievements of students

➤ Students can digitally store all achievements, like exam results, learning outcomes, achievements in Olympiad, sports, skill training etc

➤ Students can use the credit score for their higher education or employment purpose in future

➤ Aadhaar number will be masked while sharing data with other government users

➤ Personal information, such as name, address, age, date of birth, gender and photograph, will be made



available to entities engaged in various educational activities, scholarships, educational institutions

➤ It will make transfer from one school to another easy

➤ It will help monitor students dropping out and mainstreaming them. New students entering the education system can also be tracked

Challenges with APAAR ID

- **Data Security:** The breach of database can lead to leakage of private information about students which can be misused.
- **Burden on Schools:** Schools are already dealing with verifying Aadhaar details for students. Adding APAAR registration increase the burden for teachers and staff.

3. Gender Disparity in Organ Donation

News: The data collected by the National Organ and Tissue Transplant Organization (NOTTO) (between 1995-2021) has revealed a sharp gender disparity in organ transplants in India.

Key Findings from the Data

- **Gender Disparity:** Between 1995 and 2021, of the total 36,640 patients who underwent organ transplants, 29,695 (81%) were men and only 6,945 (19%) were women. Studies have shown that the number of women donors is higher than men.
- **Types:** Kidney transplants are the **most common**, followed by liver, heart, and lung transplants.
- **State-wise Status:** Delhi topped the table in living donor transplants, while Tamil Nadu remained the leader in deceased donor transplants, where organs from brain-dead patients are used.
- Record number of organ transplants were undertaken in 2022 (16,041 procedures).

OVER 58,000 TRANSPLANTS IN LAST 5 YEARS

Year	Total transplants	Living donor transplants	Deceased donor transplants
2018	10,340	78.19%	21.81 %
2019	12,666	83.72%	16.28 %
2020	7,443	86.75%	13.25 %
2021	12,259	86.78%	13.22 %
2022	16,041	83.15%	16.85 %



Highest number of living donor transplants*

Delhi	3,422
Tamil Nadu	1,690
Kerala	1,423
Maharashtra	1,222
West Bengal	1,059

Source: NOTTO

*In 2022

Highest number of deceased donor transplants*

Tamil Nadu	555
Telangana	524
Karnataka	478
Gujarat	398
Maharashtra	303

- In India, organ donation is regulated by the **Transplantation of Human Organs Act (THOA), 1994**. It provides various regulations for the removal of human organs and their storage.
- The National Organ Transplant Programme (NOTP) aims to improve access to life-transforming transplantation for needy citizens by promoting deceased organ donation.

About NOTTO

- National Organ and Tissue Transplant Organization (NOTTO) is a National level organization set up under Directorate General of Health Services, Ministry of Health.
- It has been created under the Transplantation of Human Organs (Amendment) Act 2011.
- It functions as the apex centre for all Indian activities for procurement, distribution and registry of organs and tissue donation and transplantation in the country. (Read more on Organ Transplantation).

4. Extension of PMGKAY Scheme

News: The Government has announced to extend the Pradhan Mantri Garib Kalyan Anna Yojana for 5 years.

Aspect	Description
Purpose	<ul style="list-style-type: none"> • It is a free food grain scheme that provides 5 kg of food grain per month per beneficiary free of cost. • It has ~81 crore beneficiaries and covers ~57% of India's population. • This assistance is in addition to the subsidized ration provided under the National Food Security Act (NFSA).
Launch	It was launched in April 2020 during the COVID-19 Pandemic.
Beneficiaries	All the beneficiaries covered under the National Food Security Act (NFSA) [Antodaya Anna Yojana & Priority Households] including those covered under Direct Benefit Transfer (DBT).
Ministries	It is being operated by the Ministry of Consumer Affairs, Food and Public Distribution.
Cost	Its current annual cost (or food subsidy bill) would be over ~ INR 2 trillion (INR 2 lakh crore), and it should increase in the next 5 years.
Integration of PMGKAY and NFSA	<ul style="list-style-type: none"> • In January 2023, the Government approved the integration of PM-GKAY benefits with the provisions of the NFSA Act. It helped streamline the delivery of free food grains. • It also ensured that families falling under the Antyodaya Anna Yojana and Priority Households (PHH) categories receive free food grains according to their entitlement under NFSA.

Concerns Associated with the Extension

- **Subsidy Burden:** The scheme will add to burden on Government exchequer for the next 5 years. Critics have called this scheme like other 'freebies'.
- **Error in Targeting:** Inclusion/Exclusion Error in targeting of beneficiaries can reduce effectiveness of the scheme. A recent report by the World Bank noted that India's poverty level has declined to 10%, while the scheme covers 57% of the population.

5. Digital Advertisement Policy, 2023

News: The Ministry of Information and Broadcasting has released the Digital Advertisement Policy, 2023.

About the Policy

- The aim of the Policy is to enable and empower the **Central Bureau of Communication (CBC)** to undertake campaigns in the Digital Media Space.
- Key Provisions of the Policy include:
 - **Empanelment of entities for public service campaigns:** The policy allows CBC to empanel 5 types of entities for Government advertisements:
 - ✓ Internet websites and mobile apps (news websites and apps, travel websites, etc.).
 - ✓ Over the top (OTT) video on demand platforms (such as Disney+Hotstar).
 - ✓ Digital audio platforms (such as Spotify).
 - ✓ Social media platforms (such as Facebook, Twitter).
 - ✓ Media agencies for digital campaigns.
 - Any innovative and futuristic platforms can also be onboarded by the CBC with the approval of a 6-member committee headed by the director general or the principal director general of the CBC.
 - **Transparency in Prices:** The Policy introduces competitive bidding for rate discovery, ensuring transparency and efficiency. Rates discovered through this process will remain valid for 3 years and will be applicable to all eligible agencies.
 - **Decline or Suspend Empanelment Entities:** CBC has the right to decline or suspend empanelment of any entity if its content is found to be anti-national, obscene, indecent, anti-social and violative of communal harmony and national integrity or deemed objectionable. On this, the CBC decision will be final.

About the Central Bureau of Communications (CBC)

Specifications	Details
Nodal Ministry	Ministry of Information and Broadcasting.
Creation	Set-up in 2017 by merging erstwhile Directorate of Advertising and Visual Publicity (DAVP), Directorate of Field Publicity (DFP) and Song & Drama Division (S&DD).
Mandate	To create awareness and disseminating information about various Government programs, schemes and policies in India.
Headquarter	New Delhi.

6. PM PVTG Mission

News: The Government has launched the INR 24,000 crore Pradhan Mantri PVTG Mission.

About the PVTGs

- Particularly Vulnerable Tribal Groups (PVTGs) are the most vulnerable groups among tribal communities.
- The Dhebar Commission had created the Primitive Tribal Groups (PTGs) as a separate category in 1973. PTGs were the least developed communities within the tribal groups. In 2006, the Government renamed PTGs as PVTGs.
- The criteria for declaring a group as PVTG include:
 - Pre-agricultural level of technology.
 - Low level of literacy.
 - Economic backwardness.
 - A declining or stagnant population.
- At present, there are 75 PVTGs in India. Of these, the highest number of PVTGs are found in Odisha (13), followed by Andhra Pradesh (12). The largest PVTG is Odisha's Saura community.

About the PM PVTG Mission

Aspect	Description
Nodal Ministry	Ministry of Tribal Affairs.
Aim	To improve socio-economic conditions of the PVTGs.
Features	Under the mission, basic facilities such as road and telecom connectivity, electricity, safe housing, clean drinking water and sanitation, improved access to education, health and nutrition and sustainable livelihood opportunities will be provided to areas where PVTGs live.
Functions	<ul style="list-style-type: none"> The mission will be implemented through the convergence of 11 interventions from 9 Ministries. These schemes include <i>Pradhan Mantri Gram Sadak Yojana</i>, <i>Pradhan Mantri Gramin Awas Yojana</i>, <i>National Sickle Cell Disease Elimination Mission</i> among others.

7. IIM (Amendment) Act, 2023

News: The Government has released the regulations related to the IIM (Amendment) Act, 2023.

Specifications	IIM Act, 2017	IIM Act, 2023
Visitor	-	President of India is the Visitor of every Institute covered by the Act.
Appointment of the Director	Appointed by the Board of Governors, on the basis of the recommendations of a Search-cum-Selection Committee.	Board to obtain the prior approval of the Visitor before appointing an Institute Director.
Appointment of Chairperson, Board of Directors	Appointed by the Board.	The Chairperson of the Board will be nominated by the Visitor.
Dissolution of the Board	-	The Union Government may prescribe the conditions and procedure for dissolving or suspending an Institute's Board.
Inquiries Against IIMs	<ul style="list-style-type: none"> Board can initiate an inquiry against an Institute if it has not been functioning in accordance with the Act. A retired High Court judge conducts such inquiries. 	<ul style="list-style-type: none"> It confers the power of inquiry upon the Visitor. The Visitor may appoint persons to review the work of any Institute and hold inquiries into its affairs.
Coordination Forum	<ul style="list-style-type: none"> The Act provides for a Coordination Forum for all the Institutes. These forums are established to facilitate coordination among all institutes in order to attain common policy objectives. The Chairperson of the Forum is selected by a Search-cum-Selection Committee, constituted by the Forum. 	The Chairperson of the forum will be nominated by the Visitor.

8. Central Adoption Resource Authority (CARA)

News: The Supreme Court has expressed concern over delays in India's child adoption process.

Specification	Details
Type	An autonomous body established in 1990 and given Statutory status by Juvenile Justice (Care and Protection of Children) Act, 2015.
Nodal Ministry	Ministry of Women and Child Development.
Parent Act	Juvenile Justice (Care and Protection of Children) Act, 2015.
Mandate	<ul style="list-style-type: none"> • Oversee child adoption procedures for Indians and NRIs living abroad. • Facilitate inter country adoptions. India has ratified Hague Convention (1993) in 2003.
Laws Governing Adoption in India	<ul style="list-style-type: none"> • Adoption is governed by two laws in India: <ul style="list-style-type: none"> ◦ The Hindu Adoption and Maintenance Act, 1956 (for Hindus, Jains, Sikhs and Buddhists). ◦ The Juvenile Justice (Care and Protection of Children) Act, 2015. • CARA plays a role in the adoption under the Juvenile Justice Act.
Recent Amendments in the Adoption Process	<ul style="list-style-type: none"> • 2015: Setting up an e-governance system called CARINGS to facilitate adoption. It also allows prospective parents to track applications and set out times for domestic and inter-country adoptions. • 2022: Authorized local District Magistrates (DMs) to issue adoption orders in order to ensure speedy disposal of cases and enhance accountability. The DMs would also be charged with inspecting the functioning of local childcare institutions, child welfare committees, juvenile justice boards, etc..

Economy

1. Listing of Indian Companies in Foreign Stock Exchanges (Abroad)

News: The Ministry of Corporate Affairs has allowed certain unlisted companies to directly list on foreign stock exchanges. Till now, only companies listed in India could seek listing on a foreign stock exchange.

Demand for Listing on Foreign Stock Exchanges

- Traditionally, companies raise funds by listing in domestic stock exchanges as investors have better and deeper understanding of local economic conditions.
- However, tech firms with global presence are changing this trend by listing overseas. This is because:
- Global Demand: Investors worldwide want high-growth stocks from emerging markets, leading to a demand for overseas-listed companies.
- Better Valuations: Global platforms offer more attractive opportunities than local markets. Platforms like NASDAQ (US Stock exchange platform) attracts tech investors by providing better valuations.
- Domestic exchanges might undervalue tech companies, especially those operating at a loss, due to limited investor expertise and scepticism towards such businesses.

New Regulations

- At present, any company already listed in India is eligible for foreign secondary listing.

- Now, the Government has allowed certain unlisted companies to directly list on foreign stock exchanges.
- The Government is expected to provide a list of jurisdictions where Indian firms will be allowed to list. IFSC in Gift City, Gandhinagar is expected to be part of permitted jurisdictions for overseas listing.

Regulatory Issues

- **Double Compliance:** Firms must adhere to the rules of the country where they list their stock. Since the firm is incorporated in India, they must also follow Indian norms (related to raising capital) as well. This may enhance compliance costs.
- **Taxation:** Addressing taxation issues, especially concerning capital gains, is crucial for companies listing overseas.
- **Geopolitics:** Geopolitical tensions between India and the foreign country where a company is listed could negatively impact the company's operations and market performance.

2. Risk-Weighted Assets

News: The RBI has increased the risk weights of assets for the unsecured lending issued by Banks and Non-banking Financial Companies (NBFCs).

About Risk Weighted Assets

- Risk-weighted assets are used to determine the minimum amount of capital a bank must hold in relation to the **risk profile of its lending activities** and other assets.
- This is done in order to **reduce the risk of insolvency** and **protect depositors**. The more risk a bank has, the more capital it needs on hand.
- The capital requirement is based on a **risk assessment** for each type of bank asset e.g., a loan that is secured by a letter of credit is considered to be riskier than a mortgage loan that is secured with collateral and thus requires more capital.

RBI's Move to Increase Risk Weights

- Indian Banks are experiencing a significant increase in **unsecured loans**, particularly in personal loans and credit cards. This increase is happening faster than the overall growth of bank credit.
- That's why, RBI has increased the risk weighted assets on unsecured loans.
- An unsecured loan is not supported by any collateral like property or another asset.

Risk

In Economics and Finance, Risk refers to **uncertainty in expected incomes or outcomes**. It measures the uncertainty an investor is willing to take to realize gains from an investment e.g., a building a petroleum refinery is a riskier project than a building a warehouse because of **higher investments** (several billion dollars), **greater regulatory control/clearances**, **longer gestation period** (during which lots of factors can change like change in oil prices, geopolitical tensions etc.) among other factors.

Risk Profile

Risk Profile refers to **quantitative analysis** of the **types of threats** faced by an individual, asset, project or an organization. Several parameters are considered to establish the risk profile.

A person with annual income of INR 12 Lakhs will have poor risk profile compared to a person earning INR 50 Lakhs per annum. Or a person with greater assets (land, cash) will have a better risk profile (low risk).

Similarly, all other things being equal, a project with longer gestation period (like infrastructure) will be considered riskier.

Banks consider the risk profile while lending. A person or project with **riskier profile will have higher chance of default**. Hence, **higher the risk, higher the interest rate the bank will charge on the loan**.

3. FATF

News: Mutual Evaluation of India under the FATF framework will be undertaken in 2023. The Government has implemented several measures in line with the recommendations from its 2010 Review.

About the FATF

Specification	Details
Established	1989 by G7.
Type	Inter-governmental Body.
Purpose	Leads global action to tackle money laundering, terrorist and proliferation financing.
Members	39 members. 37 jurisdictions; 2 regional organizations (Gulf Cooperation Council and the European Commission).
India's Membership	India joined with 'observer' status in 2006 and became a full member of FATF in 2010.
Sessions	FATF Plenary is the decision-making body of the FATF. It meets 3 times per year.
Lists	<ul style="list-style-type: none"> • Grey List: Countries that are considered a safe haven for supporting terror funding and money laundering are put in the Grey List. It serves as a warning to the country that it may enter the blacklist. • Black List: Countries known as Non-Cooperative are put in the Black List. These countries support terror funding and money laundering activities. At present, Iran, North Korea and Myanmar are the three black listed countries.
Secretariat	Paris, France.

4. India Finance Report, 2023

News: CAFRAL, under the RBI, has released the India Finance Report, 2023.

About NBFCs

- A Non-Banking Financial Company (NBFC) is a registered entity under the **Companies Act, 1956**, specializing in activities such as **lending, investing in financial securities, leasing, and insurance**.
- It excludes primary operations related to agriculture, industry, goods trading, or property transactions.
- NBFCs are commonly referred to as 'shadow banks' because they operate similarly to banks but have fewer regulatory restrictions. (*Read more about NBFCs here*).

NBFCs vs Banks

- NBFCs cannot accept **demand deposits**.
- NBFCs do not form part of the payment and settlement system and **cannot issue cheques** drawn on themselves.
- The deposit insurance facility of **Deposit Insurance and Credit Guarantee Corporation** is not available to depositors of NBFCs, unlike in case of banks.

About CAFRAL and India Finance Report, 2023

- Centre for Advanced Financial Research and Learning (CAFRAL) is an independent body established by the Reserve Bank of India. It conducts research and provides insights into India's financial sector, including NBFCs.

- The CAFRAL report on India's NBFC sector reveals noteworthy trends:
- **Stronger Capital Position:** The report indicates a significant rise in the Capital to Risk-Weighted Assets Ratio (CRAR), soaring from 22.9% in 2019-2020 to 27.6% in 2022-23. This shows improved financial stability.
- **Enhanced Asset Quality:** Both gross and net non-performing asset (NPA) ratios have consistently decreased, indicating healthier loan portfolios.
- **Economic Importance:** The NBFC sector's vital role in supporting India's economy, particularly MSMEs, is emphasized. It served as a crucial support system post-2008 Global Financial Crisis, providing credit when banks struggled with NPAs.

Concerns Raised by the Report

- **Rising Bank Financing for NBFCs:** The Report is concerned about the increasing reliance of NBFCs on bank financing. This means that NBFCs are borrowing more from traditional banks to fund their operations. The concern here is that **if NBFCs face financial stress** or defaults, it could **potentially impact the stability of the banking sector** as well, leading to a broader financial crisis.
- **Systemic Contagion Risk:** The report emphasizes the need for **preventive measures to address the risk of systemic contagion**. Systemic Contagion means that problem in one NBFC could spread to other financial institutions or the broader economy.
- **Monetary Policy Shocks:** The Report recognizes the recent shifts towards tightening in the monetary policy in response to rising inflation. These abrupt policy changes can catch businesses off-guard and impact the sector.

5. Global Tax Evasion Report, 2024

News: The European Union Tax Observatory has released the 'Global Tax Evasion Report, 2024'.

Key Highlights of the Report

- The Report aims to discuss tax evasion, the Global Minimum Tax (GMT) and measures to combat tax evasion.

Aspect	Description
Tax Rates for Billionaires	Global billionaires often have effective tax rates as low as 0% to 0.5% due to the use of shell companies to avoid income taxation.
Profit Shifting by MNCs	<ul style="list-style-type: none"> • In 2022, MNCs shifted ~US\$ 1 trillion to tax havens, equivalent to 35% of their profits earned outside their home countries. • 'Greenwashing the Global Minimum Tax' allows MNCs to use 'green' tax credits to lower their tax rates below the 15% minimum.
Curbing Tax Evasion	<ul style="list-style-type: none"> • Over the past decade, offshore tax evasion has reduced, with only 25% of previously untaxed wealth remaining. • However, challenges persist such as non-compliance by offshore financial institutions and limitations in automatic sharing of bank information.

Key Recommendations of the Report

- **Global Minimum Tax for Billionaires:** The Report proposes a global minimum tax of 2% on billionaires' wealth to increase government revenue and **reduce wealth inequality**.
- **Reform Corporate Taxation:** The Report calls for reform in international agreements on minimum corporate taxation by implementing a 25% tax rate and eliminating tax competition loopholes.

Tax Evasion

Tax evasion is the illegal act of not paying owed taxes to the Government by **under-reporting income**, **hiding money offshore** or inflating deductions to **reduce tax liability**.

• **Unilateral Measures for Tax Collection:**

There is a need to implement unilateral measures to collect taxes from MNCs and billionaires if global agreements fail.

- The Report calls for creating a **Global Asset Registry** and strengthening of anti-abuse rules to deter tax avoidance and evasion. (Read more about Global Minimum Corporate Income Tax).

Tax Avoidance vs Tax Evasion

Avoidance is an action taken to lessen tax liability and maximize after-tax income. **Tax Avoidance is legal**, though it may involve **exploiting loopholes in the tax code**.

Evasion is a **fraudulent and illegal approach**. It involves falsifying, hiding or concealing information or claiming fraudulent transactions to reduce payment of taxes.

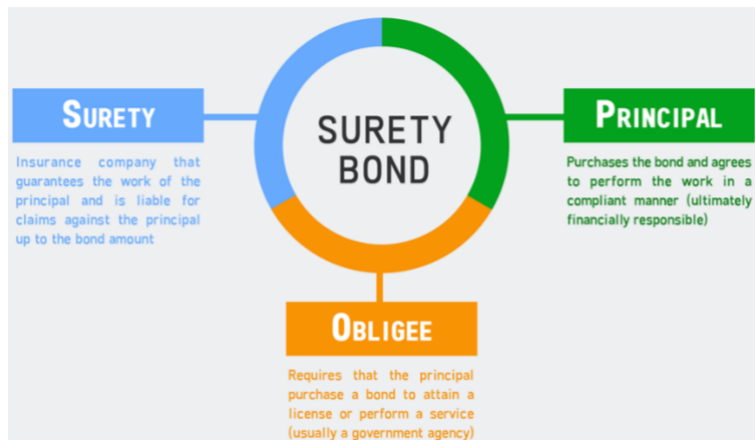
6. Surety Bonds

News: NHAI has accepted Insurance Surety Bond for the monetization programme of the upcoming bid of Toll Operate Transfer (TOT) model.

Specification	Details
Definition	Surety Bonds are a type of insurance policy protecting parties involved in a transaction or contract from potential financial losses due to a breach of contract or other types of non-performance .
Parties Involved	<ul style="list-style-type: none"> • Principal: The party that purchases the bond and undertakes an obligation to perform an act as promised. • Surety: The insurance company or surety company that guarantees the obligation will be performed. If the principal fails to perform the act as promised, the surety is contractually liable for losses sustained. • Obligee: The party who requires, and often receives the benefit of the surety bond. For most surety bonds, the obligee is a Local, State or Federal Government Organization.
Benefits	<ul style="list-style-type: none"> • Assist in developing an alternative to bank guarantees. • Address the large liquidity and funding requirements of the infrastructure sector.
Issues	<ul style="list-style-type: none"> • Surety Bonds as a new concept is risky and insurance companies in India are yet to achieve expertise in risk assessment in such business. • Surety Bonds need extensive reinsurance support and no primary insurers can issue any policy without proper reinsurance backup.

Bank Guarantee

It is a financial instrument offered by a Bank **promising to cover a financial obligation if one party in a transaction fails to hold up their end of a contract**. It enables the bank's client to buy equipment, acquire goods, or perform international trade. If the client fails to settle a debt or deliver promised goods, the bank will cover it (i.e., the Bank pays).



7. Sovereign Green Bonds

News: The Government of India has raised INR 5,000 crore through the first issue of Green Bonds.

About the Sovereign Green Bonds (SGBs)

- Sovereign Green bonds are **fixed interest-bearing financial instruments** issued by any sovereign entity (Government) or inter-governmental organization/corporation.
- The proceeds of these bonds are used only for **environmentally conscious, climate-resilient projects**.
- In the Union Budget 2022-23, the Government announced the issue of sovereign green bonds (SGBs) as part of its market borrowings for **mobilizing resources for green infrastructure**.
- The framework for the SGBs was issued by the Government in November 2022. *(Read more about Green Bonds).*

Benefits of SGBs

- **Low Risk:** SGBs are issued by the Government entity (Sovereign), they carry nil credit and default risk.
- **Focus on Sustainable Development:** Green bonds provide a good investment opportunity for those who are more concerned with the sustainable social development and greening of brown industries.
- **Absence of Project-Related Risks:** According to the framework released by the Government, investors in SGBs do not bear project related risks. This means payments of principal and interest on the issuances are not conditional on performance of the projects.

Concerns Associated with SGBs

- **Greenwashing:** Greenwashing refers to the practice of making false or misleading claims about the green credentials of a company or a project. There is a risk that projects funded by green bonds **may not deliver the expected net environmental benefits**.
- **Credit Rating of Sovereign Bonds:** If a Government wants to go global to raise funds, it needs to improve its credit rating as all bonds issued globally are closely linked to the credit rating of the issuing country.

8. National Coal Index

News: National Coal Index indicates changes in price levels of coals.

Specification	Details
About the Index	<ul style="list-style-type: none"> • It is released by the Ministry of Coal. • The Index has been developed by Indian Statistical Institute, Kolkata. • It was launched in June 2020 with 2017-18 as base year.
Objective	It is a price index (released monthly) which reflects the change of price level of coal in a particular month relative to the fixed base year.
Components	It contains 5 sub-indices: 3 for Non-Coking coal and 2 for Coking coal.
Notification	<ul style="list-style-type: none"> • Non-Coking Coal: Coal India Limited fixes notified prices for each grade • Coking Coal: Subsidiaries of Coal India Limited notify the prices.

Coke and Coking Coal

Coke is a grey, hard, and porous coal-based fuel with a **high carbon content** and few impurities. Coke is an **essential fuel** and **reactant in the blast furnace process** for primary **steelmaking**. It is made by heating coal or oil in the absence of air.

Coking coal is a grade of coal that can be used to produce good-quality coke.

9. MSCI Emerging Market Index

News: 9 Indian Stocks have been added to MSCI Emerging Market Index.

Aspect	Details
About the Index	It is a New York Stock Exchange (NYSE) listed global index that tracks the financial performance of key companies in fast-growing economies.
Launched	By MSCI (Morgan Stanley Capital International) in 1988.
Significance	<ul style="list-style-type: none"> • Its stock indices are widely tracked by global asset managers, insurance companies, banks, corporates and various other entities to allocate funds across global markets. • The MSCI Emerging Markets Index reflects the performance of large-cap and medium-cap companies in 25 nations. • It is also used by emerging market Exchange Traded Funds and Mutual Funds as a benchmark to measure their own performance.
Inclusion of Stocks	<ul style="list-style-type: none"> • The stock weight on the Emerging Market index is based on free float market capitalization (capital available for trade in the stock market). • The higher the market capitalization, the higher the weight and the allocation by investors.

India's Performance in the Index

- India was **included in the index in 1994.**
- After inclusion of nine Indian stocks, India's current representation in MSCI EM index has risen to 131 stocks.
- Indian stocks have the **2nd-highest weightage in the index after China's.**

International Relations

1. Visa Shopping

News: The practice of Visa Shopping has been gaining popularity among the Indians willing to move abroad.

About Visa Shopping

- It is a practice where individuals obtain visas for countries they may or may not intend to visit during the visa's validity period.
- Individuals opt for visa shopping as a means to enter their preferred countries, particularly in Europe, even if they already have a visa for another European nation.
- Imagine a person intends to migrate from India to Country A, but obtaining visa for Country A is difficult due to lengthy process and stringent criteria. It is easier and quick to obtain a visa from India to Country B.
- Country A and B have a simpler process for granting mutual visa. So, the person obtains visa to Country B from India. Once in Country B, they obtain visa to Country A (from Country B) and then shift there.
- An example of this is the Schengen Visa.

About Schengen Visa

- The Schengen Visa system was established in 1985 through an agreement between several European nations.
- Under Schengen Visa, people can travel freely between the countries of the Schengen Area without going through border controls.

- Schengen Area has 27-member countries, 23 from the European Union, along with Iceland, Liechtenstein, Norway and Switzerland. **Certain EU members are not part of Schengen Area** like Ireland, Romania, Bulgaria and Cyprus.
- Many Indians are opting for Schengen Visa, getting visa to country with a simpler process, and then moving to country of preference.



Legality

- This practice is not illegal if the traveller **adheres to the norms and guidelines of the visa process** and gets valid permission to stay in that country.
- Legal concerns arise if a person seeks a visa for a particular country but stays in another, or it becomes evident that the visa for a country was obtained only to use it as an entry point to move to another country.
- **Estonian Embassy in India** had issued a warning against Visa Shopping in May 2023. According to the Embassy, if the person intends to stay in multiple countries, they **should apply for a visa from the country with the maximum stay**.

2. International Migration Outlook 2023

News: The OECD has released the International Migration Outlook 2023.

Aspect	Details
India as the Leading Source	India has emerged as the leading source of migration to OECD nations in 2021 and 2022, surpassing China.
Climate-induced Displacement	Climate-induced displacement is a growing concern, but very few OECD nations have clear policies to address this issue.
Top Destination Nations	The top 4 destination countries are: The US, Germany, the UK and Spain.
Trends in Migration	<ul style="list-style-type: none"> • In 2022, family migration remained the primary category of entry for new permanent-type migrants. It represented 40% of all permanent-type migration. • The share of labour migration has increased over time. In 2022, labour migration represented 21% of permanent-type migration, it accounted for only 16% in 2019. • 80% of the migrants are working, contributing to the destination economies.

Benefits to India from Migration

- **Remittances:** In 2022, remittances to India amounted to US\$ 111 billion, representing 3.3% of its GDP. This supports domestic economy. India has become the largest recipient of remittances.
 - The World Bank has highlighted that 36% of these remittance inflows were from high-skilled Indian migrants based in prominent destinations like the US, UK, and Singapore.
- **Technology Industry:** The tech industry, particularly in countries such as the US, UK, and Singapore, has employed a vast number of migrants. This creates a **bridge for both skills and investments** between India and these developed nations.
- **Intellectual and Economic Dynamics:** The migration trend amplifies the economic and intellectual connection, fostering collaborations and **transfer of skills back to India**.

3. Agartala-Akhaura Cross-border Rail Link

News: Agartala-Akhaura Rail Link has been opened between India and Bangladesh.

About Agartala-Akhaura Rail Link

- It is a rail link between Agartala (India) and Akhaura (Bangladesh).
- It is 12.3 km long (5.5 km in India and 6.8 km in Bangladesh). The two cities were linked with each other during the British-era. Now the link has been re-established.
- The project has estimated cost of INR 1,255 crore, and is being entirely funded by India.



Significance of the Link

- **Travel Time:** The rail link has significantly reduced the travel distance (land) between Kolkata and Agartala. Earlier the journey took 38 hours (1,600 km entirely through the Indian territory). Now the time of journey has come down to 10 hours.
- **Trade:** The route is expected to boost India-Bangladesh trade in various goods such as agriculture products, tea, sugar, construction items, iron and steel, and consumer goods.
- **People-to-People Connections:** It will help establish closer relationships between people from India and Bangladesh.

4. US-Venezuela Relationship

News: The US Government has agreed to relax sanctions imposed on Venezuela's oil, gas and mining industries on the condition of holding free and fair elections in 2024.

Reasons for Thaw in Relationship

- **Ukraine War and Oil Crisis:** Ban on Russian oil due to Russia-Ukraine War has led to energy crisis. Venezuela's large reserves can help mitigate the crisis. Hence, US wants better ties with Venezuela.
- **Geopolitical Concerns:** The US has concerns about Russia and China aiding Latin American nations.

- It wants to limit their influence in the region. Venezuela can provide Russia and China a spot in the Western Hemisphere. Isolating Russia and China in the region serves US interests.
- Help to Venezuela: Uplifting of sanctions can end isolation of Venezuela's economy, ease hardships of the citizens and create goodwill for the US.

About Venezuela

- It is located in the northern part of South America.
- It is bordered by Colombia, Brazil, Guyana and the Caribbean Sea.
- It has world's largest proven oil reserves (~300 billion barrels of oil). Its economy is heavily dependent on oil exports and has faced challenges due to sanctions.



5. Rafah Border Crossing

News: The Rafah border crossing between Gaza Strip and Egypt has been opened for the first time since the Israel-Hamas war broke out on October 07, 2023.

About the Rafah Border Crossing

- It is the southernmost post of exit from Gaza into Egypt's Sinai Peninsula.
- Two other border crossings from and into Gaza are
- **Erez:** Northern Gaza into Israel. It is for people crossing only.
- **Kerem Shalom:** Southern Gaza into Israel. It is for commercial goods crossing only.
- The Rafah crossing gained heightened importance after Hamas's assault on the Erez crossing, resulting in over 1,300 casualties in southern Israel.
- In response, Israel closed both Erez and Kerem Shalom indefinitely, leaving the Rafah border as the sole means of entry and exit for Gaza's people and the only crossing for humanitarian aid.

Agreement on Movement and Access

- EUBAM-Rafah (European Union Border Assistance Mission) is responsible for monitoring the border crossing, under the Agreed Principles for Rafah Crossing.
- It is part of the Agreement on Movement and Access (AMA).
- The AMA was signed in November 2005 to improve the Palestinian freedom of movement and economic activity within the Palestinian territories.



6. Indian Consulate in Seattle, US

News: India has announced plans to open 6th Consulate in the US, in Seattle.

Current Status

- The Indian Embassy is located in Washington DC. There are 5 Indian Consulates in the US: Atlanta, Chicago, Houston, New York City and San Francisco.
- The US Embassy in India is located in New Delhi. There are 4 US Consulates in India: Chennai, Hyderabad, Kolkata and Mumbai. The US is planning to open two new consulates in Bengaluru and Ahmedabad.
- The establishment of these new consulates will facilitate greater people-to-people interactions, foster academic collaborations, and promote cultural exchanges between India and the US.

Difference between Embassy and Consulate

Embassy	Consulate
Larger in size and staff, includes senior diplomats.	Lesser staff.
Usually located in the Capital city.	Located on major cities.
Headed by Ambassador (High Commissioner for Commonwealth countries).	Headed by Consul General, who is junior in rank to the Ambassador.
In charge of the diplomatic mission.	
Lead the political and diplomatic affairs.	Focus on consular services, issuing visas, assisting citizens in emergencies or other services.

Both Embassies and consulates are usually protected by international law, which means that they are not subject to the laws of the host country.

7. Asia-Pacific Economic Cooperation (APEC)

News: The 30th Annual Meeting of APEC was held in San Francisco, US.

Specification	Details
Establishment	APEC was established in 1989 as a regional economic forum
Aim and Objective	<ul style="list-style-type: none"> • Its aim is to leverage the growing interdependence of the Asia-Pacific and create greater prosperity in the region through economic integration. • Under the Seoul Declaration (1991), the APEC economies proclaimed the creation of a liberalized free trade area around the Pacific Rim, as the principal objective.
Members	21, Australia, Brunei, New Zealand, Papua New Guinea, Hong Kong (as part of China), the Philippines, Indonesia, Malaysia, Vietnam, Singapore, Thailand, Chinese Taipei (Taiwan), China, Japan, South Korea, Russia, Canada, the United States, Mexico, Peru and Chile.
Significance	APEC economies make up ~38% of global population, ~60% of global GDP and ~50% of global trade.
Secretariat	Singapore
India's Membership	India is not a member, though it has applied for membership.

8. Conventional Armed Forces in Europe Treaty

News: NATO has formally announced the suspension of the Treaty on Conventional Armed Forces in Europe (CFE) in response to Russia's pull-out from the deal.

About the Treaty

- It is Cold War-era treaty that aimed to prevent massing of conventional armed forces by **NATO** and **Warsaw Pact countries** near mutual borders during the Cold War.
- It was signed in 1990 and fully ratified in 1992.
- It placed **limits on the deployment of conventional military forces** in Europe and played a significant role in reducing tensions and arms build-up in the region.

Russian Withdrawal from the Treaty

- **Russia-Ukraine Conflict:** Russia's invasion of Ukraine in February 2022 has led to a significant military presence in Ukraine. It influenced Russia's decision to withdraw from the treaty.
- **Security:** Russia cited that preserving the CFE Treaty has become unacceptable from the standpoint of its **fundamental security interests**, citing developments in Ukraine and NATO's recent expansion in the region. Finland joined NATO in 2023.
- **Limited Significance:** Russia claimed it has a limited significance as it only restricts conventional arms and not advanced weapons.

9. Ben Gurion Canal

News: The Israel-Hamas conflict has brought the proposed Ben Gurion Canal back in the news.

About the Ben Gurion Canal

- It was first proposed in 1960s as an alternative to the Suez Canal.
- A canal was proposed to be cut through the Israel-controlled Negev Desert from the tip of the Gulf of Aqaba (connected with Red Sea) to the Eastern Mediterranean coast.

Significance of the Proposed Canal

- **Congestion in Suez Canal:** In March 2021, the cargo ship Ever Given got stuck in the canal, blocking passage for more than a week. This had halted a major chunk of global trade. Despite being widened and deepened over the years, Suez Canal remains perennially congested. Ben Gurion Canal will provide an alternate route.
- **Egypt's Monopoly:** The Suez Canal passes exclusively through Egypt's territory. The Suez Canal was the focal point of both the 1967 and 1973 Arab-Israeli wars, and was shut from 1967-75. Egypt collects all the toll revenue generated, in addition to the benefits it brings to its local economy.
- **Strategic Interest of the West:** For the West, especially the US, a shipping lane through Israel would be ideal. Many decades ago, the US had proposed to use nuclear weapons to blast a waterway through the Negev Desert. But the plan never progressed.



Source: Haaretz. The proposed route of the Ben Gurion Canal.

Science and Technology

1. Ghost Particles: Neutrinos

News: China is building the World's largest telescope called 'Trident' below the South China Sea. It will be used to detect 'ghost particles' or the neutrinos.

About Neutrinos

- Neutrinos are tiny subatomic particles. They are called 'ghost particles' because they barely interact with anything else, and are thus very difficult to detect.
- Neutrinos **do not carry an electric charge**. They are not affected by electromagnetic forces. This allows them to pass through matter including most atoms, with minimal interaction.
- Neutrinos have a mass much smaller than other fundamental particles like electrons or quarks. Neutrinos' weak charge have made them difficult to observe.

Detection of Neutrinos

- Neutrinos rarely interact with other particles but **can interact with water molecules**.
- Underwater telescopes can detect neutrino interactions when they produce '**muons**', which create **detectable flashes of light**.
- Detection of Neutrinos has a huge significance.
 - It can help solve a number of scientific mysteries like the origin of the cosmic rays which are known to contain neutrinos.
 - Neutrinos are essential for understanding the origins of our universe.
- At present, The University of Madison-Wisconsin's "IceCube" telescope is the largest neutrino-detecting telescope, located in Antarctica.

2. Small Modular Reactors (SMRs, for Nuclear Energy)

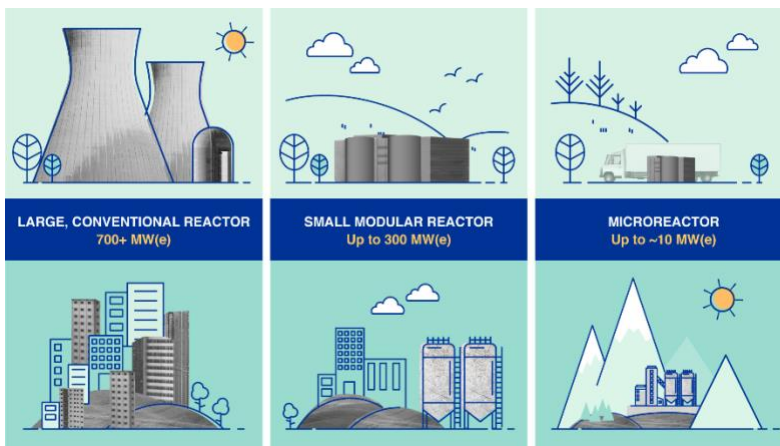
News: The Government of India is planning to offer incentives (PLI-type scheme) for manufacturing Small Modular Reactors (SMRs).

About Small Modular Reactor

- Small Modular Reactors (SMRs) are a class of nuclear reactors that are smaller in size compared to traditional, large-scale nuclear power plants.
- They are designed to be **more flexible, scalable, and easily deployable** in various settings.

Key Characteristics of SMRs

- They are modular in nature. It means that different modules of an SMR can be built independently in a factory and then transported to the installation site. Conventional nuclear reactors are much heavier and are generally built on site.



Source: IAEA. The image depicts that while SMRs and Microreactors can provide electricity to only smaller cities or factories, they require less space and can be set up in less accessible locations like hilly areas.

- They have a power capacity of up to 300 MW per unit. This is about a third of the capacity of a traditional nuclear reactor (~700-800 MW).

Advantages of SMRs

- **Installation:** Smaller size and modular nature make SMRs easier to install. They can be installed in locations which are unsuitable for large and conventional reactors. SMRs can be installed quickly and can reduce the project duration (from construction till commencement of operations) and cost.
- **Installation Cost:** Modular nature makes it convenient to manufacture SMRs, away from location of installation. They are more economical than conventional nuclear reactors.
- **Operational Costs:** Power plants based on SMRs may require **less frequent refuelling**, every 3 to 7 years, in comparison to between 1 and 2 years for conventional plants. Some SMRs are designed to operate for up to 30 years without refuelling.
- **Safety:** SMRs have lower power and operating pressure. They are inherently safer than the conventional reactors because their safety systems rely on natural circulation, convection, gravity and self-pressurization. These increased safety margins eliminate or significantly lower the potential for unsafe release of radioactivity.

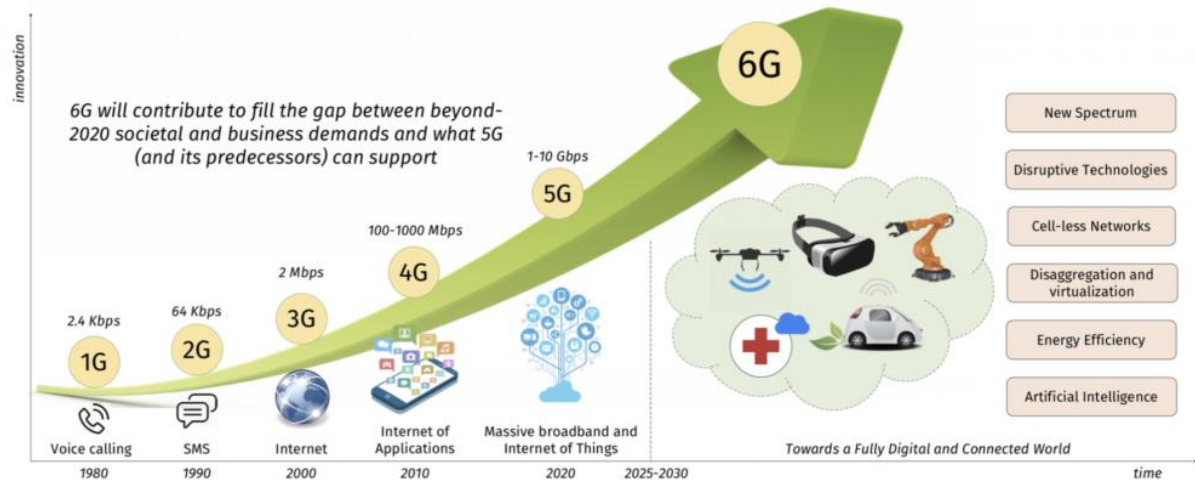
Promotion of SMRs in India

- The Government of India is planning to offer incentives along the lines of a Production Linked Incentive (PLI) scheme for manufacturing of SMRs.
- India is having bilateral talks with France, Russia, South Korea and the US for the required technologies and investments for SMRs.

3. Comparison of 5G and 6G Technologies

News: The Secretary of Department of Science and Technology has said that India has the potential to lead the process of developing standards for 6G Technology by leveraging the indigenous 5G Technology.

Aspect	5G	6G
Speed	Up to several Gigabytes per second.	Expected to be in the range of Terabytes per second.
Latency	~ (1-10) milliseconds (ms).	In the range of microseconds (µs).
Technology	Utilizes technologies like massive MIMO, beamforming and network slicing.	Predicted to integrate technologies such as AI-driven networks, advanced beamforming and quantum cryptography.
Applications	Enables advancements in Internet of Things (IoT), autonomous vehicles, AR and VR and Smart Cities.	Expected to support more advanced applications such as holographic communications, real-time AI and more sophisticated IoT.
Deployment	Currently being deployed.	Expected to start commercial deployment around the late 2020s to 2030 and beyond.



Source: Wikimedia Commons. Evolution of technology standards for cellular networks.

4. SIM Card Technology

News: Over the years, SIM cards have evolved, transitioning to mini-, micro-, and now nano-SIM cards. eSIM card is the latest technology on the horizon.

About SIM Card

- SIM stands for '**Subscriber Identification Module**'. It is an integrated circuit or a microchip that **identifies the subscriber on a given network**.
- SIM card is necessary for any mobile phone to **connect to a cellular network** that follows the **Global System for Mobile Communications Standard (GSM)**. **SIM Card is not required for CDMA Standard**. In CDMA Standard, the mobile device (phone) uses an Electronic Serial Number (ESN) for this purpose.
- The SIM card contains information to identify users and connect the device to cellular networks. This information includes its own ID number (the integrated circuit card identifier), the **International Mobile Subscriber Identity (IMSI)**, the **subscriber's location area identity** (i.e. their current location), a list of preferred networks (to whom the subscriber can connect when roaming) and emergency numbers.
- The identification relationship is established using a unique **authentication key**. Authentication key is needed to 'unlock' access to the network. Every SIM card stores this key.
- This authentication key is not ordinarily accessible. Instead, signals sent by the mobile phone into the network are 'signed' by the key and the network uses the signature to understand whether the phone's connection is legitimate.
- It is **possible to duplicate a SIM card by accessing its key** and putting it into another card. This is known as **SIM Cloning**.

About eSIM

- An eSIM, or embedded SIM is a digital or electronic SIM card that is **built into a device**, such as a smartphone, tablet, or smartwatch, rather than being a physical, removable card.
- It serves the same purpose as a traditional SIM card, to identify a user to a mobile network and enable connectivity.

Advantages of eSIM

- eSIMs are more secure. There is lower possibility of eSIMs being lost or removed.

- The onboarding process for new users is easy. There is no need to wait for SIM card to be activated.
- Progressive adoption of eSIMs will reduce/eliminate the need for telecom service providers to ship SIM cards to distant places.
- It is considered to be environmentally friendly. Ability to re-programme eSIMs means there is no need for more plastic and metal for new SIM (Micro, mini etc.).

Disadvantages of eSIM

- It is harder to switch devices. Change in mobile phone device will lead to change in number.
- Mobile services provider can track users' activity in much greater detail. This is concerning in the absence of robust privacy protection laws.
- Users can re-programme eSIMs, but it would be difficult for those with low digital literacy.

5. India's Deep Ocean Mission

News: India's Deep Ocean Mission is aimed at exploring and harnessing the immense potential of the oceans.

About India's Deep Ocean Mission

- It is an initiative of **Ministry of Earth Sciences**. It was launched in 2021.
- It aims to develop technologies and capabilities for **deep sea exploration**. It is one of 9 missions under the Prime Minister's Science, Technology, and Innovation Advisory Council (PMSTIAC).
- Its main pillars are:
 - Development of technologies for deep-sea mining and a manned submersible to carry 3 people to a depth of 6,000 meters in the ocean.
 - Ocean climate change advisory services.
 - Technological innovations for the exploration of deep-sea biodiversity.
 - Deep-ocean survey and exploration to identify potential sites of minerals.
 - Harnessing energy and freshwater from the ocean.
 - Establishing an advanced Marine Station for Ocean Biology.

Current Status

- **Samudrayaan Mission:** It was launched in 2021 with the aim to send 3 people to a depth of 6,000 meters in the sea in a manned submersible vehicle called **MATSYA 6000**. (Refer EPIC August 2023 (click) for Samudrayaan).
- **Varaha:** It is a self-propelled track-based underwater mining system. The National Institute of Ocean Technology (NIOT), Chennai has successfully conducted deep-sea locomotion trials of 'Varaha' at a depth of 5,270 m in the central Indian Ocean. This achievement marked the world's deepest dive for an underwater mining machine.

Challenges in the Deep Ocean Mission

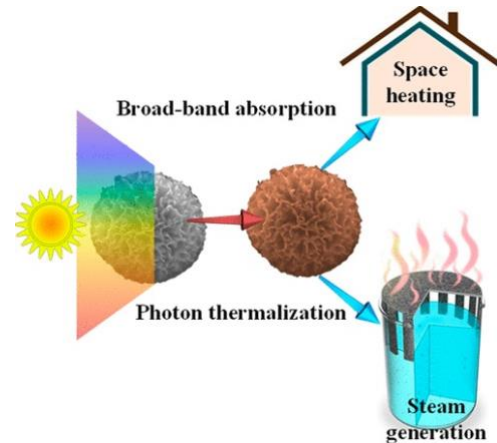
- **High Pressure:** At a depth of 6km, the water pressure is almost 600 times the atmospheric pressure. Only advanced engineering capabilities can help design and produce vehicles that can withstand such pressure.
- **Landing on Soft Sea Floor:** Landing on ocean bottom surface is complicated by soft floors characterized by muddy surfaces.
- **Mineral Extraction:** Extracting and transferring minerals (to the surface) from the sea-bed require significant power and energy.
- Other factors like complete darkness, temperature variations, salinity and corrosion etc. pose additional challenges.

6. Carbon Nanoflorets

News: Researchers at IIT Bombay have created carbon nanoflorets capable of converting sunlight into heat with unmatched efficiency. The invention can reduce carbon footprint considerably.

About Carbon Nanoflorets

- Carbon nanoflorets are a unique **nanostructure** composed of carbon atoms arranged in a **distinctive floret-like morphology**.
- They are created using special form of silicon dust (Dendritic Fibrous Nanosilica) and acetylene gas.
- Their structure is made of spherical carbon beads with cone-shaped pits which resembles marigold flower. (floret morphology).
- The structure, with high surface area, minimizes reflection of light and ensures maximum internal absorption. It can absorb multiple spectra including infrared, visible and ultra-violet radiation.
- They have a **high surface area** and various potential applications in fields such as materials science, electronics, and nanotechnology due to their exceptional properties and structure.



Source: Wikimedia commons. Floret morphology of carbon nanoflorets that resembles marigold flowers.

Significance

- High absorption capacity makes them ideal for water heating applications, reducing the carbon footprint of the process.
- They can also be used in sterilizing applications for hospitals.

7. 'Kill Switch' to Eliminate Cancer Cells

News: Scientists from University of California, Davis has discovered a 'Kill Switch' that can trigger death of cancer cells.

About Kill Switch

- Scientists have identified a protein that can be used to trigger the death of cancer cells.
- The protein receptors, CD-95 or Fas, reside on cell membranes.
- The protein receptors can be activated to release a signal that can cause the cells to self-destruct.
- The scientists have used the **CAR T-Cell Therapy** to trigger activation. The CAR-T therapy works by programming a person's white blood cells (T-cells), to bind to and attack specific types of cancerous cells.
- The therapy involves collecting T-cells from the patient's blood and then genetically modifying them in a lab to produce receptors called **chimeric antigen receptors** (CARs).
- After modifying them, these cells are then injected back into the patient's body, in the bloodstream.
- The therapy has **shown promising efficacy** against liquid cancers like **leukaemia**.
- However, it has demonstrated **limited success against solid tumours** such as breast or lung cancer.
- The research team is, however, hopeful that the therapy can evolve to target solid cancers in the future. (Refer EPIC February 2023 (click) for CAR T-Cell Therapy).

8. Wolbachia Method to Check Spread of Dengue

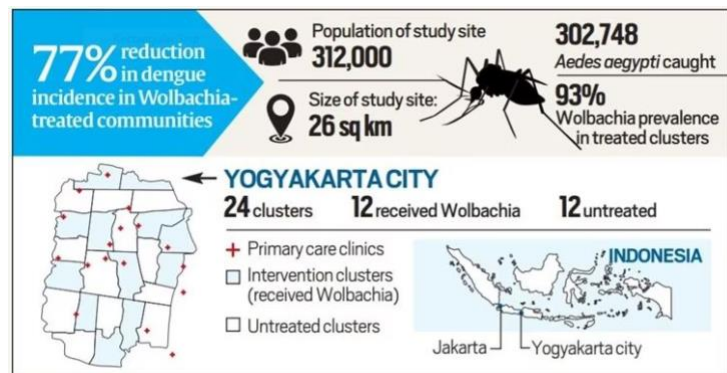
News: Researchers in Indonesia have found a new way to fight diseases like dengue spread by mosquitoes.

About Wolbachia

- Wolbachia is a common **bacterium that occurs naturally in 60% of insect species**, including mosquitoes, fruit flies, moths, dragonflies and butterflies.
- Wolbachia is **usually not found in the Aedes aegypti mosquito**, though some studies have shown its presence in some populations. Aedes aegypti is the primary species responsible for transmitting human viruses such as Zika, dengue, chikungunya and yellow fever).
- Wolbachia blocks viruses like dengue, chikungunya and Zika from growing in the bodies of Aedes aegypti mosquitoes.
- Wolbachia is **safe for humans, animals and the environment**.

About Wolbachia Method

- In the Wolbachia method, **Aedes aegypti mosquitoes are introduced with the bacterium in the lab and then released in to the wild**.
- The **Wolbachia-infected mosquitoes breed with their wild counterparts** which result in a growing percentage of the bacterium in those mosquitoes.
- This makes it harder for viruses to reproduce inside the mosquitoes as Wolbachia blocks them from growing.
- As population of Wolbachia-infested mosquitoes rises, they are **much less likely to spread viruses**.



Results

- Researchers found that using the Wolbachia method **reduced the occurrence of dengue in the treated population by 77%**.
- However, researchers have not completely understood how bacterium prevents dengue viruses from replicating in mosquito cells.

9. Patents Granted in India: Rising Trend

News: The patents granted in India have shown a rising trend since 2013, with the highest numbers of patents granted in 2023.

Current Status of Patents in India

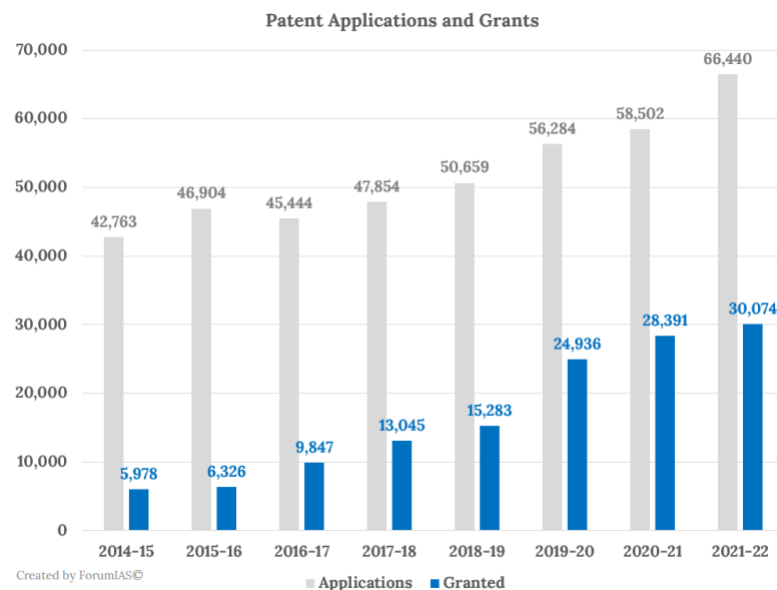
- In 2023, the Indian patent office granted a record-high of 41,010 patents. This is a big jump from the 4,227 patents granted in the fiscal year 2013-14.
- A report from the World Intellectual Property Organization highlighted a 31.6% rise in patent applications by Indians in 2022.
- This growth streak in patent applications from India has lasted for 11 years, making it a standout among the top 10 filing countries.
- Globally, 3.4 million patent applications were filed in 2022; of which 1.6 million were filed in China.

Specification	Details
Patent	A patent is an exclusive set of rights granted for an invention . The invention may be a product or process that provides a new way of doing something or offers a new technical solution to a problem.
Regulation	In India, patents are regulated by the Patents Act, 1970.
Term of Patent	A patent is valid for 20 years from the date of filing of application .
Territorial Validity	Patent protection is a territorial right and therefore, it is effective only within the territory of India.
Criteria for Patentability	An invention is patentable if it meets the following criteria: <ul style="list-style-type: none"> • It should be novel. • It should have inventive step or it must be non-obvious. • It should be capable of Industrial application. • It should not attract the provisions of Section 3 and 4 of the Patents Act 1970.

Section 3, Patents Act, 1970

It puts **certain restrictions on definition of inventions that are patentable**. Items not considered under inventions include:

- Frivolous inventions,
- Inventions that don't enhance efficacy of existing substances or mere re-arrangement or duplication of devices,
- Method of agriculture,
- Algorithms,
- Topography of integrated circuits.
- Presentation of information,
- Traditional knowledge among others.



Between 2014-22, Patent awards grew by a factor of 5.03 (403% growth).

Environment

1. Poor Climate Action by Developed Countries

News: The Council for Energy Environment and Water has published a study titled 'Revealing Developed Countries' Emission Trajectories', highlighting their poor performance in context of climate action.

Key Findings of the Study

- **Emission Cut by Developed Countries:** Between 1990-2020, developed countries cut ~20% of the emissions. However, a significant chunk of these cuts was due to COVID-19 pandemic.
- **Share in Emissions:** Developed countries are responsible for ~75% of existing carbon emissions in the atmosphere.
- **Performance of NDCs:** Climate targets for 2030 under the Nationally Determined Contributions (NDCs) require the developed countries to undertake 36% cut in their emissions. This is less than the average 43%

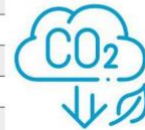
reduction required to limit the temperature rise 1.5°C. However, it is estimated that the **developed countries will emit 38% more carbon than their committed target.**

- ~83% of this overshoot in emissions will be contributed by the US, Russia and the EU.
- Based on their current emission trajectories, developed countries may be able to **cut only 11% emissions (of 2019 level) instead of required 43%.**
- Only Norway and Belarus are expected to meet their 2030 NDC targets.
- Most developed countries have promised to ramp up emission cuts post 2030 to achieve Net Zero by 2050. But the annual emission cuts required would be much steeper and seems impossible to be achieved.

Missing targets

Developed countries are projected to emit 38% more carbon in 2030 than they have committed to

Party	2030 NDC target	Projected 2030 reduction
U.S.	50%	22%
Russia	70%	48%
Japan	46%	45%
U.K. and Northern Ireland	68%	56%
Canada	40%	30%
EU	55%	44%
Norway	55%	57%
Kazakhstan	15%	14%



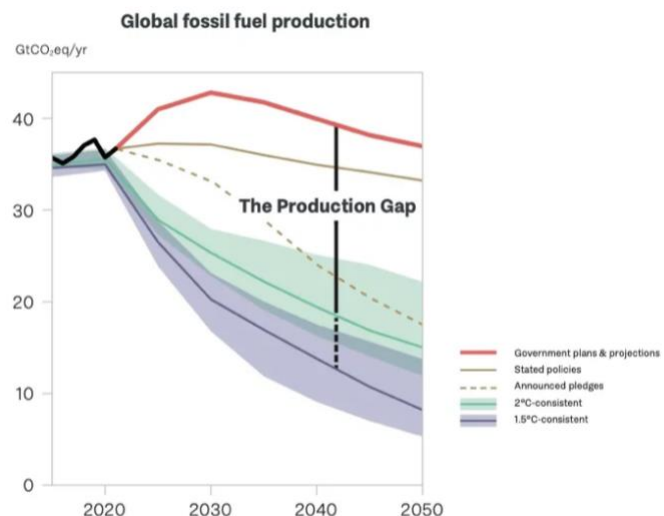
■ Japan and Kazakhstan are set to miss their target by one percentage point

2. Production Gap Report, 2023

News: The Production Gap Report, 2023 has been released by the UNEP.

About the Production Gap Report

- It is prepared by the UNEP, Stockholm Environment Institute (SEI), Climate Analytics, E3G AND International Institute for Sustainable Development.
- It tracks discrepancy between **Governments' planned fossil fuel production** and global production levels consistent with **limiting warming to 1.5°C or 2°C** as targeted under the Paris Agreement.
- It analyzes emissions trends for 20 major fossil-fuel-producing nations including India.
- The Report has found that these countries plan to produce more than double the amount of fossil fuels (>100%) in 2030, which would be consistent with limiting warming to 1.5°C.
 - For 2°C, the production would be 69% more than the required levels.
- The Report has called for **increase in transparency in the plans**, projections and support for fossil fuel production. These plans should be aligned with national and global climate goals,
- Countries should aim for a near total phase-out of coal production and use by 2040 and a combined reduction in oil and gas production and use by three-quarters by 2050 from 2020 levels.



3. Adaptation Gap Report, 2023

News: The Adaptation Gap Report, 2023 has been released by the UNEP. The Report has highlighted that the world is underprepared, under invested and lacks the necessary planning for adaptation to Climate Change.

About the Report and Key Observations

- It provides an annual science-based assessment of the global progress on adaptation planning, financing, and implementation.

- It is co-produced by the UN Environment Programme (UNEP), the UNEP Copenhagen Climate Centre (UNEP-CCC) and the World Adaptation Science Programme (WASP).
- **Slow Progress on Adaptation:** Countries need financing of US\$ 215 billion to US\$ 387 billion every year to adapt to climate change. But they have been receiving only US\$ 21.3 billion i.e., less than 1/10th of the requirement.
- **Loss and Damage:** A recent study indicates that the 55 most climate-vulnerable economies alone have already experienced **losses and damages of more than US \$500 billion** in the last two decades.
- **Invest in Adaptation and Mitigation:** Every billion US dollars invested in adaptation against coastal flooding leads to a US\$ 14 billion reduction in economic damages.
- Policymakers, multilateral banks, investors and the private sector must work together to enhance financing for adaptation and loss and damages.

4. White Hydrogen

News: Scientists have discovered huge deposits of ‘White Hydrogen’ in Lorraine, France. The size of deposits has been estimated to be between 6 million and 250 million metric tonnes of hydrogen.

About White Hydrogen

- It is a **naturally occurring form of hydrogen** found in the **Earth’s crust**. White hydrogen is also known as “natural”, “gold” or “geologic” hydrogen.
- **Hydrogen produces only water during combustion**, making it an **exceptionally clean source of energy**. Hydrogen fuel has been classified into **several types based on method of production**:
 - ‘Brown’ (coal), ‘Grey’ (methane, natural gas), ‘Blue’ (Grey with carbon capture), ‘Green’ (using renewable resources).
 - **Green Hydrogen is eco-friendly** with very low carbon footprint, but is **expensive to produce** at present.
- White Hydrogen is found naturally, and **does not require energy-intensive process for its production**. It has been termed white because it **doesn’t generate any greenhouse gas**.
- The production cost of White Hydrogen has been estimated to be US\$ 1/kg., which is much lower than the current cost of US\$ 6/kg. for Green Hydrogen.
- White Hydrogen is thus the **most environment friendly** and **economical** type of Hydrogen fuel.

Reserves

- White hydrogen deposits have been identified worldwide including in the US, eastern Europe, Russia, Australia, Oman, France, and Mali.
- The potential global reserves could be in the tens of billions of tons.
- Factors like regulatory hurdles, cost and safety considerations and the depth required for drilling can impact the viability of white hydrogen extraction. (Refer EPIC January 2023 (click) for National Green Hydrogen Mission).

5. State of Climate Services Report, 2023

News: The World Meteorological Organization (WMO) has released the State of Climate Services Report, 2023 with focus on health. The Report has highlighted that the health sector is inadequately prepared to safeguard people from the effects of heat and other extreme weather events.

About the Report and Key Findings

- The Report is released by the WMO annually. The focus of 2023 report is on health.
- In the most vulnerable countries, populations will be impacted by the **extreme weather events resulting from climate change**, including heat waves, droughts, floods and wild fires.

- By 2050, ~50% of the excess mortality resulting from climate change will occur in Africa, which has least contribution to the Green House Gas emissions.
- Less than 25% Health Ministries utilize the climate information and services to **monitor climate-sensitive health risks**.
- ~ 74 per cent of the National Meteorological and Hydrological Services (NMHS) provide data services for the health sector but it has not been utilised effectively for the health sector.
- 85% of nations lack a formal agreement between the Ministry of Health and National Meteorological and Hydrological Services (NMHS)s to facilitate data sharing and collaboration.
- Only 26 countries have climate-informed, **heat-health early warning systems**.
- The Report has said that most Government agencies dealing with health and climate need to develop and strengthen their partnerships.

6. Brazzaville Declaration

News: Summit of the Three Basins was held in Brazzaville, Republic of Congo.

About the Brazzaville Declaration

- It was signed in 2018 by Democratic Republic of Congo, the Republic of Congo and Indonesia.
- Its objective is to protect the Cuvette Centrale region in the Congo Basin, the world's largest tropical peatlands, from unregulated land use and prevent its drainage and degradation.
- The Congo Peatlands store equivalent of 3 years of Global Greenhouse Gas emissions.
- The Declaration aims to implement coordination and cooperation between different government sectors to protect the benefits provided by peatland ecosystems.



The Three Basins

Basin	Details
Congo Basin	<ul style="list-style-type: none"> • It is the 2nd-largest tropical forest in the world in terms of area. • It spans 6 countries in Africa: Cameroon, Central African Republic. (CAR), Democratic Republic of the Congo (DRC), Republic of the Congo, Equatorial Guinea and Gabon.
Amazon Basin	<ul style="list-style-type: none"> • It is the largest tropical forest on the Earth. • It extends over 9 countries in South America: Brazil, Colombia, Peru, Ecuador, Venezuela, Bolivia, French Guiana, Suriname and the Republic of Guyana.
Borneo-Mekong-Southeast Asia Basin	<ul style="list-style-type: none"> • It is the world's 3rd-largest carbon sink. It is composed of two sub-regions, the island of Borneo and the Mekong River. • The Mekong River crosses 6 countries: China, Myanmar, Thailand, Laos, Cambodia and Vietnam. • Borneo is the 4th-largest island in the world. It is divided between Brunei, Malaysia and Indonesia

7. UN Strategic Plan for Forests (UNSPF) 2017-30

News: The Government recently organized a Country-Led Initiative (CLI) event as part of the UN Forum on Forests (UNFF). It discussed global actions required to advance the Global Forest Goals under the UNSPF.

About the UN Strategic Plan for Forests 2017-30

- It was adopted by the UN General Assembly in 2017.
- It is a global framework to **achieve the sustainable management of all types of forests**, including trees outside forests, and to combat deforestation and forest degradation.
- Its target is to increase forest area by 3% worldwide by 2030
- The plan contains a set of 6 Global Forest Goals and 26 associated targets to be reached by 2030. All the goals are **voluntary in nature** and **universally applicable**.

Goals of UN Strategic Plan for Forests

- **Goal 1:** Reverse the loss of forest cover worldwide by **adopting sustainable forest management**, including protection, restoration, afforestation and reforestation.
- **Goal 2:** Enhance forest-based economic, social and environmental benefits. This includes improving the livelihoods of forest-dependent people.
- **Goal 3:** Increase significantly the area of **protected forests** worldwide and other areas of sustainably managed forests.
- **Goal 4:** Mobilize new and additional financial resources to implement sustainable forest management practices and strengthening scientific and technical cooperation and partnerships.
- **Goal 5:** Promote **governance frameworks** to implement sustainable forest management.
- **Goal 6:** Enhance cooperation, coordination, coherence and synergies on forest-related issues at all levels.

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8. Energy Conservation Building Code (ECBC)

News: The International Energy Agency (IEA) has praised India's Energy Conservation Building Code in its World Energy Outlook Report, 2023.

About Implementation of ECBC

- 23 States have notified ECBC rules. Only 15 states have notified rules based on the latest ECBC, 2017.
- 5 States, Gujarat, Maharashtra, J&K, Ladakh, and Manipur, are yet to notify the rules.
- The **Bureau of Energy Efficiency (BEE)** published the State Energy Efficiency Index (SEEI) in 2022. It rated states on various parameters of energy efficiency.
- **Karnataka was the top state in energy efficiency in buildings.** It was followed by Telangana, Haryana, Andhra Pradesh, and Punjab.
- Bihar, Odisha, West Bengal, Tamil Nadu, and Jharkhand were the 5 worst rated States.

Specification	Details
Release	The ECBC was released by the BEE in 2007 and updated in 2017.
Purpose	It sets minimum energy standards for commercial buildings, with the objective of enabling energy savings between 25-50% in compliant buildings.
Applicability	Commercial buildings like hospitals, hotels, schools, shopping complexes and multiplexes which have a connected load of 100 kW or more, or contract demand of 120 kVA or more. The code is for both new buildings and retrofitting existing buildings.
Assessment	The code looks at parameters like building design including envelope (walls, roofs, windows), lighting systems, renewable energy integration among others.
Tagging	Compliant buildings are assigned 1 of 3 tags in ascending order of efficiency, namely ECBC, ECBC Plus and Super ECBC.

About the Energy Conservation (Amendment) Act, 2022

- The Energy Conservation (Amendment) Act, 2022 provides for the transitioning of ECBC into **Energy Conservation and Sustainability Building Code**.

- It incorporates measures relating to **reducing carbon footprints**, achieving zero emissions, efficient use of materials, **promoting clean energy**, and **adopting circular practices**.
- It makes **ECO Niwas Samhita**, the **residential building energy code**, mandatory. This is crucial as residential buildings use 75% of total electricity consumed in the building sector.

9. Impact of Mining of Mercury on Biodiversity

News: A study has found that tropical birds are being affected by mercury pollution due to expanding artisanal and small-scale gold mining operations.

About Artisanal Mining

- Artisanal mining refers to **small-scale, subsistence-based mining activities** typically carried out by individuals or small groups using **basic tools and limited machinery**.
- This form of mining often occurs in **rural or remote areas**, focusing on extracting minerals or precious metals like gold, diamonds, or gemstones.
- It usually involves manual labor and simple equipment, distinct from large-scale industrial mining operations.

About Mercury

- Naturally occurring element, found in air, water, soil.
- **Sources:** Volcanoes, geothermal springs, geologic deposits (natural); Coal combustion, industrial uses, waste incineration and mining (man-made).
- **Impacts:** Exposure can cause severe health problems, neurological and developmental issues in fetuses, infants, and children. **Long-term exposure** can lead to damage to brain, nervous system, and kidneys.
- **Minamata Convention** obliges government Parties to take actions to address mercury emissions and to phase-out certain mercury-containing products.

Use of Mercury in Mining of Gold

- Mercury is commonly used in **small-scale gold mining** to **separate gold from other minerals**.
 - This is due to its **ability to bind to gold and form amalgam**.
- As a consequence, small-scale gold mining releases large amounts of mercury to the environment and is estimated to contribute **~37% of mercury emissions on a global scale**.

Key Findings of the Study on Impact of Mercury Pollution

- Mercury may be playing a role in the **declining biodiversity of tropical birds** like kingfishers, wrens, warblers among others.
- Birds living within 7 km of such gold mining activity were found to have **mercury concentrations over four times higher** than those living at other sites across the tropics of Central and South America.
- Birds are called the “canary in the gold mine” because the condition of birds in an ecosystem serves as an indicator of the health of the environment impacted by gold mining.

10. Environmental DNA

News: Researchers at the Laboratory for the Conservation of Endangered Species (LaCONES) have developed a method for detecting all life forms in an ecosystem using environmental DNA (eDNA).

About Environmental DNA (eDNA)

- Environmental DNA (eDNA) refers to **genetic material that organisms shed into their environment**. It can be found in various environmental sources such as soil, water or air.
- This genetic material is derived from shed skin cells, mucus, urine, feces, hair or any organic material released by organisms into their surroundings.

- eDNA is a powerful tool used in **environmental monitoring and biodiversity studies**. It allows scientists to detect the presence of organisms without directly observing them.
- Researchers at LaCONES have developed a method that involves collecting water, soil or air samples and then sequencing the DNA fragments to evaluate the total biodiversity in the ecosystem.
- It can detect a broad spectrum of organisms, encompassing viruses, bacteria, archaea, fungi, plants, insects, birds, fish, and various animals.
- The technique is **non-invasive, cost-effective, rapid, and scalable**. It offers an effective means for **monitoring and conserving biodiversity** in both freshwater and marine ecosystems.

About the Laboratory for the Conservation of Endangered Species (LaCONES)

- It is a dedicated Laboratory of CSIR's Centre for Cellular and Molecular Biology (CCMB).
- It was established in 1998.
- It is India's only research facility engaged in conservation and preservation of wildlife and its resources.
- India's first **genetic bank for wildlife conservation**, the **National Wildlife Genetic Resource Bank (NWGRB)** was established at LaCONES in 2018.

History, Art and Culture

1. Dogra Architecture

News: Srinagar Smart City Ltd. and the Kashmir chapter of the Indian National Trust for Art and Cultural Heritage (INTACH) have joined hands to conserve vernacular elements of Dogra architecture in Kashmir.

About the Dogra Architecture

- Dogra architecture refers to the **traditional architectural style and building practices** associated with the Dogra community. They primarily ruled over **Jammu and Kashmir from 1846 to 1947**.
- The examples of the Dogra Architecture include the Mubarak Mandi, Jharokha style of balcony, Amar Mahal Palace.



Mubarak Mandi Palace, Jammu

Key Features of Dogra Architecture:

- **Use of Local Materials:** Dogra architecture mostly utilizes **locally available materials** such as wood, stone, and clay, which help in maintaining a comfortable indoor temperature and provide insulation from the harsh weather.
- **Sloping Roofs:** Houses in this style typically have sloping roofs to allow for the **shedding of snow** and rain which is common in the region.
- **Carved Wooden Elements:** Intricate wood carvings on doors, windows and balconies showcase the artistic skills of the local craftsmen.
- **Courtyard Design:** Houses are often designed around a central courtyard, providing a private and functional space for the family.
- **Adaptation to Local Climate:** Dogra architecture is designed to **withstand extreme weather conditions**, including cold winters and hot summers.

2. Banni Festival

News: It is traditionally celebrated in Andhra Pradesh.

About Banni Festival

- It is a traditional stick fight celebration. It is celebrated on the night of Dussehra (Vijaya Dashami).
- It is celebrated in order to make the victory of **Lord Shiva** (Mala Malleswara Swamy) and **Goddess Parvati** (Malamma) over demons Mani and Mallasura.
- Devotees from **Andhra Pradesh and Karnataka** participate as the **Mala Malleswara Swamy Temple** is located on the border of these States.
- It is said to have originated during the times of **Vijayanagara Empire**.
- Devotees visit the temple with weapons like long sticks or lathis for hitting each other with these sticks on the head to get hold of ceremonial idols of local deities. One group of devotees make attempts to hijack the idols, the other group try to defend themselves along with protecting the deities.



3. Vajra Mushti Kalaga

News: It is a martial art form. It has become nearly extinct and takes places only during Dasara.

About Vajra Mushti Kalaga

- The literal meaning of Vajra Mushti is '**Thunderbolt fist**'. It is a martial art form involving **hand-to-hand combat** like grappling, wrestling and striking.
- It uses a small metal weapon called **Knuckle Duster**. It is made of **animal horns** and is **worn on the knuckles** of the fighter.
- It is different from conventional grappling. In this, two persons take a swipe at each other's head with a knuckle duster. Whoever draws the blood from the opponent's head first is declared the winner.
- It was popular during the **Vijaynagar Rule** (14-17th Centuries).
- Travellers from Portugal have noted the popularity of Vajra Mushti Kalaga during Navratri celebrations in the Vijaynagar Empire.



4. Geoglyph Discovered in Telangana

News: A 3,000-year-old geoglyph was recently discovered in Telangana's Medchal-Malkajgiri district..

About Geoglyphs

- Geoglyph refers to a **design drawn on the earth**.
- The design is created by elements of the landscape that are long-lasting such as stones, earth, gravel and other things.
- They are classified as:
 - **Positive Geoglyph:** Created by arranging elements on the ground, such as **petroforms** (outlines made using boulders).

- **Negative Geoglyph:** Formed by removing part of the upper surfaces of rock to create a design.
- **Arbor Geoglyph:** A type of geoglyph involving seeding plants in a specific design. It can take years to develop as it depends on plant growth.
- **Nazca Lines in Peru** are the world's most famous geoglyphs.
- The geoglyph discovered in Telangana belongs to the Iron Age, ~ 1000 BC.
- It has been etched on a low-lying granitoid hillock and features a perfect circular shape. Within the circle, two triangles are present.
- It is being suggested that it may have served as a model for megalithic communities in planning their circular burial sites.



5. Pichwai Paintings

News: An exhibition of Pichwai paintings was held recently in Chennai.

About Pichwai Paintings

- Pichwai paintings are a traditional form of Indian art that originated in **Nathdwara** near **Udaipur**, Rajasthan.
- The paintings are **done on clothes**, usually **Khadi**.
- The materials used include **natural colours** made from **minerals and plant extracts**.
 - **Stone pigments** are used for gold and silver tones.
 - **Vegetable dyes** are used for brighter orange, red, chrome yellow and *kesari* colors.
- The subject matter of the paintings is predominantly the **stories and legends of Lord Krishna**.
- The paintings are usually hung behind the idol of **Shrinathji**, a local form of Krishna and the centre of Pushtimarg worship.



6. Miniature Paintings

News: Indian Art historian and critic Brijinder Nath Goswamy, known for his scholarship on Indian Miniature Paintings, passed away recently.

About B N Goswamy's Contribution

- His contribution lies in revealing that **painting styles were family-dependent rather than region-dependent**.
- He reconstructed family networks of renowned artists, such as Pandit Seu and his sons Nainsukh and Manaku.

Aspect	Details
Miniature Paintings	Miniature painting is an intricate form of art involving highly detailed paintings on a small scale .
Evolution	<ul style="list-style-type: none"> • The history of Indian miniature paintings go back to the Buddhist Pala dynasty from 8th-11th century. • It flourished under Mughal empire in the early 1500s but declined during Aurangzeb's reign. • With migration of artists, different schools of miniature painting emerged in Rajasthan, Himachal Pradesh, etc.
Techniques	<ul style="list-style-type: none"> • They are executed in the traditional tempera technique. • The painting are smaller than 25 square inch. • The subject of the painting should be painted in not more than 1/6th of the actual size. • In these paintings there are very few human characters with visible front face. Most of the human characters are seen with side profile.
Features	<ul style="list-style-type: none"> • Subjects have big eyes, pointed nose and slim waist. • The skin colours of human beings are often Brown and fair. The colour of the hair and eyes is black. Women characters have long hair. • Men and women wear the traditional Indian dress, slippers and shoes. Men wear turbans on their head. • Mostly Natural colours have been used in these paintings. Black, red, white, brown, blue, and yellow colours are used to decorate the paintings.

Different Schools of Miniature Paintings

School/Period	Details
Pala School	<ul style="list-style-type: none"> • Mostly palm leaf and paper were used. • The prominent painters were Dhimman and Vitapala.
Apabhramsa School	<ul style="list-style-type: none"> • This school traces its origin to Gujarat and Mewar region in Rajasthan. • This school is divided in 2 phases: Illustrations made on palm leaf/paper. • Features: Fish shaped bulging eyes, a pointed nose and a double chin, animal and bird figurines in the paintings are represented as toys. • Famous examples are Kalpasutra and the Kalakacharya Katha from 15th century.
Delhi Sultanate Period	<ul style="list-style-type: none"> • Developed an Indo-Persian style of painting that drew heavily from schools in Iran and Jain paintings. • Features: Groups of people standing in rows and identical poses, narrow bands of decoration running across the width of the painting. • Manuscript called the Nimat Nama depicts scenes of food preparation. • Another style called Lodi Khuladar was also prevalent during this period.
Mughal Era	<ul style="list-style-type: none"> • The Mughal paintings are characterized by their subtleness and naturalism. They are unique because of the use of brilliant colors. • Akbar established 'tasvir khana'. • Famous Painters: Bizhad, Daswanth, Basawan and Kesu. • Prominent illustrated manuscripts during Akbar's reign are Tutinama, Hamzanama, Anvar-i-Suhaili and Gulistan of Sadi.

Aspect	Details
Rajput School	<ul style="list-style-type: none"> The Rajput paintings flourished under the patronage of the Hindu Rajput rulers of Rajputana and Punjab Himalayas during the period 1500 CE to the middle of the 19th-century. Themes of Ramayana, the Mahabharata, Puranas, and Gita etc. were prominent. They developed during 17th to 19th centuries. Based on their regional diversity, Pahari paintings in India can be divided into two groups. <ul style="list-style-type: none"> ○ Basohli and Kullu Style: Chaurapanchasika style. ○ Guler and Kangra Style: Calm colours and modification.
Pahari School	<ul style="list-style-type: none"> Nainsukh was a famous master of the mid-18th century The central theme of Pahari painting is depiction of eternal love of deities Radha and Krishna.
Rajasthani School	<ul style="list-style-type: none"> Rajasthani paintings have been executed in Rajputana, from Bikaner to the border of Gujarat and from Jodhpur to Gwalior and Ujjain. The themes of the paintings were mostly religious and love subjects, based on Lord Rama and Lord Krishna. Their unique characteristic is use of brilliant colours.

Miscellaneous

1. New Island Emerges in Japan's Island Chain

News: A new island has emerged near Japan's Ogasawara island chain after an undersea volcanic eruption.

About Ogasawara Island Chain

- It also known as Bonin islands. It is a **volcanic arc** that consist of more than 30 islands. It comprises of 3 main island groups Mukojima, Chichijima, & Hahajima.
- It is located more than 1,000 kilometers south of Tokyo in the Pacific Ocean.
- It is a **UNESCO World Heritage** site inducted in 2011.

Formation of New Islands

- These islands are formed through **phreato-magmatic eruptions**, which occur when magma interacts with seawater and **produce explosive bursts of steam and ash**.
- Subsequently, the volcanic material accumulated on the shallow bed and rise above the sea surface and take the form of an island.



Volcanic Eruptions near Japan

- Active volcanism is the consequence of **meeting of various continental plates**. The Eurasian, the North America, the Philippines and the Pacific plate collide in a relatively small area near Japan.
- Japan is located on the '**ring of fire**' which is home to 111 of the approximately 1500 active volcanoes worldwide.

2. Pumped Storage Project

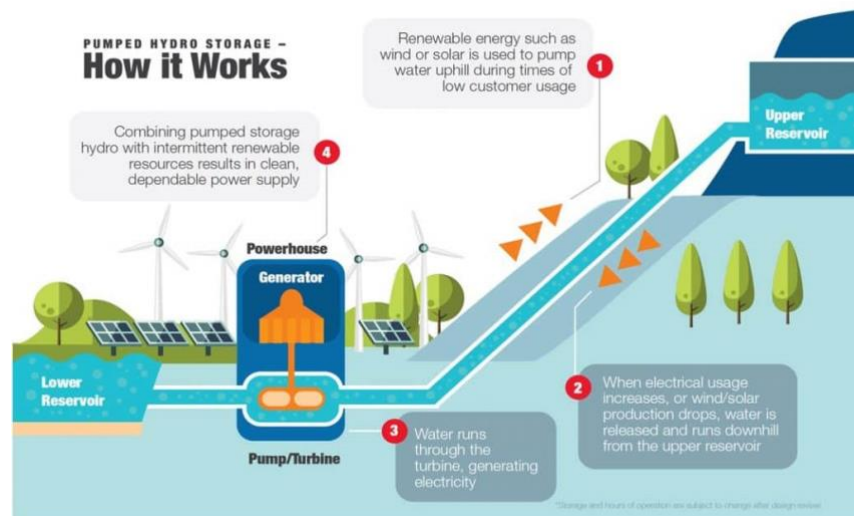
News: The Ministry of Coal is working on a plan to develop Pump Storage Projects in de-coaled coal mines.

About Pumped Storage Project

- It is a type of **hydropower energy storage system** used for grid energy storage.
- It is a **form of clean energy storage** that is ideal for electricity grids reliant on solar and wind power.
- This technology **absorbs surplus energy** at times of low demand and releases it when demand is high.

Working of Pumped Storage Power Plants

- Pumped hydropower storage uses the **force of gravity to generate electricity** using water that has been **previously pumped from a lower source to an upper reservoir**.
- The water is pumped to the higher reservoir at times of low demand.
- At times of high demand, the water is then released to drive a turbine in a powerhouse and supply electricity to the grid.



Advantages

Aspect	Details
Grid Stability and Reliability	Provides a reliable and rapid response to changes in electricity demand helping to stabilize the grid.
Long Lifespan/Durability	Pumped storage facilities typically have long lifespans and are built to withstand frequent cycling between pumping and generating modes. This makes them durable and reliable assets for energy infrastructure.
Water Management	These power plants can be designed to manage water resources effectively, ensuring responsible use and minimizing environmental impact.
Integration of Renewable Energy	Pumped storage helps integrate renewable energy sources into the grid by compensating for their intermittency. It provides a way to store excess energy when renewable sources are abundant and release it when they are not producing electricity.
Reduced Greenhouse Gas Emissions	By facilitating the efficient use of renewable energy and reducing the need for fossil fuel-based peaking power plants, pumped storage can contribute to a reduction in greenhouse gas emissions.

Government's Plan

There are over 200 de-coaled mines with huge land area. Many of these mines are feasible for pumped storage power plants as lower reservoirs, head of water and land are available.

Pointly

1. Safe State List

The UK Government is planning to add India into the Safe States List. The inclusion in the list means that the UK Government **considers India to be generally safe, stable, and free from widespread human rights abuses**. The inclusion of India will make it **difficult for Indians travelling illegally to seek asylum in Britain**. This will also enable the UK to **detain illegal immigrants** or order their prompt return to a safe third country or their country of origin. Other countries in the list include Georgia, Albania, Switzerland, European Union (EU) and European Economic Area (EEA) States.

2. Mount Celia Gold Project

It is a gold mining project in **Western Australia**. Legacy Iron Ore Ltd., a subsidiary of NMDC Ltd. (National Mineral Development Corporation) has begun mining operations in this project. This is the first gold mine project of NMDC.

NMDC is a **Navratna PSU under the Ministry of Steel** and established in 1958. It is involved in exploration of iron ore, copper, limestone etc. and is largest producer of iron ore in India.

3. Somalia

Somalia has faced **severe flooding** which has been attributed to El Nino and the India Ocean Dipole. The UN has called the floods as **'once-in-a-century' event**.

Somalia is situated in the **Horn of Africa**. It is bordered by Ethiopia (West), Djibouti (Northwest), Gulf of Aden (North), Kenya (Southwest), and the Indian Ocean (East). It has the longest coastline on Africa's mainland. Somalia has been described as Africa's culturally most homogeneous country.



4. Lake Titicaca

Lake Titicaca is experiencing **record-low water levels** due to the **El Niño weather phenomenon**, prolonged dry conditions and unusual high temperatures. Lake Titicaca is located in the **Andes Mountains** on the **border of Bolivia and Peru in South America**. It is the world's highest navigable lake. It is the largest **freshwater lake** in South America. The lake was once seen as a deity by the pre-Columbian people that lived on its shores.



5. Kawah Ijen Crater Lake

It is the world's largest acidic lake. It is located in the crater of the **Kawah Ijen volcano** (composite volcano), in the centre of **East Java, Indonesia**. It is known for its turquoise blue waters. The lake is filled with high concentration of sulphuric and hydrochloric acids. Its **pH can be as low as 0.5**, similar to car battery acid. Hot sulphurous gases are also emitted. Raung or Gunung Raung Volcano is also located nearby.

6. Exercise MITRA SHAKTI

It is a **joint military exercise between India and Sri Lanka**. The exercise has been undertaken annually since 2012. Exercise SLINEX is the bilateral naval exercise between the two countries.

7. Project Kusha

Project Kusha entails **operational deployment** of India's indigenous **long-range air defense system** by 2028-29. The system is designed to **detect and destroy** a wide array of threats, including stealth fighters, aircraft, drones, cruise missiles, and precision-guided munitions at **ranges of up to 350 km**. It seeks to establish a formidable **3-layered defense system** with the capability to neutralize enemy aircraft and missiles from extended distances effectively. **Interceptor missiles** with a range between 150-350 km, provide the ability to detect and strike hostile targets at different distances. It has been developed by DRDO. The system will check **rising regional security threat** from China and Pakistan.

8. Particle Accelerator

A particle accelerator is a machine that **accelerates elementary particles**, such as electrons or protons, to very high energies. The particle accelerators produce beams of charged particles that can be used for a variety of purposes such as fundamental research in particle physics, medical treatments, and industrial applications. The **Large Hadron Collider (LHC)** in Switzerland is the world's largest and most powerful particle accelerator.

9. Nanophotonic Electron Accelerator (NEA)

Researchers have created world's smallest particle accelerator Nanophotonic Electron Accelerator (NEA). It is approximately the size of a small coin. Unlike traditional accelerators, the NEA uses **miniature laser beams** directed at thousands of tiny pillars on a microchip to accelerate electrons. The NEA shows promise for **medical uses**, particularly in **precise radiotherapy**, due to its compact design.

10. White Holes

A White Hole is the reverse of Black Hole. Black hole is a region from which nothing (including light), can escape due to the overwhelming gravitational pull. In contrast, **white hole is a region into which nothing can fall**. Instead of matter and energy being pulled inward, a white hole would expel matter and light. White holes emerge from the solutions of **Einstein's Theory of General Relativity** devised by **Karl Schwarzschild** in 1916. White holes are **still purely a theoretical concept** and **have not been observed**. The concept of '**loop quantum gravity**' proposes that a black hole can bounce and transform into a white hole. There is also a possibility that the **universe originated from a white hole** and a previous universe might have been swallowed by a black hole.

11. Saturn Rings

The rings comprise of bits of **ice, dust** and **rocks**. They are spread over 280,000 km from the planet. The **rings orbit directly above Saturn's equator** and they too are tilted to the plane of Saturn's orbit. Saturn's rings will become **almost invisible from Earth in 2025** due to the **edge-on perspective** from Earth's viewpoint. This phenomenon occurs because the rings are so thin that, when seen from a distance, they appear to vanish when viewed edge-on. The last time this phenomenon occurred in 2009.

12. Marsquake

Marsquakes are seismic events (like earthquakes) occurring on Mars. **NASA's InSight Mission** had detected and recorded numerous marsquakes in 2022. A study has linked the marsquakes to the release

of tectonic forces from within the planet's interior. These stresses are the result of billions of years of evolution including the **cooling and shrinking of different parts of the planet at different rates**.

13. JioSpaceFibre

It is India's first **satellite-based gigabit internet service**. It uses **Medium Earth Orbit (MEO)** satellite technology to **provide high-speed internet access to remote and underserved areas**. Starlink uses **Low Earth Orbit (LEO)** satellites. MEO satellites orbiting at a greater distance from the planet will have **higher latency** (latency is the time that data takes to transfer across the network) than LEO satellites. However, **MEO satellites can cover larger areas with fewer satellites**. At present, Starlink is available in over 30 countries. (Refer EPIC August 2023 (click) for Satellite Internet Services and Starlink).

14. Reference Fuel

Indian Oil Corporation (IOC) has indigenously developed '**reference**' grade petrol at its Paradip refinery (Odisha) and diesel at its Panipat unit (Haryana). 'Reference' fuels are **highly specialized fuels, used for testing vehicles** by automotive original equipment manufacturers (OEMs) and institutions engaged in automotive testing and certification.

The achievement will **reduce dependence on import of reference fuels**. Reference' fuel has higher **octane numbers** (97) compared to regular (87) and premium (91) fuels, crucial for accurate vehicle testing. Imported 'reference' fuel is priced at INR 800-850 per litre. Producing it domestically will lower the cost to about INR 450 per litre.

15. Chikungunya Disease

The US has approved the world's first vaccine for Chikungunya named Ixchiq. Chikungunya is a mosquito-borne viral disease. Chikungunya virus (CHIKV) is an RNA virus in the alphavirus genus of the family Togaviridae. It is transmitted through mosquitoes most commonly **Aedes (Stegomyia) aegypti** and **Aedes (Stegomyia) albopictus** which can also transmit dengue and Zika viruses. Its symptoms include fever and joint pain, headache, muscle pain, joint swelling or rashes. At present, there is no cure, only symptomatic relief with medicines


16. NexCAR19

Central Drugs Standard Control Organisation (CDSCO) has granted market authorisation for NexCAR19. It is India's first indigenously-developed CAR-T cell therapy. It has been developed by ImmunoACT, a company incubated by IIT Bombay. It has designed to target cancer cells carrying the CD19 protein. It is recommended for people with B-cell lymphomas who didn't respond to standard treatments like chemotherapy, leading to relapse or recurrence of the cancer. India is one of the first developing countries with its indigenous CAR-T and gene therapy platform. (Refer EPIC February 2023 (click) for CAR T-Cell Therapy).


TREATMENT FOR SPECIFIC B-CELL CANCERS

NexCAR19 is a prescription drug for B-cell lymphomas, lymphoblastic leukaemias when other treatments have been unsuccessful


PATIENT'S WHITE blood cells are extracted by a machine through a process called leukapheresis and genetically modified, equipping them with the tools to identify and destroy the cancer cells.




NEXCAR19 IS manufactured to an optimal dose for the patient, and typically administered as a single intravenous infusion. Prior to this, the patient is put through chemotherapy to prime the body for the therapy.



HOW NEXCAR19 WORKS




T-cells are naturally made by the body as an advanced defence against viruses and cancer cells. As T-cells mature, they develop specific connectors (receptors) to target key signals on cancer cells.




However, cancers can limit the inbuilt extent and efficiency with which T-cells are able to seek and fight them. This results in an increase in cancer burden.

Source: ImmunoACT



Scientists have identified certain proteins that are abnormally expressed on the surfaces of specific types of cancer cells. Specially designed receptors can find and bind to these cells.



A safe shell of a virus is used to genetically engineer T-cells so they express Chimeric Antigen Receptors – connectors that target a protein called CD19 on B-cell cancer.

17. Global Solar Stocktake Report

The **International Solar Alliance** (ISA) will compile and release a 'Global solar stocktake report'. It will be based on the 'Global Stocktake' of the United Nations Conference of Parties (COP). Its aim is to **take stock of the progress made by countries in the solar energy sector**. In 2020, ~US\$ 300 billion were invested in solar energy, which rose to US\$ 380 billion in 2022. But most of the manufacturing is in China. The stocktake will **explore ways to diversify manufacturing**.

18. Global Solar Facility

It has been launched by the ISA. Its aim is to help **reduce the constraints related to contracts and financing for solar energy projects**. It focus is to expand solar installations in Africa and then expand it to West Asia, Latin America, and the Caribbean. It will have payment guarantee fund, insurance fund and investment fund.

As of 2022, global solar photovoltaic installations have reached 1,133 Gigawatts (GW) with 191 GW added in 2022. China accounts for ~25% of total solar photovoltaic installations followed by the US. India is among the top 5 countries globally with 62 GW of installations.

19. Nest Initiative

It has been launched by Indian Green Building Council (IGBC). It is a rating and certification initiative developed for residential units to build green homes. Its aim is to encourage individual house owners and the residential sector to **adopt green building measures**. It emphasizes on **bringing down electricity consumption, water usage and creating a healthy living space**.

20. Indian Green Building Council (IGBC)

It was established in 2001 under Confederation of Indian Industry (CII). Its aim is to **enable a sustainable built environment** for all and **facilitate India to be one of the global leaders** in the **sustainable built environment** by 2025. It offers a variety of services like developing new green building rating programmes, certification services and green building training programmes. It is headquartered in Hyderabad.

21. Dust Suppressants

Dust suppressants are being used in Delhi to reduce pollution from dust. They are typically salts of calcium or magnesium. They have the **ability to absorb moisture**. In 2019, Central Pollution Control Board (CPCB) had found that using dust suppressants along with water showed a **30% reduction in dust concentration** (PM10, PM2.5, and PM1) for up to 6 hours when dust suppressants were used on construction sites and roads. A Delhi PWD study had found that using dust suppressants with bio-additives can reduce dust for 5-6 hours, compared to plain water sprinkling which is effective for only 15-30 minutes.

22. Delhi as the Most Polluted City

IQAir has released the **Air Quality Index**. It is a Swiss-based company. The AQI measures air quality levels for 109 countries, based on the **concentration of PM2.5**. **Delhi has been ranked the most polluted city in the world**; followed by Lahore, Pakistan. Air pollution in parts of Delhi was **30 times the safe limits** prescribed by the World Health Organization (WHO). **Kolkata was ranked 4th** on the list and **Mumbai 9th**. **Mexico City has been declared the cleanest city in the world**.

23. National Efficient Cooking Programme (NECP)

It has been launched by the Energy Efficiency Services Limited (EESL). It aims to transform cooking practices in India by introducing **induction-based cook stoves**. Its target is to deploy 20 Lakh Induction cook-stoves across India. The cookstoves offer a cost advantage of 25-30% over traditional cooking methods.

24. Anamalai Tiger Reserve

Tiger Rewilding project is being undertaken in Anamalai Tiger Reserve. Rewilding involves the **reintroduction of a captive tiger cub into the wild** when it becomes clear that the tiger cub is capable of surviving in the jungle independently.

The Anamalai Tiger Reserve is located in **Southern Western Ghats in Tamil Nadu**. It is surrounded by **Parambikulam Tiger Reserve, Chinnar Wildlife Sanctuary and Eravikulam National Park**. It was declared as tiger reserve in 2007. It has **~2,500 floral species** and supports diverse forest types: Wet evergreen forests, semi-evergreen forests, moist deciduous, dry deciduous, dry thorn and shola forests. Faunal species include Tiger, Asiatic elephant, Nilgiri Tahr, Lion Tailed Macaque, Great Indian Hornbill among others. It is also home to 15 of 16 species of birds endemic to the Western Ghats.

The reserve is home to **6 tribes**: Kadars, Malasars, Pulaiyars, Mudugars and Eravallan.

25. Amangarh Tiger Reserve

It is located in Uttar Pradesh. It was declared a tiger reserve in 2012. It was **originally part of the Corbett National Park**, but the Park went to Uttarakhand after bifurcation. The vegetation of the reserve is a combination of grasslands, wetlands and dense forest. It is 1 of the 4 Tiger Reserves in UP, along with **Dudhwa, Pilibhit and Ranipur**. The rising population of tigers in the reserve has pushed the leopards in the reserve towards human habitations.

26. Global Declaration for Protection of River Dolphins

11 Asian and South American countries have signed a Global Declaration for Protection of River Dolphins. These include Bangladesh, Bolivia, Brazil, Cambodia, Colombia, Ecuador, **India**, Nepal, Pakistan, Peru, and Venezuela. The aim of the declaration is to **halt the decline of all river dolphin species by 2030**. Measures to be taken include **improving water quality in the dolphins' habitat, creating protected areas, tackling overfishing and involving Indigenous communities** in the affected regions in protecting the animals.

27. River Dolphins

River dolphins are **aquatic mammals** that **reside exclusively in freshwater or brackish water**. The 6 surviving river dolphins species are: **Amazon, Indus, Ganges, Irrawaddy, Tucuxi and Yangtze finless porpoise**. **All of them**, except the Yangtze Finless Porpoise, **are endangered**. Yangtze Finless Porpoise is **critically endangered**. A seventh species, the **Chinese river dolphin** or baiji, was **declared extinct in 2007**. Since the 1980s, river dolphin populations have declined by 73% due to several threats like unsustainable fishing practices, hydropower dams, pollution from agriculture, industry and mining, and habitat loss. Amazon River Dolphin is the largest of all.



28. Dhordo Village Included in the Best Tourism Village

The **United Nations World Tourism Organization** (UNWTO) has included Dhordo village (Gujarat) on the list of '**Best Tourism Villages 2023**'. It is located in the **Great Rann of Kutch**, Gujarat. It is known for the **Annual Rann Utsav Festival**, which celebrates the region's rich cultural heritage, traditional arts, music and crafts.

29. Best Tourism Villages Initiative

It has been launched by the UN World Tourism Organization (UNWTO). Its aim is to promote tourism for sustainable development globally. The award is given to villages that are **leaders in rural development** and preservation of landscapes, cultural diversity, local values and food traditions.

30. United Nations World Tourism Organization (UNWTO)

It is a specialized agency of the UN. It was established in 1975. Its aim is to promote responsible, sustainable and universally accessible tourism. It is headquartered in Madrid, Spain.

31. Tribal Pride Day

It is **celebrated on November 15** every year. It is celebrated in honour of **birthday of Birsa Munda**, the tribal freedom fighter. It is also **foundation day of Jharkhand State**. Tribal Pride Day recognizes the efforts of the tribals to preserve the cultural heritage and promote the Indian values.

32. Kondaveedu Fort

The Kondaveedu Fort in Andhra Pradesh hosted a cultural gallery showcasing its rich historical significance from the 13th to 20th century. It is located in **Guntur, Andhra Pradesh**. It was constructed by **Prolaya Vema Reddi** of the **Reddi Kingdom**. The fort was once the capital of the Reddi dynasty between 1328 and 1482 shifting from their former capital at Addanki. It was then taken over by the **Vijayanagara Emperor Krishnadevaraya** in 1516. The Golconda Sultans fought for the fort and **Sultan Quli Qutb Shah** captured it in 1579 and renamed it as **Murtazanagar**. The fort came under the control of the French colonists in 1752 when it was extensively fortified. It passed on to the British East India Company who got control of the fort in 1788 but abandoned it in the early 19th century in favour of Guntur.



33. GI Tag for Sea Buckthorn

Ladakh's Sea Buckthorn has been granted the **Geographical Indication (GI)** tag. Sea Buckthorn is a **shrub** that produces an orange-yellow coloured edible berry. It is **generally found in dry areas** like the **cold deserts** of Ladakh and Spiti. It is popularly known as the 'Wonder Plant', 'Ladakh Gold', 'Golden Bush', or 'Gold Mine' of cold deserts in Ladakh and as Himalayan chharma in Himachal Pradesh.

It is **used as a medicine** for treating stomach, heart, and skin problems. It helps in **acclimatizing to high-altitude**. It is an important source of **fuelwood and fodder**. It is a



soil-binding plant that **prevents soil erosion**. It **checks siltation in rivers** and helps preserve floral biodiversity. It is used in **making juices, jams, nutritional capsules** among others. It is also used in the **manufacturing of cosmetics and anti-ageing products**.

34. Edakkal Caves

They are located in Wayanad, Kerala. The caves are located 3,900 feet above sea level in the **Ambukuthi Hills**. Edakkal Caves are not actually caves. They are part of a **prehistoric rock shelter** formed naturally when one huge boulder got wedged between two bigger ones. The name Edakkal means 'a stone in between'. The caves feature



Neolithic-era pictorial writings dating back to at least 6,000 BCE. The cave has **engravings of human and animal figures** besides symbols and letters. The **Muniyaras** or ancient burial sites have been discovered in these caves. This has yielded a rich collection of ancient earthenware and pottery.

35. Ao Community

Ao is **tribal community from Nagaland**. They are predominantly engaged in Slash and burn agriculture, also known as jhum or shifting cultivation (*tekong lu* or *alu ayimba*). Their main festivals are **Moatsü** (early May after sowing) and **Tsüngremong** (after harvest). Aos were the first nagas to embrace Christianity and incorporate Western education.

36. Sumi Community

Sumi is **tribal community from Nagaland**. They also engage in slash and burn/jhum cultivation. Their ancestral religion predominantly focused on worship of nature, but now most of them have converted to Christianity. Their traditional festivals include **Ahuna** (post-harvest) and **Tülüni**.

37. Annapurna Certificate Programme

It has been launched by the Indian Council for Cultural Relations (ICCR). Its aim is to **recognize Indian restaurants abroad** that are **promoting Indian culture** through their **culinary contributions**. It will help the people abroad identify authentic Indian restaurants.

38. India-Japan Semiconductor Supply Chain Partnership

The Union Cabinet of India has approved a memorandum of cooperation between India and Japan on a Semiconductor Supply Chain Partnership. The aim of the partnership is to strengthen cooperation between India and Japan towards **enhancement of the semiconductor supply chain**. The partnership is for both **Governments-to-Government (G2G)** and **Business-to-Business (B2B) collaboration** in the semiconductor supply chain sector.

39. World Customs Organisation (WCO)

It is an **intergovernmental organisation** established in 1952. Its aim is to **enhance the effectiveness and efficiency of customs administration**. It has 185 Customs administrations as members that collectively process ~98% of world trade. It is **headquartered in Brussels, Belgium**. It is the only international organization with competence in Customs matters. It administers the **Harmonized System (HS) of Tariff Nomenclature** that facilitates international trade.

40. Open Doors 2023 Report

The **Open Doors 2023 Report on International Educational Exchange** has been released by the US Department of State's Bureau of Educational and Cultural Affairs and the Institute of International Education (IIE). Its aim is to provide comprehensive information on **international students studying at higher education institutions**. The US hosted more than one million international students during the 2022/2023 academic year. China has the highest number of students in the US followed by India with ~2.6 lakh students in 2022/23. International students accounted for **6% of the total U.S. higher education population** and contributed **~US\$ 38 billion to the U.S. economy**.

41. Bharat Atta Scheme

It is a fortified wheat flour that is made with a **blend of wheat, rice, and pulses**. It is a good source of **protein, iron, and other essential nutrients**.

Its aim is to **provide affordable** (subsidized) **wheat flour to the poor** and vulnerable sections of the society. It will be made available through outlets such as **Kendriya Bhandar, National Agricultural Cooperative Marketing Federation (NAFED)** and **National Cooperative Consumers' Federation (NCCF)**. These agencies will utilize their network of 800 mobile vans and ~2,000 outlets to effectively distribute the subsidized wheat flour.

42. QR Code on Food Products

The Food Safety and Standards Authority of India (FSSAI) has recommended the use of Quick Response (QR) codes on food products. This has been recommended to fulfil the requirements under the **Rights of Persons with Disabilities Act 2016** which recognises the rights and needs of individuals with disabilities. The Act emphasizes on the accessibility and the promotion of health for persons with disabilities. QR Code is expected to expand accessibility of information.

43. Food Labelling Regulations

Food Safety and Standards (Labelling and Display) Regulations, 2020 have comprehensively outlined the information to be included on the labels of food products. This includes product name, shelf life, nutrition facts, vegetarian/non-vegetarian logos, ingredient lists, allergen warnings etc. It is aimed at **empowering consumers to make informed choices** when selecting food products.

44. Standards and Labelling Programme

It is a programme under the **Bureau of Energy Efficiency (BEE)**. Its aim is to provide consumers an informed choice about the **energy and cost-saving potential of the star labelled appliances**. Appliances are rated on a scale of 1 to 5 with 5-star labelled appliance being the most energy efficient. At present it covers 34 appliances. The scheme has resulted in **overall electricity saving of 70.56 billion units** translating to an abatement of **57.05 million ton of CO emission in FY 2021-2022**.

The Government has now launched the labelling programme for Solar Panels as well. The program is expected to enhance Solar PV module efficiency by 2% over its existing levels. Due to this performance improvement, the electricity generation is expected to increase by 33GWh/year and this will **offset ~27,000 tons of CO₂ emission per annum**.

45. LEAP AHEAD Initiative

It stands for Launchpad for Tech Entrepreneurs towards Accelerated Growth and Pioneering AHEAD. It has been launched by the Software Technology Parks of India (STPI) and The Indus Entrepreneurs (TiE) Delhi-NCR. Its aim is to support tech startups by offering them access to funding, mentorship and













global connections. It will provide Intensive 3-Month Mentorship Program, One-on-One Mentorship with investors and industry experts, Funding Potential of up to INR 1 crore, and access to networks and exposure in the global market. **Startups involved in software product development**, (registered with DPIIT under the Startup India program) are eligible.

46. ENCORE

Election Commission of India has designed in-house software called ENCORE for complete Candidate and election management. It stands for Enabling Communications on Real-time Environment. It will provide a seamless facility for Returning Officers to process candidate nomination, affidavit, Voter turnout, counting, results and data management.

47. Technical Textiles

According to the Ministry of Textiles, India's market for technical textiles could grow from the current US\$ 23 billion to US\$ 40 billion by 2030. Technical textiles are defined as textile materials and products used primarily for their **technical performance and functional properties** rather than their aesthetic or decorative characteristics.

	Agrotech Horticulture + landscape gardening, agriculture + forestry, animal keeping		Meditech Hygiene, medicine
	Buildtech Membrane, lightweight + massive construction, engineering + industrial building.		Mobiltech Cars, ships, aircraft, trains, space travel
	Clothtech Garments, shoes		Okotech Environmental protection, recycling, waste disposal
	Geotech Road infrastructure, Railways, Irrigation and Hydraulic structures, Waste Landfills, Dams etc.		Packtech Packaging, protective-cover systems, sacks, big bags, container systems
	Homotech Furniture, upholstery + interior furnishing, rugs, floor coverings		Protectech Person and property protection
	Indutech Filtration, cleaning, mechanical engineering, chemical industry		Sporttech Sport and leisure, active wear, outdoor, sport articles.

48. Pradhan Mantri Anusuchit Jaati Abhuyday Yojana (PM- AJAY)

It is under the **Ministry of Social Justice & Empowerment**. Its aim is to reduce poverty within Scheduled Caste (SC) communities by **creating additional job opportunities through skill development, income-generating initiatives** etc. It also aims to **enhance socio-economic development indicators** by providing necessary **infrastructure and essential services in SC-dominated villages**. It has 3 components; Development of SC dominated villages into an “**Adarsh Gram**”, Grants-in-aid’ for District/State-level Projects, Construction of Hostels in higher educational institutions and schools.

49. “Jal Diwali: Women for Water, Water for Women” Campaign

The campaign has been launched by the **Ministry of Housing and Urban Affairs**. It has been launched under the **Atal Mission for Rejuvenation and Urban Transformation (AMRUT)** in partnership with the National Urban Livelihood Mission (NULM). Its aim is to provide a platform for **inclusion of women in water governance** and to instil a **sense of ownership and belonging among women towards water infrastructure**.

50. Fossils of Coral Reefs in Ladakh

Geologists have discovered fossils of coral reef in the **Burtse region, Eastern Ladakh**. Coral reefs are often associated with **tropical, shallow waters**. Discovery of fossils of corals in mountainous areas is quite unusual. The discovery provides information on the region's ancient underwater world and biodiversity. It suggests that **Ladakh may have been home to vibrant marine life, coral reefs and beaches in the past**.

NOTE: With effect from 1st February 2022, the monthly ForumIAS Epic Magazine, for the month will provide wholistic coverage for the said month up to 20th of the month. This ensures that issues / stories that occur after 21st of the month are allowed to fully develop and are covered wholistically in the next month.