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PRELIMS + MAINS

PREPARATION

April 2023

I enrolled myself in the Forum Mains Guidance Program +
for GS and Essay test series. The answer writing practice
and written feedback from Forum alongwith 'Best answers'
and topper's copies provided helped me improve my
answers and get a high score in my General Studies
papers.

Ayush sir's regular articles were also fun and
encouraging reads - I thank the ForumIAS team
for their guidance during my two year
association with them.

Shruti Sharma
AIR 1, CSE 2021

forumIAS has been an integral part of my upsc journey,
right from my very first attempt. The prelims and
mains test series have helped me a lot and I have
referred to them in all my three attempts. One on
one session with Ayush sir for interview was
beneficial too. Always enjoy reading his articles
on the forumIAS blog.

with Best wishes,

Utkarsh Dwivedi
AIR 5, CSE 2021

5 students in Top 10 and 57 students in Top 100 Ranks List of CSE 2021 are ForumIAS Academy students. Total 303 selections out of 685 vacancies.

TABLE OF CONTENTS

India's Foreign Trade Policy, 2023

News: The Government has released the Foreign Trade Policy, 2023.

What has been the trend of India's Foreign Trade?

- The **total merchandise trade** (exports and imports) increased from US$ 810 billion in 2011-12 to **US$ 1.05 trillion in 2021-22**. The **total service trade** has risen from US$ 220.6 billion in 2011-12 to **US$ 401.5 billion in 2021-22**.
- India has run a **persistent merchandise trade deficit** since 1990-91. The highest trade deficit was in 2012-13 at US$ 195.7 billion. The trade deficit in 2021-22 stood at about US$ 189.5

India's Merchandise Trade (US$ Billion)

Source: RBI Handbook of Statistics on Indian Economy

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—Merchandise Exports —Merchandise Imports —Merchandise BOP

billion. *(Refer EPIC April 2022 for India's Merchandise Trade: Challenges and Opportunities)*.
- India has run a **persistent service trade surplus** since 1990-91 (barring 1995-96). The highest trade surplus was achieved in 2021-22 at US$ 107 billion. The growth in service trade has been much more consistent than merchandise trade. *(Refer EPIC March 2022 for Adopting Services Exports-led Growth Approach)*.
- India's share in global merchandise and services trade is 1.8% and 4% respectively.
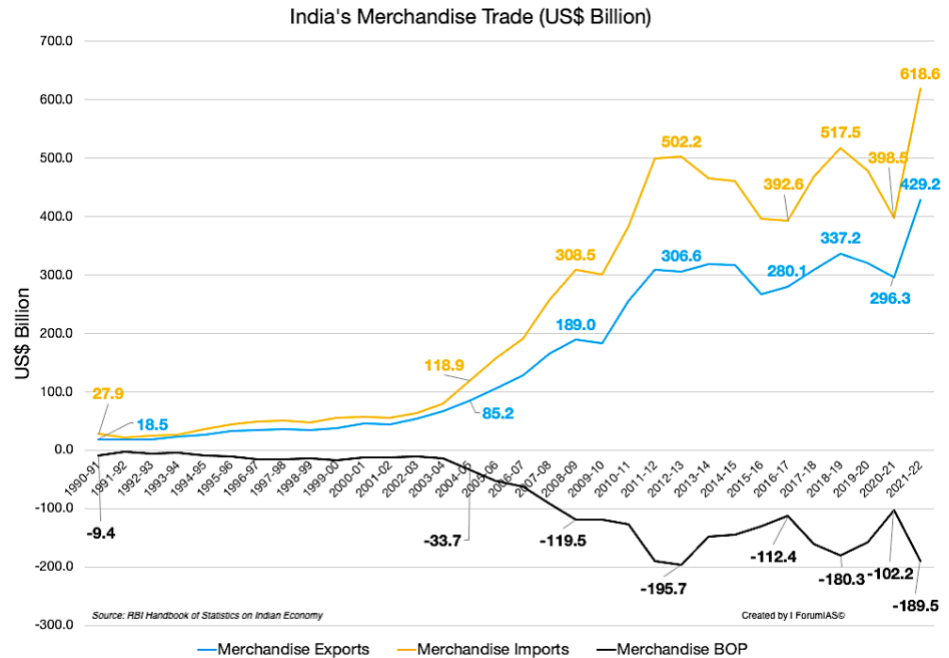
What was the need for new FTP?

- India hasn't been able to truly leverage the potential of Global Value Chains (GVCs) in comparison to China and other East Asian neighbours.
- The **onset of the pandemic followed by the Russia-Ukraine Crisis** has created opportunities for India to boost its exports. Pandemic has made countries adopt a '**China Plus One**' **policy** that provides an opportunity to boost Indian exports. A new policy was desirable in light of the **altered nature of international trade** in post-pandemic world.
- India is in the process of concluding **critical Free Trade Agreements (FTAs)** with UK, Canada and the EU among other, that warrants a revamped policy for leveraging the benefits of FTAs.
- The surge in **input and fuel costs** are hitting the bottom lines (profits) of **MSMEs**. New FTP was needed to help ease the challenges faced by MSMEs.
- The previous policy had already been extended multiple times and new policy was long overdue.

What are the salient features of India's new FTP?

- The FTP is notified by the Union Government under **Section 5 of the Foreign Trade Act, 1992.**

- The previous Policy was released in 2015 and was valid till 2020. It was extended multiple times amidst the COVID-19 pandemic and the Russia-Ukraine was that disrupted global supply chains and trade.
- The 2023 policy is based on **4 pillars**:
  o Incentive to Remission.
  o Export promotion through collaboration: Exporters, States, Districts, Indian Missions.
  o Ease of doing business, reduction in transaction cost and e-initiatives.
  o Emerging Areas: e-Commerce Developing Districts as Export Hubs and streamlining SCOMET policy.

India's Services Trade (US$ Billion)

Source: RBI Handbook of Statistics on Indian Economy

Created by I ForumIAS©

Data points (Services Exports): 3.6, 4.6, 52.0, 106.0, 145.7, 164.2, 208.0, 206.1, 254.5
Data points (Services Imports): 52.0, 80.8, 95.9, 126.1, 117.5, 147.0
Data points (Services BOP): 1.0, 53.9, 64.9, 68.3, 81.9, 88.6, 107.5

Legend: —Services Exports —Services Imports —Services BOP

- **Process Re-Engineering and Automation**: The policy emphasizes export promotion and development, **moving away from an incentive regime to a facilitatory regime**, based on technology interface and principles of collaboration.
  o **Reduction in fee structures** and **IT-based schemes** will make it easier for MSMEs to access export benefits.
  o **Duty exemption schemes** for export production will now be implemented through Regional Offices in a rule-based IT system environment, eliminating the need for manual interface.
- **Towns of Export Excellence**: Four new towns (Faridabad, Mirzapur, Moradabad, and Varanasi) have been designated as **Towns of Export Excellence** (TEE) in addition to **the existing 39 towns**.
  o The TEEs will have **priority access to export promotion funds** under the **Market Access Initiative** (MAI) scheme. TEEs will also be able to avail **Common Service Provider** (CSP) benefits for export fulfilment under the Export Promotion Capital Goods (EPCG) Scheme.
- **Promoting Export from the Districts**: The FTP aims at building partnerships with State Governments and taking forward the **Districts as Export Hubs (DEH) initiative**. This would promote exports at the district level and accelerate the development of the grassroots trade ecosystem.
- **Streamlining SCOMET Policy**: India is placing more emphasis on the '**export control**' regime as its integration with export control regime countries strengthens. There is a wider outreach and understanding of SCOMET (Special Chemicals, Organisms, Materials, Equipment and Technologies) among stakeholders.
- **Facilitating e-Commerce Exports**: e-commerce exports are a promising category that requires distinct policy interventions from traditional offline trade. Estimates suggest India's e-commerce export potential in the range of US$200-300 billion by 2030. FTP 2023 outlines the intent and roadmap for establishing e-commerce hubs and related elements.
- **Facilitation under Advance Authorization Scheme**: Advance authorization Scheme accessed by Domestic Tariff Area (DTA) units provides **duty-free import of raw materials** for manufacturing export items. Certain facilitation provisions have been added in the FTP 2023 for such units.
- **Amnesty Scheme**: The Government is strongly committed to reducing litigation and fostering trust-based relationships to help alleviate the issues faced by exporters.
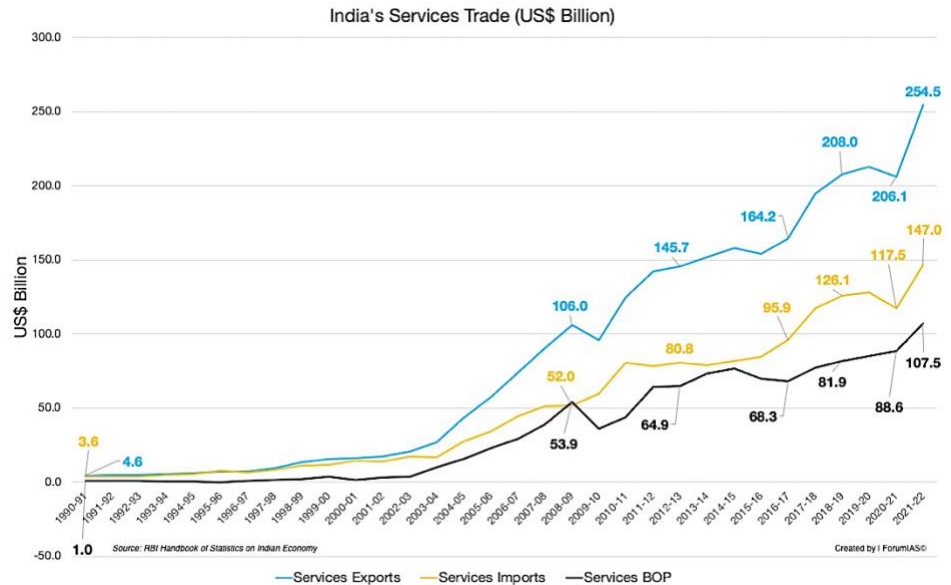
o In line with **'*Vivaad se Vishwaas*' initiative**, which sought to settle tax disputes amicably, the Government has introduced a special **one-time Amnesty Scheme** under the FTP 2023 to address default on export obligations. This scheme is intended to provide relief to exporters who have been unable to meet their obligations under **EPCG and Advance Authorizations**.

- The FTP has no expiry date like earlier policies.

What is the expected benefits of the new FTP?

- **Boost Exports:** The new FTP aims to promote exports by reducing transaction costs, enhancing trade facilitation processes, and offering remissions on duties and taxes on export products e.g., RoDTEP scheme will help reduce the cost of exports and make Indian products more competitive.

- **Trade Facilitation Measures**: The new FTP marks a shift from **industry-specific subsidies** to **trade facilitation processes**, focusing on developing infrastructure for manufacturing and services. This will provide level-playing field for domestic businesses and enhance their competitiveness e.g., development of efficient ports and logistics infrastructure will reduce costs of exports.

> **PT BOX**
>
> **Terms of Trade (ToT) Index**
>
> It measures the **relative prices of a country's exports and imports**. The most common method to measure ToT is the **Net Barter (or Commodity) Terms of Trade index**, or the ratio of the export price index to the import price index. When a country's net barter terms of trade index increases, **its exports become more expensive or its imports become cheaper**. According to World Bank, India's ToT has risen from ~80 in 2007 to 105 in 2020 indicating India's exports becoming more expensive compared to imports.

- **Compliance with WTO Rules**: The emphasis on WTO-compliant schemes like RoDTEP and elimination of industry-specific subsidies is expected to improve India's standing in international trade.

- **Encourage MSMEs**: The reduction in transaction fees for MSMEs and the creation of towns of excellence will help MSMEs to expand their business and increase their exports e.g., with reduced transaction fees, MSMEs can invest more in product development and marketing.

- **Process Reforms**: Certain measures focus on providing **online/automatic approvals for several procedures and permissions e.g.,** the **processing time for revalidation** of various authorisations, which currently ranges from 3 days to 1 month, is expected to be brought down to 1 day. This will improve competitiveness.

- **Facilitate Decentralization of Manufacturing and Agriculture**: The new FTP promotes a decentralized approach to manufacturing and agriculture with the principle of '**one district, one product**'. This will help **promote local products**, create local jobs, and **reduce regional imbalances**.

- **Improving e-commerce exports**: Raising the consignment cap on e-commerce exports will benefit small businesses and start-ups e.g., small businesses can reach a global audience through **online market-places**, leading to increased exports and growth of the e-commerce sector.

What are the challenges in implementing the new FTP?

- **Implementation and Coordination**: Implementation of the new FTP will require coordination between multiple stakeholders, like government agencies, industry bodies, and exporters.

- **Infrastructure and Logistics**: India's poor infrastructure and logistics have been a long-standing challenge for exporters, leading to higher transaction costs, loss of goods (like perishables) and delays.

- **Global Trade Dynamics**: Geopolitical tensions and protectionist measures pose challenges for exporters. The US-China trade war, COVID-19 Pandemic, Russia-Ukraine war had disturbed supply chains. Critics argue that the FTP has not taken into account the structural changes in the global export order post-Covid, which could impact the effectiveness of the policy.

- **Digital Infrastructure**: With the rise of e-commerce and digital exports, India needs to improve its digital infrastructure to enable seamless online transactions and data sharing.
- **Lack of Focus on Imports**: The new FTP has overlooked the structure of imports altogether, which could create imbalances in India's trade.

> **PT BOX**
> **Trade Openness**
> Trade openness is measured as the sum of a country's exports and imports as a **share of that country's GDP** (in %). According to World Bank, India's Trade Openness in 2021 was 45(%) up from ~10(%) in 1960. The highest ratio was achieved in 2012 at 56(%).

- **Limited Focus on Services Exports**: The new FTP does not delve much into services exports, which are becoming increasingly important for India's economy.
- **e-commerce Exports**: The new FTP raises the consignment cap on e-commerce exports. However, there are several ambiguities regarding the tariff treatment of such exports globally and data sharing principles.
- **WTO compliance**: The Government must ensure that all its upcoming export promotion schemes comply with WTO rules, as it has faced criticism and even lost disputes in the past.

What are the issues with India's approach towards Imports?
- Rising merchandise trade deficit had promoted the Government to 'explore' steps to **contain imports of 'non-essential items'** (in March 2023). The Government has generally raised tariffs along with other curbs to reduce imports.
- The concept of inessential imports was used in the 1970s when the Chief Controller of Imports and Exports could **deny imports in items deemed 'inessential'** or were **indigenously available** (even if deemed 'essential'). The strategy of limiting imports has not worked well in the past as experienced by India's policy prior to liberalization of the economy in 1991.
- Such classification **protected domestic Indian industry** from external competition. It **produced a high-cost economy** that could not compete internationally and developed slowly.
- It is **hard to determine non-essential imports** in a functioning market economy. Limiting 'non-essential' imports lead to **higher costs** and affect the overall competitiveness of the economy.
- Such approach **sends wrong signals** to countries willing to sign FTAs with India. They will be wary of India's frequent resort to such restrictive measures which hamper trade.
- Often such measures are viewed as '**knee-jerk' reaction**, rather than a careful considered policy. **Policy uncertainty** can **deter foreign firms** willing to invest in India for domestic manufacturing. This is one of the reason for India's inability to benefit from the opportunity provided by China Plus One Strategy.
- **WTO prohibits quantitative import restrictions**, except in circumstances of a BoP crisis.
- Such an approach opens the **scope for lobbying** with firms lobbying to prevent their products termed as 'non-essential'.
- Imports are not necessarily a bad thing. They can help address lack of domestic capacity in certain fields (like raw materials). The focus instead should be on strengthen sectors where there is domestic competitive advantage.

What should be the approach going ahead?
- **Incorporate Macroeconomic Analysis**: The Government should provide a SWOT and macroeconomic analysis to provide a comprehensive view of the impact of the policy on the economy.
- **Promotion of innovation:** The new FTP should promote innovation in exports by providing incentives and support to exporters/firms/MSMEs who are developing new products and technologies.

- **Regular Review**: The new FTP should be reviewed regularly to assess its effectiveness and make necessary changes to ensure its objectives are met. The absence of any expiry date provides opportunity for review.
- **Holistic Approach**: The Government should adopt a more holistic approach to address the structural changes in the post-Covid global trade order, the role of FTAs, and services exports. The Government should emphasize on negotiating more FTAs with countries that have a demand for Indian goods and services.
- **Tax Reforms**: Parliamentary Standing Committee has recommended that **rationalization of direct and indirect taxes** should be undertaken in sync with international norms to increase the competitiveness of domestic industries in the global markets. This can enable India harness the **opportunity of China Plus One strategy**.
- **Digital Initiatives**: The Government should take steps to link IT systems of Customs with partner agencies like Drug Controller or FSSAI for trade clearances. It can ensure faster mobility of consignments and create a robust risk management system for end-to-end clearances.
- **Database of District-based Products**: A comprehensive database of goods and services being produced in the districts can help identify products with export potential. A database can also help in planning appropriate steps to support export-growth measures.
- **Roadmap for 2030**: The Government should provide more substantive and sectoral targeted measures as well as a well-defined roadmap to meet the 2030 export target.
- **Gender and the FTP**: Research by the WTO and World Bank has proven that trade and trade policy affect men and women differently in terms of wages, consumption, welfare and in the quality of jobs created. It is vital to include the intent and **specific provisions for enabling women** in the policies that have an impact on the speed and direction of India's trade growth.
- **Focus on Product Quality Standards**: Most developed countries do not rely on export incentives (like India), rather the focus is on ensuring product quality and standards to ensure global market expansion. The Government should also focus on quality of Indian goods (like drugs) and reduce reliance on incentives.
- **Build Resilient GVC Linkages**: The Government should focus on building resilient Global Value Chain (GVC) linkages in India. Observer Research Foundation (ORF) has suggested a strategy for integrating and building resilience into India's linkage with GVCs. *(Refer EPIC September 2022 for Building Resilient Global Value Chain (GVC) Linkages in India).*

Strategies for Resilience of GVCs

Alongside integration with the GVCs, focus should be on building resilience.

5 — Support MSMEs
Provide access to reliable credit to scale, mitigate risks, cope with shocks, facilitate digitisation/formalisation through PLI schemes.

4 — Harmonize Logistics and Transportation
Implementation of harmonised logistics and transportation standards can help reduce bottlenecks and ease the movement of goods.

3 — Promote Best Practices through Government Procurement
Leverage public procurement to incentivise companies to adopt best practices by including sustainable practices as a criteria for participation in government projects.

2 — Ensure Redundancies
Ensure emergency stockpiles, support firms in building diversified supply chains, use digital technologies to identify and respond to potential supply shocks

1 — Map Supply Chains and Identify Vulnerabilities
Identify goods critical economic security, carry out mapping of supply chains, identify potential vulnerabilities, and create strategies for shoring up supply of the identified critical goods

Source: ORF, Building Resilient Global Value Chain Linkages in India: Findings from an Enterprise Survey

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1. Indian Philosophy and Ethos as Guiding Light in Modern Times

News: Indian civilization, (unlike Persian or Roman), survived multiple waves of invasions. India's outlook towards human life and philosophical approach towards worldly concerns has earned India global goodwill.

What are the Fundamental Tenets that make India Stand-out?

- Indian movies, dance and music, cuisine, and historical monuments continue to be an attraction for the global community. Cultural aspects like yoga, spirituality, traditional knowledge systems such as ayurveda are manifestations of Indian philosophy.
- India is not the only civilizational nation in the world. But **philosophical underpinnings** of the idea of India are most unique. Certain fundamental tenets of Indian Philosophy stand out.
  - First is the **spiritual democracy** of India. India was never a theocratic state. Its approach has been *ekam sat, vipra bahuda vadant* (One God is worshipped in different names). It rejects any **monopolistic approach** to ways of worship.
  - Second, India has **unity inherent in its diversity**. It has enabled it to accommodate and celebrate the pervasive diversity.
  - The third important tenet is the approach of **confluence with mother nature**. This approach does not favour conquering nature, instead it shows **gratitude towards nature**. Sustainability has become the focus of developmental policy at a global level. It has been part of India's philosophy since ancient times as is evident from many traditions and rituals.
  - The fourth tenet is the **concept of *antyodaya***. It **puts the last man first**. It is about considering the most deprived sections of the society for distribution of the fruits of development. It encompasses both **social and economic justice**. Design of Government's welfare schemes reflect the principles of *Antyodaya*.
  - The fifth tenet is *vasudhaiva kutumbakam*. India has imagined the **entire world as one family**, where values mutuality, sharing and collectivism are given primacy.
- These five tenets emerge from **scriptures and the teachings of sages and philosophers** including Gautama Buddha, Adi Shankara and Guru Nanak.
- Today, the global community is facing conflicts and wars emanating from ideas of supremacy, one-upmanship and monopolistic spirituality. **Ancient Indian philosophy can act as guiding light** in these troubled times. If used effectively, it can further enhance India's soft power.

2. Revision of NCERT Books and Associated Issues

News: The revisions of certain sections of NCERT books has led to intense debate.

What are the recent changes made to NCERT Books?

- The National Council of Educational Research and Training (NCERT) has made several changes in the text books in recent times.
- In 2017, a '**review**' was undertaken to update the books to **reflect recent events** and changes like the GST Act. The review resulted in 1,334 changes in 182 books.
- In 2018, **revisions** ('**textbook rationalization**') were undertaken to **reduce the burden** of syllabus. It led to almost 20% reduction in the syllabus primarily in social science.
- Another round of revision was undertaken **after the COVID-19 pandemic** in 2020, to further reduce the curriculum load.

- The NCERT has also revised the **National Curriculum Framework** after 14 years on the lines of the **National Education Policy (NEP) 2020**. The NCF was earlier revised in 1975, 1988, 2000 and 2005.

What is the rationale behind the changes in the NCERT syllabus?

- **Alignment with NEP**: Revision is necessitated by the changes in the NCF in-line with the NEP, 2020 to ensure the syllabus meets the updated objectives, priorities, and guidelines.

Changes in NCERT Textbooks

- **Class 12 History**: Chapters related to the **Mughal Empire** have been removed from the textbook 'Themes of Indian History-Part II'.

- **Class 12 Civics**: Chapters like '**American Hegemony in World Politics**' and '**The Cold War Era**' have been removed from the Civics textbook.

- **Class 12 Indian Politics after Independence**: Two chapters, '**Rise of Popular Movements**' and '**Era of One Party Dominance**' have been removed.

- **Class 10 Democratic Politics-2**: Chapters such as '**Democracy and Diversity**' '**Popular Struggles and Movements**' and '**Challenges of Democracy**' have been dropped.

- **Class 11 Themes in World History**: Chapters like '**Central Islamic Lands**', '**Clash of Cultures**' and '**Industrial Revolution**' have been removed.

- Some content related to **Government's ban on the RSS** (in 1948, post Mahatma Gandhi's assassination) and **background of Nathuram Godse** has been **removed which has given rise to controversy.**

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- **Current Developments**: Books need to be updated to include new developments in the contemporary context like the Digital India Mission, GST etc.

- **Inclusivity**: Some critics had argued that diverse cultural, linguistic, and social backgrounds of India have not been adequately represented in the text books like Assamese and North-east kingdoms. This can lead to a **lack of understanding and appreciation** of the country's **rich heritage and diversity**. The revised syllabus places greater emphasis on ancient Indian knowledge such as yoga, Ayurveda, and Vedic mathematics. This helps students to and understand the value of traditional practices.

- **Rationalization of Syllabus**: The NCERT syllabus is often criticized for being vast and demanding, leading to a high workload and mental pressure for students. **Overlapping content** (repetitive content in History textbooks from class 6 to 12) has been removed.

- **Addressing Feedback from Educators and Stakeholders**: Changes are being made based on feedback from teachers, students, and other stakeholders to ensure that the curriculum remains effective and engaging.

What are the challenges associated with the revisions of the NCERT Textbooks?

- **Implementation challenges**: Sudden changes, addition and removal of topics may pose implementation challenges e.g., teachers may require additional training.

- **Revisionist Approach**: Removal of some historical events has led to criticism of Government's policy being 'revisionist' e.g., removal of references to Gandhi's assassination has led to allegations of 'rewriting history'. Past changes in the NCERT textbooks have faced similar criticism e.g., changes made in 2002-03 were critical of Muslim rulers in India, or removal of cartoons deemed derogatory to Jawaharlal Nehru and Dr. Ambedkar from Political Science textbooks in 2012.

- **Student Learning Outcomes**: Reduction in syllabus may lead to lack of holistic coverage and incomplete understanding of issues. Some experts have argued that the changes are unnecessary and they undermine the credibility of the education system.

- **Resources**: Schools may be required to invest in new textbooks and teaching aids which may not be affordable for all schools. This can lead to unequal access to resources and opportunities.

What should be the approach going ahead?

- **Engagement and Discussion**: All stakeholders like educators, students, parents, and policymakers, should be involved in the revision process. This can help to address the concerns and ensure that the changes made in the syllabus are in line with the needs of the students and society as a whole.
- **Research and Analysis**: Before making any changes to the syllabus, it is important to conduct thorough research and analysis to ensure that the changes are evidence-based and have a sound pedagogical rationale.
- **Ensure Diversity and Inclusivity**: The syllabus should be designed to promote diversity and inclusivity, reflecting the rich cultural heritage and varied experiences of Indian society.
- **Teacher Training**: Teachers should be provided with professional development opportunities to equip them with the necessary skills and knowledge to effectively teach the revised syllabus.
- **Monitor Impact**: Regular monitoring and evaluation of the implementation and impact of the changes in the syllabus can help to identify any issues and address them in a timely manner.

Overall, any changes in the NCERT syllabus should be done with the best interest of the students and society in mind, focusing on the principles of diversity, inclusivity, and quality education for all. Ideological orientation should not be the basis of revision of textbooks.

3. Role of Colonial Policies in Present Day Global Crises

News: Colonial Policies had led to many conflicts and disputes that persists till today.

What are the challenges faced by Independent States due to Colonial Policies?
- Many unresolved conflicts and problems existing today have their genesis in colonial policies. These policies have led to complex and intractable disputes.
- **Ethnic and Boundary Divides**
  - **India**: The British policy of '**Divide and Rule**' in the Indian subcontinent had led to **partition in 1947**. The British policy manifested itself through concept of '**martial races**', **separate electorates** for communities etc.
  - The Sinhalese were against **privileges enjoyed by the Tamils in colonial Sri Lanka**. It prompted the discriminatory policies against the Tamils post the Independence, leading to Tamil revolt and civil war.
  - Belgian policies created **major divide between the Hutu and Tutsi tribes in Rwanda and Burundi** e.g., in 1926 Belgium introduced a system of ethnic identity cards differentiating Hutus from Tutsis. They deliberately favoured **Tutsi elites over Hutus**. The differences eventually led to **Tutsi ethnic massacre in 1994**. Some estimates put the number of genocide deaths to 0.5 million.
  - **Arbitrary boundaries** drawn in colonial times have created enormous **problems of national unity**. The colonial border drawn by Italy has led to conflicts between Ethiopia and Eriteria, and more recently Tigray War. (Tigray is a province in Ethiopia seeking independence). Similarly, Somalia is facing civil war with Somaliland seeking independence from Somalia.
- '**Governance Gap**': Colonial powers **didn't create strong governance structures** in the colonies. The new States lacked capacity to govern post their independence. It is apparent especially in Africa, with recent collapse of Governments in Sierra Leone, South Sudan, Liberia and Somalia. Conflicts combined with failure of governance structures have made such regions **fertile grounds for drugs**, **arms** and **human trafficking** and **widespread human rights abuse**.
- **Underdevelopment**: Underdevelopment of former colonies is a cause of conflict. Uneven development led to **uneven distribution of resources**, creating fissures in the society especially in underserved regions. It created **poverty**, **ecological collapse** and **unemployed populations**.

4. Transitions of Women's Movement in India

News: According to a US-based Academic, the thrust of Women's Movement in India has transitioned from serving as a beacon of nationalist movement to a rights-based civil society movement to a State-led movement for economic empowerment.

How has the Women's Movement transitioned in India?

- **Nationalist Movement**: Women had played a critical role in India's freedom movement. Beginning with Rani Lakshmibai leading the First War of Independence, women participated in the nationalist movement as **Gandhian *Satyagrahis*** (like Sarojini Naidu) as well as **Revolutionary Nationalists** (like Pritilata Waddedar). Gandhiji had advocated greater participation of women in the freedom movement noting at the All India Women's Conference (1936), "*When woman, whom we call **abala** (weak), become **sabala** (strong), all those who are helpless will become powerful*".

- **Rights-based Civil Society Movements**: Several rights-based movements emerged from 1960s onward.
  - Ecofeminist **Chipko Movement** to protect local ecology and environment.
  - **Self-Employed Women's Association** (SEWA) to **unionize women in the informal sector** leading to **advocacy for reforms in legal and social protection** for women workers.
  - **Anti-Rape Movement** (1980s) seeking to change community attitude to violence against women.
  - **Anti-Arrack Movement** (1990s) in Andhra Pradesh against the production and sale of **country-made liquor**.
  - **Anti-dowry Movement** in 1970s-80s etc.
  - Feminist advocacy groups highlighted **sex-selective abortions** and discrimination in inheritance patterns which **led to legal reforms**. Women's formal and informal collectives have worked hard to reform and **implement laws against sexual harassment** in the workforce and in public spaces.
  - Advocacy for women's representation in Governance led to passage of **73rd and 74th Constitutional Amendment Acts** reserving 33% seats for women in local bodies.

- **State-led Movement for Economic Empowerment**: The latest phase has witnessed transition to State-led economic empowerment of women.
  - The Government has invested heavily in the **formation and support of Self-Help Groups** (SHGs). The Economic Survey observes that there are ~12 million SHGs in India, majority of which are all-women.
  - SHGs function mainly as thrift and credit institutions, and also support entrepreneurship through bank loans. Participation in SHGs is related to **increased involvement in gram panchayat meetings**, creating a potential for greater political power for women.

The SHG Network

67.9 million Women in SHGs covered by the National Rural Livelihood Mission (NRLM)

56% Of households mobilised into SHGs belong to SC/STs and minority communities

9,400 Rural women banking agents that help other SHG members engage with their creditors while ensuring they maintain a healthy bank portfolio

7 million Women who have received financial literacy training

SOURCE South Asia Agriculture and Rural Growth Discussion Note Series, March 2020; World Bank

How can Women's Movement be improved further?

- Most of the activities of SHGs are **limited to micro-credit**. This massive mobilisation of women must be supported with other programmes that **provide enhanced livelihood opportunities**.
- SHGs under the NRLM have been able to use funds under MGNREGA to **build income-earning assets for women**. Women's cooperatives run by SHGs have been able to supply products to various government-run programmes.

- When **convergence with other government programmes** that build infrastructure or procure goods and services can be achieved, SHGs can enhance women's incomes substantially.

5. Groundwater Usage and Governance in India

News: The Parliamentary Standing Committee on Water Resources has tabled a report titled 'Groundwater: A Valuable but Diminishing Resource'. Water Scarcity in India may soon reach crisis level.

What is the current status of per capita water availability in India?

- According to report by **National Commission on Integrated Water Resources Development**, total water availability in India through precipitation is **~4000 Billion Cubic Meter** (BCM) per year. 1869 BCM is available as natural run-off (after evaporation). Utilizable water is limited to 1137 BCM per year comprising of **690 BCM as surface water** and **437 BCM as ground water**.

Per Capita Water Availability (cu. meter/year)

Year	Value
1951	5177
1961	4257
1971	3410
1981	2738
1991	2209
2001	1820
2011	1544
2021	1486
2031	1367*
2041	1225*
2051	1174*

*Projections by CWC, actual availability may vary   Created by | ForumIAS©

- Per capita water availability has fallen from ~5,200 m^3/person/year to ~ 1,486 m^3/person/year. Some experts have estimated the availability to be lower ~1,350 m^3/person/year. With growth in population, it is expected to fall further. India falls in the **water-stressed category**.

- India has nearly 18% of the world's population and occupies about 2.4% of the world's geographical area. India consumes 4% of total water resources. A World Bank report has noted that **India is the largest user of groundwater**. *(Refer EPIC June 2022 for Water Crisis in India).*
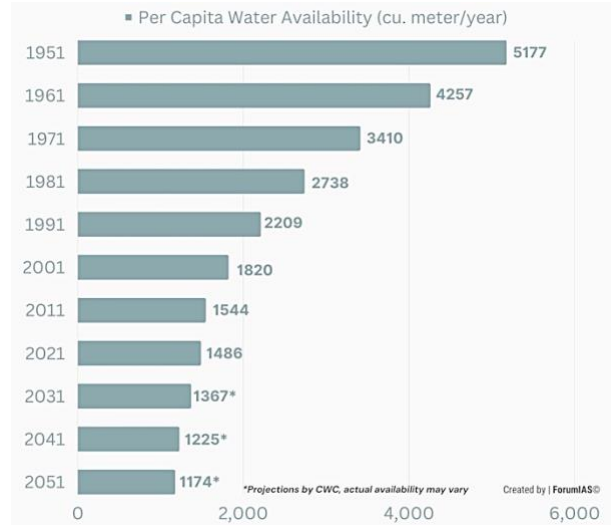
What is the current status of Groundwater Use in India?

- According to **Dynamic Ground Water Resource Assessment Report, 2022** by Ministry of Jal Shakti, the total annual groundwater recharge is 437.60 Billion Cubic Metres (BCM). The quantity of groundwater extracted stood at 239.16 BCM.

- The report has classified ~14% of India's 7,089 groundwater assessment units as **over-exploited** *(rate of extraction exceeds the rate of recharge of aquifer)*, while another 4% fall in the **critical category** (90-100% extraction). The situation is particularly alarming in three major regions: North-western, Western, and Southern Peninsular.

- In about 11 states including Haryana, Uttar Pradesh, Rajasthan and Gujarat, the percentage share of groundwater extraction for irrigation ranged between 80% and 90%, with some states like Punjab extracting 97% of their groundwater for irrigation.

Groundwater Sources

Others
32% Canal seepage, Return flow from irrigation, Recharge from tanks, ponds and water conservation structures.

Rainfall
68% Direct ingress of Rainwater into ground.

Groundwater Usage

Domestic
9% Second-highest usage for household works.

Industrial
2% Lowest share of Industrial sector.

Agriculture
89% Highest usage for irrigation in agriculture sector.

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What are the challenges associated with Groundwater Use in India?

- **Rising Population**: It has led to lower availability, rapid extraction and overuse. India is the largest user of groundwater accounting for ~25% of the total global groundwater withdrawal.
- **Cropping Pattern**: Paddy based cropping patten in Northwest India is not suitable to local agro-ecology. Policies like free electricity and MSP has distorted the cropping pattern leading to over-exploitation.
- **Unplanned Urbanization**: Increase in built-up and paved area reduces infiltration of water into the ground, reducing recharge and causing urban flooding. A study in the US pointed out that 1% increase in impervious surface areas increases urban flood magnitude by 3.3%.
- **Regulatory Vacuum**: Groundwater rights are determined by the archaic **Indian Easement Act, 1882**. These rights are **tied to land ownership rights** and gives landowners the **liberty to withdraw limitless water**. Large number of **unaccounted and unregulated private water wells lead to over-exploitation.**
  - **Lack of comprehensive data on groundwater (like boundaries of aquifers) and monitoring mechanisms** makes it difficult to formulate clear guidelines for proper management of groundwater.
- **Groundwater Pollution**: Infiltration and seepage from roads, industrial sites, waste dump sites, effluent drains with heavy metals and micro-pollutants are contaminating groundwater aquifers. Nitrate, arsenic, fluoride are some of the major elements responsible for groundwater pollution.
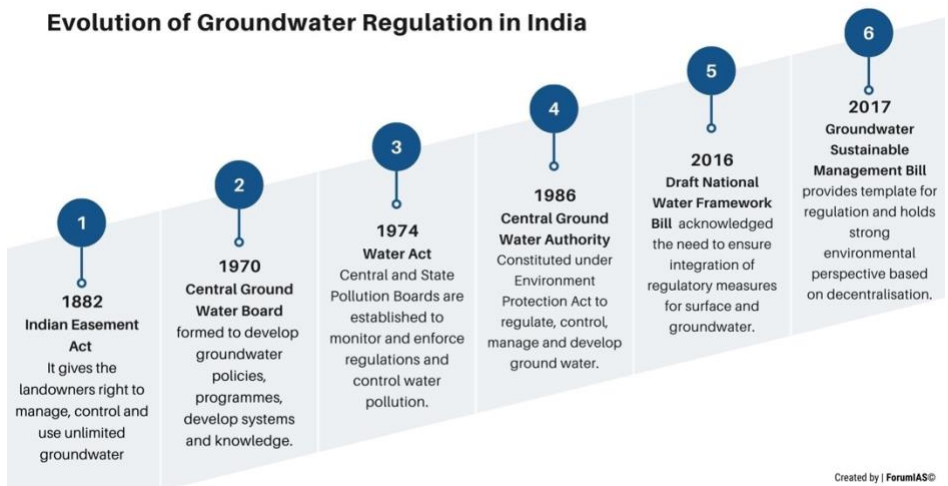- **Climate Change**: Climate shocks are exacerbating the groundwater crisis. Intermittent rainfall and prolonged droughts are reducing ground-water recharge resulting in falling water tables in many regions. *(Refer EPIC November 2022 for Groundwater Usage in India).*

What steps have been taken to improve status of Groundwater Use in India?

- **Model Groundwater Bill**: The Union Government has released Model Groundwater Bills in 1970, 1992, 1996, 2005, 2011 and 2016-17. Through the Bills, the Government has sought to foster regulation by recommending the **setting up of State Groundwater Authorities**. Various versions proposed **registration of existing groundwater structures** and a **permit-based system**.
  - The salient features of **Model Groundwater (Sustainable Management) Bill, 2017** are: **(a)** Strong environmental perspective in protection and prevention of damage to the aquifers; **(b)** Bottom-up institutional structure; **(c)** Drinking water as highest priority and the right to water, health, and environment; **(d)** Decentralization and subsidiarity principles; **(e)** Local bodies to form committees for groundwater management
- **Integration of Union Ministries**: The Ministry of Jal Shakti has been formed after the merger of the erstwhile Ministries of Water Resources and Drinking Water and Sanitation. This has given impetus to the **integrated management of water resources** with special focus on demand and supply management.
- **Initiatives**: Government has launched various initiatives for water management
  - *Atal Bhujal Yojana* **and** the **National Project on Aquifer Management have been launched with the goal of participatory groundwater management. ABY focuses** on the **behavioural change** aspect through

Evolution of Groundwater Regulation in India

1 **1882 Indian Easement Act** It gives the landowners right to manage, control and use unlimited groundwater

2 **1970 Central Ground Water Board** formed to develop groundwater policies, programmes, develop systems and knowledge.

3 **1974 Water Act** Central and State Pollution Boards are established to monitor and enforce regulations and control water pollution.

4 **1986 Central Ground Water Authority** Constituted under Environment Protection Act to regulate, control, manage and develop ground water.

5 **2016 Draft National Water Framework Bill** acknowledged the need to ensure integration of regulatory measures for surface and groundwater.

6 **2017 Groundwater Sustainable Management Bill** provides template for regulation and holds strong environmental perspective based on decentralisation.

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incentivisation. NAQUIM envisages the **mapping of aquifers** to help gather authentic data and enable informed decision-making.

o **Jal Jeevan Mission** has been launched to provide safe drinking water to all rural households by 2024.

o **India-Groundwater Resource Estimation System** will undertake groundwater assessments annually.

o **Jal Shakti Abhiyan** has been launched to utilize community participation to transform *Jan Shakti to Jal Shakti* through asset creation and rainwater harvesting ('**Catch the Rain**' campaign).

What steps can be taken to improve Groundwater Use and Governance in India?

- **Recommendations of Mihir Shah Committee**: Government should review Mihir Shah Committee recommendations and consider their implementation.

- **Integrated Management**: There is a need to focus on the **Integrated Water Resource Management framework**. Coordinated development and management of water, land and related resources should be promoted.

Recommendations of Mihir Shah Committee

- The Central Water Commission (CWC) and the Central Ground Water Board (CGWB) should be unified to form a new **National Water Commission (NWC)**.
  - A unified body will help in the **collective management of ground** and **surface water**.
  - The NWC will be responsible for water policy, data and governance.
  - It should be under the Ministry of Water Resources and with full autonomy.

- **Functional Divisions**: The NWC should have 8 divisions: Irrigation Reform, River Rejuvenation, Aquifer Mapping and Participatory Ground Water Management, Water Security, Urban and Industrial Water, Water Quality, Water Data Management and Transparency, Knowledge Management and Capacity Building.

- **Participatory Groundwater Management**: Ground water needs to be recognised as a **common pool resource** and its **unchecked extraction** needs to be checked.
  - Corrective measures such as establishing required drilling depth, distance between wells, rational cropping pattern measures should be adopted. *Created by | ForumIAS©*

- **Urban Design and Planning**: Water-sensitive urban design and planning should be adopted. This can help maintain the water cycle by managing groundwater, surface water and rainwater for water demand and supply. There is need to adopt **Blue-Green Infrastructure** approach. Green (trees, parks, gardens, play-grounds etc.) and the blue (rivers, lakes, wetlands and water utilities) spaces can play a vital role in **waterbody and aquifer rejuvenation**.

- **Jan Bhagidari (Community Participation)**: Public awareness and participation as well as trust-building between formal water sector institutions and communities will fill the void in groundwater management.

- **Agricultural Policy**: Policies in the agriculture sector should be reviewed. The cropping pattern should be according to the local agro-ecology. Farm subsidies on electricity should be scrapped. These steps can help **rationalize groundwater use in agriculture**.

Recommendations of the Parliamentary Committee

- The **use of electric pumps should be discouraged** by introducing measures such as pre-paid cards for power supply and **restricting power supply** to a few hours a day.

- There is a need for a shift in focus from '**land productivity**' to '**water productivity**' i.e. production per cubic meter of water should be a major criteria in decisions relating to crop production.

- **Manual monitoring of groundwater level** 4 times a year and **collecting water quality samples** once a year to obtain background information of quality change regionally.

- Government should give the **National Water Mission** (NWM) the **financial powers** and **autonomy** needed to fulfil its objectives. *Created by | ForumIAS©*

6. Land Degradation: Status and Remedial Measures

News: 'Arresting Land Degradation' has been included among the top priorities by the G20 Working Group on Environment and Climate Sustainability.

What is the meaning of Land Degradation?

- IPCC has defined Land Degradation as a **negative trend in land condition**, caused by direct or indirect human-induced processes (including climate change), expressed as **long-term reduction or loss** of at least one of the following: **Biological Productivity**, **Ecological Integrity**, or **Value to Humans**.

- Land degradation is associated with desertification; deforestation; deterioration of physical, chemical and biological properties of soil; build-up of toxicities in soil (especially salts); water-logging etc. Land degradation **lowers productivity of land**.

What is the present state of land degradation in India?

- Over 29% (96.4 million hectares, mha) of India's total geographic area (328.7 mha) is undergoing degradation.
- In 2014-15, the economic loss due to land degradation and changes in land use patterns was estimated at INR 3.17 trillion, equivalent to 2.5% of GDP (2014-15).
- **Rajasthan** is **most prone to land degradation** followed by Maharashtra and Gujarat. In recent times, the most rapid deterioration in land quality is in the biodiversity-rich and ecologically sensitive **North-eastern region**. **Mizoram is undergoing desertification at the fastest rate** and lost more than 13% of its land to degradation in 2018-19.
- The per capita availability of arable land has shrunk from 0.48 hectares in 1950 to 0.16 hectares at present. This is much lower than the global average of 0.29 hectares.
- Arresting land degradation is highly relevant for India as it has to support 18% of the world's population on only 2.4% of the land.
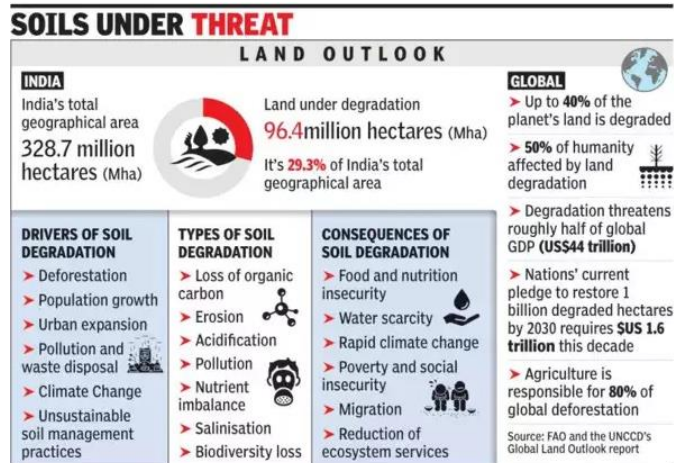
What are the major reasons for land degradation in India?

- The major reasons include:
  - Deforestation.
  - Wind and water erosion.
  - Imprudent alteration of land use
  - Excessive pressure on land beyond its carrying capacity
  - **Flawed farm practices** such as imbalanced use of chemical fertilisers, inadequate application of organic manures, indiscriminate tillage etc.
- There is a **lack of precise data** on the proportion of degraded land. The data provided by the National Bureau of Soil Survey and Land Use Planning and the Space Application Centre (SAC) of ISRO vary vastly.
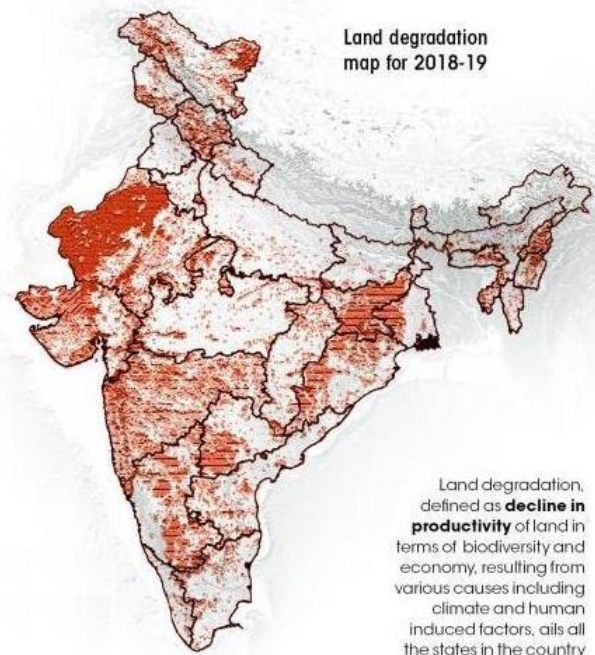
How India has reclaimed the degraded land?

- India (along with 123 countries) has committed to achieve **Land Degradation Neutrality (LDN) by 2030**.
- According to IUCN, India has **restored ~9.8 mha of degraded land** between 2011 and 2018, an average rate of reclamation of around 1.4 mha a year.

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What should be done to reclaim the degraded land?

- The benefits of land restoration can be as high as 10 times the cost of reclamation and ill effects of land degradation.
- The **Global Environment Facility** has suggested a strategy to avoid, reduce, and reverse land degradation, desertification, and mitigate the effects of droughts:
  o **Sustainable Land Management (SLM)**: It includes interventions that improve productivity and maintain or improve flow of agro-ecosystem services associated with food production and livelihoods.
  o **Reverse Land Degradation through Landscape Restoration**: It includes measures like avoiding reduction of trees and vegetative cover, restoration of forests and avoiding forest loss through sustainable forest management.
  o **Address Desertification, Land Degradation, and Drought (DLDD)**: It includes building resilience through land-use planning accounting for drought risks and implementing drought-smart land management through croplands, dryland forests and mixed land use.
- **Capability classification of land** can help develop judicious land use policy.

7.   Review of Heat Action Plans

News: 13 people died in Maharashtra due to heat stroke during a public event. Centre for Policy Research has released a report titled 'How India is adopting to Heatwaves'.

What is the purpose of the Report by CPR?

- The frequency of heat waves has increased in recent times, primarily due to climate change. Extreme heat poses an unprecedented challenge to health and productivity in India. Landmark heatwaves events (1998, 2002, 2010, 2015, 2022) led to large death tolls and extensive economic damage.
- Governments (State and Local level) have created Heat Action Plans (HAPs). HAPs are guiding documents to help prepare for, respond to, and recover and learn from heat waves and mitigate their harmful impact.

> **PT BOX**
> **Heat Waves**
> According to the Indian Meteorological Department (IMD), a Heat wave is considered if the maximum temperature of a station reaches **at least 40°C or more for Plains** and **at least 30°C or more for Hilly regions**.
> **(a) Based on Departure from Normal Temperature**
> - **Heat Wave**: Departure from normal is 4.5°C to 6.4°C.
> - **Severe Heat Wave**: Departure from normal is >6.4°C.
> **(b) Based on Actual Maximum Temperature**
> - **Heat Wave**: When actual maximum temperature ≥ 45°C.
> - **Severe Heat Wave**: When actual maximum temperature ≥ 47°C.
> Heat Wave is declared if above criteria are met in **at least two stations** in a **Meteorological subdivision** for **at least two consecutive days**.

- The Report by CPR analyses 37 Heat Action Plans (HAPs) at the City (9), District (13) and State (15) levels across 18 States.

What are the Key Findings of the Report?

- **Simplified View in HAPs**: Only 10 of 37 HAPs have established **locally-defined temperature thresholds** though it is unclear whether they take **local risk multipliers** (such as humidity, hot nights, duration of continuous heat among others) into account to declare a heat wave.

- **Poor Identification of Target Groups**: More than half of HAPs fail to address the risks faced by vulnerable sections who are more susceptible to heat stress due to their gender, poverty and other factors.
- **Funding**: 70% of the HAPs lack the financial mechanisms to implement the proposed projects.
- **Legal Basis**: Most of the HAPs had no legal sources of their authority, indicating a lack of bureaucratic incentive to comply with the instructions in the action plans.
- **Transparency**: There is no national repository of HAPs. Very few HAPs are listed online. It is unclear whether these HAPs are being updated periodically and whether this is based on evaluation data.

What are the Recommendations given by the Report?

- HAPs should **identify sources of financing**, either from new funds or by combining actions with existing National and State policies.
- HAPs should set up **rigorous independent evaluations** as a basis for constant improvement.
- The National Disaster Management Authority (NDMA) should create a **repository of HAPs that is publicly accessible**.
- HAPs must set up rigorous **independent evaluations** as a basis for constant improvement.
- HAPs should **address the challenges in the implementation** especially mitigating impact on the poorest section who are most vulnerable to extreme heat, leading to high economic and health costs.
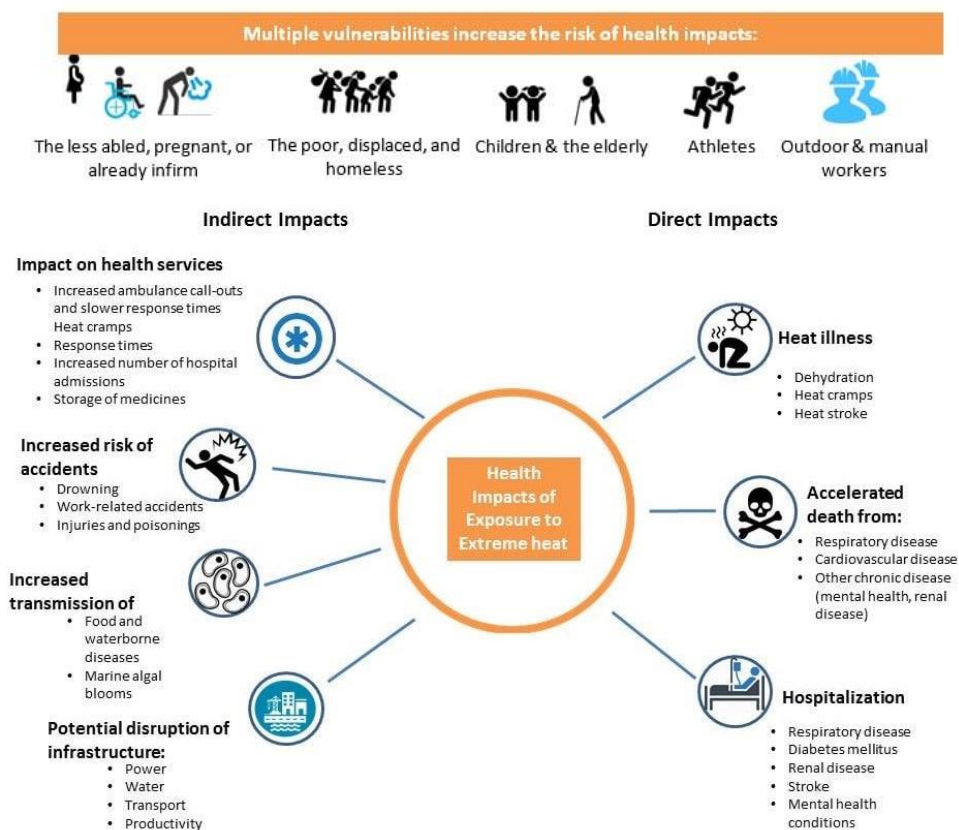
What steps can be taken to reduce the impact of heat waves?

- The impact of heat waves can be mitigated by:
  - **Early Warning and Information Dissemination Systems** and limiting of physical activity during hottest time of the day.
  - **Policy Measures** like amending building code to include features that reduce urban heat island effect and provision of protective gear for the vulnerable workers.
  - **Lifestyle changes** to adopt more energy efficient solutions.
  - Creating more **green spaces** and **restoring urban water bodies**. *(Refer EPIC April 2022 for Rising Frequency of Heat Waves)*.

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1. India Justice Report, 2022

News: The Third Indian Justice Report, 2022 has been released.

**What is the India Justice Report?**

- India Justice Report is an initiative undertaken by **Tata Trusts** in partnership with the Centre for Social Justice, Common Cause, Commonwealth Human Rights Initiative, DAKSH, TISS-Prayas, Vidhi Centre for Legal Policy and How India Lives.
- The report compiles and categorizes data of states and UTs, based on '**Four Pillars of Justice Delivery**': the **Police**, **Judiciary**, **Prisons** and **Legal Aid**.

What are the Key Findings of the India Justice Report 2022?

- **Justice Delivery**: Out of the 18 large and medium-sized states (population of over 1 crore), **Karnataka ranked first in 'justice delivery'** followed by Tamil Nadu, Telangana, Gujarat and Andhra Pradesh.
- **Rising Pendency in Cases**: The number of cases pending per judge is rising in most States.
  - In High Courts, UP has the highest average pendency, where cases remain pending for an average of 11.34 years. The lowest pendency is in Tripura [1 year], Sikkim [1.9 years] and Meghalaya [2.1 years]. *(Refer EPIC January 2023 for Reducing Pendency of Cases in Judiciary)*.

Piling up

The chart shows the share of cases pending in High Courts across various years. The share of cases pending for more than five years, across 25 High Courts in the country was 48.3%.

- The case pendency in High Courts is worse than in subordinate courts
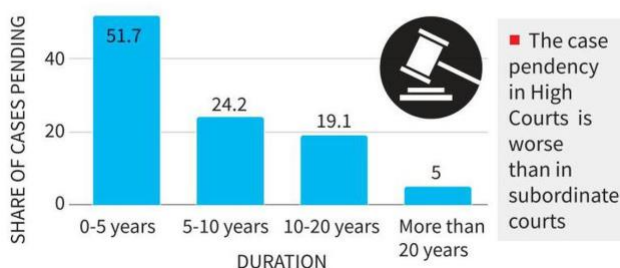
  - COVID has slowed down the **pace of case-clearance** by courts. Pending cases increased from **41 million in 2020 to 49 million in 2022**. 190,000 cases pending for over 30 years.
- **Increasing Caseload**: Between 2018 and 2022, the caseload per judge increased in 22 States and UTs.
- **Vacancies in Courts (December 2022)**: There are 15 Judges for every 1 million Indians, against 50 Judges per million recommended by the Law Commission. *(Refer EPIC December 2022 for Appointment of Ad-hoc Judges)*.

Court	Sanctioned Strength	Present Strength	% Vacancies
High Courts	1,108	778	29.8%
Subordinate Courts	24,631	19,288	21.7%

- **Case Clearance Rate (CCR)**: It is the ratio of **number of cases disposed of** in a year measured against the **number filed in that year**. A CCR of more than 100% indicates that the number of pending cases is reducing. The **All India average** of CCR in HCs stood at 95% in 2022.
  - Kerala (156%) and Rajasthan (65%) were the best and worst performing States respectively.
  - Tripura is the only State where the CCR in district courts remained above 100%.
- **Judicial Infrastructure:** Nationally, the number of court halls appears sufficient for the number of actual judges. However, that space will become a problem if all the sanctioned posts are filled.
- **Overcrowding of Prisons**: Prison occupancy rate stood at 130% in 2021. 77% of them are **under-trials** *(Refer EPIC February 2023 for Issues Related to Prisons and Prison Reforms and EPIC December 2022 for The Issue of Undertrials in India)*.
- **Policing Issues**: State-wise variations exist on several counts like vacancies, training budgets, infrastructure etc. The report notes that **politics has a structural role in policing and justice delivery**.

o Lack of diversity in police is common across States, with lack of participation on the basis of gender, caste or other markers of identity. It can **lead to biases.**

o **28% police stations do not have woman helpdesks, many others do not have enough women cops to respond on a timely basis.**

o **25% police stations do not have a single CCTV.**

o The police-to-population ratio is 152.8 per lakh (sanctioned 195); the international standard is 222.

What are the concerns highlighted by the India Justice Report, 2022?

- **Functioning of Criminal Justice System**: Pendency of ~50 million cases shows system's lack of capacity.

- **Systemic Apathy**: 77% under-trial prisoner proportion shows that 'jail not bail' is the norm (instead of 'bail not jail') and is symptomatic of systemic apathy. Undertrials serving more than 5 years in prison have more than doubled to 11,490 between 2017-2021.

- **Lack of Support**: 70% of litigants in Indian criminal cases are **below the poverty line**. Between 2020 and 2022, there was a **67% decline in legal services clinics**, highlighting the alarming decline in provision of legal aid. Average time spent in jail by undertrials has risen.

Recommendations by the IJR, 2022

- **Ensure 24*7 legal guidance** and representation at police stations and courts.
- Fully implement the Supreme Court's *Paramvir Singh Saini Judgement*, mandating every police station to be equipped with **CCTV cameras** to check abuse.
- **Fill vacancies** on an urgent footing.
- Prioritise increased resources for **first responders**.
- **Increase diversity** of caste, gender and the specially abled across subsystems.
- Give training pride of place and prioritise human and financial resources in all training facilities.
- Ensure **Under-Trial Review Committees** (UTRCs) **guidelines** of 14 categories of prisoners to be considered for release.
- UTRCs and all those officially mandated to visit jails, including judges, must be **made accountable** and their visits must be linked to their own performance review.
- **SHRCs must be full-resourced** and reach out to the community proactively.
- Designate the **justice delivery system as an essential service** and enhance, enlarge and equip it as a first responder able to provide effective justice delivery at all times.

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- **Low Spending on Judiciary**: Except for Delhi and Chandigarh, no State/UT spends more than 1% of its total annual expenditure on the judiciary.

2. Recusal of Judges from Cases

News: Four Judges have recused themselves from hearing the Maharashtra-Karnataka border dispute. This highlights the need for the Supreme Court to reform the recusal system.

What is the Recusal System?

- Recusal is the removal of oneself as a judge or policymaker in a particular matter.
- Generally, recusal is advised if the presence of a judge impedes the independence of the bench.
  o **Conflict of Interest**: It can occur in multiple ways, like holding shares in a company that is a litigant or respondent in a case, having a prior or personal association with a party involved in the case. The practice is based on the cardinal principle of due process of law that **nobody can be a judge in her own case**. A Judge has a duty to act fair and seen to be act fair.
  o **Hearing Appeal**: In certain circumstances, an SC Judge may be asked to adjudicate on an appeal against the Judgment by a High Court which she may have delivered as an HC Judge.
- Often, the judge recuses on her own, but in some instances, lawyers or parties to case can also bring it up before the judge.

What are the issues associated with the Recusal System in India?

- **Absence of Procedure or Guidelines**: The Supreme Court has **not laid down the procedure** for Judges to recuse from cases.

- **Non-citation of Reasons**: Often, Judges recuse from cases without providing appropriate reasons. Non-citation of reasons creates a doubt about intent behind the recusal. Justifying non-recusal and allowing opaqueness about recusal equally damage the trust reposed in the courts.
- **Rising Number**: The frequency of recusal pleas has been rising rapidly, both in the Supreme Court and the High Courts.
- '**Forum Shopping**': It is term used for the practice of litigants having their legal case heard in the court thought most likely to provide a favorable judgment. There have been some instances of parties raising accusations of conflict of interest to remove a judge from a Bench. In the absence of guidelines, the process is vulnerable to abuse.

What should be done to reduce the number of recusal?
- The Supreme Court should formulate **substantive and procedural rules** regarding recusal.
- The judges should mandatorily **cite the reason for recusal** from cases. Every judge must comply with the rules.

3.   Criminal Defamation in India: Provisions and Concerns

News: A prominent Member of Parliament has been sentenced to 2 years of jail term for defamation and disqualified from the Lok Sabha. This has raised debate regarding the defamation law in India.

What is Criminal Defamation?
- Criminal Defamation involves making a false statement about a third person that harms their reputation.
- It is done intentionally with little regard for truth. The false statement can be communicated verbally or in writing through various media.
- The essence is captured in a Judgment (*Scott vs Sampson*) by a British Court (1882), "A *false statement made on a man for his discredit*".
- Defamation is often classified into two categories: **Libel** – A defamatory statement published in a written form; **Slander** – A defamatory statement made verbally (relatively temporary in earlier times; but in the digital age, videos etc. on online platforms may remain available for long).
- In India, laws associated with Criminal Defamation include **Sections 499 to 502 of the IPC**, **Section 199 of CrPC**, **Section 66A of the IT Act, 2000** (declared unconstitutional by the Supreme Court in *Shreya Singhal vs Union of India, 2015*).

PT BOX

Criminal Defamation in the Indian Penal Code

Section 499 defines and illustrates Criminal Defamation in terms of words (spoken or intended to be read), signs or visible representations intending to knowingly harm the reputation of a person.

Section 500 prescribes the punishment for defamation as simple imprisonment up to two years or fine or both.

Section 502 criminalizes sale of printed/engraved material containing defamatory content with simple imprisonment up to 2 years or fine or both.

What is the need for Criminal Defamation in India?
- **Protecting Reputation**: Defamation laws protect reputation of individuals from false accusations that can cause significant harm to their personal and professional life.
- **Deterrent Against False Information**: Criminalising defamation serves as a deterrent against people who might want to spread false information and rumours with malicious intent. It can help maintain public order by deterring spread of false information.
- **Justice**: Defamation laws provide a legal remedy for individuals who have been wrongly defamed, allowing them to seek justice.

- **Social Cohesion**: Defamation laws promote social cohesion by maintaining social norms and moral values that support the **peaceful coexistence** of different groups in society.

What are the challenges associated with Criminal Defamation?

- **Effect on Free Speech**: The use of criminal defamation laws can have a **chilling effect on free speech**. Individuals may be hesitant to express their opinions or criticisms for fear of being accused of defamation.
- **Misuse of Law**: Criminal defamation laws can also be misused by powerful individuals or institutions to silence their critics and suppress dissent.

Judicial View on Criminal Defamation

- **Constitutionality**: In *Subramanian Swamy v. Union of India (2016)*, the SC upheld the constitutionality of criminal defamation laws, stating that they are necessary to protect the **reputation of individuals**. The **Right to Free Speech is not absolute** and must be balanced with the right to reputation.
- **Interpretation of Provisions**: The Judiciary has interpreted the provisions of criminal defamation laws, such as what constitutes a 'public setting' and the scope of the defences available to the accused.
- **Fair Criticism**: In *Ram Jethmalani v. Subramanian Swamy (2006)*, the SC held that there is a **difference between fair criticism and defamation**, and that criticism is not defamation unless it is made with the intent to harm the reputation of the person.

The judicial interventions on criminal defamation have tried to **balance the right to free speech with the need to protect an individual's reputation**.

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- **Delayed Justice**: Criminal defamation cases can take a long time to resolve in India's overburdened justice system. This can lead to delayed justice and harm the reputations of those involved.
- **Burden of Proof**: The burden of proof in criminal defamation cases lies with the plaintiff (one who files the case of defamation). The Plaintiff has to prove that the statements/allegations are false and has caused injury to him (person being defamed). It may be difficult to prove that the allegations have caused injury.
- **Vagueness of laws**: The provisions of criminal defamation laws, including what constitutes a 'public setting' and the scope of the defences available to the accused, can be vague and open to interpretation by Courts.

What should be the approach going ahead?

- **Civil Offence: Many countries like Australia, New Zealand, the UK etc. have decriminalized defamation and treat it as civil offence. The Parliament should deliberate to decriminalize defamation in India.**
- **Amendments to Existing Laws: The appropriate sections and clauses should be amended to remove vagueness related to various provisions to ensure consistent application of defamation laws.**
- **Alternative Dispute Resolution**: Parties should be encouraged to resolve disputes through alternative mechanisms like mediation or arbitration etc. This can reduce the burden on the justice system and provide a quicker resolution for all parties involved.
- **Improving Justice System**: Improving the legal process like reducing delays, ensuring fair trial, can help promote justice and protect rights of all parties.
- **Promoting Ethical Journalism**: It will help reduce incidences of false or defamatory reporting.

4. Influence of the Affluent on Policymaking in a Democracy: Lessons from Norway

News: Studies have shown that policymaking in democracies is deeply influenced by affluent sections and lobbies. Norway presents a unique case in reducing inequalities and restricting use of money in politics.

How is policymaking in a democracy influenced?

- According to various studies, affluent sections of society enjoy disproportionately greater influence over policy making compared to average citizens.
- Political parties have heavy reliance on private donations, from super-rich individuals and corporates, to run campaigns and contest elections. Elected representatives are more receptive to opinions of those

who have supported them financially. Policy prescriptions in such cases may favour the rich, thus not optimal.

- It makes policymaking non-responsive to the non-affluent. Different studies have shown this to be the case in social democracies like Germany, Netherlands and Sweden.

How is Norway different from other democracies?

- A study conducted in Norway has concluded differently. Though in Norway too, public policy is skewed towards the preferences of the affluent, but the opinions of the poor and the middle classes also find expression in government decisions.
- On economic issues, the preferences of both the poor and the rich seemed to matter almost equally. The **link between money and politics** was much weaker than in the US.
- The position is different in Norway due to unique domestic political and socio-economic conditions.
  - **Universal Welfarism**: Norway has **universal welfare schemes** with high levels of **wealth redistribution**. Universal welfare measures benefit every citizen in contrast to '**targeted schemes**'. Targeted schemes generate **resentment among the non-needy sections** about how their tax money is being given away in the form of 'freebies'. Universal approach ensures their **legitimacy and endorsement** across classes.
  - **Income Equality**: Norway has one of the **lowest levels of income inequality** in the world. So, the affluent sections do not enjoy much resource advantage to influence politics. Resource rich people are **not able to convert money power into political influence** through funding of political campaigns.
  - **Political Funding**: Political candidates in most democracies rely on private donations.
    - Political parties in Norway get two-thirds (~66%) of their financing from **state subsidies**.
    - Political advertising on television is banned in Norway, so **campaign costs are low**.
    - It reduces the effect of disparities in spending power between candidates and makes the campaign process less vulnerable to private wealth.
  - **Strong Trade Unions**: Norway has had **strong trade unions** historically. They have been able to **influence economic and social policy** through their close political links with the Norwegian Labour Party. It acts as a counter force to the influence of the wealthy.
  - **Resources**: Norway has **vast reserves of oil and natural gas**. It enables the government to maintain generous welfare schemes while imposing lower tax rates. This fulfils the needs of both the poor through subsidies and the wealthy through low taxes.
  - **Less Wealthy Politicians**: Politicians in Norway are not particularly rich. They are unlikely to be biased towards the rich.
  - **Representation of Women**: The domestic laws require **proportionate representation of women** in the Government institutions. Women on average have lower income than men. Their **higher levels of representation** results in greater political influence for women. It translates into **greater political influence** for lower-income citizens.

5. Issues Related to Preventive Detention

News: The Supreme Court has said that preventive detention laws are a colonial legacy and confer arbitrary powers to the State.

What is Preventive Detention?

- Preventive detention refers to the **imprisonment of a person before trial** based on the assumption that their release will not be in the best interest of the society; the person is **likely to commit further crimes** or that the release will be detrimental to the **State's ability to carry out investigations**.

- It leads to the detention of a person without trial and conviction by a Court. Its purpose is not to punish a person for a past offence but to prevent him from committing an offence in future.

What are the Constitutional provisions related to Preventive Detention?
- Article 22 states that no law providing for preventive detention shall authorise the detention of a person for a period longer than 3 months, unless such person is detained:
  o In accordance with the provisions of any law made by Parliament or;
  o Based on the opinion of an **Advisory Board** (consisting of persons qualified to be appointed as Judges of a High Court) that there is **sufficient cause for such detention**.
- Article 22 authorises the **Parliament to enact a law related to Preventive Detention**.
  o The Law may prescribe conditions and class of cases in which preventive detention can extend beyond 3 months.
  o The Law can **prescribe the maximum period** for which a person can be held under preventive detention.
- The Parliament has exclusive authority to make a law of preventive detention for reasons connected with **Defence**, **Foreign affairs** and the **Security of India**.
  o Both the Parliament as well as the State Legislatures can concurrently make a law of preventive detention for reasons connected with the **Security of the state**, the **maintenance of public order** and the **maintenance of supplies and services** essential to the community.

What has been the trend related to Preventive Detention Cases in India?
- Government data (2021) shows that preventive detention cases have increased to 1.1 lakh. Between 2017 and 2021, annual detentions under the National Security Act ranged between 483 and 741.
- States have their own preventive detention laws which are criticized for overuse e.g., Madras High Court's observation on misuse of Goondas Act to trigger preventive detentions.
- Tamil Nadu has topped the country in preventive detentions between 2011-21. Tamil Nadu's 'Goondas Act' covers offenders ranging from bootleggers, slum grabbers, forest offenders to video pirates, sex offenders and cyber-criminals.

What are the Judicial observations regarding Preventive Detention?
- Both the Supreme Court and High Courts have observed **Executives' failure to adhere to procedural safeguards** while dealing with the rights of detainees.
- In multiple cases, the detention orders have been quashed by the Courts on several grounds like:
  o Delay in the disposal of representations.
  o Failure to provide **proper grounds for detention** or detention on **trivial reasons**.
  o **Procedural gaps** like delay in furnishing information or proper documents.

Judicial View on Preventive Detention

- *AK Gopalan vs. State of Madras (1950)*: The Supreme Court upheld the constitutionality of the Preventive Detention Act. The SC held that Article 22 of the Constitution **provides extensive procedural safeguards** for preventive detention. The Court determined that the **Preventive Detention Act, 1950 did not violate fundamental rights** because it met all of the procedural safeguards outlined in Article 22(5).

- *Alijan vs. District Magistrate, Dhanbad (1983)*: The SC stated that while criminal proceedings involve punishing a person for an offence committed by him, preventive detention does not.

- *Ankul Chandra Pradhan vs. Union of India (1997)*: The SC stated that the purpose of preventive detention is not to punish but to keep the detainee from doing anything that would **jeopardise the State's security**.

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What should be done to limit preventive detention?
- The SC has said that 'every procedural rigidity, must be followed in entirety in cases of preventive detention, and every lapse in procedure must give rise to a benefit to the case of the detenu'.

- The Constitution has allowed for preventive detention. The Governments should realize that deterring crime needs effective judicial system rather than frequent resort to preventive detention. Hence there is a need to review the preventive detention laws.

6. IT (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2023

News: The Government has notified the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2023. The Rules amend the IT Rules, 2021.

What are the provisions of IT Rules, 2023?

The IT Rules, 2023 make certain amendments to the **Information Technology Rules, 2021**.

- **Fact-Check Unit**: The Government will appoint a **Fact-checking Unit for online content**. It will flag '**fake**, **false** or **misleading**' news about the Government.
- **Responsibility of Social Media Intermediaries**: Social media intermediaries like Facebook and Twitter have to take down posts and internet service providers have to block URLs marked as 'fake' or 'false'.

About the IT Rules, 2021

- The Information Technology (Intermediary Guidelines and Digital Media Ethics) Rules were enforced in February 2021.
- The rules brought in **additional compliance requirements** for **Significant Social Media Intermediaries** (SSMIs). SSMIs are platforms with over 5 million subscribers.
- These measures included **appointment of Chief Compliance Officer**, **Nodal Person** for coordination and **Grievance Officer**.
- The rules also required SSMIs to **trace the first originator of information** on their platform.
- The IT Rules brought in a **3-tier system for handling grievances** pertaining to streaming services and online news business.
  - **First Level**: Grievances are handled within the organisation,
  - **Second Level**: A self-regulatory body, and
  - **Third Level**: A government-run committee which can **override any decision** taken by the other two bodies.

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  - Failure to comply with regulations could lead to the intermediaries **losing safe harbour protections**.
  - The online platforms are required to take measures to prevent the misuse of their platforms.
- **Identification and Removal of Fake News:** The amendment aims to identify and remove fake news to prevent its spread, especially during tumultuous times where it can incite violence and cause panic.
- Earlier, the Government had proposed the Fact-checking Unit of the **Press Information Bureau** (PIB) to label 'fake' news. However, the final draft has removed the reference to PIB.

What is the rationale behind the recent amendment to IT Rules?

- **Regulating Misinformation**: Fake News, misinformation is used to **create civic unrest**, cause **disaffection against the Government**, or **cause enmity between communities** etc., e.g., malicious disinformation campaign about attacks on migrant workers in Tamil Nadu caused out-migration. False information about COVID-19 vaccines or fake cures were spread during the pandemic. Such incidents can have **long-term social and economic impacts**.
- **Non-liability of Intermediaries**: Section 79 of the IT Act, 2000 states that an intermediary (Digital media and OTTs) shall not be liable for any third-party information shared on their platforms. They enjoy a safe harbour regime. This has been used to **escape accountability or legal ramifications** for content on these platforms. Platforms have been lax in implementing Rule 3(b) of IT Rules, 2021 that asks them to inform users of content to not post certain type of content like child sexual abuse, inciting religious hatred etc.
- **Rising Users**: India has more than 80 crore people connected to the internet. Larger the user-base, larger the vulnerability to the harmful effects of misinformation. Hence regulation is necessary. Moreover, *Rule 3(1)(n) explicitly provides that the fundamental rights of Indian citizens cannot be violated by any platform.*

- **National Security Concerns**: Recently, the Washington Post exposed Khalistani elements using bots to conduct misinformation operations against the Government of India on social media. The Government must possess powers to check such activities by State/Non-State Actors that have implications for sovereignty, integrity and national security of India.
- **Legal Framework for Tech Regulation**: The amendment provides a legal framework for tech regulation and clarifies the responsibilities of online platforms in regulating online content.
- **International Commitment**: The 2022 G20 **Bali Declaration noted** the need to counter disinformation campaigns as an essential requirement to prevent online threats and promote cyber security.

Advantages of Amendments

- Address the challenge of Fake News.
- Improved accountability of Social Media Intermediaries/Platforms.
- Promote Regulation of Digital Platforms.
- Protect the Rights of Citizens.
- Ensuring Compliance to Indian Laws.

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What are the challenges associated with the amendment to IT Rules?

- **Ambiguity about Misinformation**: The amended Rules do not provide a clear definition of 'misinformation' or 'fake news'. It can lead to ambiguity in implementation.
- **Censorship**: The ambiguity about what constitutes 'fake news' may lead to arbitrary censorship and infringe on the right of freedom of speech and expression of citizens.
- **Transparency**: Lack of due process, notice and hearing for the originators and creators of information may lead to arbitrary takedowns and a lack of accountability.
- **Burden of Compliance**: The amendment increases the burden of compliance on intermediaries. The additional layer of censorship through the Grievance Appellate Committees may further increase the burden on intermediaries.
- **Online News Portal**: The amendments do not apply directly to news websites (not classified as intermediaries). This may lead to differential treatment of news websites and other online platforms, and potential challenges to the independence of digital media.
- **Bypass Established Legal Procedures**: The amendment bypasses the procedures, safeguards and conditions laid out in *Shreya Singhal v. Union of India (2015)*, Madras High Court's judgment in *T M Krishna v. Union of India* and the Bombay High Court judgment in *Agij Promotion of Nineteenonea Media Pvt. Ltd. v. Union of India* **(certain rules were put on hold).**
- **Chilling Effect:** The mere existence of the fact-check unit and its power to censor content could have a chilling effect on free speech, as people may be hesitant to express their opinions online for fear of being censored or facing legal consequences. Critics argue it can be used to curb dissent against the Government. *(Refer EPIC March 2023 for Safe Harbour Rules).*

What should be the approach going ahead?

- **Transparent and Participatory Process:** The Government should work with all stakeholders including civil society, media organizations etc. to develop a more transparent and participatory process for determining what content should be considered fake or misleading.
- **Independent and Non-partisan Fact-checking Body**: The Government should ensure that the body tasked with fact-checking is independent and non-partisan, with clear guidelines for decision-making.
- **Compliance to Judicial Guidelines**: The Government should ensure that any takedown requests are made in accordance with the procedures and safeguards laid out by the Judiciary or under Section 69A of the IT Act, 2000.

- **Balanced Approach**: The rules should ensure a balance between tackling fake news/misinformation and protecting the right to freedom of speech and expression.
- **Regular Review**: The Government should regularly review and update the Guidelines/Rules to reflect the evolving nature of online content and the challenges associated with regulating it.

7. Supreme Court's Judgment in Media One Case

News: The Supreme Court has quashed the Union Government's ban on Malayalam news channel *(Madhyamam Broadcasting Limited vs Union of India)*.

About the Case
- The Ministry of Information and Broadcasting had **refused to renew the broadcast license** of the news channel. The basis of denial of license was refusal by Ministry of Home Affairs to provide security clearance.
- It was reported that an Intelligence Bureau (IB) report had observed that channel's content violated national security interests.
- The ban had been upheld by the Kerala High Court. The channel had appealed to the Supreme Court.
- The SC set aside Kerala High Court's Judgment and directed the Government to renew the license.

What are the Observations made by the SC?
- **Freedom of Press**: The Government's refusal to renew the broadcast license amounted to restricting the freedom of the press.
  - The SC held that criticism of Government's policy does not fall under reasonable restriction mentioned in Article 19(2).
  - The SC noted that restrictions on press freedom could lead to a 'homogenised view on issues that range from socioeconomic polity to political ideologies' which 'would pose grave dangers to democracy'. An independent press is vital for the robust functioning of a democratic republic.
- **National Security**: The Court held that national security claims must be backed by strong material evidence and refused to accept the Government's arguments to deny the license.
- **Sealed Cover Jurisprudence**: The SC disapproved the 'sealed cover' procedure. It observed that sealed cover proceedings **go against the principles of natural justice** and **restrict the right to fair and reasonable hearing**. The SC held that relevant material must be disclosed to the affected party.

What is needed for ensuring Free Speech in India?
- Experts have noted that the Judicial view regarding freedom of speech has been inconsistent e.g., the Court has allowed bans on certain books while denying similar treatment for others. The outcome is dependent on Judges hearing the case.
- The Supreme Court should constitute a full-strength Constitutional Bench to review all free speech judgments of the past. The Bench should
  - Define limits of free speech and legitimate exercise of the right.
  - Define hate speech in unambiguous terms.
  - Lay down guidelines for Lower Judiciary to adjudicate on free speech issues.
  - Lay down guidelines for law enforcement agencies to determine when a speech constitutes threat to public order.

8. India's Digital Public Infrastructure

News: The critical role of Digital Public Infrastructure (DPI) was the focus of a recent G20 meeting.

What is Digital Public Infrastructure (DPI)?

- According to the World Economic Forum (WEF), DPI refers to **digital systems and solutions** that **enable basic functions essential for public and private service delivery**.
- DPI provides necessary **technical and organizational frameworks** to ensure that **digital services are secure**, **reliable**, and **accessible to all citizens**.
- An example of DPI is **digital identity system** like Aadhar that allows individuals to securely and conveniently access online services such as banking, healthcare, and government services.

What is the need for Digital Public Infrastructure?

- **Digital Divide**: NFHS Report suggests that only 57.1% males and 33.3% females have ever used the internet. Development of DPI can help in creating digital ecosystem that is accessible, efficient, and transparent, and can empower citizens to participate in the digital economy.
- **Potential of Digital Initiatives**: A World Bank research on the **use of digital technology to provide social protection during the COVID-19 pandemic** found that the countries that used digital databases and exchange platforms were able to reach 51% of their population with cash transfers. In contrast, countries without digital platforms could reach only 16%. Linking a financial account with an ID or phone number helped the Government to roll out cash assistance more quickly during the pandemic.
- **Avoid Digital Colonisation**: A robust digital public infrastructure can provide greater leverage in competition with the BigTech. A huge DPI can **provide India a greater say in multilateral discussions** related to creation of **global standards regarding digital economies** (like on privacy, data sharing etc.). This can reduce influence of the developed nations and **ensure a fair digital ecosystem**.
- **Economic Growth**: A strong DPI can enable digital delivery of services which is more **efficient**, **promotes inclusivity**, **improves accessibility** and **plugs leakages** e.g., UPI has enabled quick transfer of money contributing to rise in economic activity.

> **PT BOX**
> **Digital Colonialism**
> It refers to **disproportionate influence** enjoyed by the **Big Tech companies** and the **developed economies** in the **digital ecosystem**. Among the top 10 nations in terms of Facebook users, 9 are developing countries. Yet, none of Facebook's 15 data centers are located in a developing country (as of 2019-20). All the **standards**, **protocols** related to digital systems are being **dictated by the developed countries**. India is opposing digital colonialism e.g., India **boycotted 'Osaka Track'** at G20 Summit in Osaka (2019) which is a process for promoting international rule-making on **trade-related aspects of e-commerce at the WTO**.

What are the challenges associated with Digital Public Infrastructure in India?

- **Digital Divide**: To enable all citizens to reap benefits of DPI, it is necessary to plug digital divide. Digital gap exists due to lack of access to internet, smartphones, digital literacy and availability of digital services in vernacular languages.
- **Cybersecurity**: DPI is vulnerable to cyber-attacks and data breaches. This can compromise

Benefits of Digital Public Infrastructure (DPI)

- **Improve Efficiency**: DPI can **streamline and automate processes**, **reducing the time and effort** required to provide services e.g., online application for passports, filing of income tax etc.
- **Increase Access**: DPI can improve access to services for people living in remote areas e.g., the use of **digital learning platforms** can provide students in rural areas with access to quality education.
- **Better Service Quality**: DPI can help deliver services of higher quality by **enabling real-time monitoring** and **feedback mechanisms** e.g., digital health records can help healthcare providers deliver personalized and efficient care.
- **Increase Transparency**: DPI can improve transparency in service delivery by providing citizens with **access to information and data** e.g., citizen can know status of their applications online and file grievance redressal in case of delays.
- **Digital Financial Inclusion**: DPI can help **expand financial access** to **underbanked and unbanked populations** e.g., the **use of mobile wallets** and digital payment platforms can enable easy and secure transactions for people who do not have access to traditional banking services.

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sensitive data and transactions. Lack of digital literacy and awareness contribute to rising cybersecurity issues.

- **Interoperability**: There is a lack of interoperability among different digital platforms in India, making it difficult for users to access services seamlessly.
- **Data Privacy**: DPI raises concerns around data privacy, as personal and sensitive data may be collected and shared by various entities.

Initiatives for Digital Public Infrastructure (DPI)

- **Digital India**: It was launched in 2015 and is aimed at transforming India into a digitally empowered society and economy. It includes projects like Digital Locker, e-sign framework, and National Scholarship Portal etc.
- **BharatNet**: BharatNet is a high-speed broadband network project aimed at providing affordable high-speed internet connectivity to rural areas in India through network of optic fibre cables across the country.
- **National Health Stack**: It is a proposed digital infrastructure for the healthcare sector which aims to provide a common platform for **health data exchange and interoperability**. It aims to improve access to healthcare by enabling seamless information exchange among various stakeholders in the healthcare sector.
- **National Knowledge Network**: It is a high-speed network that connects universities, research institutions, libraries, and other knowledge hubs across India. The network enables the sharing of knowledge and resources, facilitating collaborative research and innovation.
- **UMANG (Unified Mobile Application for New-age Governance)**: It is a mobile app launched by the Government to provide a single platform for accessing Government services and is available in multiple languages.
- **Government e-Marketplace (GeM)**: It is an online platform that enables Government departments and agencies to procure goods and services from registered vendors. It aims to promote transparency and efficiency in the Government procurement processes.
- **Modular Open Source Identity Platform (MOSIP)**: It helps Governments and other user organisations implement a digital, foundational identity system in a cost-effective way. Being modular, Nations can use MOSIP freely to build their own identity systems. It has been adopted by 9 nations.

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What should be done to improve India's Digital Public Infrastructure further?

- **Improve Connectivity**: The Government should focus on increasing internet speed, expanding broadband infrastructure and ensuring the availability of affordable internet services in remote areas.
- **Digitize Government Services**: The Government should widen the ambit of Government services being provided digitally and make them accessible through a single platform like e-Seva in Andhra Pradesh.
- **Promote Digital Literacy**: Promoting digital literacy can address digital gap. Awareness campaigns for adults and early learning programmes in schools can improve digital literacy.
- **Robust Cybersecurity**: The Government should work to develop robust cyber-security framework. In addition, there is a need to focus on raising public awareness to curb increasing instances of identity thefts, financial frauds etc.
- **Leverage Emerging Technologies**: Emerging technologies, such as blockchain and artificial intelligence, can be utilized to improve the efficiency and transparency of Government services.
- **Robust Digital Identity System**: A digital identity system like Aadhar has enabled seamless authentication and verification for access to government services, banking, and other transactions. Now steps should be taken to make it more robust, and address concerns related to its secure use.
- **Digital Start-ups Ecosystem**: The Government should facilitate the growth of digital start-ups by providing incentives, tax breaks and access to funding, and a conducive environment for innovation.
- **Collaboration between countries**: It is necessary for the joint management and maintenance of DPI. Strategic decisions related to choice, data portability, interoperability etc., need to be made together to create and support new models for digital cooperation.

9. India-Bhutan Relationship and Influence of China

News: The King of Bhutan visited India. India and Bhutan have shared a long and stable historic relationship. However, China has added a new dynamic to the relationship.

How has India-Bhutan Relationship evolved?

- India and Bhutan has shared a very warm relationship since 1947. The relationship has been guided by the **Friendship Treaty** (signed 1949, revised 2007).
- India and Bhutan have close cooperation in multiple fields since Independence:
  - **Defence + Security:** Bhutan Army took action against ULFA militants in 2003-04.

Historical Evolution of India-Bhutan Relationship

- **Treaty of Punaksha (1910):** Bhutan become **Protectorate State** of British India. Bhutan had **internal autonomy** and **not external autonomy**.
- **Treaty of Friendship (1949):** It was continuation of 1910 Treaty. Bhutan's Foreign Policy was guided on advice from India.
  - India will not interfere in internal administration of Bhutan.
  - Bhutan can import arms and ammunition with India's approval as long as they are not directed against India.
- **India-Bhutan Friendship Treaty (2007):** 1949 treaty was revised on Bhutan's request.
  - Bhutan can import arms without India's approval, but ensure that they pose no danger to India.
  - The clause related to India's guidance regarding external relations was removed.
  - Both countries to ensure that respective territories are not used activities harmful to each other's national security and interests.
- **India-Bhutan Trade and Transit Agreement(1972):** It provides for **duty-free transit** of Bhutanese exports.
- **Agreement on Cooperation in Hydropower and Protocol (2006, 2008):** Under this, India has agreed to assist Bhutan in developing a minimum of 10,000 MW of hydropower and import the Surplus electricity to India.

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- **Diplomatic**: Bhutan is member of SAARC and BIMSTEC and has been supportive of India's interest at multi-lateral fora. India has helped Bhutan in its international engagements.
- **Hydro-electric power**: 3 projects of total 1.4 GW capacity installed and another 2.2 GW under construction.
- **Trade and Economy**: India is largest trading partner of Bhutan.
- **Cultural Relationship**: More than 4000 Bhutanese students study in India. India-Bhutan Foundation was established in 2003 to improve people-to-people cooperation etc.

What is the importance of India-Bhutan to each other?

- **Strategic Importance**: Bhutan acts as **Buffer State** between India and China. Bhutan has kept India's interest in mind while dealing with China including in the Doklam issue.
  - Bhutan is also crucial to security of India's North-east region. It is strategically located north of **Siliguri Corridor** (Chicken's Neck) that links North-east region with rest of India. Butan has supported Indian forces from time-to-time to take action against insurgent groups.
- **Energy Cooperation**: Hydro-electricity forms core of Bhutan's energy cooperation with India, providing clean energy to the North-east region. Export of hydro-electricity is the biggest revenue generator for the Government of Bhutan.

Highlights of Bhutan King's Visit

- India has agreed to provide relevant financial support for **Bhutan's 13th 5-year plan** and its reform projects.
- India has agreed to Bhutan's demand to **increase the power tariffs** for the Chhukha hydro-electric project.
- India has agreed to consider Bhutan's request to **sell power from Basochhu hydroelectric project.**
- India is examining the possibility of setting up the **first Integrated Check Post** along the India-Bhutan border at Jaigaon.
- India is expediting the proposed **Kokrajhar-Gelephu Rail Link project**.
- India has extended **additional 'standby' credit facility** to Bhutan over and above the two existing standby credit facilities that are already in operation.
- India is focusing on developing a sustainable long-term arrangement for the **export of agriculture commodities from Bhutan**.
- India also aims to develop a bilateral arrangements to **ensure a reliable supply of critical commodities to Bhutan** like petroleum, fertilisers, and coal.

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- **Economic Support**: India accounts for ~80% of overall trade of Bhutan. India has provided duty free transit to exports from Bhutan. India is vital for Bhutan's economic survival.
- **Socio-economic development**: India has been extending assistance for Bhutan's socio-economic development since 1960s, including multi-sectoral project-tied assistance, small development projects, and direct budgetary support.
- **Cultural Ties**: India and Bhutan have deep cultural ties. Bhutan's religion, language, and customs are heavily influenced by Buddhist culture and thus have Indian influence as well.

What are the recent developments in Bhutan-China Relationship?

- Bhutan has close cultural ties with Tibet, and its relationship with China strained after China's takeover of Tibet. **Bhutan has no formal diplomatic ties with China** but maintains contact through periodic visits by officials.
- Bhutan has also **resisted Chinese inducements to join Belt and Road Initiative** (BRI).
- Lately China has increased assistance to Bhutan. It **provided vaccines to Bhutan** during the COVID-19 pandemic along with medical equipment.
- There are rising calls from experts within Bhutan to **settle border dispute with China**. A statement by the Prime Minster of Bhutan to a Belgian Newspaper **led to the interpretation that Bhutan may be ready to settle dispute with China on a bilateral basis**, ignoring interests of India. The PM later denied any change in Bhutan's stance.
- However, Bhutan is under increasing Chinese pressure to settle boundary dispute.
- An increased **Chinese influence in Bhutan will pose threat to India's security and strategic interests**. Bhutan-China territorial swap in Doklam will directly impinge on India's border security. China is trying hard to gain foothold in Bhutan, like in Nepal, to weaken India's influence and harm India's interests.

What should be done to develop India – Bhutan relations further?

- **Strengthening Economic Ties**: India should increase its investments in Bhutan and provide technical expertise in developing infrastructure, tourism industry, and hydropower projects.
- **Improving Connectivity**: India should work towards greater cooperation with Bhutan to improve connectivity. Bhutan had moved out of BBIN arrangement of reginal connectivity. India must be mindful of Bhutan's concerns while undertaking such projects.
- **Environmental Aspect**: India and Bhutan can have greater cooperation in the domain of environment conservation and sustainability. India can provide assistance to Bhutan to adapt to Climate Change.
- **Multilateral Platforms**: India should multilateral platforms like BRICS and SCO to engage with China on issues related to regional security and find mutually acceptable solutions.
- **People-to-people Contact**: Both Bhutan and India should strengthen cultural bond with more exchange of students, academicians and cultural groups.
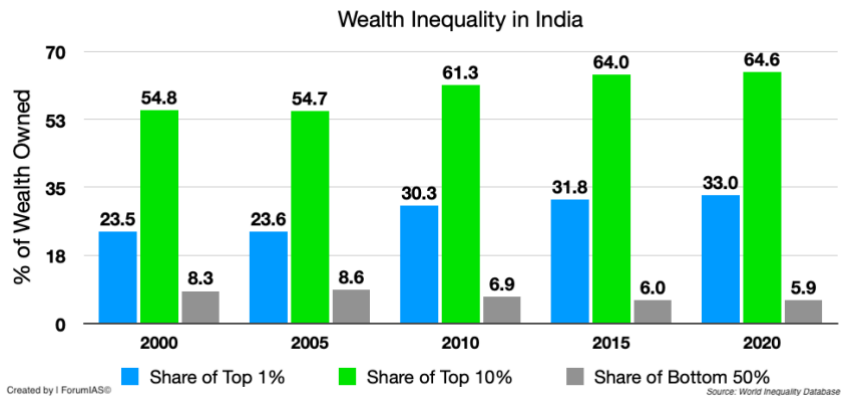
General Studies Paper III

1. The Debate on Inequality in India

News: Oxfam Report 'Survival of the Richest: The India Story' had raised concerns about rising inequality in India. However, some experts have countered the claims of the Report.

What are the Key Findings of the Oxfam Report?

- **Wealth Inequality**: The richest 1% now own more than 40% of India's total wealth, while the bottom half of the population (50%) together share just 3% of the wealth. Top 30% Indians account for 90% wealth.
  - The combined wealth of India's 100 richest has touched US$ 660 billion (INR 54.12 lakh crore). This is equivalent to India's Union Budget (2022-23) for 17 months.

Wealth Inequality in India

Year	Share of Top 1%	Share of Top 10%	Share of Bottom 50%
2000	23.5	54.8	8.3
2005	23.6	54.7	8.6
2010	30.3	61.3	6.9
2015	31.8	64.0	6.0
2020	33.0	64.6	5.9

Source: World Inequality Database

- **Gender and Social Inequality**: Female workers earned only 63 paise for every 1 rupee earned by male workers. Scheduled Castes and rural workers, earned 55% and 50% of that earned by socially advantaged groups (2018-19).
- **GST and Indirect Taxes**: Approximately 64% of the total INR 14.83 lakh crore in GST came from the bottom 50% of the population in 2021-22, with only 3% of GST coming from the top 10%.
  - Bottom 50% pays 6 times more indirect tax as percentage of income compared to top 10%. Indirect taxes are thus extremely regressive. *(Refer EPIC June 2022 for The Report on State of Inequality in India)*.

What other aspects support findings of Oxfam Report?

- In addition to indirect taxes, the poor are **disproportionately burdened by high inflation**. Average inflation in India has been above 6% for the past 2 years, especially in basic food items, consumed in high proportion by the poor. Oxfam says that worldwide 1.7 billion workers have seen **wages eroded by sharp rise in inflation.** It has made them relatively more poor.
- The **World Bank 2022 Poverty and Shared Prosperity** says that by the end of 2022, more than 70 million people slipped below the poverty line. A bulk of them are in India.
- There has been **no official poverty count** for the last 11 years due to lack of consumer expenditure data. A NITI Aayog report using **multi-dimensional index** shows an average of double digit poverty.

What are the issues regarding the Findings of the Report?

- The Report estimates cost of revenue foregone (due to corporate tax cuts) to be INR 1.03 lakh crore. It has **not accounted for the extra revenue generated due to investments incentivized by lower tax rate**.
- The Report ignores the **higher GST on luxury goods**. It uses decade-old NSS 2011-12 data to arrive at the conclusion of poor paying 6 times more indirect tax as % of income. This may be an **overestimate**. Indirect tax may be more efficient when compliance in direct taxes is narrow and limited. Thus, the Report may have **underplayed the role of indirect taxes**.
- The number of **tax payers in the lower-income group** (< INR 5 lakh) **increased from 2016 to 2019** during the period of demonetisation and introduction of GST. The number of taxpayers decreased in 2020 (INR

0-5 Lakh). But the number of taxpayers in INR 5-10 lakh income bracket increased, showing some tax payers may have graduated to **higher tax slab**.

- The wealth of ~INR 54 lakh crore with richest Indians does not elaborate how much of this wealth is **privately held** or in the form of trusts or companies. Most of the wealth is in the form of **equity/stock in companies** which is volatile and can be taxed only when there is sale of shares (taxed as Capital Gains).
- The Report has argued for introducing wealth and inheritance taxes. It has simplistic view regarding taxation. The **tax on incomes, capital gains and wealth are interrelated** and the changes cannot be recommended in isolation. Moreover, the mix of taxes that a country raises is a function of its **institutional capacity**, the **structure of tax base** and the desire for simplification. Wealth tax had been levied in India in the past, but the collections had been very poor.

What is the way forward to reduce inequalities?

- **Loose monetary policy (infusion of liquidity by the RBI) during the pandemic led to soaring stock markets. Its benefits are limited to few investors. Fiscal policy can play a greater role in reducing the inequalities through redistributive taxes and more spending on public goods and skill creation. Higher expenditure is needed for health, education and infrastructure.**
- **The Government should focus more on MSMEs which have the biggest potential for job creation. The Government should improve systems for faster clearance of outstanding dues of the MSMEs.**
- **Oxfam Report has suggested** to:
  - Implement **inheritance**, **property**, **land** and **net wealth taxes**, in order to **generate revenue for social programs** e.g., taxing India's ten-richest at 5% can fetch entire money to bring children back to school or a one-time tax of 2% on wealth of India's billionaires would support the requirement of INR 40,423 crore for the nutrition of malnourished in the country for the next 3 years. However, this must be done after proper deliberations taking into account possible costs and expected benefits.
  - Impose a **windfall tax** on the companies that make large profits with inflation. The Government has already done this for Oil and Gas sectors.
  - The Government should enhance the **budgetary allocation to the health sector to 2.5% of GDP** by 2025, as envisaged in the National Health Policy, and to **6% of the GDP for education sector** as a global benchmark.

Steps Taken to Reduce Inequality in India

- **Financial Inclusion/*Jan Dhan-Aadhar-Mobile Trinity* (JAM Trinity)**: It focuses on mobile numbers, Aadhar Card and post office accounts as alternative financial delivery mechanisms to ensure that benefits reach the poor households seamlessly.
- ***Ayushman Bharat***: It focuses on providing care through Health Wellness Centres (AB-HWC) covering child and maternal health services, non-communicable diseases, and free drugs and diagnostic services.
- ***Samagra Shiksha Abhiyan***: It is an Integrated Scheme for School Education. This programme subsumes the three erstwhile Centrally Sponsored Schemes of *Sarva Shiksha Abhiyan* (SSA), *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA) and Teacher Education (TE).
- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**: It guarantees 100 days of work a year to every rural household with an aim to enhance the livelihood security of people.

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2. **Performance of the PM-Mudra Yojana (PMMY)**

News: The Pradhan Mantri Mudra Yojana (PMMY) has completed 8 years.

What is the PM Mudra Yojana?
- The PM Mudra Yojana was launched in April 2015.
- Its aim is to provide collateral-free loans up to INR 10 lakhs to micro/small enterprises.
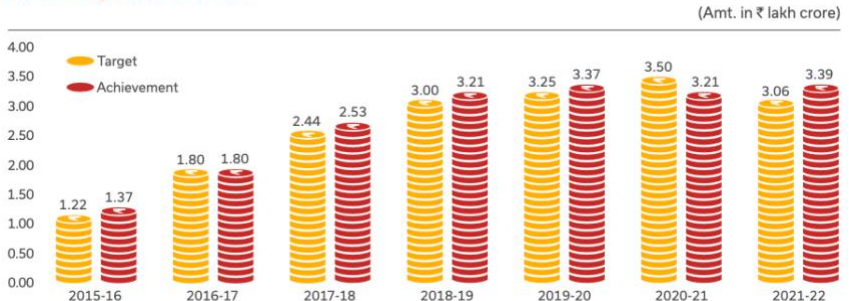
- The loans are provided by Scheduled Commercial Banks (SCBs), Regional Rural Banks (RRBs), Small Finance Banks (SFBs), Non-Banking Financial Companies (NBFCs), Micro Finance Institutions (MFIs) etc.
- The loans are given for **income-generating activities** in manufacturing, trading and services sectors and for activities allied to agriculture.
- **MUDRA Card** allows the borrower to avail credit in a hassle-free and flexible manner. It provides a facility of **working capital** arrangement in the form of an **overdraft facility** to the borrower. Being a RuPay debit card, it can be used for withdrawing cash from an ATM or Business Correspondent or making a purchase using a Point of Sale (POS) machine.

MUDRA Offerings (Categories of Loan)

- Shishu (Upto Rs 50,000)
- Kishor (Rs 50,000 to Rs 5 Lakh)
- Tarun (Rs 5 Lakh to Rs 10 Lakh)

➤ Loan upto Rs 10 lakh on attractive rate
➤ No collateral required

What are the advantages of MUDRA Scheme?

- **Access to Credit**: PMMY has provided loans worth **INR 18.9 lakh crore** to more than **34.9 crore beneficiaries** between 2015-16 and 2021-22. The scheme has been able to achieve its target every year since its launch (barring 2020-21). The scheme has enabled small business and first-time borrowers to access formal credit.

PMMY: Target vs Achievement (Amt. in ₹ lakh crore)

Year	Target	Achievement
2015-16	1.22	1.37
2016-17	1.80	1.80
2017-18	2.44	2.53
2018-19	3.00	3.21
2019-20	3.25	3.37
2020-21	3.50	3.21
2021-22	3.06	3.39

- **Financial Inclusion**: The scheme has benefited the **underserved sections** especially the **women** and the **weaker sections of the society** the most. This has helped in reducing inequality.

- **Entrepreneurship**: Provision of loans to small businesses has encouraged the spirit of entrepreneurship. This has increased the quantum of economic activities in the hinterlands.

- **Economic Growth**: Access to formal credit has enabled many small businesses to scale-up their

Cumulative Outreach to **34.93 crore** MSE Borrower Accounts with Credit Support of ₹ **18.91 lakh crore**

Empowering Women with **68%** Loan Accounts belonging to Women Beneficiaries

Addressing the Credit Needs of Weaker Sections with **51%** of the Loan Accounts belonging to SC/ST/OBC

operations. This has generated **livelihood opportunities in rural areas** and spur economic growth. According to a survey, PMMY helped create 11.2 million additional jobs between 2015-18.

- **Low Interest Rate**: The Scheme offers loans at **low interest rates without collateral**, making the loans affordable for low-income groups. It has **reduced dependence on informal credit mechanisms** which are usurious (very high interest rate or huge collateral requirement).

- **Flexible Loan Options**: PMMY offers a range of loan products to **suit the needs of different types of borrowers**, including micro-enterprises, small businesses, and start-ups. This can ensure that borrowers are able to access the financing they need to pursue their business goals.
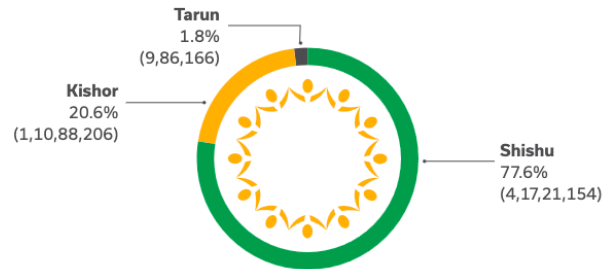
- **Aid Small Businesses**: *Shishu* loans accounted for 77.6% of the loans (number of loans) and 36.8% of the loans by value of loans disbursed. This shows that the scheme has benefited the smallest businessmen and entrepreneurs the most.
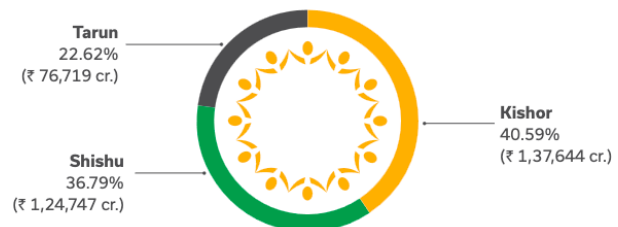
Distribution by number of accounts

Tarun 1.8% (9,86,166)
Kishor 20.6% (1,10,88,206)
Shishu 77.6% (4,17,21,154)

What are the challenges associated with PMMY?

- **Targeting Beneficiaries**: The scheme still suffers from exclusion errors. Many targeted beneficiaries from SC/ST and other marginalized communities are unable to access the benefits of the scheme.
- **NPAs**: Overall NPAs in Mudra Loans have low proportion of ~3.2% of credit disbursed (March 2022). However, in Maharashtra, the NPAs have reached 16.3% (June 2022) which is alarming.
- **Awareness and Financial Literacy**: Many people in rural areas are unable to access credit due to lack of awareness about PMYY. Lack of financial literacy can lead to reluctance among the intended beneficiaries to avail the benefits.

Distribution by sanction amount

Tarun 22.62% (₹ 76,719 cr.)
Shishu 36.79% (₹ 1,24,747 cr.)
Kishor 40.59% (₹ 1,37,644 cr.)

- **Inadequate Monitoring**: Experts have pointed out that inadequate monitoring of the implementation of the Scheme can lead to leakages and misuse of funds which can undermine its effectiveness.
- **Lack of Credit Guarantee**: The Mudra Scheme does not provide credit guarantee to the banks that lend under the scheme. This can lead to a reluctance among banks to lend to small and micro enterprises.

What steps can be taken to enhance effectiveness of PMYY?

- **Awareness**: Increasing awareness about the features, processes and benefits of the scheme among the target sections can help more beneficiaries to avail the benefits.
- **Simplification of Process**: The process of applying for loan and subsequent processing can be simplified further by reducing requirement of documents, as some beneficiaries struggle due to lack of financial literacy.
- **Strengthen Monitoring**: Monitoring and evaluation are critical to ensuring that the Mudra Scheme is achieving its goals and reaching the target beneficiaries. It can also help signal any distress or increase in NPAs. This can facilitate timely corrective action.
- **Expand Network of Lending Institutions**: Public and Private Sector Banks have the highest share in Mudra loans. Efforts should be made to expand reach of Micro-finance Institutions, Small Finance Banks and the State Cooperative Banks. It will promote competition as well.
- **Additional Services**: Banks and other lending institutions should explore possibility of providing additional services like business training and mentorship programmes to help small businesses grow.
- **Increase Loan Amount**: Lending Institutions can consider increasing the loan amount for borrowers, especially those who have a good track record of repayment.
- **Harnessing Technology**: Use of technology can speed up the processes, make them smoother and aid quicker disbursal of loans.
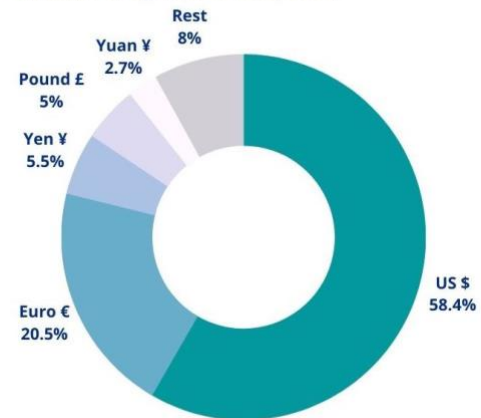
3. De-Dollarisation of International Trade

News: There has been an increasing trend towards 'De-dollarisation' of Trade to reduce dependence on the US Dollar in international transactions. The trend has been driven by recent geopolitical developments.

What is the current status of US Dollar in International Transactions?
- The US Dollar (US$) has a dominant position in international trade and foreign exchange reserves.
- According to the IMF, the share of US$ in global foreign exchange reserves held by the Central Banks stood at 58.4% in 2022. The share was above 70% in late 1990s. The share has fallen by more than 10 percentage points.
- According to US Federal Reserve estimates, between 1999 and 2019 the US$ accounted for 96% of trade invoicing in the Americas, 74% in the Asia-Pacific region, and 79% in the rest of the world.
- Banks used the US$ for around 60% of all international deposits and loans.
- The US$ accounted for more than 40% of SWIFT Payments.

Foreign Reserves

Share of Currencies in globally disclosed Official Foreign Reserves (2022)

Rest 8%
Yuan ¥ 2.7%
Pound £ 5%
Yen ¥ 5.5%
Euro € 20.5%
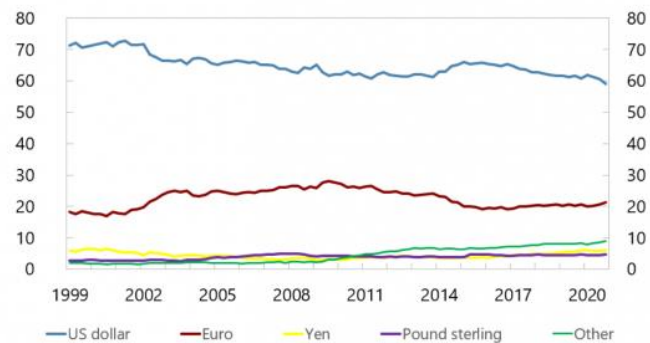US $ 58.4%

Source: IMF   *Created by | ForumIAS©*

What is the De-dollarisation of global trade?
- The US$ has served as the world's dominant **reserve currency** since World War II. A reserve currency is a currency held by central banks in significant quantities.
- De-dollarization of trade refers to the process of **reducing dependence on the US Dollar** for settlement of trade, international transactions, other financial operations etc.
- This can be achieved by **using alternative currencies** like Euro, Pound, Yen or **bilateral currency arrangements** (Rupee-Rouble) for trade settlement.

Demand for dollars by central banks
The US dollar's share in global foreign exchange reserves fell to its lowest level in 25 years in the fourth quarter of 2020, driven by exchange rates in the short term and central bank actions in the long term.
(currency composition of global foreign exchange reserves, percent)

— US dollar — Euro — Yen — Pound sterling — Other

The share of US$ has fallen from ~72% in early 2000s to ~58% by 2022.

What is the need for the De-dollarisation of global trade?

- **Weaponization of Trade**: The US has frequently resorted to imposing trade sanctions (uni-lateral or multi-lateral) on nations/regimes it considers hostile to its interests. Countries (including Russia and China) are pushing for alternatives to protect their economies.
- **Impact of US Monetary Policy**: The increase in domestic interest rates by the US Federal Reserve leads to **flight of capital** (US$) from other countries. This creates **volatility** and depreciation in other currencies. Other nations want to insulate their economy from such **uncertainties**.
- **Global Financial Instability**: Dominance of a single currency in foreign exchange reserves exposes the country to big currency risk. **Diversifying the reserve basket** reduces the risk, and improves stability of the financial system.

- **Changing Geoeconomics**: The salience of the US in global economy has been reducing steadily, while profile of Asian economies in global trade and economic growth has improved. Shift away from the US$ is a manifestation of the changing geoeconomics.

What steps have been taken towards De-dollarisation of trade?
- Russia has established **bilateral currency arrangements** (like Rupee-Rouble) for trade settlement. Russia has also created its **own payment settlement systems** like **Mir** and **SPFS** to bypass SWIFT.
- China launched the **Cross-Border Interbank Payment System** (CIPS) in 2015. It is a payment system that facilitates cross-border transactions in the Chinese yuan.
  - China has established **RMB trading centres** in Hong Kong, Singapore and EU.
  - China has also signed **currency swap agreements** with more than 25 nations.
- The **European Central Bank** launched the **TARGET2** (Trans-European Automated Real-time Gross Settlement Express Transfer System) in 2007 for processing of cross-border transfers within the EU. This has enabled trade settlement of EU nations in Euro, the share of US$ in trade invoices in Europe is ~20%.
- **BRICS nations** (Brazil, Russia, India, China, and South Africa) have displayed increased cooperation and intent to change the dollar-dominated financial system.

International Trade
Share of Dollar in International Trade Invoicing by Regions

Region	Share
Americas	96%
Asia Pacific	74%
Europe	20%
Rest of the World	79%

Created by | ForumIAS©

- **African Continental Free Trade Area** aims to create a single market for goods and services across Africa and to **promote intra-African trade using local currencies**.
- RBI has allowed 18 countries to open **Special Vostro Rupee Accounts** for settlement in Indian Rupees. India has also signed currency swap agreements with various nations.
  - India has been investing in **cross-border digital payment systems** to facilitate foreign remittances in Indian Rupee. (*Refer EPIC November 2022 for Trade Settlement in Rupee*).

What are the challenges associated with the de-dollarisation?
- **High Share**: The dominance of US$ in the international financial system is very strong and it will take globally coordinated efforts to displace the US$ from its position of eminence. Such cooperation may not be easily forthcoming. The US may also try to disrupt such efforts.
- **Limited Acceptability of Currencies**: The acceptability of currencies improves as the share of a country in international trade increases e.g., rising acceptability of Yuan/Renminbi. Most countries have minuscule share in global trade and hence limited acceptability of currency. They also lack the level of liquidity of the US$.
- **Limitation of Bilateral Arrangements**: Bilateral arrangements may not work well if there is huge trade imbalance between two trading countries. One country may end up having large surplus reserves of other country's currency which may not be accepted by a third trading nation.
- **Implementation**: New systems, standards, mechanisms may have to be developed to replace US$ including addressal of legal and regulatory barriers. It may also be difficult to bring consensus among all countries regarding various standards etc.

Many countries are making efforts to replace the US$ as reserve currency. The chances of success will depend upon the level of coordination and commitment among the nations. It is difficult to predict at this stage whether the US$ be replaced by some other currency(ies) in future. India, as an emerging power, should play a greater role in bringing this change.

4. Quality Control Order (QCO) for Textile Fibre Imports

News: The Government has issued Quality Control Order for fibres (cotton, polyester, viscose etc.). Foreign suppliers of fibres to Indian textile manufacturers have to get quality control certificate from the Bureau of Indian Standards (BIS). Several WTO members have objected to India's QCOs in several sectors.

What are Quality Control Orders?
- Bureau of Indian Standards (BIS) is engaged in standardization and quality assurance of goods, articles, processes, systems and services. The standards established by BIS forms the basis for the **Product Certification Schemes**, which provides assurance of Quality, Safety and Reliability of products to the consumers.
- BIS certification scheme is **voluntary**. However, the Government can **make compliance to BIS standards compulsory** under certain considerations like **public interest**, **national security**, **protection of human, animal or plant health**, **safety of environment**, and **prevention of unfair trade practices**.
- For such products, **Government can issue Quality Control Orders** (QCOs), to direct **mandatory use of BIS Standard Mark** under a Licence or Certificate of Conformity. Products under QCOs must conform to the standards (as defined in the QCO) and must bear the BIS mark.

What are the new QCOs issued by the Government?
- The Government has issued latest QCO for fibres (**cotton, polyester and viscose**). These fibres constitute the basic raw materials for the majority of the Indian textile and clothing industry.
- Under the revised QCO, the international manufacturers of these fibres who supply to India, are now mandated to get **certificate of quality control from the BIS**.
- Indian textiles manufacturers import fibres due to the cost competitiveness, non-availability in the domestic market, or to meet a specified demand of the overseas buyer. Many times, the fibres imported are of sub-standard quality and hamper Indian textiles' **brand value.**
- The main aim of the QCO is to control import of sub-standard fibres to **ensure high quality output**.
- **India has brought** multiple products like **toys, machinery safety equipment, pressure cookers, ACs, and chemicals** under compulsory certification recently.
- **QCOs are also being used to check dumping of cheap products from China.**
- **The Government wants to enhance quality standards of Indian products to improve competitiveness of exports.**

What are the challenges associated with the revised QCO for Textiles?
- Getting a BIS certificate requires time and money. BIS officials may have to visit the premises of foreign manufacturers of fibres. Many foreign suppliers may not be interested in getting the certification. **Indian manufacturers may lose out foreign suppliers**.
- There is lack of clarity on the fibres (without certification) that may have been shipped to India before the notification of the QCO.
- Sudden requirement of BIS may **disrupt the existing supply chain**.
- Quality certification may **increase cost of imported fibres** and make Indian textile products un-competitive in the global market.
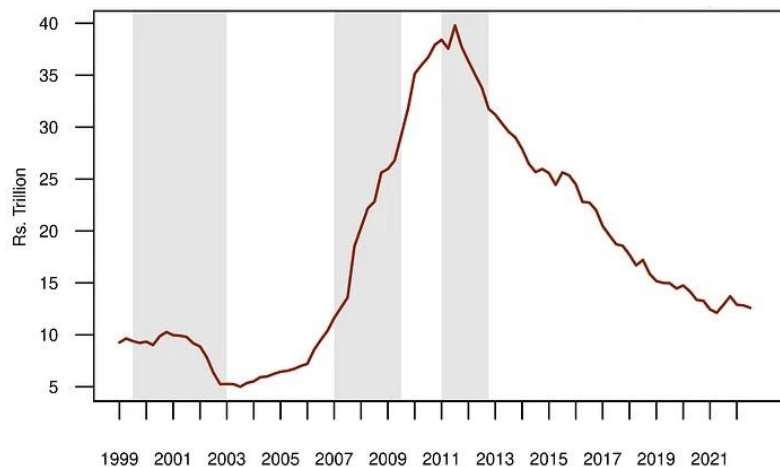
Are QCOs compliant with WTO provisions?

- QCOs are **first applied in the domestic market** and only then are they **imposed on imports**. According to WTO rules, **members should use similar standards for domestic as well as imported products**.
- QCOs cannot be challenged at WTO if they are imposed on grounds of **health**, **safety**, **environment** and **deceptive trade practice**, or **national security**. The Government has argued that cheap quality toys pose health risk to children.
- Western nations **impose similar quality standards on Indian products**. So, India has the right to ensure quality of imports.

5. 'National Champions Model' for Infrastructure Development

News: The Model offers some advantages over the PPP Model, in attracting private investment in the infrastructure sector. However, the model has several associated concerns.

What are the constraints in infrastructure building?

- **Large Investment**: Infrastructure requires large investment. So only large conglomerates or firms with huge financial resources can undertake such investments.
- **Long Gestation Period and Risks**: Projects have long gestation periods and hence **more risky** as lot of external factors can change in the long run.
- **Cash Flow**: Due to long gestation period, revenues from projects accrue after considerable time (investment-revenue gap). Investment is required upfront. So firms must have cash surplus to

The graph shows trend of private investment in infrastructure projects. There has been sharp decline since 2011.

invest without commensurate revenues in the initial phase (negative cash flows).
- **Public Goods**: Many infra projects have public good component. Hence **user charges may be regulated** which limit the ability of the investor to recoup investments, making the projects 'unlucrative'.
- **Financial Constraint**: The **traditional approach to financing infrastructure** has relied on **tax revenues or Government borrowing**. But poorer economies generate less tax revenue. It limits infrastructure investment by Government. Large Government borrowing for infrastructure may '**crowd-out**' private investment.

What has been the approach towards infrastructure financing in India?

- The PPP model was introduced in early 2000s. It incentivised **private sector participation** by providing **targeted subsidies for infrastructure investments**.
- The Government facilitated the acquisitions of land and primary commodities, and access to credit from public sector banks for infrastructure projects.
- However, flaws in the implementation of the PPP model contributed to **huge NPAs with the public sector banks**, bankruptcies in the private sector and **accusations of widespread corruption**. Realizing constraints of PPP model, the Government has tweaked its approach.

- The Government has assigned the bulk of the infrastructure provisioning for roads, ports, airports, energy, and communications to a **few chosen industrial houses.** This is being called the **'National Champions Model'**. The government picks a few large conglomerates to implement its development priorities. Such conglomerates are given special treatment.

What are the salient aspects of the 'National Champions' Model?
- **To address the negative cash flows in the earlier stages, the National Champions are given control of existing projects with strong cash flows. Cash from such projects can be utilized to fund new projects. This incentivizes investments in the projects.**
- **Public** association of National Champions with the Government's national development policy generates a **competitive advantage** for the champions. It aids them in accessing domestic and foreign contracts and help expand their portfolio. This further stabilizes their cash flow.
- Access to cash rich projects allows them to **borrow from external credit markets**. This **lowers their cost of finance** for other projects and **improve the profitability** of their portfolio. Borrowing from abroad **frees up domestic savings** for other public and private investments.
- This model can help in **attracting private investments** in the infrastructure sector, create **world-class infrastructure**, and presence of National Champions in **strategic assets abroad** (like Adani Port's investment in Haifa Port in Israel).

What are the problems associated with the 'National Champions' Model?
- Direct association of 'National Champions' with Government creates the potential for markets and regulators to treat them as **'too big to fail'** (i.e., they feel that the Government will bail National Champions out in case of failure). This can lead to regulators to overlook issues associated with National champions, market hysteria and eventual 'spill-over' of problems to other sectors.
- Promotion of few National Champions can lead to **market concentration**. It can lead to lack of competition, economic inefficiencies and poor productivity.
- It has the potential to create a situation where **most projects are controlled by few big industrial houses**, giving them **disproportionate influence over the economy. The** longer it takes for projects to generate large cash flows, the greater will be the need for the Government to provide the champions with access to additional cash flows.
- It will give rise to notion of **'preferential treatment'** for few 'National Champions'. This can **deter foreign investment** into India as foreign investors will be wary of lack of level-playing field.

Due to the concerns associated with 'National Champions' model, several economists suggest classic and tested approach of **rule of law**, **sound regulatory mechanisms**, and **predictability of contracts and policy** (for large and small, domestic and foreign companies) to attract private investment in infrastructure.

6. LIGO Project in India

News: The Government has given a go-ahead to INR 2,600 crore project for setting up a Laser Interferometer Gravitational Wave Observatory in Hingoli, Maharashtra.

What are Gravitational Waves?
- Gravitational waves are 'ripples' in 'Spacetime'. They are **caused by massive objects** moving with extremely high speeds and accelerations.
- Gravitational waves **travel at the speed of light** (186,000 miles per second). These waves **squeeze and stretch Spacetime** in their path as they pass by. **Albert Einstein** originally predicted the existence of gravitational waves in 1916.

- Some examples of events that could cause a gravitational wave include explosion of a star (Supernova), merger of two black holes etc.
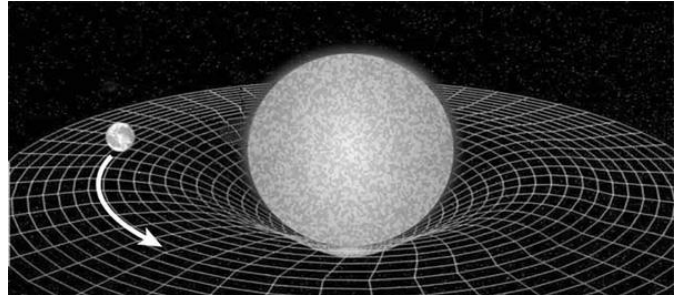
What is the LIGO Project?

- LIGO or **Laser Interferometer Gravitational Wave Observatory**, is world's most powerful observatory that exploits the physical properties of light and of space to **detect and understand the origins of gravitational waves**. There are 2 operational LIGO facilities in the US, in Louisiana and Washington States, 1 each in Germany, Italy and Japan.
- Interferometers work by **merging two or more sources of light** to create an **interference pattern**, which can be measured and analyzed. The interference patterns generated by interferometers **contain information about the object or phenomenon being studied**.

Bending of spacetime due to massive object, causing the other object to revolve around it. Gravity has been explained as bending of spacetime due to mass.

- They are used to **make very small measurements** that are not achievable any other way. LIGO's interferometers are designed to measure a distance $1/10,000^{th}$ the width of a proton (of the order 10^{-18} m).
- LIGO detector consists of two 4 km long, 1.2 m-wide **steel vacuum tubes arranged in an 'L' shape**. LIGO's laser travels through these arms. The tubes are enclosed within a concrete structure that protects the tubes from the environment.
- A **beam-splitter** sends light along two paths perpendicular to each other. Each beam bounces between the two mirrors. The two transmitted beams meet and interfere. If the length of the path each beam has travelled remains constant, the beams will cancel each other out, and no interference pattern will be formed. But **if a gravitational wave passes through, it'll warp spacetime and change that distance, creating an interference pattern**.

What is LIGO-India Project?

- LIGO-India will be an advanced gravitational-wave observatory to be located in Maharashtra, India.
- It will be built by the **Department of Atomic Energy** and the **Department of Science and Technology**, with the **National Science Foundation** (the US), and other institutions.
- LIGO-India would be part of the international network of gravitational wave observatories.

What is the significance of the LIGO-India Project?

- India has been an active collaborator in a number of **international science projects** including the **Large Hadron Collider** (LHC) experiments, and the **ITER**, (experimental thermonuclear reactor to control nuclear fusion reactions). However, India **hasn't built a cutting-edge scientific facility on this scale**. LIGO-India can have huge benefits for its science and technology sector in India.
- India can gain capability in handling of precision technologies and sophisticated control systems.
- LIGO-India can demonstrate India's ability to pursue research and enhances Indian society's relationship with science. It will also demonstrate India's intent and capability to create and run complex scientific projects on its own.

WHAT IS THE PROJECT?
- The proposed LIGO-India detector will increase the sensitivity of the international gravitational-wave network and improve localization of sources
- It will be funded by the departments of atomic energy and science and technology

HOW WILL IT HELP?
- Astronomers can identify the exact location of the cosmic explosion much quicker and study it right from the first moments in every frequency band of the electromagnetic spectrum

PARAMETERS FOR SITE SELECTION
- The nearest railway line and vehicular traffic should be several km away from the central laboratory station
- The laboratory would be 'L' shaped of 4 x 4km
- The site should be seismically quiet
- Total land required was about 300 acres minimum
- with strong restriction of anthropological noise
- The site should be able to sustain heavy equipment, mining, blasting activity in 30km periphery
- This site is also required to be away from sea coast by 100-200km

What are the challenges in implementing the such projects?
- **Science projects like LIGO need large tracts of land. This has implications related to land acquisition and associated land-use change.** There is also a need to balance the sustainable use of natural resources.
- In some areas, science projects are seen as an '**agent of colonisation**' e.g., Hawaii's Thirty Meter Telescope is to be **built on land the locals hold sacred**. Hence, they have to balance the interplay between the history of science and settler colonialism.
- Critics also question expenditure on such projects by developing countries like India, where a large section of population faces scarcity of basic amenities.

What should be the approach going ahead?
- The Government must ensure **adequate access to land and resources** for the project without delay.
- The Government should **conduct public outreach programmes** for the success of the LIGO-India project. Proactive outreach can ensure there is **no local opposition** to the project as happened in the case of the **India-based Neutrino Observatory (INO)**.

7. **The UN High Seas Treaty: Significance and Challenges**

News: The UN Members have agreed on the draft of the UN High Seas Treaty related to conservation and sustainable use of marine biodiversity. Once signed and in force, the treaty will be legally binding.

What is the UN High Seas Treaty?
- The High Seas Treaty is formally called the '**Agreement under the <u>United Nations Convention on the Law of the Sea</u> on the <u>conservation and sustainable use</u> of <u>marine biological diversity</u> of <u>areas beyond national jurisdiction</u>**'. It is informally being referred as 'Paris Agreement for Oceans'.
- It is a global treaty for the **conservation and sustainable use of biological resources** in the high seas. The high seas are open ocean areas that are **outside the jurisdiction of any country**.
- The treaty is also known as the agreement on '**Biodiversity Beyond National Jurisdictions**' or BBNJ.
- The High Seas Treaty will work as an implementation agreement under the UNCLOS, much like the Paris Agreement works under the UN Framework Convention on Climate Change (UNFCCC).

(Refer EPIC September 2022 for The UN Treaty on High Seas).

What are the significant provisions of the UN High Seas Treaty?

- **Regulation of Human Activities**: It seeks to regulate all human activities in the high seas to ensure that ocean resources are utilized in a sustainable manner and their benefits are shared equitably among countries.
- **Protection of Biodiversity**: The treaty seeks to protect the biodiversity of the high seas, which is home to ~2.2 million marine species and up to a trillion different kinds of microorganisms through creation of Marine Protected Areas (MPAs).

- **Sustainable Use of Marine Genetic Resources:** It seeks to ensure that any benefits arising out of the use of marine genetic resources are equitably shared amongst all stakeholders. An **Access and Benefit-sharing Committee** will be formed to frame guidelines for developing countries' access to benefits from the commercialisation of resources extracted from the ocean.
- **Environmental Impact Assessments**: All commercial and other activities that may impact marine ecosystem must undergo an EIA. The results of EIAs must be shared with the international community.
- **Capacity Building and Technology Transfer**: The treaty lays emphasis on capacity building and technology transfer, especially for Small Island States, to meaningfully participate in the conservation efforts, and to take benefits from the useful utilization of marine resources.
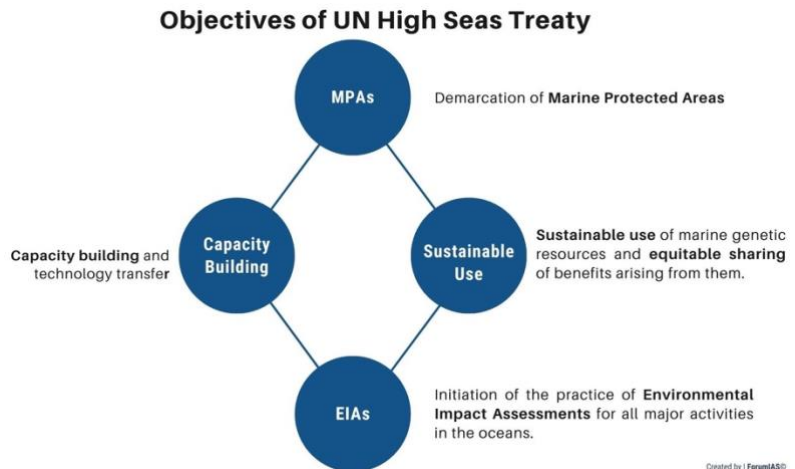
- **Rights of Indigenous People**: Marine resources in areas beyond national jurisdiction can only be accessed with their free, prior and informed consent or approval and involvement.
- **Dispute Resolution**: The treaty provides a mechanism for resolving disputes between nations over the use of the ocean and its resources.

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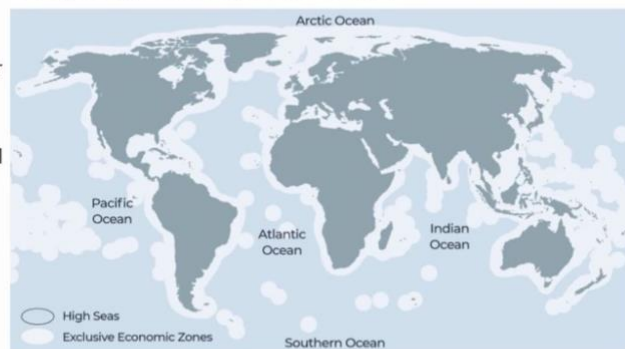
What are the issues related to the High Seas Treaty?

- **Fishing and industrial expansion**: The treaty does not adequately address threats to ocean biodiversity posed by fishing and deep-sea mining.

- **Enforcement:** There is no identified international **enforcement agency** to monitor and enforce the treaty's regulations. No financial commitment has been negotiated.

UN High Seas Treaty: Advantages
- Provides legal framework for **greater cooperation** among nations.
- Help **protect marine ecosystem** through international collaboration.
- Promote **economic development** through **sustainable use** of marine ecosystem.
- Facilitate **scientific research** and sharing of knowledge.
- Help **achieve targets related** to the **SDGs** and the COP15 of the **Convention on Biodiversity**.

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- **Negotiations**: The treaty is the result of 20 years of negotiations, and the details of major provisions, including EIAs and mobilization of conservation funds, are still to be worked out.

- **Unaddressed Issues**: The mechanisms for policing protected areas, the fate of heavily polluting projects, etc. remain unaddressed.

- **Ratification**: The process of ratifying the treaty is expected to be difficult and time-consuming, as seen with UNCLOS and the Kyoto Protocol.

- **Conflicting interests**: Conflicting interests among coastal states, flag states, and other actors can impede the effective implementation of the treaty's provisions.

What should be done going ahead?

- The treaty needs to be officially adopted and becomes effective once it is ratified by at least 60 countries.

- To protect ocean life, all sectors and stakeholders must work together to implement and monitor the provisions of the Treaty.

- The Treaty provides for funding mechanism for various functions including functioning of institutions created under the treaty. Developed countries should ensure regular funding and fulfil their obligations (unlike Climate Finance where they have reneged on their promises). They should give yearly contributions to the special and voluntary funds created to assist developing countries in implementing the treaty.

8. Tiger Census and Rising Tiger Population

News: Project Tiger was launched in 1973 and has completed 50 years. The Prime Minister released the data for 5th Cycle of India's Tiger Census, 2022.

What is the status of tiger population in India?

- Since 2006, the Government has been conducting scientific tiger population estimation once every 4 years. The number of tigers has recorded a 6.74% increase from **2,967 in 2018** to **3,167 in 2022**. The number was 1,411 in 2006.

- India is now home to **75% of the global tiger population** and is the '**largest tiger range country in the world**'.

- The only landscape in India where the tiger population has gone down is the **Western Ghats**, where declaring of an ecologically sensitive zone (ESZ) has been hanging since 2010.

- The tiger populations have declined in the central Indian states of Jharkhand, Odisha, Chhattisgarh, Andhra Pradesh and Telangana. Tigers have been **spotted for the first time in Himachal Pradesh** and in new areas in Madhya Pradesh and Maharashtra.

What factors have led to the increase in tiger population?

- **Conservation Efforts**: The successful implementation of various conservation efforts under the Project Tiger like the establishment of **protected areas**, **anti-poaching patrols**, and community involvement has led to the increase.
- **Habitat Restoration**: Efforts have been made to **reduce human encroachment** and **restore natural habitats** by reforestation and **reducing deforestation** e.g., in Sariska Tiger Reserve tigers were completely wiped out. After ecosystem restoration, tigers have been reintroduced in the area.
- **Strict Laws against Poaching**: The Government has implemented strict laws against poaching and the illegal trade of body parts of tiger like skin and bones. This has reduced the incidents of poaching.
- **Prey Base Management**: The increase in prey populations, such as deer and wild boar, has resulted in a rise in tiger numbers. Efforts are being made to improve the prey base by managing their populations and reducing their hunting by humans.
- **Reduced Human-Tiger Conflict**: Human-tiger conflict has been a significant threat to tiger populations. Measures to reduce such conflicts, such as building barriers, compensation for livestock losses, and relocation of problematic tigers, have helped to prevent the loss of tigers.

Initiatives for Conserving Tiger Population

- **Project Tiger**: It is a Centrally Sponsored Scheme of the Ministry of Environment. It provides **funding support** to tiger range States for **in-situ conservation** of tigers in designated tiger reserves.
- **National Tiger Conservation Authority (NTCA)**: It is a **statutory body** (Ministry of Environment), constituted under the provisions of the **Wildlife (Protection) Act, 1972**. It works with State Governments and other stakeholders to implement various measures for the **protection and management of tiger reserves**.
- **Community Reserves**: The Government has established Conservation Reserves and Community Reserves to **protect critical tiger habitats outside of the designated tiger reserves**. These reserves are **managed by local communities** and provide alternative livelihoods to local people while conserving the tiger population.
- **Eco-Sensitive Zones**: The Government has declared several areas around tiger reserves as Eco-Sensitive Zones (ESZs) to protect the biodiversity of these areas. Eco Sensitive Zones act as '**shock absorbers**' to the Protected Areas by prohibiting and regulating activities around Protected Areas.
- **Project Elephant**: As elephants and tigers share similar habitats, the initiative has indirectly benefited tiger populations as well. The project aims to protect elephant corridors and habitats, prevent poaching, and mitigate human-elephant conflicts.
- **Global Tiger Forum (GTF)**: It is the **inter-governmental body** established in 1993 working exclusively for the conservation of Tigers in the wild. It is located in **New Delhi, India**.
- **Global Tiger Initiative (GTI)**: It was launched in 2008 as a global alliance of Governments, international organizations, civil society and the private sector with the aim of working together to save wild tigers from extinction. In 2013, the scope was broadened to include Snow Leopards.

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What is the significance of conserving the tiger population?
- **Ecological**: Tigers are **apex predators**. Their presence helps maintain an **balance in the food chain** as well as broader ecology. Tiger habitats provide other important ecosystem services like water regulation and carbon sequestration. Hence, they can help mitigate impacts of climate change.
- **Economic**: Tiger population in protected areas is a major **eco-tourism attraction**. It generates livelihood opportunities and revenues for local communities as well as for the Government.
- **Cultural Significance**: Tigers hold special significance in the Indian culture and are considered **symbol of power**, **strength**, and **beauty**. Conserving tigers is akin to **preserving cultural and spiritual heritage** for future generations.
- **Genetic Diversity**: Tigers are genetically diverse, with distinct subspecies found in different regions of the world. Conserving tiger populations helps preserve genetic diversity and ensure their long-term survival.
- **Scientific Research**: Tigers are a **keystone species** and their conservation can provide valuable insights into ecological processes and conservation biology. Studying tiger behaviour and their interactions with other species can help in **developing effective conservation strategies** for other species and ecosystems.

What are the challenges with the increased tiger population in India?
- **Managing Human-Wildlife Conflict**: Natural habitats of tigers have been gradually encroached by humans. The probability of tiger-human conflict with expanding tiger population.
- **Carrying Capacity**: Carrying capacity of tiger reserves need to be enhanced as number of tigers rise. The prey base has to increase commensurately.
- **Tiger Corridors**: There is a lack of corridors which connect adjacent tiger reserves. Tiger corridors are crucial for their survival. Few corridors pass through unprotected government/private lands.
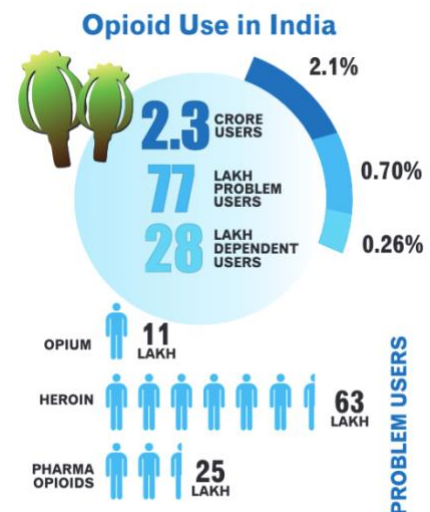
What more can be done?
- **Scaling-up Efforts: The Government should scale up its efforts with respect to conservation, habitat restoration, countering poaching and improving prey-base for tigers.**
- **Tiger Corridors**: The Government should develop a strategy to increase the number of tiger corridors (32 as of 2019). In contrast there are more than 100 elephant corridors. Tiger corridors can result in intermingling of populations of tigers and increase the genetic diversity.
- **Conflict Management**: Sharing revenues from tiger reserves with communities residing in the buffer zone and corridor habitats, compensating for all damage at market rates will push local populations to support conservation efforts. Education and awareness campaigns can also help in changing people's attitudes towards tigers and their conservation.
- **Curbing Illegal Trade**: Illegal trade in tiger parts and products needs to be curbed through strict law enforcement and awareness campaigns.

9. Issue of Drug Trafficking in India

News: Drug Trafficking has emerged as a serious challenge to social and economic stability as well as internal security of the nation.

What is the status of drug trafficking in India?
- A 2019 report by the Ministry of Social Justice & Empowerment (MoSJE) noted that **2.8% have used cannabis** and 2.1% Indians have used opioids (opium, heroin, pharmaceutical opioids).
- According to the Narcotics Control Bureau (NCB), **drug trafficking through sea routes** (Arabian Sea and the Bay of Bengal) accounts for ~**70% of the total illegal drugs** smuggled into India.
- The **World Drug Report 2022** released by the UN Office on Drugs and Crime (UNODC) notes that **India is one of the world's largest opiate markets** in terms of users. Punjab and Himachal Pradesh are leading in India's epidemic of opioid users. Gujarat is the third worst state in terms of drug overdose deaths.

Opioid Use in India

2.3 CRORE USERS — 2.1%
77 LAKH PROBLEM USERS — 0.70%
28 LAKH DEPENDENT USERS — 0.26%

OPIUM 11 LAKH
HEROIN 63 LAKH
PHARMA OPIOIDS 25 LAKH

PROBLEM USERS

What are the reasons behind Drug trafficking in India?
- **Geographical Location**: The UNODC observes that India is wedged between the world's two largest areas of illicit opium production, the **Golden Crescent** (Afghanistan, Iran and Pakistan) and the **Golden Triangle** (Myanmar, Thailand and Laos). This proximity has made India both a **destination** and a **transit route** for opiates produced in these regions.
- **Narco-terrorism**: Pakistan has a major role in aiding drug trafficking, to raise funds as well as to weaken Indian internally. Advent of drone technology has made it easier to smuggle drugs across the border.

- **Porous borders**: Porous borders with countries notorious for drug production and trafficking make India a convenient transit route for smugglers.
- **Local Demand**: India is the largest markets for drugs. As noted by the Ministry Report, there are more than 2.3 crore opioid users in India.
- **Lack of Awareness:** There is a lack of awareness among people about the dangers of drug abuse. Many people are unable to identify drug abuse or to seek help. In addition, there is a stigma associated with drug abuse and seeking rehabilitation, which deters drug abusers from coming out.
- **Corruption:** Corruption among law enforcement agencies and government officials allows drug traffickers to operate with impunity.
- **Low Capacity**: Lack of adequate **manpower**, issues in **inter-agency coordination** contribute to exacerbate the problem. There is lack of appropriate skills to check use of **darknet for drug trade.** There is **shortage of drug rehabilitation centres** as well.
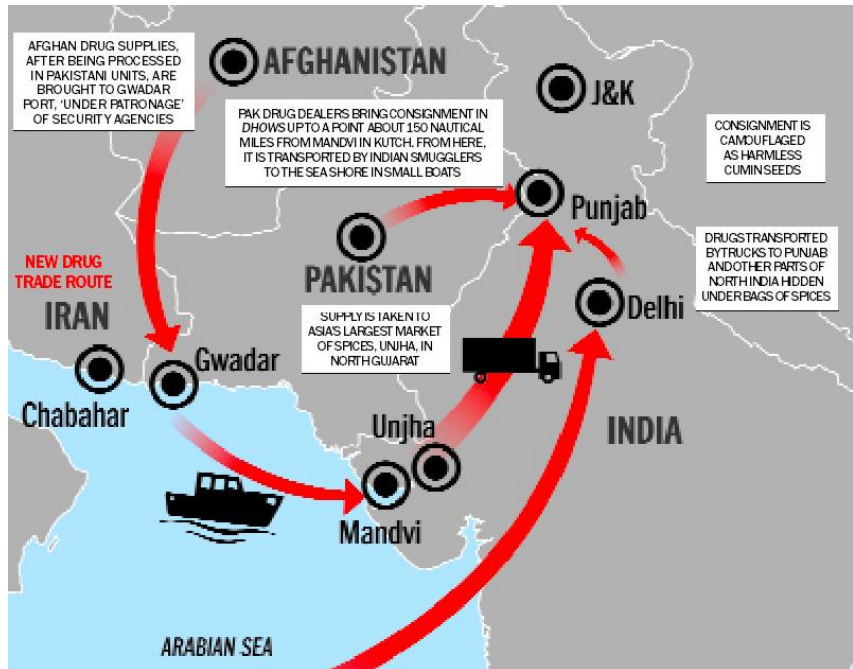
What steps have been taken to curb drug trafficking?
- **National Policy on Narcotic Drugs and Psychotropic Substances**: The policy attempts to curb the menace of drug abuse and contains provisions for treatment, rehabilitation and social re-integration of victims of drug abuse.
- **NDPS Act**: The Narcotic Drugs and Psychotropic Substances Act 1985 (NDPS Act) sets out the **statutory framework for drug law enforcement** in India. The **Narcotics Control Bureau** (NCB) was created in 1986 as the nodal agency for drug law enforcement in India.
- **National Narcotics Coordination Portal**: The Ministry of Home Affairs has constituted a **4-tier coordination mechanism** for increasing coordination amongst the nationwide stakeholders, from grassroot to apex level. The Apex NCORD (Narco Coordination Centre), Executive NCORD, State NCORD and District CORD are 4 pillars of mechanism.
- **Integrated Rehabilitation Centres for Addicts (IRCAs)**: The MoSJE provides financial assistance to NGOs for the maintenance of Integrated Rehabilitation Centres for Addicts (IRCAs). IRCAs offer comprehensive rehabilitation services to individuals with substance abuse disorders.
- **National Action Plan for Drug Demand Reduction (NAPDDR)**: The MoSJE launched the NAPDDR for 2018-2025 to reduce adverse consequences of drug abuse through a multi-pronged strategy. Activities under NAPDDR include **awareness generation programmes**, community-based interactions, programmes for vulnerable adolescent and youth, provision of treatment facilities and **capacity building** of service providers.
- *Nasha Mukt Bharat Abhiyaan*: It was launched in 2020 for **272 districts** across 32 State/UTs that have been identified as the most vulnerable in terms of drug abuse. It is operational with the involvement of more than 500 voluntary organizations across the country.

What is should be the approach going ahead?

- **Law Enforcement**: Government should take measures to **strengthen the law enforcement** agencies involved in drug control, like Customs, NCB, and State Police forces. They should be provided with better training, technology, and resources.

- **Legislation:** The Government should **amend the laws** to impose **stricter punishment** on the drug handlers.

Curbing Drug Trafficking: International Cooperation

- **Bilateral Agreements and Conventions:** India has signed:
  ○ The UN Single Convention on Narcotics Drugs, 1961.
  ○ The Convention on Psychotropic Substances, 1971.
  ○ The Convention on Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.

- **Mutual Legal Assistance Treaties (MLATs):** India has signed various MLATs with other countries to cooperate in the investigation, prosecution, and extradition of drug traffickers.
  ○ These MLATs provide a **legal framework** for the sharing of information and evidence between the signatory countries.

- **International Organizations:** India is a member of the **United Nations Office on Drugs and Crime** (UNODC) and the **International Narcotics Control Board** (INCB), which work to coordinate international efforts to prevent drug trafficking.

- **Joint Operations and Information Sharing:** India cooperates with other countries through joint operations and sharing of intelligence to prevent drug trafficking. India Coast Guard (ICG) has been successful in making big seizures of drugs in coordination with agencies of partner nations.

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- **Public Awareness**: Government should scale-up awareness campaigns to educate people, especially youth, about the **dangers of drug abuse.**

- **Tackling Drug Addiction**: There should be greater support for drug addiction treatment and rehabilitation, including setting up more **treatment centres** and greater **funding**.

- **International Cooperation**: The Government should enhance cooperation with international agencies for sharing of information and intelligence as well as knowledge, best practices and capacity-building measures.

- **Addressing Socio-economic Issues:** Socio-economic factors like poverty, unemployment, and lack of education can contribute to drug abuse and trafficking. Poverty reduction measures, employment generation schemes, and increasing access to education can help mitigate the issue.

- **Border Control**: Improving border surveillance, patrolling and strengthening of forces can **cut down supply chain** and reduce supply of drugs.

Polity

1. 'National Party' Status for Political Parties

News: The Election Commission of India (ECI) has revoked the National Party Status of 3 political parties and granted the status to 1 other party.

Recognition as a National Party

- The ECI reviews the poll performance of recognized parties after every election to the State Assembly and the Lok Sabha.
- The conditions for recognition as a National Party are specified in the **Paragraph 6B** of the **Election Symbols (Reservation and Allotment) Order, 1968**. Paragraph 6A specifies conditions for recognition as State Party.
- The **Paragraph 6C** related to

Conditions for Status as National and State Party

National Party
- Recognised as **State Party** in **4 or more States**; *or*
- In **4 or more States**, its candidates have polled at least **6% of total valid votes** in each State in the last Lok Sabha or Assembly elections and at **least 4 MPs have been elected from any State(s)** in the General Election to the Lok Sabha; *or*
- Won at least **2% of the total seats** in the Lok Sabha from not less than **3 States**.

State Party
- Secure at least **6% of the valid vote** and win **at least 2 seats** in an **Assembly Election**; *or*
- Secure at least **6% of the valid vote** and win **at least 1 seat** in the **General Election** to the Lok Sabha; *or*
- Win at **least 3% of the total seats** or **at least 3 seats**, whichever is more, in an Assembly Election; *or*
- Win **at least 1 out of every 25 seats** from a State in a Lok Sabha General Election; *or*
- Secure at **least 8% of the total valid vote** in an Assembly or Lok Sabha Elections.

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'**Conditions for continued recognition as a National or State Party**' was amended in 2016. According to the amendment, if a party **fails to fulfil either National or State Party criteria** at an election (Lok Sabha or State Assembly), it will **continue to be recognized** as National or Stat Party for the **next due election**. However, recognition of the status after any subsequent election would be dependent on the eligibility criteria.

Benefits of National Party Status

- **The Party can contest elections all over India on the same symbol i.e., symbol gets exclusively reserved for the party at a pan-India level.**
- **National Parties get free broadcast time on State-run Television (*Doordarshan*) and Radio (*Akashvani*).**
- They can have a maximum of **40 star campaigners** whose travel expenses will not be counted in the accounts of the candidates. Other parties get only 20.
- National Parties have the privilege of **consultation with the ECI** in the **setting of election dates**, and giving inputs in setting electoral rules and regulations.
- They get **2 sets of electoral rolls** free of cost at the time of revision of rolls.
- Candidates of National Parties get one copy of the **electoral roll free of cost** during general elections.
- A party with the 'national' status gets **land from the government to build its headquarters**.

2. Low Number of Sittings in 17th Lok Sabha

News: The number of sittings in the 17th Lok Sabha is expected to be lowest for a full-term Lok Sabha since 1952.

Functioning of the 17th Lok Sabha

- The 17th Lok Sabha has functioned for 230 sitting days so far.
- Till now, the lowest number of sittings (for a Lok Sabha with a full 5-year term) have been 331 for the 16th Lok Sabha (2014-19).

- The 2023 Budget session was the **6th shortest Budget session since 1952.** The Lok Sabha spent 18 hours on financial business, of which 16 hours were spent on the general discussion of the Budget. In the previous Budget sessions of the 17th Lok Sabha, financial business was discussed for 55 hours on average.

Fewer sittings than 16th Lok Sabha
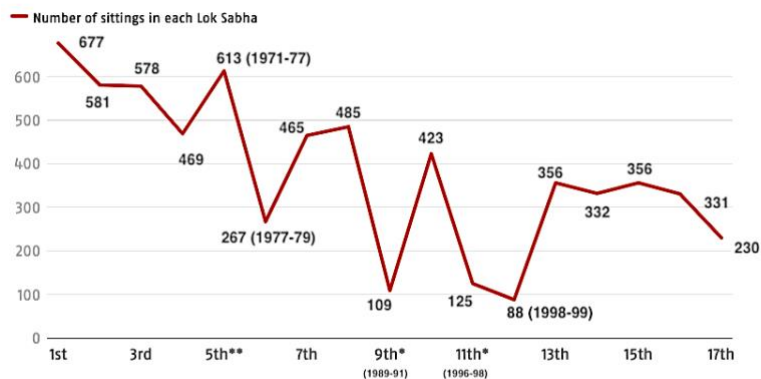
Note: Shortest is with reference to those with a term of five years. Terms less than five years may have had fewer sittings because of the lower tenure. Figures marked with a single asterisk (*) indicate term less than 5 years; and two asterisks (**) indicates a 6 year term. Figures for the 17th Lok Sabha are till the Budget Session 2023.

Source: PRS Legislative Research

- The 2023 Budget session of Parliament functioned with a **productivity rate of 33%** in the Lok Sabha and 24% in the Rajya Sabha.

- In the 17th Lok Sabha, only 11 short-duration discussions and one half-an-hour discussion have been held so far. None of these was held in the latest session.

- Head of the PRS Legislative Research has observed that, "*The US Congress and the UK Parliament sit throughout the year for around 100-120 days. They have a calendar that gets announced at the beginning of the year and take breaks in between. On the other hand, our Parliament has breaks for most of the year and meets for very small pockets*". (*Refer EPIC October 2022 for Referral of Bills to Department Related Standing Committees and EPIC December 2021 for Functioning of the Parliament*).

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3. ECI's Proposal on Electronically-Transmitted Postal Ballot System (ETPBS)

News: The Ministry of Law and Justice has informed that the ECI's proposal to facilitate ETPBS for overseas Indian voters is under discussion with the Ministry of External Affairs.

About Electronically-Transmitted Postal Ballot System (ETPBS)

- At present, the Election Commission of India allows NRIs to register as **overseas electors** as long as they have not acquired the citizenship of another country. But they have to reach their respective polling booths to **cast their votes in person** on the polling day.

- In 2020, the ECI had proposed to the Ministry of Law to allow NRIs to vote through postal ballots.

- The Conduct of Election Rules, 1961 were amended in 2016 to **allow 'service voters' to use the ETPBS**. Under the ETPBS, postal ballots are **sent electronically to registered service voters**. The service voter can **download the ETPB** (along with a declaration form), register their mandate on the ballot and **send it to the Returning Officer** of the Constituency via ordinary mail.

- The post will include an attested declaration form (after being signed by the voter in the presence of an appointed senior officer who will attest it).

PT BOX

Service Voters

Under the **Section 60 of the Representation of the People Act, 1951** and **Section 20 of the Representation of the People Act, 1950** the following class of persons qualify as Service Voters:

- Personnel of the **Armed Forces** of India.
- Personnel from **Assam Rifles**, **CRPF**, **BSF**, **ITBP**, **GREF** in the **Border Road Organisation**, **CISF**.
- Member of a force to which the provisions of the **Army Act, 1950** (46 of 1950), have been made applicable.
- Employed under the Government of India **outside India**.
- Member of an **Armed Police Force of a State**, and serving **outside that State**.

- The process of ETPBS for NRIs will be similar to service voters.
- In this regard, the **Representation of the People (Amendment) Bill, 2018** was passed in the Lok Sabha in August 2018. The Bill sought to enable overseas electors to cast their vote either in person or by proxy. However, the Bill lapsed with the dissolution of the Lok Sabha in 2019.
- The ETPBS method allowed for greater turnout among service voters in the **2019 General Elections**. There were 18.02 lakh service voters, of which 10.84 lakh voters exercised their right, with **turn-out ratio of ~60.1%**.
- With the increasing mobility of citizens across countries for reasons related to work, the postal ballot method will allow overseas voters to exercise their right. ETPBS with a robust process can enable exercise of electoral right to Indian citizens living abroad.

4. Reservation for Women in Urban Local Bodies in Nagaland

News: The SC has issued notice to the Government of Nagaland for repealing the Nagaland Municipal Act, violating an undertaking given to the Court to roll out 33% reservation for women in local bodies.

Opposition to Women's Reservation in Local Bodies in Nagaland
- Nagaland is perhaps **the only State with no reservation for women** in the Urban Local Bodies (ULBs) as mandated by clause IV of the 74th Constitutional Amendment.
- Most tribal organizations oppose the 33% reservation for women citing violation of the special provisions granted by Article 371A of the Constitution. Article 371A states that no Act of Parliament would apply to the **religious or social practices of the Nagas**, **Naga customary law and procedure**, administration of civil and criminal justice involving decisions according to Naga customary law, and ownership and transfer of land and its resources.
- *Hohos* (apex tribal bodies) argue that women have traditionally not been part of decision-making bodies.
- So far only one civic body election has been held in Nagaland (2004) without any reservation for women.
- The State government amended the 2001 Municipal Act in 2006 to include 33% reservation for women. It triggered widespread opposition forcing the government to indefinitely postpone the ULB polls in 2009.
- Recently, under pressure from the Supreme Court, the Nagaland government laid the ground for holding ULB elections. However, public pressure forced the Government to retract.

5. Supreme Court's Judgment on UAPA: Membership of a Banned Organization an Offence

News: The Supreme Court has ruled that membership of a banned organization is sufficient to constitute and offence under the Unlawful Activities (Prevention) Act, 1967.

About Supreme Court's Judgment
- The Supreme Court has restored the doctrine of '**guilt by association**' in criminal jurisprudence in India.
- It has overruled its Judgment in *Arup Bhuyan v State of Assam (2011)* and declared that **mere membership of a banned organization** will be a **crime under the Unlawful Activities (Prevention) Act (UAPA), 1967**. The

Supreme Court's View in
Arup Bhuyan
v
State of Assam (2011)

- The Supreme Court discussed the line between **advocacy** and **incitement to violence**.
- The Court also discussed how a passive membership or intellectual sympathy to a cause can **spill over to a real call to violence**.
- The SC ruling distinguished between **active** and **passive members**.
- The SC said that a person's association with an unlawful organization **must be an 'active membership'** which required **actual incitement to violence** or the act of committing violence.

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Government had sought the review of the *Arup Bhuyan* Judgment.

- The SC upheld the constitutional validity and the rationale of **Section 10(a)(i) of the UAPA** which makes the continued membership of a banned organization a crime punishable with a **jail term of up to 2 years**.
- The Court also referred to **Article 19(4)** of the Constitution which mandated that the citizens' right to form associations was **subject to the power of the State** to make laws to impose '**reasonable restrictions**' in the interests of the **Sovereignty and Integrity of India** or **Public Order** or **Morality**.
- The Court accepted Government's arguments:
  o There are **sufficient safeguards** in the stringent UAPA framework.
  o State is making 'every effort to **ensure that every member of the association is made aware** of the fact that such association is unlawful'.
  o The Government declares an organisation as unlawful only after a robust adversarial process wherein **ample opportunity is given to the organisation to appeal** before Judiciary to justify its aims, objectives and activities being legal. This is done within the Constitutional setup.
  o The "Court ought not to have relied upon the US Supreme Court Judgments" since the US law is 'in contradistinction to the scenario in question in India.'

Concerns Associated with the Judgment

- Critics say the Judgment can lead to **violation of rule of law**. Banned organisations are not known to **keep a registry** with their members' names, addresses, phone numbers, and email IDs. In most cases, **membership must be inferred**. Innocent citizens can be put behind bars **without adequate proof**.
- In *Jyoti Babasaheb Chorge vs State of Maharashtra (2012),* **the SC had ruled against false incrimination of 15 tribal men and women for possessing Maoist propaganda literature. There was no accusation against them of being involved in any terrorist act or violence.**
- The definitions of terrorist and unlawful organisations in UAPA are **vague**. The Act merely states that they are organisations **involved in 'unlawful activities'** and notified as such. This can subject the law to misuse without adequate safeguards. The SC judgment has removed the safeguard provided by the *Arup Bhuyan* Judgment. *(Refer EPIC March 2023 for Concerns Associated with the UAPA Act).*

6. Modes of Executing Death Penalty

News: In 2017, a PIL had been filed in the Supreme Court seeking a more dignified way to execute capital punishment. The Supreme Court has sought response from the Union Government.

About the Issue

- The PIL had challenged the **constitutionality of death by hanging** as a mode of execution of death penalty. **Section 354(5) of the Code of Criminal Procedure** mandates that a person sentenced to death shall 'be hanged by the neck till he is dead'.

Evolution of Jurisprudence on Death Penalty in India

- *Ediga Anamma vs. the State of Andhra Pradesh, (1974)*: The Supreme Court (SC) laid down the principle that **life imprisonment** for the offence of murder **is the rule** and **capital punishment is the exception**. Special reason should be given if a court decides to impose a death sentence.
- *Bachan Singh vs. State of Punjab (1980)*: The SC called for **balancing the mitigating** and **aggravating circumstances**. Death penalty ought not be awarded unless the alternative of life imprisonment is '**unquestionably foreclosed**'. It should be awarded only in a **rarest of rare case**. A case becomes rarest of rare when there is **extreme culpability** of the offender.
- *Rajendra Pralhadrao Wasnik vs. The State of Maharashtra (2018)*: The SC directed to analyse the conduct of the convict in jail, outside jail (if on bail), medical evidence about his mental make-up, contact with his family and so on. These factors should be considered in **mitigating factors**.
- *Mofil Khan vs. State of Jharkhand (2021)*: The SC held that the State must prove that **reformation and rehabilitation** of the accused is not possible.

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- The petitioner said there is a need to evolve a '***humane, quick and decent alternative***'. Hanging was termed '*cruel and barbarous*' by the PIL, compared to **lethal injection** as used in the US.

- In 2018, the Union Government argued that death by hanging was the **only 'viable' option** to execute a death warrant. However, the Government also sought additional time to examine the methods followed in other countries.
- In 2003, the **Law Commission** recommended that Section 354(5) of the CrPC should be amended to provide an alternative mode of execution of the death sentence by 'lethal injection until the accused is dead'.
  - It should be the **discretion of the Judge** to pass appropriate orders **regarding the mode of execution of the death sentence**. The Judge should **hear the convict** on the question of the mode of execution before passing the order.
  - The **35th Report of the Law Commission** (1967) noted electrocution, use of a **gas chamber** and **lethal injection** can be considered as less painful. However, the Law Commission was not in a position to provide a conclusive recommendation.
- In *Deena Dayal vs Union of India and Others (1983)*, the SC upheld the executing method by ruling that hanging is '*as painless as possible*' and '*causes no greater pain than any other known method*'.

Practice in Other Countries
- According to **Amnesty International**, 55 countries still award death penalties. Death by **hanging is the most prevalent form** of execution in the **former British colonies**.
- In the US an **intravenous lethal injection** is given in every state (27 States and American Samoa) that allows the death penalty. **Electrocution** is a secondary method in some States.
- **Execution by firing squad** is employed in China and **beheading** is used in Saudi Arabia.
- Various courts including the Privy Council, the Supreme Court of Uganda and the High Court of Tanzania have rejected hanging as a humane method of execution.

Concerns
- Studies have shown that **'instantaneous death'** by dislocating the cervical vertebrae **causes immense suffering** due to asphyxiation before dying.
- Studies have also pointed out **mishaps** like snapped ropes, necks slipping out of nooses, partial or total decapitations, and slow death due to strangulation.
- Methods like **lethal injections** have also been shown to **cause immense suffering** with **higher probability of being botched up**.
- Critics argue that the debate should be on **eliminating the death penalty altogether**. *(Refer EPIC May 2022 for The Issue of Death Penalty).*

> **PT BOX**
> **Chemicals Used in Lethal Injections**
> *Most States in the US rely on a 3-drug combination of* **Sodium Thiopental**, **Pancuronium Bromide** *and* **Potassium Chloride** *for lethal injections. While sodium thiopental puts the* **prisoner to sleep**, *pancuronium bromide renders the prisoner* **paralytic and unable to show any pain** *before potassium chloride causes* **cardiac arrest**.

7.   Financial Aid to Undertrials to Avail Bail

News: The Ministry of Home Affairs will launch a scheme to provide financial support to poor people who are unable to afford the bail amount.

About Undertrial Prisoners in India
- According to NCRB, 77% prisoners were undertrials in 2021.
- **25.2% of prisoners were illiterate** and 40.2% had not completed high school.
- In 2019, **SCs made up 21% of under-trials** and **21.7% of convicts** (16.6% of the population (2011 Census)). **Tribals** made up 10.5% of all under-trials and 13.6% of all convicts (8.6% of the population (2011 Census)).

Steps Taken to Address the Issue of Undertrials

- **Section 436A in the Code of Criminal Procedure (CrPC)**: It states that when a person has undergone detention for a period extending up to one-half of the maximum period of imprisonment specified for that offence (except for offences punishable with death), the person shall be released by the Court on a personal bond.

Prison Inmates and Undertrials Trend

Source: NCRB   Undertrials   Total Inmates   —% of Undertrials   Created by I ForumIAS©

- Chapter XXIA on '**Plea Bargaining**' has been included in the CrPC. Under Plea Bargaining, the accused accepts the crime committed in lieu of reduced punishment.

- **Free legal aid** is being provided to poor prisoners through the **Legal Services Authority**.
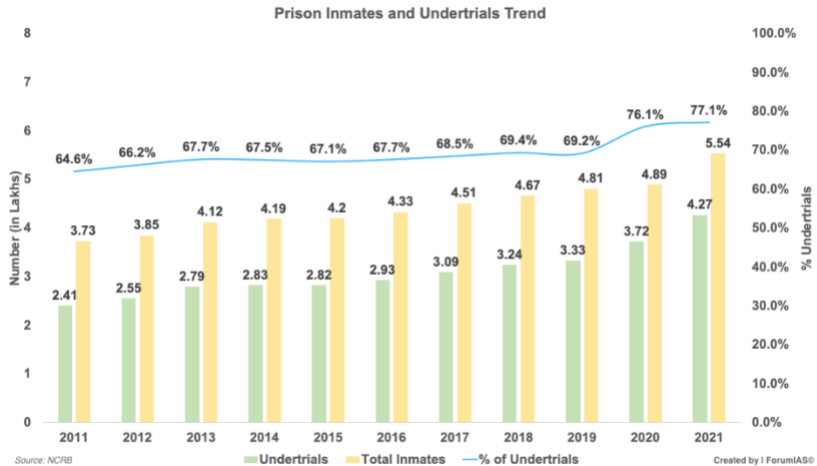
About the Scheme for Support of Poor Prisoners

- A majority of prisoners belong to socially disadvantaged or marginalized groups with lower education and income level. Hence, they are unable to afford bail amounts.
- The Government of India will provide **financial support to States** to extend relief to such prisoners.
- Technology-driven solutions will be put in place to ensure that benefits reach the poor prisoners like:
  o Reinforcing the **e-prisons platform**.
  o Strengthening of **District Legal Services Authority.**
  o Sensitization and capacity building of stakeholders to ensure that quality legal aid is made available to needy poor prisoners etc. *(Refer EPIC December 2022 for The Issue of Undertrials in India).*

8. NCPCR's Application to the Supreme Court on Same-Sex Marriage

News: The National Commission for Protection of Child Rights (NCPCR) has filed an application in the SC arguing adoption of children by same-sex couples can impact their understanding of gender roles and gender identity.

About NCPCR's Application

NCPCR has opposed the adoption of children by same-sex couples:

- Children of same-gender parents may have **limited exposure to traditional gender role models**; as a result, their overall personality development may be impacted. According to a study conducted by Dr. Paul Sullins of the Catholic University of America, **emotional and developmental problems** are twice as prevalent in children with same-sex parents compared to those with opposite-sex parents.
- The Supreme Court has settled the principle that the **right to equality doesn't mean equating unequally**. Making a category is not against the provision of Article 14 of the Constitution. Couples of two different genders is one category whereas couples having the same gender can be considered as a different category for the purpose of having children.
- The **UN Convention on Right of the Child**, (ratified by 195 countries) does not mention that a child can be adopted by a same-sex couple. *(Refer EPIC March 2023 for The Issue of Same-Sex Marriages).*

- According to the **Juvenile Justice Act**, a single male is not eligible to adopt a girl child and going by that criteria allowing a gay couple to adopt a female child would be against the provisions of the Act.

9. Performance of the Lokpal: Parliamentary Committee Report

News: The Department-related Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice has released a report on the performance of the Lokpal.

Key Findings of the Report

- **Complaints against Public Functionaries**: In last 4 years, ~68% corruption complaints against public functionaries that landed with the Lokpal of India were **disposed-off without any action**. Only 3 complaints were fully investigated. Most complaints were disposed-off for not being in the prescribed format. 2,518 complaints were **not in a prescribed format**

Lokpal and Lokayuktas

- **The Lokpal and Lokayuktas Act, 2013** allows setting up of **anti-corruption ombudsman** called Lokpal at the Centre and Lokayukta at the State-level.
- The Lokpal consists of a Chairperson and a maximum of 8 members. 50% should be **Judicial members** and 50% members shall be from SC/ST/OBCs, Minorities and Women. A **Search Committee** prepares a list of candidates, a **Selection Committee** recommends the names from among this list, and the President appoints them as members.
- Selection Committee includes the **Prime Minister, Speaker of the Lok Sabha, Leader of the Opposition in the Lok Sabha**, the **Chief Justice of India** and an **eminent jurist** nominated by the President.
- **Salaries, allowances** and **service conditions** of the Lokpal members are **same as that of a Judge of the Supreme Court** and the Chief Justice of India (for the Chairperson).
- The Act requires the Lokpal to create **Inquiry** and **Prosecution Wings**, each headed by a Director.
- The Lokpal covers all categories of **public servants**, including the Prime Minister. Lokpal's enquiry is not allowed if the allegations against the PM relate to **international relations, external/internal security, public order, atomic energy** and **space**.
- The **Armed Forces do not fall under the ambit of Lokpal**.

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during 2022-23. Of the 242 complaints received in the prescribed format, 191 were disposed of.
- **No Prosecution**: Not a single person accused of graft has been prosecuted.
- **Vacancies**: The post of the Chairperson of Lokpal has been vacant since May 2022. The sanctioned strength of the Lokpal is 82 posts against which 32 are in position. In addition, 62 staff have been engaged on a contract/outsourcing basis. The Committee has sought the Government's response on the action being taken to fill up the vacancies.

Remarks by the Panel to Improve the Performance of Lokpal
- Lokpal was established in an effort to promote clean and responsive governance. Therefore, the Lokpal should act as an enabler rather than an inhibitor.
- Lokpal should not reject genuine complaints on technical grounds alone like complaint not being in the prescribed format.
- At a time when India is heading the G20 Anti-Corruption Working group, Lokpal should rise to the occasion and make every effort to strengthen the anti-corruption landscape in the country.

10. Parliamentary Standing Committee Recommendations on the CBI

News: The Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice has submitted its recommendations related to the Central Bureau of Investigation.

Recommendations of the Committee
- **New Law**: According to the **Delhi Special Police Establishment (DSPE) Act**, the consent of State Government is necessary for any investigation by the CBI. **9 states have withdrawn the General Consent**. Noting the limitations of the DSPE Act, the Committee has recommended enactment of a new law. The new law should **define the status**, **functions** and **powers of the CBI** and also lay down safeguards to **ensure objectivity** and **impartiality in its functioning**.

- **Vacancies:** Vacant posts in the CBI are not being filled up at the required pace. 1,709 posts are vacant in the CBI against its sanctioned strength of 7,295. The Committee has recommended that steps should be taken to fill the vacancies in an expedited manner. The **Director of CBI should monitor the progress made in filling up vacancies** on a quarterly basis and take necessary measures to ensure that the organization is sufficiently staffed.
- **Transparency:** The Committee said that the details of cases registered with the CBI, the progress made in their investigation and the final outcome are not available in the public domain. The **annual report of CBI** is also not accessible to the general public. It recommended the CBI to **publish case statistics** and annual reports on its website.

11. Status of India's Police Forces: India Justice Report, 2022

News: The India Justice Report 2022 has provided useful insights about the Police Forces in India.

Key Information Provided by the Report
- The India Justice Report, 2022 has ranked police forces of States based on various indicators such as number of **vacancies** in comparison to the sanctioned strength, Representation of women and SC/ST communities etc.
- Overall, the Telangana police have bagged the top rank among states with populations over 10 million, while West Bengal has come in last.

Vacancies
- The overall police vacancies increased from 20.3% of the sanctioned strength to 22.1% between January 2020 and January 2022.
  - Police constables: West Bengal has 44.1% vacancies against sanctioned strength (worst). Kerala has only 4.6% vacancies (best).
  - Police officers: Bihar has the highest percentage of vacancies at 53.8% of the sanctioned strength.
  - Karnataka was the only State to meet its SC, ST, and Other backward classes quotas.

Representation of Women
- Most States have their own specific quotas for the number of women required in the police force. 6 UTs and 9 States have a target of 33% reservation for women. Bihar has a target of 35%. 5 States/UTs, including Kerala and Mizoram, have no reservations.
- No State with 33% criteria, have managed to achieve it. It will take another 24 years to have 33% women in police forces across States.
- Among large and medium States, **Andhra Pradesh** (33% reservation) performed the best with 21.8%. **Jharkhand was the worst performer** with only 6.2% women in the police force.
- In small States, Himachal Pradesh was at the top with 14% while Tripura came in last with just 5.3%. Among Union Territories, Ladakh had 28.3% women in police, while Jammu and Kashmir had just 3.3%.

Representation of SCs/STs

Parameter	Best Performer	Worst Performer
SC Officers	Gujarat (131% of sanctioned)	UP (43% of sanctioned)
SC Constables	Karnataka (116% of sanctioned)	Haryana (63% of sanctioned)
ST Officers	Karnataka (176% of sanctioned)	Punjab (0.01% of sanctioned)
ST Constables	Bihar (278% of sanctioned)	Punjab (0.01% of sanctioned)

12. Reservation for Dalit Converts

News: The SC is hearing petitions arguing for reservation for dalit converts. The SC has asked the Government to relook its stance on the Report of the Commission for Religious and Linguistic Minorities.

About the Case
- The Supreme Court is hearing a series of petitions (filed 19 years ago) challenging the **Constitution (Scheduled Castes) Order, 1950**.
- The petitions call the Order as **discriminatory and violative of Articles 14** (equality before law) and **Article 15** (prohibition of discrimination on grounds of religion, race, caste etc). The Order discriminates against Scheduled Caste converts to religions other than Hinduism, Sikhism and Buddhism.
- The Constitution (Scheduled Castes) Order, 1950 (amended thereafter), says no person professing a religion other than Hinduism, Sikhism and Buddhism shall be deemed to be a member of Scheduled Caste (SC).

About the Justice Ranganath Misra Commission
- National Commission for Religious and Linguistic Minorities, (**Ranganath Misra Commission**), was constituted by the Government of India in 2004 to look into various issues related to Linguistic and Religious minorities in India.
- One of the recommendations of the Commission (2007 Report) was to permit Dalits who convert to Islam or Christianity to avail benefits of reservation under the Scheduled Caste reservation quota.

Government's Stance
- The Government has rejected the report terming it 'myopic' and 'lacking empirical data, comparative analysis, field study.'
- It has constituted **a new Commission** headed by a former Chief Justice of India **K.G. Balakrishnan** to prepare a report on the question of granting SC status to persons historically belonging to dalit community who have converted to religions other than Hinduism, Buddhism and Sikhism.
- The Government has said that the new Commission's terms of reference were in tune with the Supreme Court judgment in *Soosai vs Union of India (1985).* The judgment held that for inclusion in the 1950 Order, there should be proof through empirical data that Hindu Dalit converts were suffering from the same 'oppressive severity' in the new environment of a different religious community.

Policy

1. Admissions to Class I on 6+ years Basis: Ministry of Education

News: The Ministry of Education has reiterated its direction to the States and the UTs that children must be provided Class I admission at the age of 'six-plus' instead of the earlier 'five-plus'.

Rationale for the Instruction
Under the rule, children will be admitted to Class I only after attaining the age of 6 years.
- It will bring the admissions in line with the Government's emphasis on **improving foundational learning** under the National Education Policy (NEP), 2020.
- It will bring **early childhood care and education under formal schooling** and move it from the aegis of the Women and Child Development Ministry to the Education. NEP 2020 envisages a 5+3+3+4 school system. It states that the first 5 years comprise 3 years of pre-school for the age groups of 3-6 years and 2 years of Classes I and II corresponding to the age group of 6-8 years.

- There are wide variations in the age criteria for admission to Class I among States. 14 States/UTs allow admission in Class I for children below 6 years (i.e., 5+ years). This anomaly results in the incorrect reporting of the enrolment of children in age-appropriate classes thus affecting the net enrolment ratios at States' and at the national level.

2. Pre-Draft of National Curriculum Framework (NCF) for School Education Released

News: The Ministry of Education has released the 'pre-draft' version of the National Curriculum Framework (NCF) and has sought feedback from various stakeholders.

About NCF

- National Curriculum Framework provides guideline for syllabus, textbooks and teaching practices for the Education system in India.
- NCF has been revised 4 times: 1975, 1988, 2000 and 2005. The proposed NCF 2022 would be **the 5th revision.**
- The Ministry of Education has commenced the development of 4 NCF; NCF for **School Education**, NCF for **Early Childhood Care and Education**, NCF for **Teacher Education**, and NCF for **Adult Education**.
- The National Steering Committee under the Chairpersonship of Dr K. Kasturirangan is guiding the development of NCFs.

Proposals in the NCF

- **Multiple Board Exams**: Modular Board Exams (conducted multiple times a year) will be offered as opposed to a single exam at the end of the year. The final result will be based on the cumulative result of each exam.
- **Mix of Science and Humanities**: Students can pursue a mix a science and humanities subjects, moving away from the rigid system of separation at present.
- **Assessment**: The assessment method will shift to more regular and formative system with **greater focus on competency, learning outcomes and overall development** of students. At present, focus is more on rote learning and memorization. The draft suggests **3 approaches** for assessment:
  - '**of learning**' (measurement of achievement of student learning).
  - '**for learning**' (evidence of student learning gathered by the teacher that provides inputs to guide teaching-learning processes).
  - '**as learning**' (when assessments are introduced as non-threatening tools for self-reflection and introspection).
- **Teaching Methods**: At the foundational level (3-8 years old) **play-based pedagogical approach** has been suggested. Textbooks are

NATIONAL CURRICULUM FRAMEWORK FOR SCHOOL EDUCATION 2023

ASSESSMENT
NCF 2023 suggested three approaches to assessments – assessment of learning, for learning and as learning

Types of Assessment

| Formative assessments are continuous and ongoing | Summative assessments evaluate student learning at the end of a lesson or a logical period of teaching |

Assessment across stages

Foundational Stage	Assessment via observations of the child & analysing artefacts that the child has produced
Preparatory Stage	A comprehensive assessment at the end of the preparatory stage to measure the readiness to enter the middle school
Middle Stage	By the end of the middle stage, there should be a comprehensive summative assessment of student achievement of competencies in each curricular area
	Assessments should also be able to indicate special interest or inclination in specific curricular areas students may have demonstrated
Secondary Stage	Self-assessment where students to monitor what they are learning & use the feedback to adjust, adapt, and decide their own strategies
	Summative assessments using case-based questions, simulations, & essay-type questions

CHANGES IN BOARD EXAMINATIONS
➤ Board exams should provide a valid & reliable picture of student performance
➤ Education Boards should have no role in the design of the curriculum or the articulation of competencies
➤ Board examinations should be offered at least twice a year
➤ Students can then appear for a board examination in courses they have completed and feel ready for
➤ Boards should ensure that all test developers, reviewers & evaluators go through formal university-certified courses on test development
➤ Vocational/ Arts/ Physical education are an integral part of the curriculum. Boards of examination will need to design high-quality test instruments for these & need to be assessed differently from what is normally done

to be used from Grade I and most of the content should be concrete materials – toys, puzzles, and manipulatives. For grades III, IV, and V (preparatory stage), children are to be introduced to textbooks on languages, and mathematics, while also retaining the **activity and discovery-based approach**. And in the middle stage (class VI, VII, VIII), natural as well as social sciences will be introduced.

- **Values and Roots:** A key part of the document is the inclusion of values and their 'rootedness' in India. It leans towards making students acquainted with true sources of knowledge.
- **Moral development**: It focuses on the moral development of a child through *panchakosha vikas* or five-fold development. It is an ancient explanation of the importance of the **body-mind link** in human experience and understanding. It recommends **developing moral values** for the child through a balanced diet, traditional games, yoga asanas, as well as a wide variety of stories, songs, lullabies, poems, and prayers to develop a love for cultural context.
  - Its 5 components are: Physical Development (*Sharirik Vikas*), Development of Life Energy (*Pranik Vikas*), Emotional and Mental Development (*Manasik Vikas*), Intellectual Development (*Bauddhik Vikas*), Spiritual Development (*Chaitsik Vikas*).

3. Formulate Policy on Menstrual Hygiene in Schools: Supreme Court to Government

News: The SC has directed the Union Government to prepare Standard Operating Procedures (SOPs) and formulate a national model to be adopted by all the States and UTs for managing menstrual hygiene for school-going girls.

Reasons for Inadequate Menstrual Hygiene

- Inadequate menstrual hygiene management is partly a manifestation of **cultural myths** and **discriminatory traditions** which consider menstruation a taboo. Many girls and women continue to be **socially ostracized** during their periods with their **mobility restricted**.
- **Illiteracy**, **poverty** and **lack of awareness** about menstrual health and hygiene result in continuation of old taboos.
- According to the **5ᵗʰ National Family Health Survey (2019-21),** the use of **unhygienic menstrual methods** of protection among rural women (age 15-24 years) is almost 3 times that of their urban counterparts. Women in the same age group with **no schooling** are almost **6 times more likely** to use an unhygienic method. Women in the **poorest** wealth quintile are **10 times more likely** to use an unhygienic method. *(Refer EPIC February 2023 for The Issue of Menstrual Leaves).*

Impacts of Inadequate Menstrual Hygiene

- **Health**: The unsanitary use of menstrual products increases the susceptibility of young girls and women to fungal, urinary, and reproductive-tract **infections**, impacting their overall health and well-being.
- **Education**: Around 23 million girls in India **drop out of school** every year due to a lack of menstrual hygiene management (MHM) facilities which include **access to sanitary napkins**, awareness of menstruation and **access to clean toilets** with running water and disposal facilities.

Steps to Promote Menstrual Hygiene

- Building **clean toilets** with **uninterrupted water supply** in schools.
- Ensuring availability and **accessibility of sanitary napkins**.
- Introducing **mandatory menstrual health classes for both boys and girls** can create an enabling environment for girls and prevent them from potentially dropping out of school.

- Movies (like PadMan) **creating social awareness** about such social issues can play an instrumental role in bringing **behavioural change in society** about **menstrual health** and the use of sanitary pads.
- The Government must promote **small-scale sanitary pad manufacturing units** to make low-cost pads more easily available, it will also help in generating income for women.
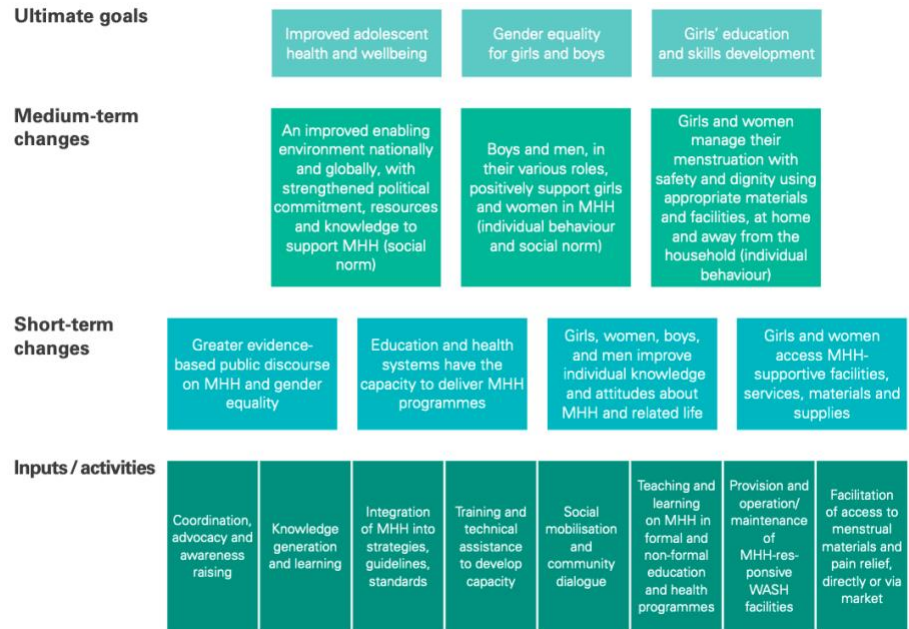
Framework proposed by UNICEF for Menstrual Health and Hygiene (MHH) Programmes.

4. NSSO Releases Findings of the Multiple Indicator Survey

News: The National Sample Survey Office (NSSO) has released the findings of the Multiple Indicator Survey.

About the Multiple Indicator Survey (MIS)
- It was part of the 78th round of the NSSO. Its objective is to collect information for developing estimates of some important Sustainable Development Goal (SDG) indicators and on Migration.

Key Findings of the Survey
- **Drinking Water**: Less than a quarter of rural households (< 25%) and under two-thirds of urban (< 66%) reported having piped water for drinking in their houses or yard. The proportion varied from **90% in Goa** to **less than 6% in Assam.**
  - More than 95.7% of people reported having access to an improved source of drinking water (packed bottles, piped water into a house, public tap, tube well, hand pump, covered well, tanker etc.).
  - In rural India, **fetching water** is a task almost exclusively performed by women making them vulnerable to heat stress during hot summers.
  - In 7 States, more than 50% of households reported that their drinking water source was located outside the premise. Odisha has the largest share (66.9%) followed by Jharkhand (63.8%).
- **Access to Toilets**: About 70% of the rural households reported having exclusive access to a toilet while 21.3% reported having no access to a toilet, exclusive or otherwise.
- **Unclean Fuel**: Over 33% of households in India used firewood, chips and crop residue as the primary source of fuel for

Households with piped drinking water (urban and rural, %)

Delhi 82.7

Assam 5.8

India Avg 35.5

Goa 91.9

Puducherry 94

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cooking. The share was higher in Eastern and Central States. **Withdrawal of LPG subsidy** may have prompted some households to go back to traditional fuel.

- **Financial Inclusion:** ~ 90% of those surveyed reported having an account individually or jointly with banks, other financial institutions or mobile money service providers.

- **Persons in Debt In India**: Over 15,000 persons per lakh were indebted to some institutional/non-institutional agency as of 2020-21. Andhra Pradesh has the highest number of indebted persons per lakh (46,330), followed by Telangana (39,358), Kerala (31,510) and Tamil Nadu (31,085). Meghalaya, Mizoram and Nagaland had the lowest number of indebted persons (per lakh).

- **Persons not in Education, Employment or Training**: At the time of survey, 16.1% of males and 43.8% of females aged 15-24 were neither studying nor working or being trained. **Uttarakhand, Chhattisgarh, Nagaland and Bihar** had the highest share of persons who were **willing to move out in search of employment**.

Percentage of women not in education, employment or training (15-24 years, %)
UP 52.5
Mizoram 4.7
India Avg 43.8
Lakshadweep 52.8
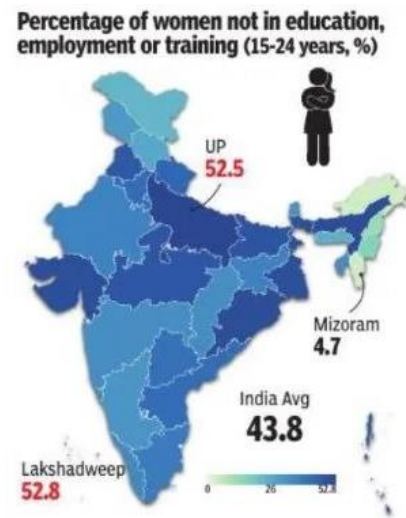
5. National Strategy and Roadmap for Medical and Wellness Tourism

News: The Ministry of Tourism has formulated a National Strategy and Roadmap for Medical and Wellness Tourism to boost Medical Tourism.

About the National Strategy and Roadmap for Medical and Wellness Tourism

- The roadmap aims to provide an institutional framework, strengthen the ecosystem for medical and wellness tourism, develop a brand and ensure quality assurance.

Key Pillars of the Strategy

- The strategy has identified the following key pillars:
  - Develop a **brand for India** as a wellness destination.
  - Strengthen the **ecosystem for medical and wellness tourism**.
  - Enable digitalization by setting up an **Online Medical Value Travel** (MVT) Portal.
  - Enhancement of **accessibility** for Medical Value Travel.
  - Promoting Wellness Tourism.
  - Governance and Institutional Framework.

PT BOX

Medical Tourism

OECD has defined medical tourism as when consumers elect to **travel across international borders** with the intention of receiving some form of medical treatment.

Steps taken for the Promotion of Medical and Wellness Tourism

- The **Ministry of Tourism** releases global print, electronic and online media campaigns in important and potential markets overseas, under the '**Incredible India**' brand line.

Medical Tourism Ecosystem

Medical Tourists
Motivations
- Affordability
- Availability
- Quicker Access
- Privacy and Anonymity
- Better Quality Care
- Advanced Technology

Medical Brokers
Travel Agents
Online Agents

Employers

Insurance Companies

Channels

Service Providers
- Hospitals
- Hotels and Resorts
- Hospitality Bridging Healthcare (H2H)

Services Provided
- Invasive
- Diagnostic
- Lifestyle

Source Market
Externalities
- Economy
- Healthcare System
- Political System

Destination Market
Externalities
- Destination Brand
- Political Stability
- Accreditation
- Accessibility

Adapted from Medical Tourism: Hudson and Robert (2012)

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- '**Medical Visa**' has been introduced, which can be given for specific purposes to foreign travellers coming to India for medical treatment.
- '**e-Medical Visa**' and '**e-Medical Attendant Visa**' have also been introduced for 156 countries. In this, triple entry is permitted and extension may be granted up to 6 months on case to case basis.
- The Ministry of Tourism provides financial Assistance under **Market Development Assistance Scheme to Medical Tourism Service Providers** accredited by **National Accreditation Board for Hospitals and Healthcare Providers** (NABH) for participation in Medical/Tourism activities.

PT BOX

Wellness versus Medical Tourism

Wellness refers to preventative healthcare, a balanced lifestyle that promotes health and prevents disease. Essential practices include diet, exercise, relaxation, environment, consciousness, meditation, rejuvenation, and spiritual growth. Ministry of Tourism has defined Wellness Tourism in terms of "*travel that involves to experience an active process of becoming aware of and making choices toward a more successful existence*". Medical Tourism is related to medical services like surgeries, transplants, dental care etc.

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6. NCPCR Guidelines Related to Type-1 Diabetes

News: The National Commission for Protection of Child Rights has written to Education Boards to ensure that Schools provide children with Type 1 Diabetes (T1D) with proper care and required facilities.

About Type-1 Diabetes (T1D)
- Type 1 Diabetes (T1D) is diagnosed in childhood or adolescence as a condition where the pancreas produces little or no insulin. This requires the children to **constantly monitor their sugar levels** and diet, and regulate physical activity.
- Treatment involves taking multiple injections of insulin daily.
- According to the International Diabetes Federation Atlas 2021, **India has the world's highest number of children** and adolescents **living with Type-I Diabetes Mellitus** (more than 2.4 lakh).

Guidelines issued by NCPCR to states on Type-1 Diabetes (T1D)
- In 2017, CBSE issued a circular allowing children with T1D in Classes X and XII to carry certain eatables with them to the board examination hall, to **prevent the occurrence of hypoglycaemia** or low sugar episodes. The NCPCR has said that more such concessions should be granted to all children with T1D.
- A child with T1D requiring a mid-afternoon snack should be permitted by the class teacher to consume it.
- Students writing exams may be allowed to **carry medicines**, snacks, water, a **glucometer** and **glucose testing strips** to test blood sugar and continuous/flash glucose monitoring devices or insulin pumps.
- In case a smartphone is required to monitor sugar levels, it should be allowed and can be held by the invigilator in the hall.

7. Land Disputes and Land Records Digitisation

News: The National Conference on '*Bhumi Samvaad* IV on implementation of *Bhu-Aadhaar*' was held recently. Digitisation of land records can reduce litigation and facilitate efficient governance.

Status of Litigation Involving Land Disputes
- According to '**Access to Justice Survey' by Daksh**, the GDP loss to India's economy is ~1.3% due to projects being stalled over litigation involving land disputes.

- **66% of all civil suits** in India are related to land or property disputes, and the **average pendency** of a land acquisition dispute is **20 years.**
- **17% of all disputes** at the Delhi High Court are related to **immovable property.** The Union government is the petitioner in 2% of such litigation but is the respondent in more than 18% of cases.
- **Tenancy disputes** are the most common type of litigation, closely followed by **land acquisition related matters**. Disputes related to **property records** are 13.6% of **immovable property litigation.**

About the Digital India Land Record Modernization Program

- It integrates **the computerization and updation** of land records, thus contributing to strengthening of revenue administration.
- Once digitized, every plot/parcel of land can get the **14-digit alpha-numeric Unique Land Parcel Identification Number** (ULPIN) or *Bhu-Aadhaar*.
- ULPIN will help in development of land banks and Integrated Land Information Management System.

AADHAAR FOR LAND

➤ Commonly called the **Aadhaar for land**, the **14-digit Unique Land Parcel Identification Number (ULPIN)** cannot be duplicated

➤ The unique number can be used by all departments

➤ QR code on the document will have details of the land concerned

FUTURISTIC STEP

➤ ULPIN will help develop land banks and lead towards Integrated Land Information Management System

➤ It will ensure uniqueness in all transactions and keep the land records always up-to-date

➤ Delivery of citizen services pertaining to land records through a single window

➤ **Sharing of land records data across departments, financial institutions and all stakeholders**

➤ Standardisation at the data- and application-level would bring effective integration and interoperability across departments

Issues Related to Modernisation of Land Records

- Digitisation of cadastral records (map or survey showing the extent, value, and ownership of land) is easy. But there are issues related to **consistency and reliability** of these maps.
- At present, Cadastral Maps lack information on parameters like latitude/longitude and elevation data which can lead to confusion and disputes.
- Land is a **state subject** and land rights are a **complex bundle of rights.** There are many variations in State Laws which prevents standardisation of records.
- There are large tracts of land which are **disputed** and **existing land titles and records are inconclusive**. Rectifiying them up is challenging.

8. Rules Regarding Online Games

News: The Ministry of Electronics and Information Technology (MeitY) has notified rules regarding online gaming under the Information Technology Rules, 2021.

About the Rules

- The new rules define 'online game' as "*a game that is offered on the internet and is accessible by a user through a computer resource or an intermediary*".
- The Government will appoint multiple **Self-Regulatory Organizations** (SROs) comprising industry representatives, educationists and other experts (child, psychology experts etc). The Government will notify 3 SROs in the beginning.
- The new rules for online gaming **prohibit any game that involves betting and**

PT BOX

'Betting' vs 'Gaming'

The terms 'betting' and 'gaming' were first differentiated by the Madras High Court in *Public Prosecutor vs Vraj Lal Sheth* **(1944)**. The Court clarified that **gaming involves skills**; betting or wagering involves winning or losing a stake depending solely on the occurrence of an **uncertain event**.

In *State of Bombay vs R. M. D. Chamarbaugwala* (1957), the SC held that in any game, if the **element of skill is dominant over the element of chance**, then it is a game of skill and cannot be construed as gambling.

wagering (to risk money by guessing the result of something). SROs have the power to declare a game as permissible.

- The rules make it **obligatory for intermediaries** to make a reasonable effort to **not host**, **publish** or **share** any online game that can cause the user harm, or that has **not been verified as a permissible online game** by an SRO/body designated by the Union Government.
- The intermediaries will have to ensure that no advertisement or **surrogate advertisement** or promotion of an online game that is not a permissible online game, is hosted on their platforms.

Significance of Rules

- The uniform legal framework provided by these rules will boost investor confidence.
- This will help reduce regulatory fragmentation at the State level, create a more stable business environment and weed out gambling platforms. *(Refer EPIC March 2022 for Regulation of Online Gaming in India).*

Rationale for Regulating Online Gaming
Regulation is a better option than outright ban

Economic Benefits
- Industry expected to generate **revenue INR 29,000 Crore** by 2025 with **65 crore users**.
- **15,000 direct and indirect jobs**.
- **GST revenues** for Government.
- Attract **Foreign Investments**.

Off-shore Gambling
- Illegal betting done through sites like Bet365, Betaway.
- **Located in tax havens** like Malta, Cyprus etc.
- Illegal betting market in India worth US$ 150 billion.

Data Privacy
Inadvertent sharing of personal information can lead to cases of **cheating, privacy violations, abuse,** and **bullying**.

Money Laundering through Third Party Wallets
- In India, third-party wallets like Skrill and Neteller are used to **funnel money into gambling sites**.
- Users deposit money from their bank accounts into these prepaid wallets, which can be used to make payments anonymously.
- **United Nations Office on Drugs and Crime** estimated that up to $2 trillion is laundered globally through these portals each year.

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9. Overstay by Foreigners in India

News: At the 57th Conference of DGPs/IGPs held in January 2023, Police Officers had raised concerns over foreigners overstaying their visa and need for a concerted strategy to identify and deport them.

About Foreigners Overstaying in India

- According to the immigration database, the number of foreigners who overstayed in the years 2019, 2020 and 2021 stood at 54,576, 40,239 and 25,143 respectively.
- Majority of foreigners overstay through misuse of tourist visa.
- **Tourist visas** allow a stay of up to **180 days** in India and **do not require reporting** with the **Foreigners Regional Registration Office** (FRRO). Tourists can be tracked through **C-Forms** that are required to be recorded by hotels and lodges while providing accommodation. However, **compliance is low**. In the absence of effective tracking, overstaying the visa is easy and common.

Suggestions by Police Officers to Deal with Overstaying Foreigners

- Creation of a greater number of **detention centres** and **use of biometrics** to identify and deport foreigners who overstay.
- **Assigning a unique identity number** to foreigners arriving in India that needs to be quoted for availing any kind of services such as mobile phone connection, accommodation, and travel among others.
- **Fixing accountability of service providers** hotels, educational institutes and hospitals for not reporting the presence of foreigners.
- **Fast-track trial** of court cases and use of plea bargaining in petty cases for early deportation.
- Take up the issue of non-cooperation by certain countries that cause delays in deportation.

Additional Suggestions

The Officers made certain other suggestions

- **Government Policy on Refugees**: There is a need for greater clarity on Government's policy regarding refugees. India is not a signatory to the UN's Refugee Convention (1951) and its Protocol (1967). *(Refer EPIC March 2022 for The Need for an Asylum Law in India)*.
- **Unfenced Border at Nepal and Myanmar**: The free movement regime gives rise to security issues along the border and broader internal security challenges.

10. Union Government's Advisory to States on Security of VVIPs

News: The Union government has issued an elaborate security advisory to States on the protection of highly threatened dignitaries and VVIPs.

Guidelines Issued by the Union Government

Prolonged exposure of the VVIPs during roadshows to large crowds and continuous **travel through congested routes** makes them vulnerable to attack by hostile elements. The Government has issued guidelines to for the protection of highly threatened dignitaries:
- State law-enforcing agencies should work closely with organizers of VVIP political events.
- **Routes for road shows** should be chosen with **abundant caution** considering **local intelligence inputs**, evacuation options, access to **safe houses** and other contingency decisions.
- Local police should conduct a **thorough security audit** of the route proposed for the VVIP programme.
- Security components should include the deployment of **adequate security personnel**, use of **bomb detectors**, anti-sabotage checks at vulnerable places such as high-rise buildings, traffic management and **crowd control measures**.
- The focus of the **proximity security personnel** should be to protect the VVIPs in the event of any untoward incident and their positioning should be arranged in a manner to **facilitate easy evacuation**.

Economy

1. Growth in Electronics Exports

News: The Electronics sector has become India's fastest-growing export for the 11-month period between April 2022 to February 2023.

About Electronics Exports Sector
- India's Electronics Exports were up 61.57% in rupee terms during the 2022-23 period. They have crossed the $20 billion mark.
- India's share in global exports has increased to ~1.8% in the current year from 1.2% last year. Among States, Karnataka led the electronics exports followed by Uttar Pradesh.
- The big rise in electronics is due to the **growing share of mobile devices**. They accounted for ~47% of the total electronics exports. *(Refer EPIC February 2022 for Manufacturing of Semiconductors in India)*.

The long-term vision may be covered primarily under four broad categories:

A — Make in India for the world
B — Make India the No. 1 electronics manufacturer and exporter.
C — Become a significant player in the global value chain.
D — Build ecosystem comprising of primarily mobile phones, IT hardware, and consumer electronics of US$ 1 trillion+ in the next 10 years.
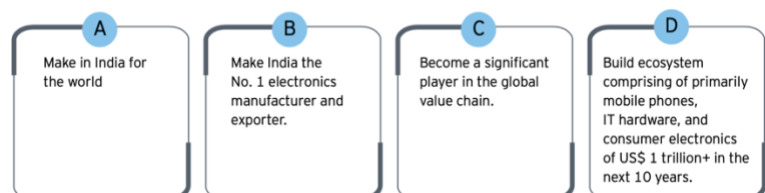
The long-term vision shall be followed-up with credible short-term goals (1-4 years) aimed at realizing the vision to its fullest. These goals shall be:

A — Build competitiveness and scale
B — Shift and develop sub-assemblies and components ecosystem
C — Build design ecosystem
D — Nurture Indian champions
E — Steadily remove disabilities in India
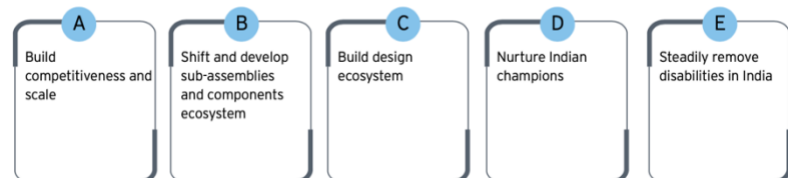
- The Government has set an aggressive target for exports of electronics and aims to achieve exports worth US$ 120 billion by 2025-26, (almost 6 times the present level).

Initiatives to Promote Electronics Exports

- The Government has been providing various incentives to electronics manufacturers, such as **production-linked incentives** to encourage local production.
- India Cellular and Electronics Association has released a **vision document** listing **strategies and roadmap** for 'US$ 300 billion Sustainable Electronics Manufacturing and Exports by 2026'.

Source: Vision Document, ICEA
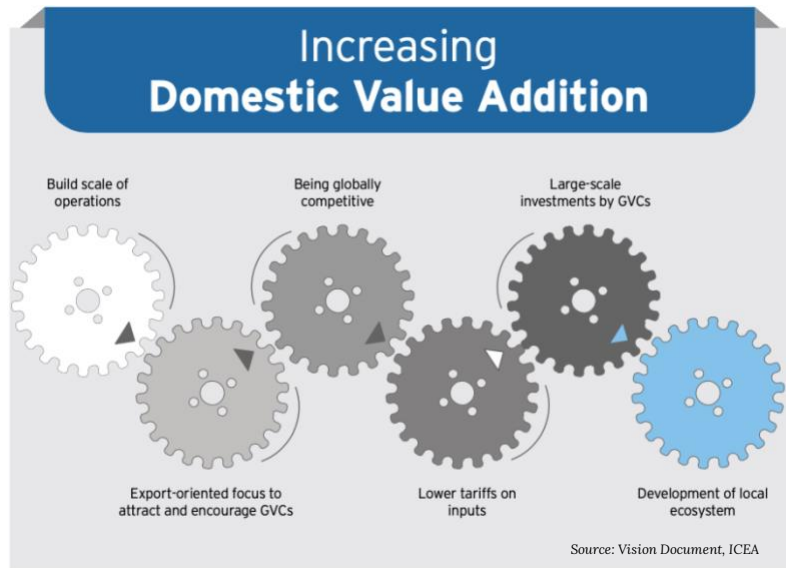
2. Parliamentary Panel's Observations on Attracting Foreign Companies Leaving China

News: The Department Related Parliamentary Standing Committee on Commerce has remarked that India has not been able to attract businesses moving out of China *(179th Report on Demand for Grants, 2023-24)*.

Key Highlights from the Report

- **'China plus One' Strategy**: India has not been able to take advantage of the 'China Plus One' Strategy, through which multinationals are shifting manufacturing and production away from China.
  - Southeast Asian countries such as Vietnam, Thailand, Cambodia, and Malaysia have emerged as **viable alternatives** to China. Factors such as **cheap labour**, **lower Corporate Income Tax**, proactiveness in **signing Free Trade Agreements** (FTAs), **conducive business environment**, **geographical location** etc. have provided several advantages to these countries.
- **India's API Import Dependence on China**: India's competitive position in the pharmaceutical sector is undermined by its high dependence on imports of Active Pharmaceutical Ingredients (APIs) from China.
  - In FY 2022-23, total imports of APIs stood at INR 27,209 crore, of which INR 18,973 crore worth of imports were from China (~70%). The imports have increased despite escalations along the border.

Steps Taken to Attract Companies Moving Away from China

- The Government has launched **Production Linked Incentives (PLI) Schemes** to make India a more attractive location for companies looking to diversify their supply chains away from China.
- More than **3,500 provisions have been decriminalized** by Union and State Governments and the *Jan Vishwas Bill* which amends 42 Central Acts has been introduced to **enhance trust-based governance**.
- India has signed **13 Free Trade Agreements** (FTAs) and **6 Preferential Trade Agreements** (PTAs). FTA negotiations with the UK, Canada and the EU are expected to be concluded soon.

Recommendations of the Parliamentary Panel

- **Rationalization of direct and indirect taxes** must be done in sync with international norms to increase the competitiveness of domestic industries in the global markets.

- Government should **pursue Free or Preferential Trade Agreements** with countries that seek to invest in India under the 'China Plus One Strategy.'

3. Limited Competition in Indian Markets

News: Economists have pointed to limited competition in most markets in India which can have adverse outcomes for the consumers.

Limited Competition in Various Sectors

Sector	Major Players	Approximate Market Share
Automobiles (Cars)	Maruti Suzuki, Hyundai	60%
2-Wheelers	Hero MotoCorp, Honda, TVS Motor	75%
Mobile Phones	Xiaomi, Samsung, Vivo, RealMe	70%
Steel	JSW Steel, SAIL, Tata Steel and JSPL	> 50%
Telecom	Reliance Jio and Airtel	70%
Passenger Airlines	Indigo and Tata (Vistara, Air India, Air Asia)	80%
Online Economy	Amazon, Flipkart (e-commerce) Ola, Uber (Mobility-as-service) Google Pay, PhonePe (Digital Payments)	--

Impact of Market Concentration

- **Consumer Welfare**: The concentration of ownership in few big firms has been linked to **higher prices for consumers, declining share of labour income and rising wage inequality.**
- **Lobbying**: More dominant firms may **influence Government policy** to restrict competition. Policy can be influenced to create **high entry barriers** and distorting level playing field. This can include higher **import duties**, tight regulations or **licensing requirements**, and favourable clauses in FTAs etc.

Types of Markets

	Monopoly	Oligopoly	Monopolistic Competition	Perfect Competition
Number of Firms	One	Few	Several	Many
Freedom of Entry	Restricted or Blocked	Restricted	Unrestricted	Unrestricted
Nature of Product	Unique	Differentiated or Homogeneous	Limited Differentiated	Homogeneous (Undifferentiated)
Size of Firms	One Big Firm	Few Large Firms	Several Small Firms	Many Small Firms
Market Power	Very High (Price Maker)	High	Medium	Zero (Price Taker)

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4. Competition Amendment Bill, 2023 passed by the Parliament

News: The Parliament has passed the Competition Amendment Bill, 2023 to amend certain provisions of the Competition Act, 2002.

Need for Amendments

- The economy has witnessed major changes like **rapid expansion of start-ups** aided by **growth in the digital economy**. The Competition Act, 2002 lacks provisions to address challenges posed by new developments.
- Growth in the new-age businesses meant that entities with **huge valuation** and **market-impacting power** escaped the Competition Commission of India's (CCI) **merger regulations** because they **did not meet asset and sale-based monetary thresholds** for seeking CCI clearance.

- A new approach to correcting market distortions was needed as most penalties imposed by CCI tended to end up in prolonged litigation in Courts affecting consumers.

Key Amendments Through the Competition Amendment Act, 2023
- The Amendment Act extends CCI's regulatory reach to transactions valued at more than INR 2,000 crores even **if they do not meet the conventional criteria** for merger regulation **based on assets and sales**.
- It proposes greater deterrence by way of **higher penalty provisions** based on the global sales of corporations.
- It introduces a '**Leniency Plus**' scheme to encourage entities facing cartel investigations to disclose information about other cartels.
- It proposes to **expedite CCI clearance of mergers and acquisitions** to within **150 days**, down from a maximum of 210 days now.

About Digital Competition
- A separate **Digital Competition Bill** has been suggested by two Parliamentary Committees to keep watch on the digital economy where businesses can **quickly attain scale**, tip the market and **erect entry barriers** to new smaller firms.
- This Bill will likely propose 'dos and don'ts' for large digital economy firms so that market tipping behaviour is checked.

5. Parliamentary Standing Committee's Report on e-Commerce

News: The Parliamentary Standing Committee on e-Commerce has released a report titled 'Promotion and Regulation of e-Commerce in India'.

Key Highlights from the Report
- Absence of dedicated e-commerce policy has led to '**strategic vacuum**' and '**ineffective regulation**' in the sector. There is a need to finalize a **National e-Commerce Policy** at the earliest.
- The Department for Promotion of Industry and Internal Trade should develop mechanisms for the **enforcement of rules related to Intellectual Property Rights** (IPR) in the e-commerce space.
- The online sale of medicines has not been regulated despite objections and concerns raised by stakeholders. The Ministry of Health and Family Welfare should **notify e-Pharmacy Rules** and formulate comprehensive guidelines with regard to e-pharmacy/e-health platforms.
- **Appropriate labour laws** relating to working hours, working conditions, holidays. minimum pay, social security, insurance, disability etc. for gig and platform workers should be framed and e-commerce must be mandated to extend these benefits.
- The Government should prepare a **Skill development strategy**, by gauging various requirements in the e-commerce value chains. *(Refer EPIC July 2022 for Issues with Online Marketplace and Large Platforms and NITI Aayog Recommendations on Gig Economy in India).*

6. National Electricity Plan, 2022-27

News: The National Electricity Plan (NEP) 2022-27 has been rolled out.

About the National Electricity Plan
- The **Electricity Act, 2003** stipulates that the **Central Electricity Authority** (CEA) shall prepare a National Electricity Plan in accordance with the National Electricity Policy **once in 5 years**.

- The earlier plans were notified in 2007, 2013 and 2018. The National Plan includes **Perspective Plan** for next 5 years as well (e.g., the 4th Plan (2022-27) has Perspective Plan for 2027-32).

Key Highlights of the National Electricity Plan 2022-27

- **Coal Energy Thrust**: The Plan cites the need for **fresh (new) coal-based capacity** ranging from 17 GW to 28 GW till 2031-32.
- **Renewable Energy Battery Storage**: The projected battery storage requirement has been estimated to be between 51-84 GW with a daily usage rate of 5 hours (in 2031-32). **Battery Energy Storage Systems** (BESS) especially based on Lithium-ion batteries are one of the various storage options. The **cost of the BESS is reducing rapidly** making it one of the preferred options for deployment. BESS has various advantages of balancing the grid against load fluctuations, intermittency in generation etc.

Electricity Mix in India
Proportion of Generation Capacity* of Various Sources

- Coal 49.3%
- Wind, Solar and RE# 30.1%
- Nuclear 1.6%
- Hydro 11.3%
- Lignite 1.6%
- Gas 6.1%

#Break-up of Renewable Energy
Solar: 16.1%
Wind: 10.2%
Co-gen: 2.5%
Small Hydro: 1.2%
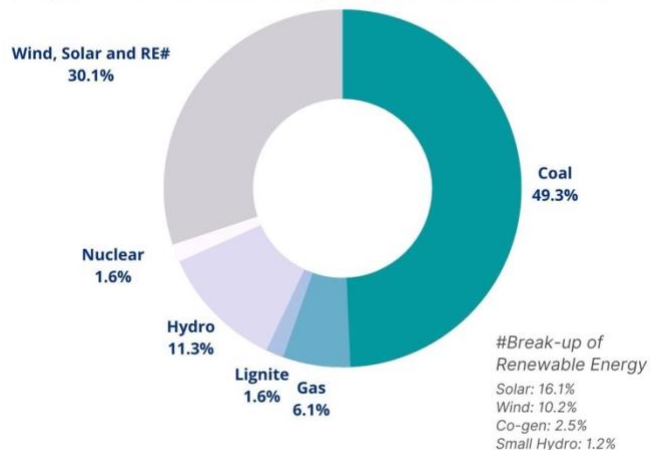
Source: Ministry of Power   *Capacity 416 GW as of March 31, 2023   Created by | ForumIAS©

- **Fund Requirement**: The total fund requirement (2022-27) is estimated to be **INR 14.30 lakh crore**. This includes investment in projects expected to be commissioned between 2027-32. The fund requirement for 2027-2032 has been estimated to be INR 17.16 lakh crore.
- The Plan has projected an increase in the **Plant Load Factor** of coal fired plants to 55% in 2026-27 to 62% in 2031-32

Challenges in Implementing National Electricity Plan 2022-27

- **Old Plants**: There is continued reliance on more than 25-year old, coal-fired thermal plants that run on old technology and lack robust reliability. They also contribute to greater carbon emissions.
- **Grid Management**: There is a lack of clarity on how the renewables-dominated grid will be managed, despite a pronounced reliance on renewable generation for meeting capacity additions. There has been no assessment of ramping rate for thermal plants under various scenarios of a solar generation going out (which is inherently fluctuating).
- **Managing Funding**: The funding required till 2032 has been estimated to be in excess of INR 30 lakh crore. However, the CEA report has given a budget of INR 8 lakhs crore for BESS for a 10-year period.

7. Revised Natural Gas Pricing

News: The Union Government has accepted the recommendations of the Kirit Parikh Committee on pricing of Natural Gas.

About the Kirit Parikh Committee

- At present, the Administered Price Mechanism (APM) is followed for pricing domestic gas produced by **legacy (or nomination) fields**. Nomination fields are acreages that the Government awarded to ONGC and OIL before 1999. Subsequently, oil and gas blocks were awarded through auctions. APM Gas accounts for ~66% of India's natural gas production. The pricing has been based on 'modified' Rangarajan formula since November 1, 2014.

- The APM was based on the benchmark rates in 4 gas trading hubs in the US, Canada, the UK and Russia.
- The Kirit Parikh committee was constituted in 2022 to review the **pricing formula for domestically produced natural gas** while taking into account the interests of both local consumers and producers.

Major Recommendations of the Committee
- The pricing system should move to a **purely market-determined mechanism** by 2027. Till then, a **floor and ceiling price** of US$ 4 and 6.5 per MMBtu (metric million British thermal units) should be instituted.
- The price of APM gas should be **10% of monthly average of the Indian crude basket** in the preceding month and shall be notified on a monthly basis. Gas Price has been **linked to crude price** instead of benchmarking to gas rates in international hubs.
- No change in the pricing mechanism should be made for gas produced from new and difficult fields. New and difficult fields enjoy pricing freedom to compensate for the greater risk and cost involved in these projects, but they have a pricing cap. The report suggests that the upper cap should be removed from January 1, 2026.
- **City Gas Distribution** (CGD) and **Fertilizer sectors** should continue to get **priority in gas allocation**. At present, CGD firms get about 90% of the gas allotted to priority sectors (CNG + PNG domestic).

Significance of Recommendations
- Linking Gas price to crude oil price has become the prevalent practice in international natural gas contracts. This will bring **India's mechanism in line with global practice**.
- It will make PNG or cooking gas cheaper by 10% and CNG by 6-9%. The reduced prices shall also **lower the fertilizer subsidy burden** and help the domestic power sector.
- Domestic producers of natural gas will be able to receive a higher price for their products. This is expected to **incentivize domestic production** and increase domestic supply.
- It will make the pricing mechanism more transparent and efficient. The Government would get a chance to raise the share of gas in India's energy mix to 15% by 2030 from around 6% at present.
- ONGC and OIL had been asking the Government for a floor price as they were **forced to sell gas at a loss** when prices sustained below their cost of production. Gas-consuming industries have been urging the Government to ensure the affordability of domestic natural gas. By bringing ceiling and floor prices, it attempts to bring a balance.

8. Reforming Multilateral Development Banks (MDBs)

News: The 9-member G20 expert panel has been set up to suggest ways to strengthen Multilateral Development Banks (MDBs) like the World Bank.

About Multilateral Development Banks (MDBs)
- Multilateral Development Banks refer to **international financial institutions** that provide development and other assistance to (developing) nations.
- MDBs include World Bank Group, IMF, European Investment Bank, BRICS Development Bank, Asian Development Bank, New Development Bank, etc. Collectively, MDBs hold about US$ 500 billion in shareholder equity, which is used to raise more resources for concessional lending.
- MDBs provide **long-term loans** for the **capital-intensive infrastructure** sector for developing countries, assist to deal with **humanitarian crises**, help nations to **build capacity** for resource generation and exploration, etc.

Need to Reform MDBs

- As harmful impacts of climate change become evident, there is **need to enhance development assistance** by MDBs. Climate financing alone requires US$ 2 trillion per year while total funding by MDBs at present is limited to US$ 200 billion.
- MDB lending comes with high costs related

MDB	Year founded, headquarter	Policy priority	Shareholders	Top shareholders	Disbursements FY 2019 (US$ million)
European Investment Bank (IEB)	1958, Luxembourg, Luxembourg	Innovation and skills, small and medium enterprises (SMEs), infrastructure, environment and climate	28	Germany, France, Italy, UK	56,514.00
International Bank for Reconstruction and Development (IBRD)	1944, Washington DC, USA	Extreme poverty and shared prosperity	189	USA, Japan, China, Germany, France, UK	20,182.00
International Development Association (IDA)	1959, Washington DC, USA	Extreme poverty and shared prosperity	173	USA, Japan, UK, Germany, France	20,000.00
OPEC Fund for International Development (OFID)	2014, Shanghai, China	Energy, transportation, finance, agriculture, water and sanitation, industry, health, telecommunications and education	13	Saudi Arabia, Venezuela, Kuwait, Nigeria, Iran	1,481.00
New Development Bank (NDB)	2014, Shanghai, China	Clean energy, transport infrastructure, irrigation, water resource management and sanitation, sustainable urban development, economic cooperation and integration	5	Brazil, China, India, Russia, South Africa	915.00
International Fund for Agricultural Development (IFAD)	1977, Rome, Italy	Rural poverty, rural market participation, environmental sustainability and climate resilience	176	USA, Italy, Germany, Japan, Netherlands	854.80

to **policy conditionalities**, **rigid safeguards**, and **lengthy processes**.
- In many cases, MDB lending is considered as **not aligned with the priorities of domestic economies**. It is more in line with priorities prescribed by MDBs/developed countries.
- Lately, funding by MDBs has become skewed towards low-income countries in comparison to middle-income countries, forcing them to seek market funding which is more expensive.
- MDBs are disproportionately dominated by developed countries. Developing and emerging economies have little representation and voting rights.
- China has rapidly scaled-up lending to developing countries with aggressive loan terms. When they are unable to pay debt, China seizes assets like Hambantota Port. (*Refer EPIC March 2023 for Debt Trap Diplomacy*).

About the G20 Expert Group
- The group is co-chaired by Former US Secretary of Treasury Larry Summers and India's NK Singh, Chairman of the 15th Finance Commission.
- The mandate of the group is to **draw a roadmap for an updated MDB ecosystem** for the 21st century so that these institutions are **better equipped** to finance a wide range of **Sustainable Development Goals** and global challenges such as climate change and health. The Group will evaluate the funding required by and from MDBs to address their and member countries' increased financing needs.

9. Livestock Insurance Scheme

News: The Union Government is considering launch of comprehensive livestock insurance scheme modelled on the PM *Fasal Bima Yojana*. It will replace the current Livestock Insurance Scheme.

About the Livestock Insurance Scheme
- The Scheme is being implemented by the Ministry of Fisheries, Animal Husbandry and Dairying (through the Department of Animal Husbandry and Dairying).
- The scheme was **launched on pilot basis in 2005-06** during the 10th Five-Year Plan.
- The scheme is being implemented on a regular basis from 2008-09 in **100 selected districts** across India.
- Its objective is to **provide a protection mechanism** to the farmers and cattle rearers against any eventual loss of their animals due to death. It also aims to **demonstrate the benefit of the insurance of livestock** to the people and popularize it with the ultimate goal of **attaining qualitative improvement in livestock** and their products.

- The cross-bred and high-yielding cattle and buffaloes are insured at the maximum of their **current market price**. The premium of the insurance is subsidized by 50%. The entire cost of the subsidy is being borne by the Union Government.
- The benefit of subsidy is being provided to a maximum of 2 animals per beneficiary for a policy of a maximum of 3 years.

Challenges Faced by the Scheme

- The **coverage is very poor**. In 2021-22 only 1.75 lakh animals were insured, while not a single animal was insured in 2022-23. **High premium rates** and **poor socio-economic conditions of farmers** contribute to low coverage.
- Farmers face issues like **non-payment** and **delay in claim settlements** due to lack of coordination between insurance companies and State Government officials.

CATTLE MARGINALLY UP, GOATS AND SHEEP RISE SHARPLY

CHART 1: LIVESTOCK POPULATION (MAJOR SPECIES)

Category	2019 Population (in million)	% Growth
Cattle	192.49	0.83
Buffalo	109.85	1.06
Sheep	74.26	14.13
Goat	148.88	10.14
Pig	9.06	-12.03
Mithun	0.38	26.66
Yak	0.06	-25
Horses & Ponies	0.34	-45.58
Mule	0.08	-57.09
Donkey	0.12	-61.23
Camel	0.25	-37.05
Total Livestock	535.78	4.63

CHART 2: CATTLE POPULATION (MAJOR STATES)

Category	2019 Population (in million)	% Growth
West Bengal	19.0	15.18
Uttar Pradesh	18.8	-3.93
Madhya Pradesh	18.7	-4.42
Bihar	15.3	25.18
Maharashtra	13.9	-10.07
Rajasthan	13.9	4.41
Jharkhand	11.2	28.16
Assam	10.9	5.29
Chhattisgarh	10.0	1.63
Odisha	9.9	-15.01

CHART 3: CROSSBRED POPULATION GROWING FAST; INDIGENOUS DECLINING

Category	2019 Population (in million)	% Growth
Total Exotic/Crossbred	50.42	26.9
Total Indigenous/Non-Descript	142.11	-6

Source: Indian Express. Status of Livestock in India based on 20th Livestock Census (2019) and % change over the 19th Census (2012).

10. Bilateral Air Service Agreements

News: The Government is reluctant to provide more flying rights to foreign airlines to enable domestic airline companies to become global players.

About Bilateral Air Service Agreements

- Bilateral air services agreements are signed between two countries to regulate the number of flights airlines can operate.
- India has signed bilateral agreements with 116 countries. The Agreements can limit the number of flights or provide for unlimited access e.g., India has **Open Skies Agreement** with the US and UK, which allows carriers from both sides to operate an **unlimited number of flights** between the two countries.

Demand for Greater Share by Foreign Operators

- Foreign Airlines have been demanding greater entitlements as international travel from India grows. Most foreign airlines on popular routes have already **used their permitted capacity** and have been demanding a further increase in flying rights.
- The Indian Government wants **India-based airlines to become large network carriers** to reduce dependence on foreign carriers. The **Government is pushing Indian carriers** to fly to Europe and the Americas from India.
- Fares are function of demand and capacity. Denial of increase in access to foreign operators can lead to **higher fares in the short- to medium-term**, on popular and high-demand routes like India-Dubai. *(Refer EPIC November 2021 for Freedom of Air)*.

International Relations

1. China Renames 11 Locations in Arunachal Pradesh

News: China has announced new names for 11 locations in Arunachal Pradesh. This is the 3rd set of names announced by China. In February 2023, a resolution was introduced in the US Senate that recognizes McMahon Line and Arunachal Pradesh as an integral part of India.

About the McMahon Line

- The McMahon Line serves as the **de facto boundary** between China (Tibet) and India in the Eastern Sector in Arunachal Pradesh, stretching between Bhutan to Myanmar.
- China has historically **disputed the boundary** and claims the entire State of Arunachal Pradesh as part of the Tibetan Autonomous Region (TAR). China calls the area '**Zangan**' and 'South Tibet'. Chinese maps show Arunachal Pradesh as part of China.
- The McMahon Line was drawn during the **Simla Convention of 1914**, officially described as the **Convention Between Great Britain, China, and Tibet**. The convention defines the boundary between Tibet and China and Tibet and British India (the latter is known as the McMahon Line).
- China has **disputed the McMahon line since the Communists came to power in 1949**, and pulled out of all international agreements calling them '**unequal treaties**' **imposed during its** '**century of humiliation**'. China demanded renegotiation of all its borders.
- During the 1962 Indo-China war, China had captured Indian territory in Arunachal Pradesh and their forces were approaching Assam before **withdrawing back to the north of McMahon line** after ceasefire.

China's Activities

- China makes periodic efforts to **underline its unilateral claim** to Indian territory. **Renaming places** is a part of this strategy. It published a list of 6 such names in 2017, and another 15 names in 2021.
- China has also issued '**stapled visa**' to residents of Arunachal Pradesh (instead of stamped visa) disputing India's sovereignty over the territory.
- China has also objected to India holding a G20 meeting on Innovation Technology in Itanagar.

India's Response

- India has dismissed the Chinese 'invention' of these names.
- The Ministry of External Affairs had said in a statement: "*Arunachal Pradesh has always been, and will always be, an integral part of India. Assigning invented names to places in Arunachal Pradesh does not alter this fact*".

About Contents of the US Senate Resolution

- The Resolution was introduced in the US Senate in February 2023. The Resolution **recognizes McMahon Line as the international boundary between India and China**. The United States recognizes the state of Arunachal Pradesh not as disputed territory but as an **integral part of the Republic of India**.
- The resolution notes that Chinese provocations are **impeding poverty alleviation** and **economic development** in Arunachal Pradesh.
- The resolution condemns the **China's use of military force to change the status quo** along the Line of Actual Control, as well as additional provocations including the construction of villages in contested areas,

expansion of territorial claims in Bhutan, and publication of maps assigning Mandarin-language names to cities and features in Arunachal Pradesh.

- The Resolution calls for **strengthening India-US relationship**, supporting India's defense modernisation, including the US-India Initiative on Critical and Emerging Technology.

2. ICC Warrant Against the Russian President

News: The International Criminal Court (ICC) has issued an arrest warrant against Vladimir Putin for war crimes.

About the ICC

- It was created by the **1998 Rome Statute** and entered into force on July 1,2002. It is headquartered in the Hague, Netherlands.
- It has been created on the **Principle of Complementarity**. It is only intended to **complement existing national judicial systems**. It will exercise its jurisdiction only when national courts are unwilling or unable to prosecute criminals.
- **ICC is not part of the UN**. It was established by the Rome Statute. This treaty was negotiated within the UN. However, it created an independent judicial body distinct from the UN.

PT BOX

Jurisdiction of the ICC

The Rome Statute grants the ICC jurisdiction over 4 main crimes:

Crime of Genocide: Acts committed with intent to destroy a national, ethnic, racial or religious group.

Crimes against Humanity: A large-scale attack against any civilian population.

War Crimes: These are grave breaches of the Geneva conventions in the context of armed conflict.

Crime of Aggression: It is the use of armed force of a State against the sovereignty, integrity or independence of another State.

- The ICC **lacks universal territorial jurisdiction**. It may only investigate and prosecute crimes committed within the Member States or by nationals of Member States. It also investigates the crimes referred to it, by the United Nations Security Council.

About the Warrant and Impact

- ICC says the Russian President bears individual criminal responsibility for the abduction and deportation of Ukrainian children since Russia's full-scale invasion began in February 2022.
- There are low chances that the Russian President will face trial.
  o ICC has **no power to arrest sitting heads of State** or bring them to trial.
  o Russia does not recognise the **jurisdiction of the ICC**. 123 countries have accepted the jurisdiction of ICC.
- The ICC does not conduct trials in absentia of the defendant.

3. Global Terrorism Index, 2023

News: The Global Terrorism Index (GTI), 2023 has been released.

About the Index

- Global Terrorism Index (GTI) is a comprehensive study analysing the **impact of terrorism** for 163 countries.
- It is published by the **Institute for Economics and Peace** (IEP) using data from Terrorism Tracker and other sources. IEP also published the **Global Peace Index**.

- The GTI defines Terrorism as "*the systematic threat or use of violence, by **non-state actors**, whether for or in opposition to established authority, with the intention of communicating a **political**, **religious** or **ideological** message to a group larger than the victim group, by **generating fear** and so **altering** (or attempting to alter) **the behaviour of the larger group**".* GTI does not cover acts of warfare, criminal violence, civil unrest, acts of State repression, war crimes and acts of genocide.

The Pillars of Positive Peace

This graphic provides a visual representation of the factors that consitute Positive Peace. All eight factors are highly interconnected and interact in varied and complex ways.

Key Findings of the GTI, 2023

- Deaths from terrorism fell by 9% to 6,701, marking a 38% decrease from its peak in 2015.
- **Afghanistan** remains the country most impacted by terrorism for the 4th consecutive year though violence has declined. The report does not include acts of state repression and violence by state actors such as acts committed by the Taliban.
- South Asia remains the region with the worst average GTI score.
- India has been ranked 13th on the index, marking only a marginal decrease from the previous year. India was among the 25 worst-hit nations on the index.

*Source: IEP. It defines **Negative Peace** as absence of violence or fear of violence. **Positive Peace** is defined as the attitudes, institutions and structures that **create and sustain peaceful societies**.*

4. NATO's Statement on India

News: A leading US Official has said that the NATO is 'open' to deepening ties with India.

About the Statement

- A US official has said that the NATO alliance is '**open to more engagement**' with India.
- Informal exchanges have taken place between NATO and Indian officials on the side-lines of the annual **Raisina Dialogue** in Delhi.
- NATO currently has **40 different partners around the world**. The NATO has invited Australia, New Zealand, South Korea, and Japan to its Foreign Ministerial Meeting in April 2023.

North Atlantic Treaty Organisation (NATO)

- NATO is a **military alliance** established by the **North Atlantic Treaty** (also called the **Washington Treaty**) of April, 1949.
- It strives to secure a lasting peace in Europe, based on **common values** of **individual liberty**, **democracy**, **human rights**, and **the rule of law**.
- Its initial members included the US, Canada, and several Western European nations. The membership gradually expanded over the years and eventually reached 31. **Finland** is the latest member.
- It was **established during the Cold War** in response to the **threat posed by the Soviet Union** (USSR). The alliance has remained in place since the end of the Cold War, and has been **involved in military operations** in the Balkans, the Middle East, South Asia, and Africa.
- NATO is based on the **Principle of Collective Security or Defense**. A 'NATO decision' is the expression of the **collective will** of all 31 member countries since all decisions are **taken by consensus**.

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Significance of the Statement

- The remarks come at a time when major geopolitical changes have been seen in Europe and the Indo-Pacific region amid the **Russia-Ukraine conflict** and **Chinese aggressive actions** from ASEAN to India.
- Russia has blamed the current Ukraine conflict on the expansion of NATO.

5. India's Role in Korean War

News: India had played a major diplomatic role in establishing peace in the Korean War, 1953. India's role offers deep insights which can be utilized in G20 Presidency.

About the Korean War
- The Korean War was fought between North Korea and South Korea between 1950-1953. The war began in June 1950 when North Korea invaded South Korea.
- **North Korea** was supported by **China and the USSE** while **South Korea** was supported by t**he US and allied countries**. The fighting ended with an **armistice on July 27, 1953**.

*Under the Armistice Agreement, the **Korean Demilitarized Zone** (DMZ) was established in 1953. It serves as **buffer zone** between North and South Korea. It is ~250 km long and 4 km wide.*

About India's Role in the Korean War
- **Diplomacy**: In 1952, India's resolution on Korea was adopted at the UN with unanimous non-Soviet support. India pushed for involvement of the USSR in the peace process and eventually got them on board in 1953. Despite unfavourable circumstances, India succeeded in building consensus, eventually leading to the 'Armistice Agreement'.
- **Neutral Nations Repatriation Commission (NNRC)**: It was established to decide on the fate of over 20,000 prisoners of war (PoWs) from both sides. India was chosen as the Chair of the NNRC. A UN Command and a Custodian Force from India (headed by Lt. Gen Thimayya) was deployed on the Korean border. Its tenure ended in early 1954, and the Indian forces were praised internationally for executing the tough stabilizing operations successfully.
- **Asylum to PoWs**: Over 80 prisoners didn't want to go to either North or South Korea. India offered them asylum and some of these PoWs eventually settled in India.

Significance of India's Role in the Korean war
- In the essay, '**Between the Blocs: India, the UN, and Ending the Korean War**', British historian Robert Barnes recognised the key role played by India:
  o Reconciling the divergent positions of the two superpower blocs
  o Preventing the UN from adopting a policy that might lead to its escalation.

A similar situation has developed in Ukraine. India's role and experience can offer a solution.

6. Exit Engagement Evenings by ICCR

News: Indian Council for Cultural Relations (ICCR) is planning to start Exit Engagement Evenings (E3) with the foreign students.

About the E-3, Exit Engagement Evenings Programme
- Its aim is to expand India's artistic and creative footprint globally, by tapping into the experiences of foreign students studying in India.
- The programme will begin 3-4 months before the foreign students finish their courses in Indian Universities. The engagements would include **visits to places of national importance**.
- At present, the ICCR has decided on the **Khadi Commission**, the **Indian Tourism Development Corporation** and the **Department of AYUSH** to hold these evenings with the students.

- This 'soft diplomacy' is meant to spread the India story when students go back to their home countries.
- According to the All India Survey on Higher Education (AISHE), 48,035 foreign students were enrolled in Indian Universities, in 2020-21. (49,348 in 2019-20).
- Students from more than 160 countries visit India to study. Most students came from Nepal, Afghanistan, Bangladesh, the US, the UAE, Bhutan, Sudan, Nigeria, Tanzania, and Yemen.

7. Bridging Language Gap with India's Neighbours

News: Indian Council for Cultural Relations (ICCR) is planning a special project 'The Language Friendship Bridge'.

About the Language Friendship Bridge Project

- Its aim is to create a pool of experts in languages spoken in India's near and extended neighbourhood countries to **facilitate better people-to-people exchanges**.
- ICCR has planned to train 5-10 people in the official languages of each of these countries.
- The ICCR has zeroed in on 10 languages: **Kazakh**, **Uzbek**, **Bhutanese**, **Ghoti** (Tibet), **Burmese**, **Khmer** (Cambodia), **Thai**, **Sinhalese** and **Bahasa** (Indonesia and Malaysia).

Indian Council for Cultural Relations (ICCR)

- The Indian Council for Cultural Relations (ICCR) was founded in 1950 by **Maulana Abul Kalam Azad**, independent India's **first Education Minister**.
- Its objectives are to:
  - Actively participate in the formulation and implementation of policies and programs pertaining to **India's external cultural relations**.
  - Foster and strengthen **cultural relations** and **mutual understanding** between India and other countries.
  - Promote **cultural exchanges** with other countries and people.
  - **Develop relations** with nations.
- It has overseas centres in various locations like Australia, Fiji, Japan, South Korea, China, Nepal, Bhutan, Sri Lanka, Maldives, Mauritius, South Africa, Tanzania, Egypt, Israel, Malaysia, Indonesia, Afghanistan, Uzbekistan, Russia, the UK, Netherlands, Germany, Mexico, Brazil, Suriname, Trinidad and Tobago etc.
- It functions under the **Ministry of External Affairs**.

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Need for the Project

- In India, the focus has been on **European languages** (French, German, Spanish etc.) and **major Asian Economies** (Japanese, Mandarin, Korean etc.). Only a handful of Universities have programmes on languages like Sinhala, Kazakh or Bhutanese.
- Considering importance of the neighbourhood, India's cultural imprints in these countries, and India's rising salience, there is a need to develop domestic expertise in these languages.

Implementation

- ICCR has discussed two possibilities for implementing this project:
  - Institute tie-ups wherein teachers from these countries come and teach courses in India.
  - Offering scholarships to Indian students to study these languages in the respective countries.
- Language experts feel that the second option is the better one as a proper cultural environment is needed to learn a language in its entirety.

8. Militarization of Space

News: The Chief of Defence Staff has said that nature of warfare is undergoing transformation. Militarization of space and steady progress towards weaponization is being witnessed.

About Militarization of Space

- It refers to **use of space-based assets** for **military purposes** such as communication or spying. It also involves development and placement of **weaponry and military technology** in outer space.

*The paradox of today's world, where **peace comes from deterrence and weaponization**; and even outer space, God's sole preserve, has not been left out. – Major General PN Tripathi, Indian Army.*

Steps taken by the UN to prevent Space Militarization

- Most UN Member States agree that weaponization of outer space will **lead to arms race** and a multilateral treaty is the only way to prevent this.
- An **Outer Space Treaty** was conceptualized by the UN in 1967. The treaty emphasizes that the **exploration of outer space should be beneficial to all mankind** and it should be for **peaceful purposes**. It claims that one nation **cannot claim national sovereignty** in outer space.

HOW MILITARY SATELLITES ARE COMMONLY USED

COMMUNICATION — Satellite communication is perhaps the most important space capability for a military, allowing for real-time command and control of forces deployed anywhere in the world.

EARLY WARNING — Early warning satellite systems were created by the U.S. and the U.S.S.R. to watch for missile attacks by the other during the Cold War. Both the U.S. and Russia continue to update their systems today.

INTELLIGENCE — Intelligence satellites are used for imagery or signal interception. The most advanced remote sensing satellites are believed to have resolutions of up to six inches.

NAVIGATION — Navigation satellites are used to guide soldiers, identify targets, and for weapon guidance. Currently, the U.S., Russia, and China maintain navigation satellite constellations, while the EUs is still in development.

HOW SATELLITES COULD BE ATTACKED

JAMMING — The easiest way to negate a satellite is to disrupt its communications signals, and the technology required to do so is easily attainable. For example, Iraq used GPS jamming equipment during Operation Iraqi Freedom in 2003.

CONVENTIONAL WEAPONS — Rockets or missiles could either be used to release a payload of metal pellets or gravel into the path of a satellite. Or they could be used to target the satellite directly with more sophisticated sensor technology.

NUCLEAR WEAPONS — Detonating a nuclear weapon in space would create an electromagnetic pulse that would be highly destructive for all unprotected satellites in the area.

DIRECT ENERGY WEAPONS — Ground-based low-power lasers could be used to temporarily disrupt, or "dazzle", satellites. High-powered lasers could potentially be used to "heat to kill" electronics on satellites in low orbit.

SPACE-BASED WEAPONS — Space-based negation technology would likely take the form of microsatellites that could be maneuvered near a satellite and exploded. This capability is entirely theoretical.

- Over 100 nations have signed and ratified the treaty. 26 nations have signed but not ratified the treaty.
- The UN is striving to facilitate the inhibition of an arms race in outer space by strengthening the Treaty through various committees and resolutions on the **establishment of transparency and confidence-building measures in outer space**.
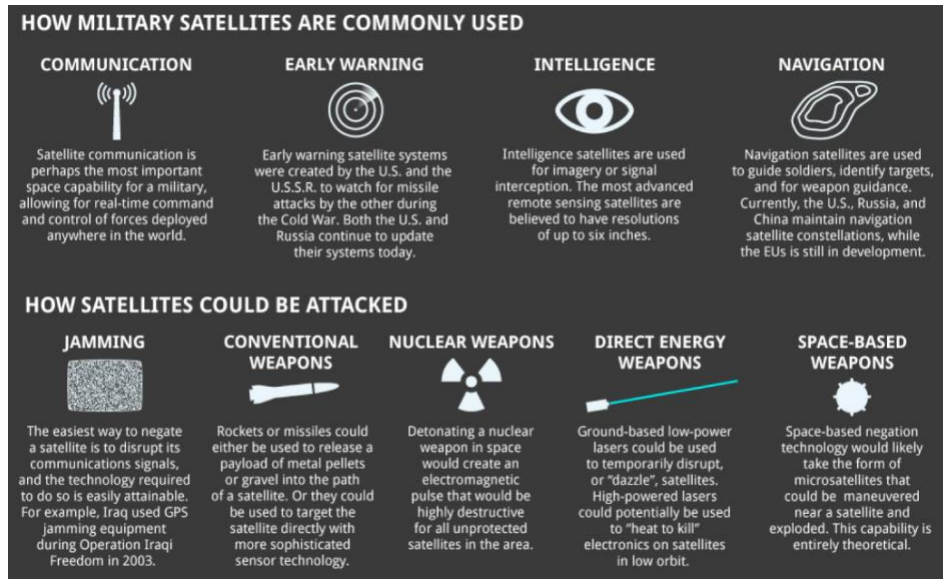
Steps Taken by India to Overcome the Challenges of Militarization of Space

- India has successfully conducted an **Anti-Satellite** (ASAT) missile test, named **Mission Shakti**, becoming the 4th country in the world to demonstrate the capability to shoot down satellites in orbit (2019).
- India conducted its first-ever **simulated space warfare exercise** (IndSpaceEx). The exercise aims to assess the requisite space and **counter-space capabilities**. The exercise will also help India better grasp the strategic challenges in space that need to be handled.
- Establishment of the new tri-service **Defence Space Agency** (DSA).
- **Mission DefSpace** has been launched to develop innovative solutions for the 3 Services (Indian Airforce, Navy and Army) in the space domain through the Indian industry and start-ups.
- **Indian Space Association** (ISpA) organized the **'Indian DefSpace Symposium 2023'** in association with DRDO. The Symposium is intended to create a platform for all stakeholders who have a keen interest in boosting India's military space capability and plans. (*Refer EPIC August 2022 for Space Economy in India*).

Science and Technology

1. Indian Space Policy, 2023

News: The Union Government has approved the Indian Space Policy, 2023.

About the Indian Space Policy, 2023

- The Aim of the Policy is to enhance the role of the Department of Space, boost activities of Indian Space Research Organisation (ISRO) missions and give a larger participation of research, academia, start-ups and industry.

- The policy delineates the roles and responsibilities of ISRO, space sector PSU NewSpace India Limited (NSIL) and the Indian National Space Promotion and Authorization Center (IN-SPACe).
- The **strategic activities** related to the space sector will be carried out by **NSIL**, which will work in a demand-driven mode.
- **INSPACe** will be the **interface** between ISRO and non-governmental entities.
- **ISRO** will not undertake any operational and production work and focus its energies on **developing new technologies**, new systems and research and development. The **operational part** of ISRO's missions will be **moved to the NSIL**.
- It **allows the private sector to participate** in end-to-end space activities that include building satellites, rockets and launch vehicles, data collection and dissemination.

Present Role of ISRO
- At present, ISRO manages 4-5 launches annually. It manages **53 operational satellites**: 21 for communication, 21 for Earth observation, 8 for navigation and 3 as scientific experimental satellites.
- ISRO has launched missions such as *Chandrayaan*, *Mangalyaan* and *Gaganyaan*.
- ISRO acts as an **operator, user, service provider, licensor, rule maker and incubator**.

Lagging competition

India has fewer space assets when compared to key countries.

Annual budget (in $ bn)*		Number of space assets
US	30	1,650
China	14	450
India	1.7	80

*Budget figures for US and India are for 2022 and 2020 for China.
Source: Indian Space Association/EY Report

Government Response to Changes in the Space Sector
- In 2017, the Government introduced the **draft Space Activities Bill** in Parliament but it lapsed in 2019.
- There has been talk of commercialising the **PSLV and SSLV launch services** and **NewSpace India Limited (NSIL)** has been set up to replace Antrix.
- The **Indian National Space Promotion and Authorization Centre (IN-SPACe)** was set up in 2020 as a **single-window-clearance** for the private sector.
- An **Indian Space Association (ISpA)** was created as an industry association.
- A series of **policy papers** have been circulated for discussion. It includes **telecom policy, an earth observation policy and a foreign direct investment policy.**

Way Forward for the Space Sector
- There is a **need for legislation** for the space sector.
- With the entry of private sector, the legislation should set up a regulatory authority.
- An enabling ecosystem should be established for venture capital funding for the space start-up industry.
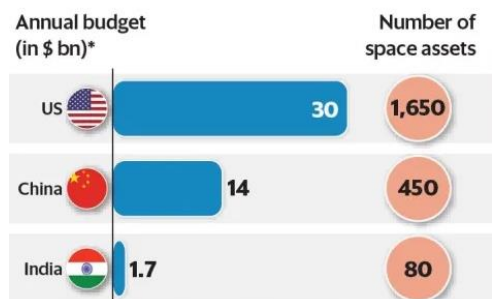
2. Reusable Launch Vehicle (RLV)

News: ISRO has successfully carried out the landing experiment of Reusable Launch Vehicle - Technology Demonstration (RLV-TD).

About the Reusable Launch Vehicle (RLV)
- Reusable launch vehicle (RLV) means a launch vehicle that is **designed to return to Earth substantially intact** and therefore may be **launched more than one time**. It may contain **stages that may be recovered for future use** in the operation of a **substantially similar launch vehicle**.
- An RLV is considered a **low-cost**, **reliable**, and **on-demand mode of accessing space**.

About the Reusable Launch Vehicle - Technology Demonstration (RLV-TD)

- RLV-TD is part of the efforts of ISRO at **developing essential technologies** for a fully reusable launch vehicle to enable low-cost access to space.
- The RLV-TD will be used to develop technologies like **Hypersonic Flight** (HEX), **Autonomous Landing** (LEX), **Return Flight Experiment** (REX), **Powered Cruise Flight**, and **Scramjet Propulsion Experiment** (SPEX).
- In future, RLV will be scaled up to become the first stage of India's **reusable two-stage orbital** (TSTO) launch vehicle.
- The first RLV experiment was done in 2016. The 2nd RLV test conducted recently involved a Chinook Helicopter of the Indian Air Force lifting the RLV LEX to a height of 4.5 km and releasing the RLV.
- After mid-air release, the RLV carried out an autonomous landing 'under the exact conditions of a Space Re-entry vehicle's landing': **high speed**, **unmanned**, precise landing from the same return path as from space.
- According to ISRO, the first test with RLV-TD (HEX1) involved the vehicle landing on a hypothetical runway over the Bay of Bengal while the RLV-LEX experiment involved a precise landing on a runway.
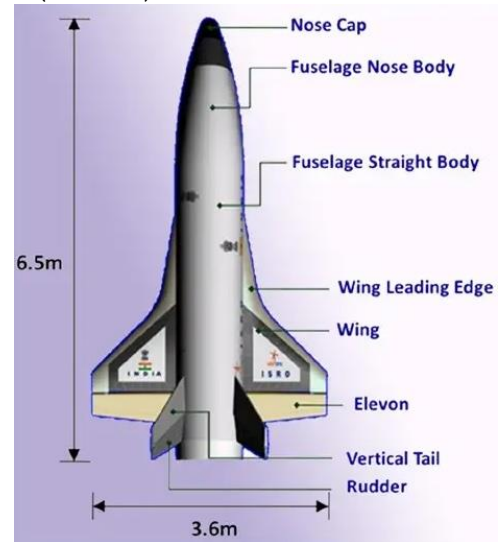
3. GPT-4

News: OpenAI has announced the next big update to the ChatGPT Technology, GPT-4

About GPT

- Generative Pre-trained Transformer (GPT) refers to a series of **Large Language Models** (LLMs) built by OpenAI, a US-based AI research laboratory.
- These models use billions of data points to read written text inputs, based on which they generate content.
  (Refer EPIC December 2022 for ChatGPT and EPIC February 2023 for Generative Artificial Intelligence (AI): Benefits and Concerns).
- GPT-4 can generate content from both image and text prompts.

Difference Between GPT4 and ChatGPT

- **GPT-4 can 'see' images now**: GPT-4 is multimodal, allowing it to understand more than one modality of information. ChatGPT was limited to textual input and output (could only read and write). GPT-4 can be fed images and asked to output information accordingly.
- **GPT-4 is harder to trick**: ChatGPT can give offensive, biased outputs and provide misinformation. GPT-4 is harder to trick and can generate the best-ever results on factuality, and steerability and does not generate prompts that can be considered offensive.
- **GPT-4 can process a lot more information**: ChatGPT model could handle 4,096 tokens or around 8,000 words but GPT-4 pumps those numbers up to 32,768 tokens or around 64,000 words.
- **GPT-4 is 'Multi-lingual'**: At present, Machine learning data are predominantly in English. Training Large Language Models (LLMs) like GPT in other languages models is challenging. But GPT-4 is multilingual.

Limitations of GPT-4

- According to OpenAI, GPT-4 is less capable than humans in many real-world scenarios. GPT-4 still struggles with social biases, hallucinations and adversarial prompts. *(Inaccurate responses are known as 'hallucinations').*

4. ICMR Guidelines for Application of AI in Biomedical Research

News: The Indian Council of Medical Research (ICMR) has released 'Ethical Guidelines for Application of Artificial Intelligence in Biomedical Research and Healthcare'.

About the Guidelines

- The Guidelines aim to create "an ethics framework which can assist in the development, deployment, and adoption of AI-based solutions" in Biomedical Research and Healthcare.
  - The Guidelines aim to make AI-assisted platforms **available for the benefit of common people with safety** and highest precision.
  - The Guidelines also intend to **address emerging ethical challenges** to AI in **biomedical research** and **healthcare delivery**.
- The Guidelines include sections on **ethical principles**, **guiding principles** for stakeholders, an ethics review process, governance of AI use, and **informed consent**.
- Under the Guidelines, the ethical review process for AI in health comes under the domain of the Ethics Committee.

Source: Biospectrum India

- **The Guidelines are intended for all stakeholders involved in research on AI in biomedical research and healthcare**, including creators, developers, researchers, clinicians, ethics committees, institutions, sponsors, and funding organizations.
- The Guidelines have been formulated to address the ethical concerns with the **deployment of AI-based solutions in healthcare** such as **data safety**, **data sharing**, and **data privacy**.
- India already offers streamlining of AI technologies in healthcare through the **National Health Policy (NHP) 2017**, **National Digital Health Blueprint (NDHB 2019)** and Digital Information Security in Healthcare Act (2018).

5. Bharat 6G Vision Document

News: The Prime Minister has unveiled a Vision Document to roll out high-speed 6G Communication Services by 2030.

Rationale for 6G Vision Document

- **Assuming Leadership:** The Government wants to take the **lead in establishing 6G standards globally and** increase India's dominance in wireless data usage. It wants to **encourage local manufacturing**, supporting Indian companies and engineers in international discussions around standardization.
- **Avoiding Delays:** The Government doesn't want to delay rolling out 6G as it happened in 5G.
- **Addressing the Demand:** Frequencies increase in newer generations of networks. The government is focusing on 6G to

address the demand and make people have access to better frequencies.

- **Developing R&D:** The Government wants to support research in the field of 6G technologies. Academia and corporate ecosystem will be tapped through Apex Council to guide and collaborate.
- **Achieve Connectivity Goals**: 6G technology will help the Government in achieving connectivity goals like ensuring that **every person has access to a minimum of 100 Mbps of** broadband.

About Bharat 6G Project

- Its objective is to enable India to become a **leading global supplier** of Intellectual Property, Products and Solutions of **affordable 6G telecom technology** and identify priority areas for 6G research based on India's competitive advantages.
- The project will be implemented in 2 phases: First: 2023-2025; Second: 2025-2030.
  - The first phase will provide support to **explore new ideas and pathways**. These ideas will then be used to develop **use cases**, **intellectual properties** (IPs) and **testbeds**. 6 Task Forces under **Technology-Innovation Group** will be set-up to explore possibilities and drive R&D into possible directions that 6G could go.

Six task forces formed under the Technology Innovations Group

  - The second phase will **commercialize** these IPs, prototypes and testbeds.
- The Government has appointed an **Apex Council** to:
  - **Oversee** the project, focus on issues such as **standardization**, **identification of spectrum** for 6G usage.
  - Create an **ecosystem** for devices and systems.
  - Figure out **finances** for research and development, among other things.
- A key focus of the Council will be on **new technologies** such as **Terahertz communication**, radio interfaces, **tactile internet**, artificial intelligence for connected intelligence, new encoding methods and waveforms chipsets for 6G devices.
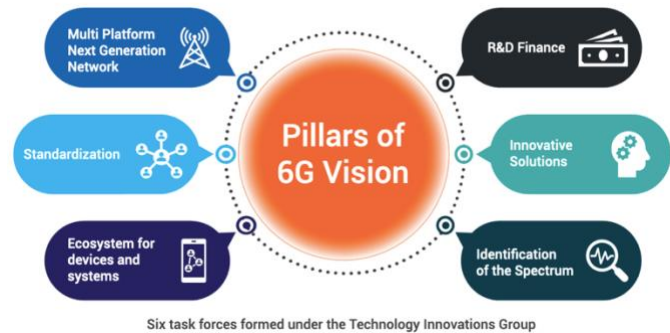
About 6G Technology

- Every 'G' can be described as a set of **globally agreed benchmarks** that allow for **standardized networks** to interact with one another and **standardized equipment** that can be used everywhere. R&D at every stage is focused on developing ways to **transfer data more efficiently, and to develop new use cases.**
- 6G will be 100 times faster than 5G. It will have **multiple applications** e.g., enabling intercommunication between autonomous vehicles to aid navigation, virtual reality without any lag, Edge Computing etc.
- 6G aims to be more energy efficient and **better at using available spectrum** in the network.

Future Steps

- The initiative must be followed through with **robust policy implementation. Policy-makers** must ensure that roll-outs of commercial networks are not delayed.
- For 5G, India has been late in terms of network roll-out due to **complex telecom policy and the resulting litigation**. This should be avoided.

PT BOX

Edge Computing

It is an emerging computing paradigm which refers to a range of **networks and devices at or near the user**. Edge is about **processing data closer to point of generation**, enabling processing at **greater speeds and volumes**, leading to greater action-led results in real time. It allows companies to better manage physical assets and create new experiences like self-driving cars, autonomous robots etc.

Concerns Associated with the 6G

- **6G will have faster speed than 5G.** However, businesses and governments are still figuring out how to best use 5G technology.
- The development and deployment of 6G will have to be **balanced with sustainability** as most 6G supporting communication devices will be battery-powered and can have a **significant carbon footprint**.

6. India Ransomware Report, 2022

**News**: Computer Emergency Response Team (CERT-In) has released the India Ransomware Report 2022.

About Ransomware

- Ransomware is a category of **malware** that gains access to systems and **makes them unusable** to its legitimate users, either by **encrypting files** on the system or **locking the system's screen unless a ransom is paid**.
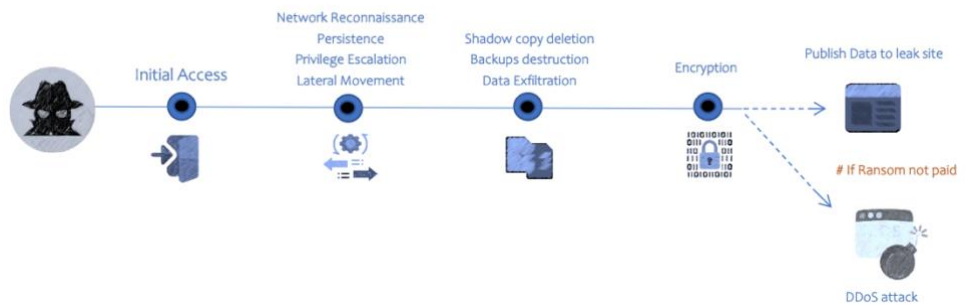
Key Findings of the Report

- **Ransomware incidents**: There is a 53% increase in ransomware incidents in 2022 compared to 2021.
- **Sector impacted**: IT & ITeS was the most impacted sector followed by Finance and Manufacturing. Ransomware players targeted

  critical infrastructure organizations and disrupted critical services in order to pressurize and extract ransom payments.
- **Prevalent ransomware variants**: Lockbit was a majorly seen variant in the Indian context followed by Makop and DJVU/Stop ransomware.
- **The RaaS (Ransomware-as-a-service) ecosystem** is becoming more prominent, allowing non-technical individuals to launch ransomware attacks.
- **Restoration time**: Ransomware restoration and recovery time is dependent upon multiple factors like level of infection, affected applications, availability of backups & images, and Business continuity preparedness. On an average, the **restoration time is about 10 days for infections in reasonably large infrastructure networks**.
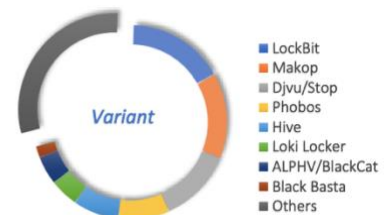
Recommendations by the Report

- Organizations must strengthen their **capabilities for monitoring and early detection** of Ransomware infection.
- Prevention is better than cure. It is desirable to understand the attack surface and ensure the security of all internet-exposed assets to **minimize the probability of attack**.

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7. Radiation Exposure

News: A pan-India survey of Bhabha Atomic Research Centre on background radiation levels has been released.

Sources of Background Radiation
- Radiation results from the **disintegrating nucleus** of an **unstable element**.
- Background Radiation is level of **ionizing radiation** present in the environment which is **not due to deliberate introduction** of radiation sources (like nuclear power plant). The majority of background radiation **occurs naturally from minerals** contained in rocks, sand or mountains.
- Human Body also contains **traces of radioactive elements** (like Potassium-40). **Cosmic rays** from space also contribute to background radiation.
- **Gamma rays** can pass unobstructed through matter. Though extremely energetic, they are harmless unless present in large concentrated doses.

Prescribed Amount of Radiation Exposure
- The International Atomic Energy Agency (IAEA) specifies that public radiation exposure should not exceed 1 milliSievert every year. For those with occupational exposure, it shouldn't be over 30 milliSievert every year.
- The IAEA level has also been adopted in India. Accordingly, gamma radiation levels are monitored around nuclear plants and also the average quantity of radiation that plant workers are exposed.

> **PT BOX**
> **Scales For Radiation Exposure Measurement**
> *Sievert*, *Gray*, and *Rem* *are different scales to measure radiation exposure. Gray refers to* ***radiation emitted****. Sievert and rem refer to* ***biological exposure to radiation****. 1 Gray is equivalent to 1 Sievert and 1 rem is equivalent to one-hundredth (1/100th) of a sievert.*

Findings of the BARC Study
- The average natural background level of gamma radiation in India is **94 nGy/hr (nano Gray per hour)** (or **~0.8 milliSievert/year**). The level computed in last study (1986) was 89 nGy/hr.
- The highest exposure in Kollam district in Kerala is **9,562 nGy/hr**. This is ~70 milliGray a year, or a little more than exposure of a nuclear plant worker. In 1986, the highest radiation exposure in Kerala was 3002 nGy/hr.
- The presence of granite, basaltic and volcanic rock have led to higher levels of radiation from uranium deposits in southern India. The higher radiation levels in Kollam can be attributed to **monazite sands** that are **rich in thorium**.
- Studies have found no evidence of higher rates of cancer or mortality in Kerala due to higher exposure.

8. Geothermal Energy Plant in Arunachal Pradesh

News: The Government is planning to build a geothermal power plant in Arunachal Pradesh. This will be 2nd geothermal plant in India, after the Puga Valley in Ladakh.

About Geothermal Energy
- Geothermal energy uses the **heat generated inside the Earth** to **produce clean energy**.
- A series of wells are used to **generate steam** from the Earth's internal heat energy and fed to the power plant (steam turbines) to **generate electricity**.
- It is available continuously and is only **renewable energy source** that is **not affected by day–night or seasonality**.

- It is its **low cost** and has **ability to operate round the year** at high capacity.
- According to initial estimates, India has the potential to produce **10 GW of geothermal energy**. The Government is considering **providing viability gap funding** to scale up geothermal energy in India.
- Iceland, El Salvador, New Zealand, Kenya and the Philippines have high share of Geothermal energy.
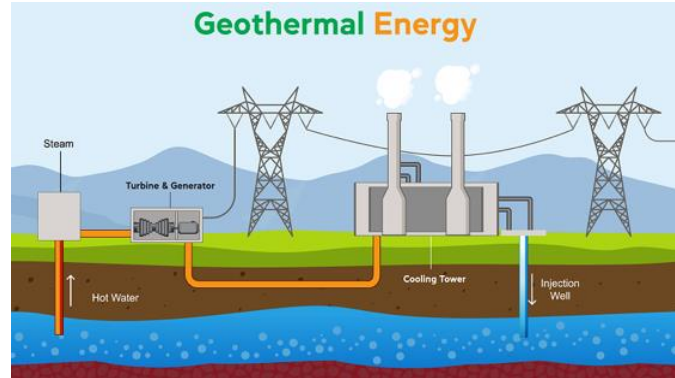
Geothermal Energy

Challenges in setting up geothermal energy
- High upfront cost of INR 30 crore/MW.
- Lack of load center and power evacuation facility nearby (in remote locations like Ladakh, Arunachal).
- High risk involved in exploration.
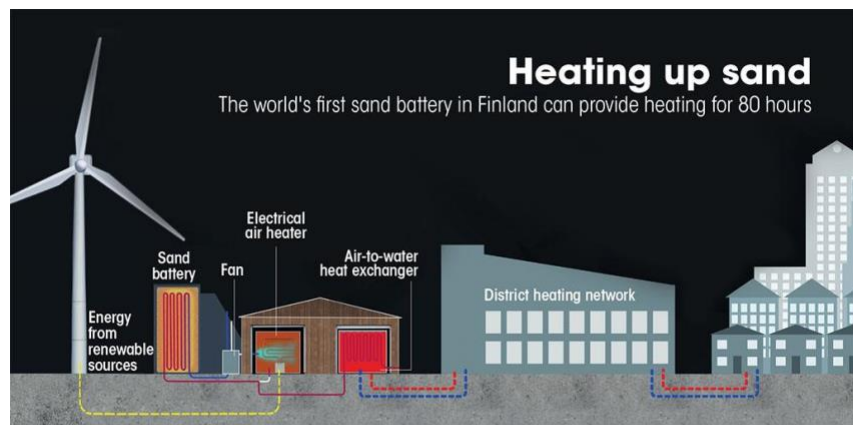
About Geothermal Power Plant in Arunachal Pradesh
- India plans to build a major geothermal power plant in Arunachal Pradesh. A Norwegian agency will assist in carrying out the research for the project. Norway has extensive experience in geothermal energy use.
- China is also building a geothermal power plant in the same region across the border in Tibet.

9. Sand Battery: Storage Medium for Renewable Energy

News: Finland has installed a 'Sand Battery' that can store heat from renewable energy sources for months.

About Sand Battery
- A 'sand battery' is a **high-temperature thermal energy storage** that **uses sand** or sand-like materials as its **energy storage medium**. It stores energy in the sand as heat.
- Wind and Solar power depend on weather/seasons and are variable and intermittent leading to supply-demand mismatch. The excess energy generated through the renewable resources can be used to heat sand and store the energy. Lack of sustainable storage is biggest hurdle in adoption of renewable energy.

Heating up sand
The world's first sand battery in Finland can provide heating for 80 hours

HOW THE BATTERY GETS CHARGED
Using renewable sources, air is heated to 600°C in the electrical air heater. The hot air is blown inside the sand battery through a pipe. The battery is considered charged when the sand at the core of the battery reaches 600°C.

HOW THE BATTERY GETS DISCHARGED
Using fans, air is pushed into the pipe inside the battery casing. Once the air reaches, 200-500°C, it is sent to the air-to-water heat exchanger, where it is used to boil water. The boiling water is sent to the district heating network which is used to keep buildings and public water systems warm and provide hot water for various industrial processes.

- The main purpose of sand battery is to work as a **high-power** and **high-capacity reservoir** for excess wind and solar energy. The heat energy stored in sand can be later-on used to heat homes, provide hot steam and high-temperature process heat to industries that are often fossil-fuel dependent.

- Sand is a very effective medium for **retaining heat over a long period**, storing power for months at a time. Sand can be heated up to 600°C. It also has low heat conductivity, which **reduces loss of energy**.
- The technology is still evolving and has the potential for use at commercial level including in heat-intensive industries.

10. Evergreening: Patent Extension of TB Drug Bedaquiline Rejected

News: India's Patent Office has rejected Johnson & Johnson's attempt to extent patent on anti-TB drug Bedaquiline in India beyond July 2023.

About Bedaquiline

- Bedaquiline is used in **combination with other medicines to treat tuberculosis** patients after the failure of first-line treatment to kill the bacteria.
- Bedaquiline (oral drug) is crucial for tuberculosis treatment. It has **less severe side-effects** than other injectable drugs for the treatment of TB.

About 'Evergreening'

- It is a term used in the context of Intellectual Property Rights (patents). It refers to the practice of **extending the exclusivity period of a patent** by **making small incremental modifications** or improvements to the original invention.
- The goal of evergreening is to **extend the period of exclusive use** during which the original inventor can profit from their invention. Minor improvements are used as basis of extending the patent period.

Vital intervention

Bedaquiline, manufactured by J&J, is a crucial anti-TB drug

around $400 for a six-month treatment regimen, the prices are likely to fall

■ After July, generic producers like Lupin and Macleods are likely to manufacture the drug

■ Over 55,000 patients, in whom other drugs have stopped working, may benefit from Bedaquiline access

■ Till March 2020, only a little over 10,000 patients received the drug

■ India has rejected J&J's appeal to extend its patent beyond July 2023

■ Currently priced at

- Critics argue that it **stifles innovation** by preventing other inventors from **improving the existing technology**. Evergreening **drives up the cost of drugs** and other patented products, making them less accessible to people in need.
- India's Patent Office has rejected J&J's bid to extend the patent by using Section 3(d) of the Patents Act, 1970.
- At present, the 6-month schedule of

PT BOX

Section 3(d) of Patents Act, 1970 (Amended 2005)

It states that inventions that are mere 'discovery' of a 'new form' of a 'known substance' and **do not result in increased efficacy** of that substance **are not patentable**. Other clauses of Section 3 d**o not recognize** method of agriculture (3h), algorithms (3k), presentation of information (3n), traditional knowledge (3p) etc. as an invention

Bedaquiline costs US$ 400 (~INR 33,000). With the rejection of patent, the cost is expected to fall by ~80%. *(Refer EPIC September 2022 for Patent Regime in India: Provisions, Challenges and Solutions and TB-Mukt Bharat: Making India TB-Free by 2025).*

11. Peptides

News: Scientists have found peptides derived from snake venom which hold promise for preventing and treating neurological disorders like Parkinson's and Alzheimer's Disease.

About Peptides

- A peptide is a **short chain of amino acids** (typically 2 to 50) linked by **chemical bonds** (peptide bonds).
- They are **smaller versions of proteins** and contain far fewer amino acids than proteins.

- They have many **anti-ageing**, **anti-inflammatory**, or **muscle-building properties**. Health and cosmetic products often contain many peptides.

Various Types of Peptides

- **Milk Peptides**: They are formed when the digestive system breaks down a milk protein called Casein. They are also formed from proteinases arising from lactobacilli during the fermentation of milk.
- **Peptones**: These are produced during the **proteolysis of animal milk or meat**. Sometimes it can also be formed from vitamins, fats, metals and some salts.
- **Ribosomal Peptides:** These are produced by translation (a process in which cellular ribosomes create proteins) of mRNA. To achieve a mature form, they are often subjected to proteolysis.
- **Oligopeptides:** These peptides are formed by linkage of more than two and less than 20 amino acids by peptide bonds.

PEPTIDE VERSUS PROTEIN

PEPTIDE	PROTEIN
A short chain of amino acids, which are connected to one another in a sequence by a peptide bond	A polymer of amino acids with a variety of functions inside the cell
A short chain of amino acids, containing approximately 50 or fewer amino acids	A polypeptide, containing more than 50 amino acids
Composes of both essential amino acids and other naturally-occurring amino acids	Only composes of 20 essential amino acids
Has a primary structure of a protein, mainly being a straight chain of amino acids although lariat structures have been observed	Has either secondary, tertiary or quaternary structure
Peptide bonds occur between amino acids	Hydrogen bonds, disulfide bonds, etc. occur between polypeptide chains of amino acids
Play a key role in regulating activities of other molecules, especially proteins	Serve as structural molecules, enzymes, hormones, etc.

12. Contributions of Jagdish Chandra Bose

News: Researchers from Israel have recorded distress signals by plants facing stress (like water scarcity). This confirms with JC Bose's century old findings that plants experienced sensations just like animals.

About Contributions of JC Bose

- Jagadish Chandra Bose (1858 – 1937) was an **Indian physicist** and **plant physiologist**. He is remembered for two things: his work on **wireless transmission of signals** and on the **physiology of plants**.
- He is widely believed to be the first one to **generate electromagnetic signals** in the microwave range.
- He was also the first one to come up with **radio receivers**, which enabled wireless telegraphy. Yet, **Guglielmo Marconi**, an Italian scientist who carried out the first transmission of signals across the Atlantic in 1901 is recognised as the sole inventor of the radio. Marconi was awarded the Nobel Prize (1909) for this work that Bose is known to have accomplished earlier.
- Bose invented the **crescograph**, a device for **measuring the growth of plants**. He for the first time demonstrated that plants have feelings.
- Some of his work became **controversial**, particularly when he claimed that not just plants, even inanimate inorganic matter could respond to stimulus. He argued that there was **no sharp demarcation between living and non-living worlds**.
- He established Bose Institute (1917), Asia's first modern research center devoted to interdisciplinary studies.
- Bose is considered the **father of Bengali science fiction**. In 1896, he published *Niruddesher Kahini*, first work of science fiction in the Bengali language.
- He was the **first Asian to be awarded a US patent** (1904), for inventing a detector for electrical disturbances.
- A crater on the moon has been named in his honour.

1. Guidelines for Mitigating Human-Wildlife Conflict

News: The Ministry of Environment, Forest and Climate Change has released 14-point guidelines to address Human-Wildlife Conflict (HWC).

Guidelines for Mitigating Human-Wildlife Conflict

- The Guidelines have been developed under the **Indo-German cooperation project on HWC Mitigation.**
- The Guidelines are **advisory in nature.** A review of these guidelines is planned to take place every 5 years from 2023 onwards.
- The objectives of the Guidelines are to
  - Facilitate a **common understanding** of effective and efficient mitigation of HWC among key stakeholders,
  - Facilitate the **development of site-specific HWC mitigation measures**.
- Out of 14 points, **10 are species-specific guidelines:** Guidelines for Mitigating Human-Elephant, Gaur, Leopard, Snake, Crocodile, Rhesus Macaque, Wild Pig, Bear, Blue Bull and Blackbuck Conflict.
- 4 Guidelines are on broader issues:
  - Guidelines for **Cooperation between the Forest and Media Sector**: Towards effective communication on Human-Wildlife Conflict Mitigation.
  - **Occupational Health and Safety** in the Context of Human-Wildlife Conflict Mitigation.
  - **Crowd Management** in Human-Wildlife Conflict-Related Situations.
  - Addressing Health Emergencies and Potential Health Risks Arising Out of Human−Wildlife Conflict Situations: Taking a **One Health Approach**.

Human-Wildlife Conflict

- Human-Wildlife conflict refers to **negative interaction** between wild animals and humans and the resultant **impact on people or their resources**, or **wild animals or their habitat**.
- The major reasons for conflict are:
  - **Habitat fragmentation** and shrinking of **habitat** due to **encroachment in forest lands.**
  - Large share of protected species live outside protected areas.
  - **Increased disturbance** due to collection of fuel wood, fodder, water etc. from the forests.
  - **Rising area under cultivation** around wildlife habitats and changed cropping pattern.
  - **Decreased prey base** causing carnivores to move out of forest in search of prey.
  - **Increasing livestock population** in areas near forests, attracting wildlife.
  - **Climate Change** (drought, floods, forest fires) will aggravate the problem.

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Protected but not safe

Many Schedule-1 species, which are accorded the highest degree of protection under the law, are found outside notified protected areas

726 protected areas in India (in green) comprising 4.88 per cent of total land area

Tiger
29% outside tiger reserves*
Lansdowne Forest Division, a tiger corridor between Corbett and Rajaji tiger reserves, has 22-25 tigers but is not a protected area (PA)
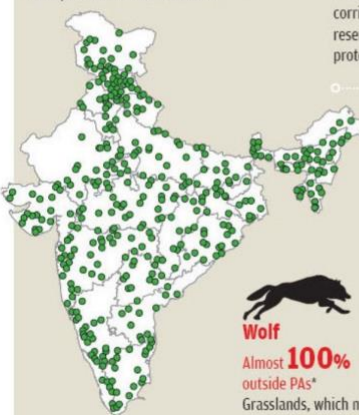
Elephant
67% outside PAs*
Data from West Bengal and Jharkhand indicates that a herd spent about 235-265 days in a year outside the protected areas between 2005 and 2008

Wolf
Almost **100%** outside PAs*
Grasslands, which make up the wolves' habitat, are not notified as PAs

Source: Down To Earth (2015)

2. Issues with India's Afforestation Programme

News: The observations of IPCC Synthesis Report are at odds with India's Compensatory Afforestation Policy.

Afforestation in India

- The Government has committed to additional carbon sink of 2.5-3 2.5-3 Gigatonnes of Carbon-dioxide equivalent (GtCO$_2$e) through additional forest and tree cover by 2030.

- Afforestation is codified in the Compensatory Afforestation Fund Management and Planning Authority (CAMPA). CAMPA is a body created on the **Supreme Court's orders** in 2002 and 2009 and chaired by the Minister of Environment. It is meant to **promote afforestation** and regeneration activities as a way of compensating for **forest land diverted to non-forest uses**.

ABOUT CAMPA FUND

➤ The Campa fund is a national-level corpus fund where the compensation amount collected from user agencies like industries when forestland is diverted for non-forest purposes is deposited

➤ Fund is to be utilized for compensatory afforestation activities, protection of forests, forest-related infrastructure development, assisted natural regeneration of forests, etc.

- According to the Forest (Conservation) Act 1980, the **project proponent** that wishes to divert the land must identify land elsewhere to afforest and **pay for the afforestation exercise**.

Issues with Compensatory Afforestation

- **Unutilised fund**: A large pool of money collected for Compensatory Afforestation remains unutilized. In 2019, the Fund value stood at INR 47,000 crore.
- **Impacting Endangered landscape**: CAMPA has been criticized for funding projects that endanger landscape connectivity and biodiversity corridors.
- **Artificial plantations**: Planting **non-native species** or **artificial plantations** do not compensate for the ecosystem loss. Non-native species can be hazardous for the existing ecosystem e.g., the Haryana govt is planning to develop the world's largest curated safari using CAMPA funds received from deforestation in Great Nicobar.

Observations of IPCC Report About Afforestation and Renewable Energy

- IPCC's Synthesis Report has pointed out that prevention of degradation of ecosystem has greater potential to lower the impact of climate crisis in comparison to restoration of the ecosystems (through afforestation).
- The observation is at odds with India's Afforestation Policy that allows diversion of pristine forests for replacement by inferior quality afforestation.
- The Report found that the sole option (among those evaluated) with **more mitigating potential** than 'reducing conversion of natural ecosystems' was solar power and the third-highest was wind power.
- However, many solar parks in India have triggered conflicts with people living nearby because they **render the land inaccessible** and **increase local water consumption**.
- Wind farms in the Western Ghats have **reduced the abundance and activity of predatory birds** which has negatively impacted the local ecosystems.

3. Issues with Forest (Conservation) Amendment Bill, 2023

News: The Government has introduced the Forest (Conservation) Amendment Bill, 2023 to make changes in the Forest (Conservation) Act, 1980.

Objectives of the Bill

- The Bill aims to **build forest carbon stock by raising plantations.**
- It aims to **provide developers with land so they can fulfil their legal duty to plant trees as compensation for diverting forest land for development projects.**
- The Bill tries to achieve these objectives by **restricting the applicability of the FC Act**, and by **freeing up unrecorded forests land**.

Concerns with the Bill

- **Limited Application:** The SC has ruled that the FC Act would apply to all land parcels that were recorded as forest or **resembled the dictionary meaning of forest**. This order helped protect unrecorded forest areas. The Bills seeks to limit **applicability of the Act only to land recorded as 'forest'. This might expose millions hectares of land to deforestation (estimated to be the size of Gujarat)**.
- **Clearance for the Projects:** Forest Conservation Rules 2022 had allowed developers to raise plantations over lands on which FC Act is not applicable and swap such plots against compensatory afforestation. The Amendment Bill is key to working of the scheme. In future, **non-forest lands may be used to develop private plantations to subsequently gain forest clearances**.
- **Expanding Exemptions:** The Bill seeks to **exempt all strategic projects of national importance, projects concerning national security** within 100 km of international borders, projects falling under **Left-wing extremism affected areas**. In addition, List of **activities related to conservation** that are **exempted from the FC Act** are being **expanded** to include silvicultural operations, construction of zoos and wildlife safaris, eco-tourism facilities.
- **Forest Communities:** With the amendments, the forest-dwelling communities may have no say on diversion of their land on for plantations.

4. 30 Years of Project Elephant

News: The President of India took part in *Gaj Utsav* at Kaziranga National Park and Tiger Reserve (KNPTR) in Assam to mark 30 years of Project Elephant.

About Project Elephant

- The Project Elephant was launched in 1992 as a Centrally Sponsored Scheme.
- Its objectives include
  - **Conservation and protection** of the **viable populations** of wild elephants in their **natural habitats**.
  - The **restoration of natural habitats** and **traditional corridors/migratory routes** used by elephants, through eco-restoration, acquisition etc.
  - Ensuring **safeguards against poaching** and other threats.
  - Mitigation and control of **human-elephant conflicts**.

FINDING NEW TERRITORY

States with highest elephant population

State	Population
Karnataka	6,049
Assam	5,719
Kerala	3,054
Tamil Nadu	2,761
Odisha	1,976

Reporting jumbos for the first time

State	
Manipur	9
Mizoram	7
Bihar	25
Madhya Pradesh	7
South Bengal	194
Haryana	7
Himachal Pradesh	7
Andaman & Nicobar	25

Over the years
India's total elephant population

2007	2012*	2017
27,657-27,682	29,391-30,711	27,312

Decline between 2012 & 2017 has been attributed to different counting methods

  - Creating a viable mechanism to ensure **inter-state and regional and national level coordination** in protecting and conserving the elephant and its ranges.

About Elephant Population in India

- According to the 2017 census, the population estimates for Asian elephants in India are ~30,000.
- Asian elephants are confined to South Asia and South East Asia. About 60% of the global population of Asian elephants is found in India.
- In India, elephants were declared as a **National Heritage Animal** in the year 2010.
- Asian elephants are listed as '**Endangered**'. Most Asian nations (except India), have lost their viable elephant populations due to loss of habitats and poaching etc.
- Indian Elephant has also been listed in **Appendix I of the Convention of the Migratory Species**.

5. Need for Research on Smaller Carnivores

News: The focus of India's research and conservation efforts has been limited to large charismatic carnivores, leading to neglect of smaller carnivores.

About Carnivores
- A carnivore is an organism that survives on meat, or the flesh of animals.
- Carnivores are also called predators. Organisms that carnivores hunt are called prey.

About the Research on Carnivores in India
- India is home to ~23% of the **world's carnivore population**, belonging to 60 species.
- The Tiger, Indian leopard, golden jackal, dhole and jungle cat are the other top carnivores that have received a substantial research focus e.g., Project Tiger and the establishment of 50 tiger reserves across India. The Government has also formulated national guidelines on human-leopard conflict mitigation.
- The quality of studies on smaller and less charismatic carnivores has generally been poor e.g., the fishing cats reside in the most threatened ecosystems (wetlands) but there is lack of basic ecological data like range of distribution.
- Research on smaller carnivores is important as it helps in understanding the important link between carnivores and their ecological communities and ecosystems e.g., Small cats execute important ecological functions like controlling rodent populations, (agricultural pests and disease carriers), dispersing seeds, and maintaining forest ecosystems.

Steps Needed to Improve Carnivore Conservation
- **Increased funding** for research on lesser-known carnivores could help **generate knowledge**, **foster public interest and support**.
- There is a need for increased focus on lesser-known species by adopting best practices in socio-ecological studies, widening the ambit of interdisciplinary work, democratizing carnivore science through partnerships and enhancing synergy between carnivore researchers and research groups.

6. Handling Solar PV Waste

News: The Government is pushing Circular Economy to enable effective waste management. However, waste management in the Solar Photovoltaic (PV) sector lacks clear guidelines and directives.
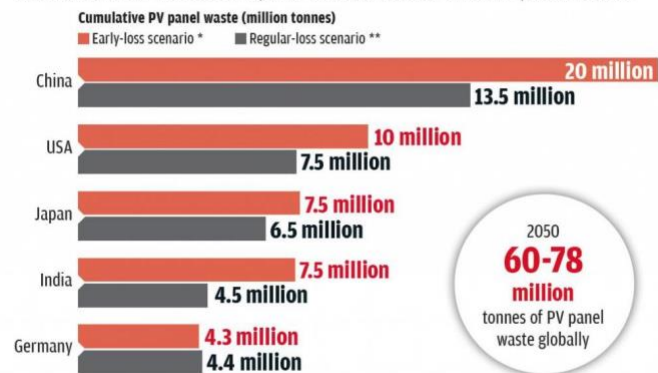
About PV Waste in India
- India has the world's 4th-highest solar PV deployment. The installed solar capacity has reached ~62 GW in November 2022. This has given rise to large amount of Solar PV waste.
- According to a report by International Renewable Energy Agency, India could generate 50,000–3,25,000 tonnes of PV waste by 2030 and more than 4 million tonnes by 2050.

A renewable crisis

Cumulative waste volumes of top five countries for end-of-life PV panels in 2050

Cumulative PV panel waste (million tonnes)
■ Early-loss scenario *   ■ Regular-loss scenario **

Country	Early-loss scenario *	Regular-loss scenario **
China	20 million	13.5 million
USA	10 million	7.5 million
Japan	7.5 million	6.5 million
India	7.5 million	4.5 million
Germany	4.3 million	4.4 million

2050
60-78 million
tonnes of PV panel waste globally

* Early-loss scenario considers 30-year average panel lifetime, but it includes installation/transport damages
** Regular-loss scenario considers 30-year average panel lifetime where there is a 99.99 per cent probability of loss after 40 years
Source: *End-of-Life Management Solar Photovoltaic Panels*, International Renewable Energy Agency, 2016

Treatment of Solar PV Waste in India
- A typical PV panel is made of **crystalline silicon (cSi) modules** (93%) and **cadmium**

telluride thin film modules (7%). After expiry, some portions of the frame are extracted and sold as scrap and some are recycled according to e-waste guidelines. ~50% of the total materials can be recovered.

- In India, most waste is handled by the informal sector. Only **~20% of the waste is recovered**; the rest is treated informally.
- Consequently, the waste often **accumulates in landfills**, which pollutes the surroundings. **Incinerating** the encapsulant releases sulphur dioxide, hydrogen fluoride, and hydrogen cyanide into atmosphere.

Addressing the Gaps in Handling PV Waste

- Clubbing PV waste with other e-waste could lead to confusion. Instead, India should **formulate and implement provisions specific to PV waste treatment** within the ambit of the e-waste guidelines.
- A central regulatory body should be set up to protect against financial losses incurred in waste collection and treatment.
- Waste generated from PV modules and their components is classified as '**hazardous waste**'. To scale-up this label, pan-India **sensitization drives/awareness programs** on PV waste management should be launched.
- Development of domestic **PV waste recycling technologies** must be promoted through appropriate **infrastructure facilities** and **adequate funding**.

7. The UN Water Conference

News: The UN Water Conference was held at UN Headquarters in New York.

About the UN Water Conference

- The 2023 UN Water Conference was co-hosted by **Tajikistan and the Netherlands**.
- The aim of the Conference is to support the **achievement of internationally agreed water-related goals** and targets, including those contained in the **2030 Agenda for Sustainable Development**.
- The 1st Water Conference was held in 1977. It resulted in the **1st global** '**Action Plan**'. It recognized that all people have the **right to have access to drinking water** in quantity and quality equal to their basic needs.
- It led to global funding and concerted effort to provide drinking water and sanitation for all.

Challenges in Ensuring Universal Access to Water and Sanitation

- **Provision of funding** for extending access to water/sanitation to under-served population is difficult.
- Provision of water/sanitation for all has **related challenges** e.g., many drinking-water projects have failed because they drew too much groundwater or their water sources were contaminated. This in turn resulted in communities '**slipping back**' **into having no access**.
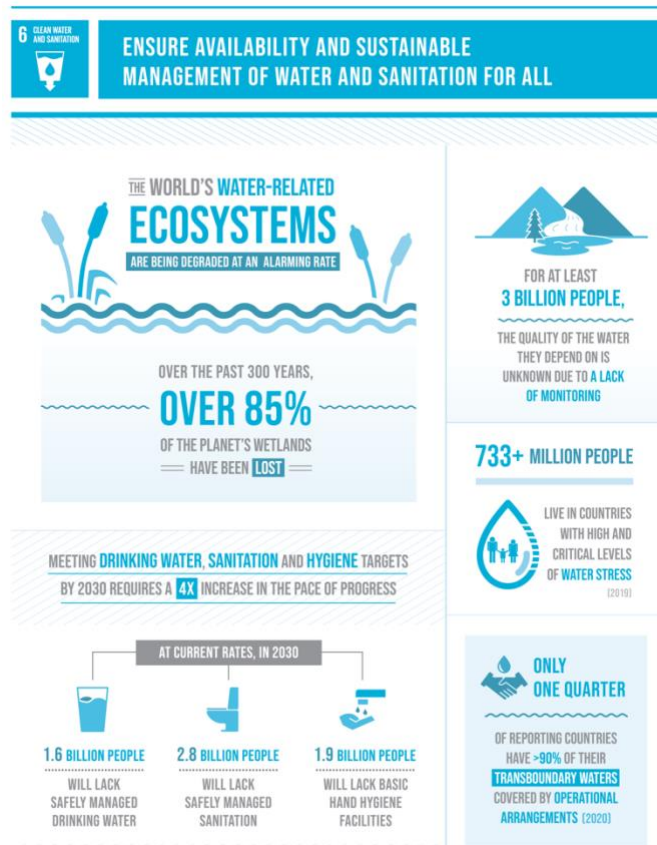
- Access to water and sanitation is associated with **other water-related SDGs** linked with sustainable agriculture, industry and natural ecosystems. Achieving targets in these SDGs require tougher political choices and strengthening of democratic processes in addition to infrastructure.

Outcome of the 2023 UN Water Conference
- There were **no binding commitments**. Under the Water Action Agenda, there were **713 diverse voluntary commitments** by philanthropic donors, governments, corporations, and NGOs. 120 were relevant to India. They included a **US$ 50-billion** commitment from India to **improve rural drinking water services** under *Jal Jeevan Mission*.
- Some important commitments and projects announced at the Conference include:
  o **Technology**: There were specific innovations in wastewater treatment, solar treatment of water in remote areas and a number of proposals for incubation platforms like **IBM Sustainability Accelerator** focused on water management.
  o **Knowledge sharing**: One useful tool is the **W12+ Blueprint,** a UNESCO platform that hosts city profiles and case studies of programs, technologies, policies that addresses common water security challenges.
  o **Capacity building**: Many people lack access to basic services because they are unable to advocate for their rights. Efforts like the **Making Rights Real initiative** offered to help marginalized communities understand how to exercise their rights.
  o **Environmental, social, and corporate governance**: Lack of proper incentives is major barrier to farmers and industries using water more efficiently. Specifically, farmers aren't becoming more efficient or going pesticide-free unless **consumers are willing to pay a premium for more sustainably produced goods**. Water Action Agenda is a positive step in improving effective water governance.
- The conference held a **mid-term review of the Water Action Decade 2018-2028**.

8. Salt Marshes

News: According to latest research, more than 90% of salt marshes may be lost to sea level rise by the end of the century.

About Salt Marshes
- Salt marshes are **coastal wetlands** that are **flooded and drained by salt water** brought in by the **tides**.
- They are found in **intertidal zones** along coastlines, usually in **estuaries or bays**.
- They are dominated by grasses and other salt-tolerant plants such as sedges, cordgrass, rushes, and mangroves.
- Salt marshes occur worldwide, particularly in middle to high latitudes.

Importance of Salt Marshes
- Salt marshes are essential for **healthy fisheries**, **coastlines**, and **communities**. They provide essential food, refuge, or nursery habitat for more than 75% of fisheries species, including shrimp, blue crab, and many finfish.
- Salt marshes also **protect shorelines from erosion by buffering wave action** and trapping sediments.
- They **reduce flooding** by slowing and **absorbing rainwater**.
- They **protect water quality** by filtering runoff, and by metabolizing excess nutrients.

Study on Salt Marshes

- A study done by Marine Biological Laboratory (MBL), Massachusetts (US), has found that increased nitrogen favoured higher levels of vegetation and accretion of the marsh surface. However, more than 90% of the salt marshes of the world will likely be submerged by the end of the century.
- The only choice for salt marshes then would be to migrate landward. But this might be impacted by anthropogenic activities and other factors.

9. Coral Species on Plastic Waste

News: A Study has reported that coastal lifeforms have colonised plastic items in the Great Pacific Garbage Patch.

About Anthropocene Epoch

- Anthropocene Epoch is the proposed period in the geologic time, as part of the **Quaternary Period** (2.6 million years ago to present).
- It is characterized by **substantial influence** of **collective human activities** on **Earth's surface**, **atmosphere**, **oceans** and **system of nutrient cycling**.
- There is **lack of scientific consensus** on the **beginning of Anthropocene Epoch**. Various starting points include the beginning of industrial revolution, use of first nuclear weapons and phase of rapid industrialization post the 2nd World War.

About Great Pacific Garbage Patch

- Some water currents form loops within the oceans. These loops are **called gyres.**
- The **North Pacific Subtropical Gyre** is located just north of the equator in the Pacific Ocean. It includes the **Kuroshio, North Pacific, California, and North Equatorial currents** and moves in a **clockwise direction**.
- These currents flow **adjacent to 51 Pacific Rim countries.** Any trash that enters one of these currents could become part of the gyre.
- A lot of plastic debris in the currents has collected along a **long east-west strip**. Large patch of garbage at the eastern-western ends has been referred to as **Great Pacific Garbage Patch**.
- It is estimated to be **1.6 million sq. km big and more than 50 years old.** It contains **~45,000-130,000 metric tonnes of plastic**, predominantly **in the form of microplastics.** The more visible objects that haven't yet broken down into smaller particles accounted for **92% of the plastics in 2018.**
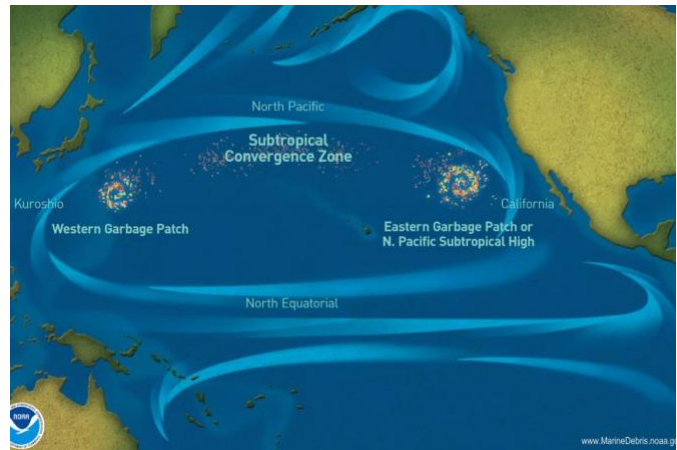
Findings of the Study

- Researchers have found debris on the West coast of North America containing live **life forms originally found in Japan**.
- In a sample of 105 items from the debris, 98% items had **invertebrate organisms.** They also found that **pelagic species (species of open ocean)** were present on 94.3% and **coastal species** on 70.5% items.
- The study found organisms belonging to **46 taxa**. 37 of them were coastal, the rest were pelagic. Among both **coastal and pelagic organisms, crustaceans** were the most common.
- Nearly all taxa were of **Northwest Pacific origin**, including Japan. The study reported a strong **positive correlation between reproduction and mobility.**

Relevance of the Findings of the Study

- The introduction of species on plastic items has given rise to a **new kind of standing coastal community** in the open ocean. Researchers have named it the **neo-pelagic community.**
- The **neo-pelagic community** is not misplaced from other areas of the oceans but **lives on plastic items in the garbage patch**, including reproducing there.
- Another study on rocks had found **polyethylene films** chemically bonded with rocks in China. This is reminiscent of the **'anthropoquinas' of Brazil** (sedimentary rocks embedded with plastic earrings) and the **'plastiglomerates' of Hawaii** (beach sediment + organic debris + basaltic lava + melted plastic).

History, Art and Culture

1. Excavation in Pattanam Site

News: Recent excavation has revealed that the Pattanam Site in Kerala was a thriving urban centre from the 5th century BC to the 5th century AD.

About Pattanam Site

- **Pattanam Site is located in Central Kerala on the coast of Arabian Sea.**
- Pattanam is part of Muziris, 'first emporium' of the Indian Ocean. It is an example of the **Greco-Roman classical age** coming into direct contact with an ancient South Indian civilisation.
- *The name Muziris is believed to have originated from the Tamil word 'Muciri', which means 'the land of seven rivers'.*
- It is the **only multi-cultural archaeological site on the southwestern coast** of the Indian subcontinent. The excavations have unearthed over 45 lakh sherds (ceramic fragments). Of these ~1.4 lakh belong to the littoral regions of the Mediterranean, the River Nile, the Red Sea, the western and eastern Indian Oceans, and the South China Sea.
- The recent findings also include the **seal of a sphinx**, native to the **ancient Greek city of Thebes**.

Key Findings on Pattanam Site

- **No Idol Worship**: The site is devoid of any idols of gods and goddesses or grandiose places of worship.
- **No Social Hierarchy**: Evidence for institutionalized religion or caste system in Pattanam is absent. This suggests that secular ethos were prevalent in the society.
- **No Weaponry**: The absence of sophisticated weaponry also stands in contrast with some other Pattanam-contemporary sites. This suggests that the people of Pattanam may have been peace-loving people who did not harbour religious and caste boundaries.
- **Cremation and Burial Practices**: The burial practices were confined to fragmentary skeleton remains. The burials were of a 'secondary' nature; the dead were cremated first and the osseous remains were ceremoniously buried later. People of

widely differing backgrounds were buried the same way, which also highlights the prevalence of a secular society.

- **Connected to nature**: Material evidence strengthens the belief that Pattanam society may have **lived in harmony with nature**. Pattanam society did not view people as separate from nature. This had the positive outcome of living life in an **ecologically responsible manner**.

2. About Chola Kingdom

News: A rare bronze idol of Lord Hanuman has been retrieved by Tamil Nadu Police. It was stolen from a Chola-era temple in Ariyalur district a decade ago and auctioned in Australia.

About Important Rulers of Chola Empire

- *Vijayalaya*: The Chola Empire was founded by *Vijayalaya*. He took over the Tanjore kingdom in the 8th century and led to the rise of the mighty Cholas by defeating the Pallavas. **Tanjore was made the first capital of the Chola Empire**.
- *Aditya I*: He succeeded *Vijayalaya*. He defeated king *Aparajita* and the empire gained massive power under his reign. He conquered the Pandya Kings along with the Vadumbas and established control over the Pallavas' power in the region.
- *Rajendra Chola:* He succeeded *Rajaraja Chola*. *Rajendra I* was the first to venture to the banks of the Ganges. He was popularly called the **Victor of the Ganges**. The new capital of empire was called the **Gangaikondacholapuram**. He received the title of '*Gangaikonda*'. This period is referred to as the **golden age of the Cholas**. After his rule, the kingdom witnessed a widespread downfall.
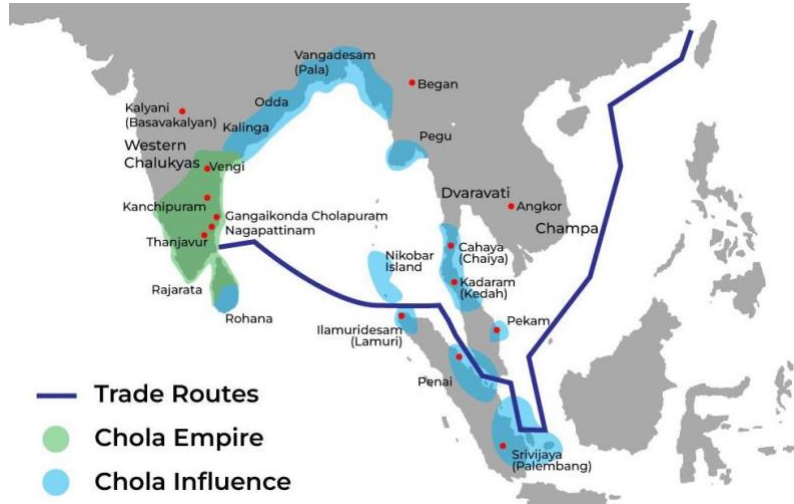
About Administration and Governance Under the Cholas

- The Chola kingdom was **divided into provinces** which were known as *Mandalams*.
- Separate governors were held in charge for each *mandalam*. *Mandalams* were further **divided into districts** called *Nadus* which consisted of tehsils.
- Each village acted as a **self-governing unit**.
- The Cholas were ardent patrons of art, poetry, literature and drama; the administration was seen investing in the construction of several temples and complexes with sculptures and paintings.
- The King remained the **central authority** to make the major decisions and carry out the governance.

(Refer EPIC October 2022 for Features of Chola Kingdom).

3. Uttaramerur Inscription and Democracy in Ancient India

News: The Prime Minister has referred to the Uttaramerur inscription in Kanchipuram, Tamil Nadu, while discussing India's democratic history.

About Uttaramerur

- Uttaramerur lies in the **present-day Kanchipuram district in Tamil Nadu**. It is known for its historic temples built during **Pallava** and **Chola** rule.
- The famous inscription from **Parantaka I's reign** is found on the walls of the **Vaikunda Perumal Temple**.

About Uttaramerur Inscription

- The inscription gives details of the functioning of the local *sabha*, i.e. the village assembly. A *sabha* was an **assembly exclusively of *Brahmans*** and had specialized committees tasked with different things.
- The inscription provides details regarding selection process, qualifications, roles and responsibilities and the conditions for removal etc.
- **Qualifications** included **ownership of a certain amount of land**, **a house**, being between the **age of 35 and 70** and '**knowing *mantras* and *Brahmanas***' (from the Vedic corpus). An exception can be made on land ownership if the person has learnt at least **one V*eda* and four *Bhashyas*. One must also be 'well-versed in business' and 'virtuous'.
- There were 30 wards. Residents of these 30 wards would assemble and select one representative for the village assembly. All those eligible and willing would write their names on **palm leaf tickets** following which, the representative would be chosen based on an **elaborate draw of lots**, conducted by priests.
- The inscription lists several factors which disqualify someone and their family like:
  - **Not having submitted accounts** while previously serving on a committee.
  - Committing any of the first **4 of the 5** '**great sins**' (killing a Brahman, drinking alcohol, theft and adultery).
  - Being associated with **outcastes**, and eating 'forbidden' dishes.

Credentials as a Democracy

- Critics say the system was far from being truly democratic.
  - The membership of Sabha was restricted to land-owning Brahmans.
  - The members were elected from a limited pool of eligible candidates through drawing of lots.
- However, this does not mean that this inscription should not be cited as a precedent for democratic functioning.
- The inscription gives **details of a system of local self-government**, outside the direct authority of the king. The inscription is like a **Constitution**: it describes both the **responsibilities of members** of the *Sabha* as well as the **limitations to the authority of these members**.
- Hence, if the **rule of law** (rather than rule by personal diktat) is an essential component of a democracy, the Uttaramerur inscription describes a system of government which follows that.

4. *Mera Gaon Meri Dharohar*: Mission to Map Rural India's Cultural Assets

News: *Mera Gaon Meri Dharohar* Programme of the National Mission for Cultural Mapping documents distinctive features of more than 1 lakh villages across India.

About the *Mera Gaon Meri Dharohar* (My Village My Heritage) Programme

- It is being carried out under the National Mission for Cultural Mapping (NMCM).
- The survey seeks to **document the cultural identity at the village level** by **involving citizens** to share what makes their village, block or district unique.

- The **Ministry of Culture** has partnered with the **Common Services Centres** (CSC), under the **Ministry of Electronics & IT** (MEITY) for this programme.
- The survey process involves a CSC **Village Level Entrepreneur** (VLE) conducting meetings with locals. The VLE then uploads interesting facts about the village, places of interest, customs and traditions, famous personalities, festivals and beliefs, art and culture, etc. on to a special application.
- More than **one lakh villages across the country have been documented till now**. Villages have been broadly divided into 7-8 categories based on parameters like ecology, development (e.g., they produce a special product) or connection to some historical/mythological events e.g., **Raini in Uttarakhand** is famous for Chipko movement, **Modhera in Gujarat** is first solar-powered village in India, **Pandrethan in Kashmir** is the village of Shaivite mystic **Lal Ded**.

Miscellaneous

1. South Atlantic Anomaly in Earth's Magnetic Field

News: NASA is actively monitoring South Atlantic Anomaly in Earth's magnetic field.

About the South Atlantic Anomaly

- It signifies the **weakening of the Earth's magnetic** field between Africa and South America.
- The anomaly exists because here the Earth's inner **Van Allen radiation belt** comes closest to the surface (of Earth), causing an **increased flux of energetic particles**. A Van Allen radiation belt is a zone of energetic charged particles, most of which originate from the solar wind, that are captured by and held around a planet by that planet's **magnetosphere**.

Impact of South Atlantic Anomaly

- The anomaly generally doesn't affect life on Earth. However, **orbital spacecraft** (Low Earth Orbit) passing directly over the region of anomaly may be vulnerable.
- **Reduced magnetic field strength** can mean that satellites can be struck by **high-energy protons** from the Sun, causing technical failures (due to malfunction or short-circuit).

Causes of South Atlantic Anomaly

- The primary source of earth's magnetism is considered to be a swirling ocean of **molten iron** inside Earth's **outer core**. The movement of that mass generates **electrical currents** that create Earth's magnetic field, but non-uniformly.
- A huge reservoir of dense rock called the **African Large Low Shear Velocity Province**, located about 2,900 kms (1,800 miles) below the African continent, **disturbs the field's generation** resulting in the dramatic weakening effect. The weakening is aided by the **tilt of Earth's magnetic axis**.
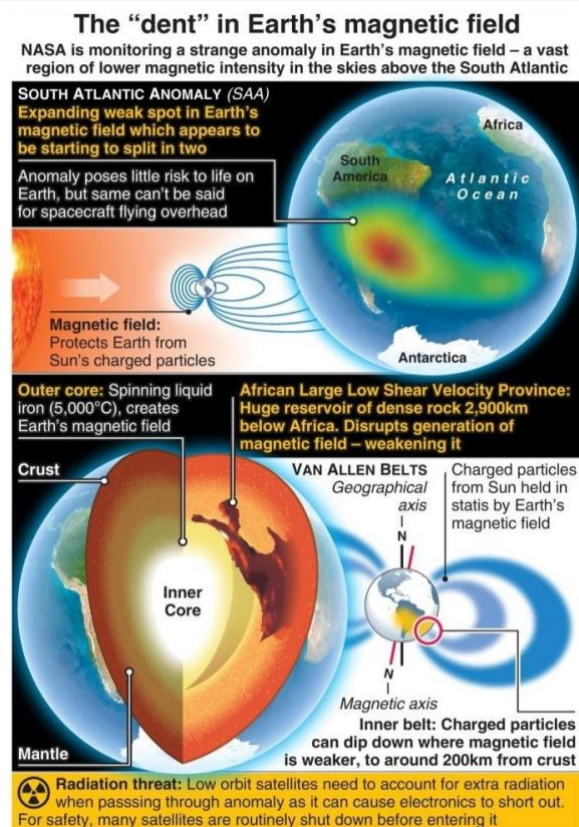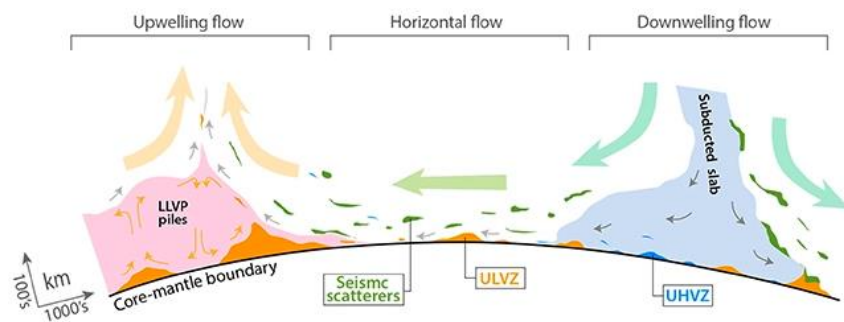
2. New Layer at the Core-Mantle Boundary

News: Geologists have discovered a new layer between the core and mantle.

About the Discovery

- Earth's structure has been divided into 4 layers: Crust, Mantle, Outer and Inner Core.
- Scientists have discovered a **new layer between the core and the mantle**. The new layer is likely to be a **sunken ocean floor** seen only in isolated patches previously.
- This layer is **pencil-thin in geological terms**, measuring only tens of kilometres, which is minuscule when compared to the thickness of Earth's other layers.
- This layer can be **thought of as mountains along the core-mantle boundary**, with heights ranging from less than about 3 miles to ~ 25 miles.

*Scientists studied the seismic waves and identified **Ultralow Velocity Zones** (ULVZs) at the **Core-Mantle Boundary**. These ULVZs are most likely **oceanic crust** buried over millions of years. There is a hypothesis that this ancient ocean crust **could be wrapped around the entire core**.*

Significance of Discovery

- The analysis could reveal how this layer **plays a role in heat to escape from the core**. The Core is the portion of Earth that powers the magnetic field.
- This new discovery opens up **new avenues of research for geologists** and could lead to a better understanding of Earth's geological processes.
- The detailed method used to probe a large portion of the Southern Hemisphere using sound wave echoes from the core-mantle boundary could be used in other parts of the world to uncover similar anomalies. Scientists had recently predicted the presence of a new layer in the Inner Core as well. *(Refer EPIC March 2023 for New Layer in Earth's Inner Core).*

3. Flash Droughts

News: A study has found that Flash Droughts are occurring more often with greater speed in many parts of the world. The rising frequency of Flash Droughts is being attributed to Climate Change.
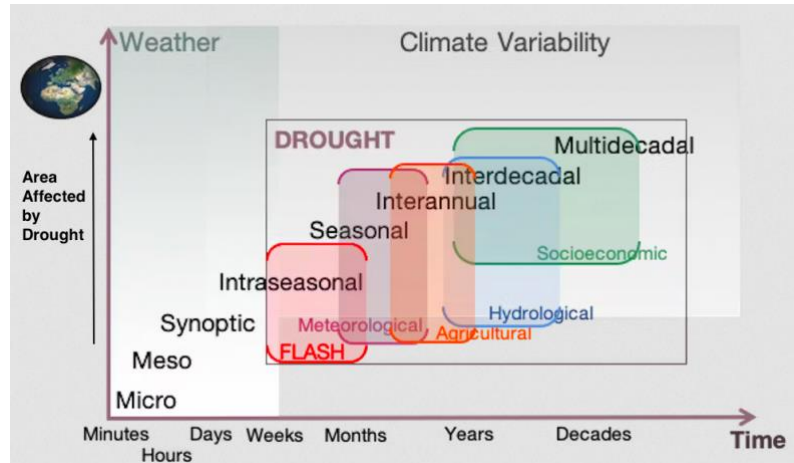
About Flash Droughts

- Flash droughts occur very quickly due to the **rapid depletion of soil moisture**.
- These conditions are different from normal drought conditions that develop in months. Flash droughts happen **within a week or two**.
- Slow-evolving droughts occur due to a decline in precipitation. Flash
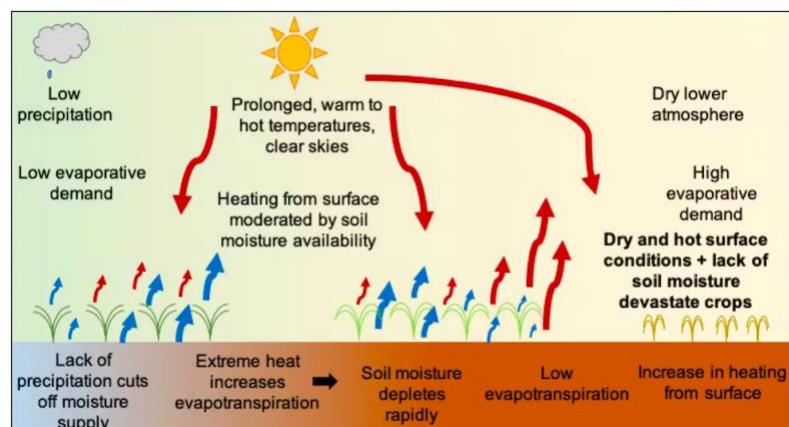
Droughts occur due **combination of low precipitation** and **abnormally high temperatures** (heat wave conditions), **high winds** and/or **changes in radiation**.

- The rapid changes can quickly raise rate of evapotranspiration and remove available water from the landscape.

About the Study on Flash Droughts

- Flash droughts are occurring more often and with greater speed. This is happening primarily due to climate change.
- Flash Droughts are occurring more often in tropical places like India, Southeast Asia, sub-Saharan Africa and the Amazon basin.
- Rising frequency of Flash Droughts can have grave consequences for livelihoods of people dependent on rain-fed agriculture.

4. Women and Men in India 2022 Report

News: The Ministry of Statistics and Programme Implementation has released the Women and Men in India 2022 Report.

About the Women and Men in India 2022 Report

- **Sex Ratio at Birth**: The sex ratio at birth went up by 3 points to 907 in 2018-20 from 904 in 2017-19. India's overall sex ratio is expected to improve to 952 by 2036.
- **Labour Force Participation Rate**: It is defined as the percentage of people in the labour force of India in the total population. The rate was 77.2 for males and 32.8 for females in 2021-22, with no improvement in this disparity over the years.
- **Population Growth**: Population growth rate (annual) has slowed from 2.2% in 1971 to 1.1% in 2021. It is projected to fall further to 0.58% in 2036.
  - In absolute figures, this translates into 1.2 billion people with 48.5% female population (Census 2011) to an expected 1.5 billion in 2036 with a marginal improvement in the female population share (48.8%).
- **Fertility Rate**: The Total Fertility Rate (TFR) has reduced from 2.3 in 2016 to 2.0 in 2020. Between 2016 and 2020, the **age-specific fertility rate** (number of live births in a specific age group of women per thousand female individuals of that age group) for the 20-24 years and 25-29 years age group reduced from 135.4 and 166.0 to 113.6 and 139.6 respectively.

5. World Happiness Report, 2023

News: The UN Sustainable Development Solutions Network has released the World Happiness Report 2023.

About the World Happiness Report

- **Parameters:** The report measures happiness based on: **(a)** GDP per capita; **(b)** Social support; **(c)** Healthy life expectancy; **(d)** Freedom to make life choices; **(e)** Generosity; **(f)** Perception of corruption.
- Finland is the happiest country. Denmark and Iceland follow at 2nd and 3rd ranks.
- Afghanistan is at the bottom. Its humanitarian crisis has worsened after Taliban takeover in 2021.

- India has been placed at the 126th position out of 137 countries. It has improved from the 2022 index where it was ranked 136th
- India has been ranked below Pakistan, Nepal, China, Bangladesh, and Sri Lanka. In Asia, India is only better off than Afghanistan which was placed at 137th position.

Issues Associated with the Report

- **Each individual can have a subjective notion about happiness. Quantifying happiness is therefore a difficult exercise.**
- Critics have pointed out high use of anti-depressants in the EU to point out **poor status of mental health** and 'happiness'.
  - According to OECD, the **use of antidepressants rose** nearly two and half times across Europe between 2000 and 2020. Iceland is at the top, followed by Sweden and Norway. Yet these countries have been rated among the happiest.
  - The measures used to map happiness often don't **account for things such as loneliness** in highly developed societies.
- The Report neglects aspects like **celebration of festivals** together, divorce rates, depression, **closeness of family** (Grandparents, Parents, Children) and peace people feel by their relationship with God etc.
- The Report uses **Gallup World Poll** for assessment. People are asked about where they are currently in life (on a scale of 1 to 10) versus where they could best possibly be (full 10 score). If the respondent gives a low rating, then the country is considered not happy. **Having aspiration is being considered as unhappy**.
- The Poll survey size is limited to 500-2000 persons per country. It is **too small a sample size to extrapolate for 1.4 billion persons**.

6. People and Planet Report

News: Researchers from the Earth4All Initiative have released a report titled 'People and Planet, 21st Century Sustainable Population Scenarios and Possible Living Standards Within Planetary Boundaries'.

About the Key Findings of the Report

- The report has published predictions about the world's human population. The researchers have advanced two scenarios in the report.
- **Scenario I "Too Little, Too Late"**: Researchers predicted that if economic development continues as it has in the last 5 decades, the world's population would peak at 8.6 billion in 2050, roughly 25 years from now and decline to 7 billion by 2100.
- **Scenario II "The Giant Leap"**: The researchers concluded that the population will peak at 8.5 billion by 2040 (a decade sooner than 2050) and then rapidly decline to around 6 billion by 2100. This will be due to investments in poverty alleviation, gender equity, education and health, ameliorating inequality, and food and energy security.
- The report clarified that these population predictions are more optimistic than the historic fear-mongering and regressive development policies engendered by the '**population bomb**' metaphor.

Interpretation of Findings

- These findings proposed that the better and more equitable policies can enable stabilization of population at a much lower levels than predicted by other reports.
- The **UN 'World Populations Prospects 2022'** report has predicted steady rise of population to 10.4 billion by 2080 and stabilize at that level by 2100. *(Refer EPIC July 2022 for Issues Related to Population in India).*

7. Status of Women in Agrifood Systems: FAO Report

News: The Food and Agriculture Organization has released a report titled 'The Status of Women in Agrifood Systems'.

Key Findings of the Report

- Almost 4 billion people rely on agri-food systems for their livelihoods. ~50% are women and are prevented from realizing their potential.
- Women are held back by: **(a)** Inequality and discrimination related to rigid gender norms and roles and discriminatory social structures; **(b)** Marginalization and denial of agency; **(c)** Work in poorer conditions with lower wages; **(d)** Greater burden of care and unpaid work. These impediments are compounded by additional challenges: **Climate change**, **Economic and price shocks**, **Conflicts** and the Increasing risks of **gender-based violence**.
- Women have gained greater access to some resources (digital technology, financial services) but gaps are either unchanged or growing especially for rural women. Since the outbreak of COVID-19, the gap between women's and men's food security has grown to 4.3%.
- Women earn **82 cents for every dollar earned by men**. Closing the gender gap in farm productivity and the wage gap in agri food-system employment would increase global GDP by 1% or nearly US$1 trillion.
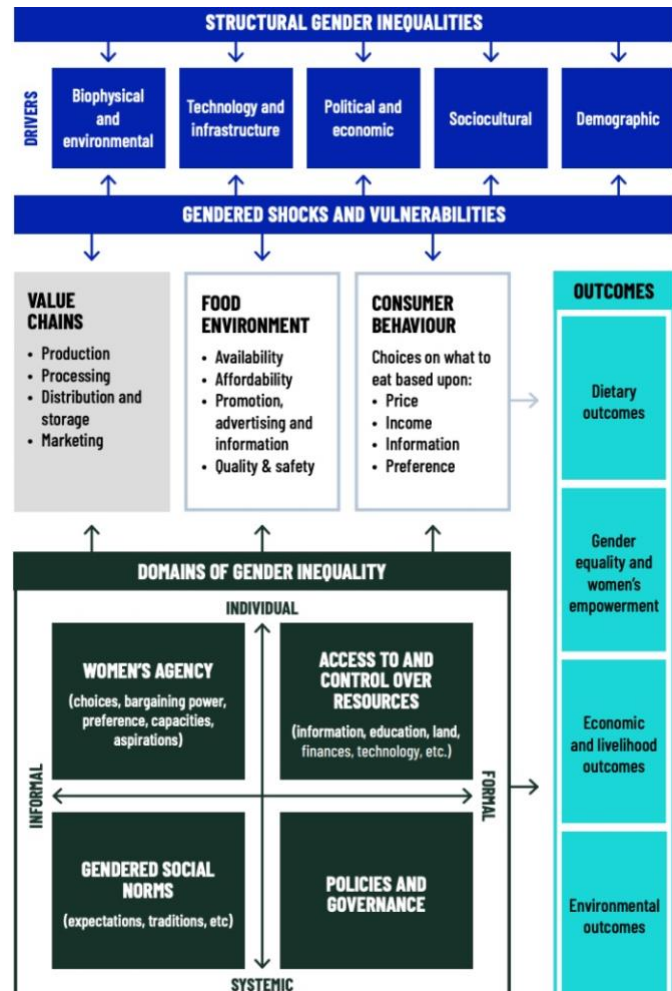
Recommendations given by the Report

- Close the gender gaps related to access to assets, technology and resources.
- Access to childcare has a large positive effect on mothers' employment, while social protection programmes have shown to increase women's employment and resilience.
- Address the continued lack of high-quality data disaggregated by sex, age, and other forms of social and economic differentiation which is paramount to monitoring and accelerating progress towards gender equality in agrifood systems.

Pointly

1. **Zealandia**

   Zealandia is an almost entirely **submerged mass of continental crust** in Southern Pacific Ocean. It had subsided after breaking away from **Gondwanaland** 83–79 million years ago. It has been described variously as a **submerged continent**, **continental fragment**, and **microcontinent**. It is also known as *Te Riu-a-Māui* in the Maori Language. It is **5 million square kms** in size (~half the size of Australia). The vast majority of the continent is located beneath 6,560 feet (2km) of water. The part of Zealandia which is above water forms the foundation of **New Zealand's North and South Islands** as well as the **island of New Caledonia**.

   Te Riu-a-Māui / Zealandia is Earth's eighth continent.

   94% underwater

   Area 5 million sq km

   Te Riu-a-Māui / Zealandia has the features of Earth's seven other continents:
   - Elevation above surrounding oceanic crust
   - Diverse geology
   - Crust thicker than that found in oceans
   - Area greater than 1 million sq km
   - Clearly defined limits

2. **Good Friday Agreement (Belfast Agreement)**

   The US President visited the **capital of Northern Ireland**, **Belfast**, to mark the 25th anniversary of the **Good Friday Agreement**. The Agreement was designed to bring an end to 30 years of violent conflict in Northern Ireland. Northern Ireland was created in 1921 and **remained part of the UK when the rest of Ireland became an independent state**. A conflict ensued between Unionists (remain in UK) and Nationalists (independent). It became violent in 1960s. The Agreement made **Northern Ireland part of the UK**, and people born in Northern Ireland can have Irish or British nationality or both. The armed struggle was brought to an end.
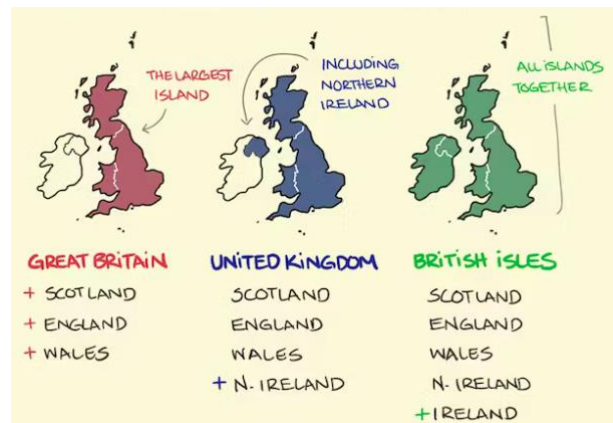
3. **Extended Fund Facility (EFF)**

   The International Monetary Fund (IMF) has cleared a $3-billion-Extended Fund Facility (EFF) for Sri Lanka. The purpose of EFF is to **provide assistance** to countries experiencing serious **payment imbalances** because of structural impediments or slow growth and an inherently weak balance-of-payments position. EFF has comprehensive programs with a focus on **policies needed to correct structural imbalances**. IMF also provides support to countries facing macroeconomic crises through a number of lending programs such as the **Extended Credit Facility**, the **Flexible Credit Line**, the Stand-by Agreement etc.

4. Trade Finance Gap

India has highlighted the widening Trade Finance Gap in a G20 Trade and Investment Working Group (TIWG) meeting. Trade finance provides **financing and risk mitigation** that helps produce and **move goods to markets**. This is critical for the economic growth that creates jobs and improves peoples' lives. The trade finance gap is the **unmet demand for trade finance** and is calculated based on **rejected applications for trade finance funding**. According to the UN, without sufficient levels of trade finance, the world will not be able to realize many SDGs. As estimated by ADB (Asian Development Bank), the gap has risen to US$ 2 trillion.

5. CPTPP

The UK has agreed to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). The CPTPP is a Free Trade Agreement (FTA) between 11 countries: **Australia**, **Brunei**, **Canada**, **Chile**, **Japan**, **Malaysia**, **Mexico**, **Peru**, **New Zealand**, **Singapore** and **Vietnam**. It was signed in 2018 in Santiago, Chile. The agreement evolved from the **Trans-Pacific Partnership** (TPP) which was never ratified due to the withdrawal of the US. The UK will become the 12th member,
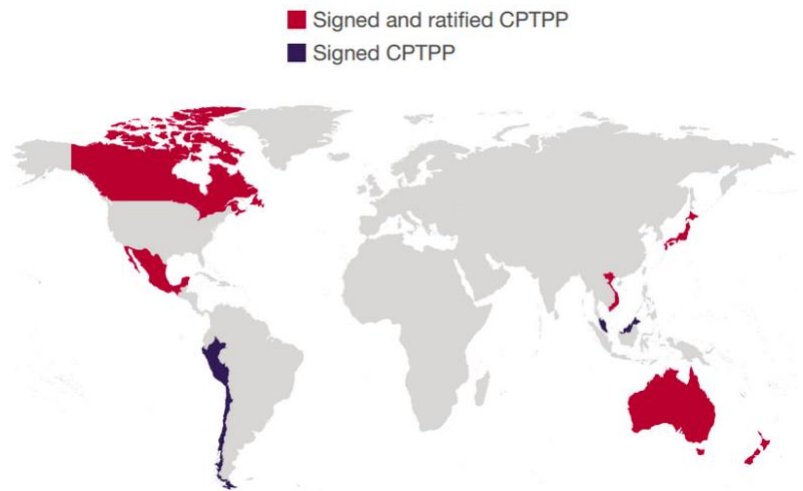
6. UN Statistical Commission

India has been elected to the UN Statistical Commission for a 4-year term. The Commission was established in 1947. It is the highest body of the global statistical system. It is responsible for **setting statistical standards** and the **development of concepts and methods** and their implementation at the national and international levels. It is a subsidiary of the **UN Economic and Social Council** (ECOSOC). It is headquartered in New York. It consists of 24 members elected by the ECOSOC.

7. Anti-Spyware Declaration

The US and 10 other nations have issued the the anti-spyware declaration. **India is not part of this declaration**. The declaration recognises the **threat posed by the misuse of commercial spyware** and the need for strict **domestic and international controls** on the **proliferation and use** of such technology. The declaration committed to **preventing the export of software**, **technology**, and **equipment to end-users** who are likely to use spyware for **malicious cyber activity**, including unauthorized intrusion into information systems. Australia, Canada, Costa Rica, Denmark, France, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States have signed this declaration.

8. Integrated Mobile Camouflage Systems (IMCS)

The Indian Army has placed order for Integrated Mobile Camouflage Systems (IMCS) with an **Indian start-up** Hyper Stealth Technologies Private Limited. IMCS is a technology to **improve camouflage**

(hiding) capabilities for **military vehicles and personnel**. The IMCS system uses a network of sensors, cameras, and screens to create an **adaptive camouflage system** that blends in with the environment. ICMS detects the surrounding environment, analyses and **generates colour and texture pattern that mimics the environment**. **Network of screens and projectors** are used to display the pattern on surface of the vehicle or the soldier's uniform, providing them with **enhanced concealment in the field** and reduce enemy's ability to detect them.

9. *Pralay* Missile

Pralay is a **quasi-ballistic surface-to-surface missile**. The missile has been developed to defeat interceptor missiles as it **has the ability to change its path mid-air**. The missile is designed to destroy enemy radar, communication installations, command centres and airfields. The missile can hit targets 150-500 kms away. The **missile guidance system** has integrated avionics and cutting-edge navigation.

The missile is powered by a **solid propellant rocket motor**. Like most **tactical ballistic missiles** it is **mobile** which means it can be used quickly on the battlefield.

Pralay will be India's **first tactical quasi-ballistic missile**.

PRALAY: Surface-to-Surface Missile

Pralay is a canisterised tactical, surface-to-surface, and short-range ballistic missile for battlefield use developed by the Defence Research and Development Organisation of India

ENGINE: **Two stage** rocket motor with third stage MaRV

SPEED: **Mach 1 to 1.6**

RANGE: **150-500 km**

TRAJECTORY: **low**

GUIDANCE SYSTEM: Inertial navigation system

LAUNCH PLATFORM: **8x8 BEML**-Tatra transporter erector launcher

MASS: **5 tonnes** (4.9 long tons; 5.5 short tons)

OPERATIONAL RANGE: **150–500 km** (93–311 mi)

Warhead Bay →

Rocket Motor →

Controls→
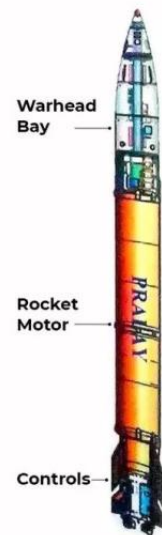
Can change its path after covering certain range mid-air and is difficult to be tracked

It is capable of being launched from a mobile launcher and has latest navigation system and integrated avionics

It has the **capability to defeat interceptor missiles**

10. Large Hadron Collider (LHC)

Large Hadron Collider is the world's **largest and highest-energy particle collider**. It was built by the European Organization for Nuclear Research (CERN) between 1998 and 2008. The accelerator lies in a tunnel **100 meters underground at CERN**, on the Franco-Swiss border near Geneva, Switzerland. Its purpose is to study minuscule **subatomic particles** which are the smallest known units of matter and the building blocks of all things. Its work involves **colliding beams of protons at a very high speed** (**99.9999991% speed of light**) in the 27-kilometre ring tunnel of the LHC. Scientists record and analyse the collisions of the particles and use it to study **dark matter**, **dark energy** and other unsolved mysteries of the Universe. In 2012, scientists at CERN announced the **discovery of the Higgs boson** or the 'God Particle', the **particle that gives all matter its mass**. CERN now plans to build even bigger collider. LHC generates energy level up to 13.6 trillion electron volts, the new proposed collider will work at energy levels of up to 100 trillion electron volts.

11. International Liquid Mirror Telescope (ILMT)

ILMT is located at an altitude of 2450 metres at the Devasthal Observatory campus owned by Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital in Uttarakhand. ILMT

employs a 4-metre-diameter **rotating mirror** made up of a **thin layer of liquid mercury** to collect and focus light. The telescope has been set up by India in collaboration with **Belgium**, **Canada**, **Poland** and **Uzbekistan**. ILMT is the **first liquid mirror telescope** designed exclusively for astronomical observations. Conventional telescopes have highly polished glass mirrors while ILMT uses liquid mercury. In contrast to conventional telescopes, the **liquid-mirror telescopes are stationary telescopes** that image a strip of the sky which is at the zenith (directly above) at a given point of time in the night.

12. JUICE Mission

The European Space Agency (ESA) has launched the **Jupiter Icy Moons Explorer Mission**. The spacecraft will reach Jupiter by 2031. The objectives of the mission is to make **detailed observations of Jupiter** and its **3 large ocean-bearing moons**: **Ganymede**, **Callisto** and **Europa**. The main focus will be on Ganymede. It is the largest moon in the Solar System, larger than Pluto and Mercury and is the only one to **generate its own magnetic field**. It will also study Jupiter's atmosphere and its dynamics. There is possibility of presence of life on these 3 moons in the form of microbes. JUICE mission isn't equipped to detect life. But it is capable of finding out whether the conditions to sustain life are present.

Juno has been orbiting Jupiter since 2016. NASA's Clipper scheduled to be launched in October 2023 will reach Europa in 2030.

A TRIO OF MISSIONS: JUNO, JUICE AND EUROPA CLIPPER

Their destination may be the same, but Juno, Juice and Europa Clipper are all unique missions with different goals and instruments. Juno's discoveries are being used to optimise plans for Juice and Europa Clipper.

JUNO
Target: Jupiter
Arrival: 2016
Special skill: a polar orbit that goes very close to Jupiter, allowing deep mapping of its gravity and magnetic fields

JUICE
Targets: Jupiter, Ganymede, Europa, Callisto
Arrival: 2031
Special skill: observing Jupiter and its icy moons to provide a complete view of habitable conditions in the Jovian system

EUROPA CLIPPER
Target: Europa
Arrival: 2030
Special skill: investigating the potential for life on Europa; helping select a landing site for a future Europa lander

13. Cepheid Star

Cepheid Star is a type of variable star which **brightens and dims periodically**. Variable stars are stars that experience fluctuations in their brightness. Cepheids stars are hot and massive, often 5-to-20 times as much massive as Sun. They are known for their **tendency to pulsate radially** and **vary in both diameter** and **temperature**. Cepheid star's period (how often it pulsates) is **directly related to its**

Variable Star
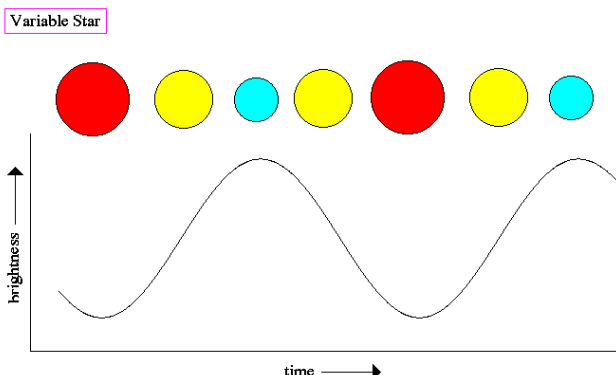
brightness

time

luminosity or brightness. They have luminosities 500-30,000 times greater than that of the Sun. They are useful in measuring **interstellar** and **intergalactic distances**.

14. Origins of 'Oumuamua'

In October of 2017, astronomers has spotted an object they called 'Oumuamua' ("*a messenger from afar arriving first*"). It was a reddish object, **shaped like a cigar**, and was over 300 feet long. Its trajectory indicated that **it had come from another solar system**, traveling through the Milky Way galaxy for millions of years before entering Solar System. It was even suggested


that the **object was an 'alien probe' sent by an advanced civilisation**. A recent study has concluded that '**Oumuamua**' **was a comet** that was ejected from its solar system of origin. Its **chemistry changed while travelling through interstellar space**. Hence it **lacked characteristic 'tail' of gas and dust, typical of comets**.

15. Active Vulcanism on Venus

Scientists have used images from '**Magellan**' mission to establish that **Venus may have active volcanoes**. A 2.2 square kilometre volcanic vent on Venus changed shape in 8 months to reach size of 4 sq. km, indicating volcanic activity. The vent is associated with **Maat Mons**, the Venus' second-highest volcano. Venus has over 1,600 major volcanoes, none were assumed to be active until now. Magellan spacecraft had operated between 1989-1994 before falling onto surface of Venus.

16. NISAR Satellite

The **NASA-ISRO Synthetic Aperture Radar (NISAR)** mission is a joint project between NASA and ISRO that will develop and launch a dual-frequency **synthetic aperture radar** on an **Earth observation satellite**. NISAR will be used for **remote sensing**, to observe and **understand natural processes on Earth**. It is expected to be launched in January 2024. NISAR will map the **most earthquake-prone regions** in the Himalayas. It will use two frequency bands: the **L-band** and **S-band** to image

the seismically active Himalayan region that will, every 12 days, create a '**deformation map**'. It can help give a**dvance warning of land subsidence**, as well as point to places that are at **greatest risk from earthquakes**.
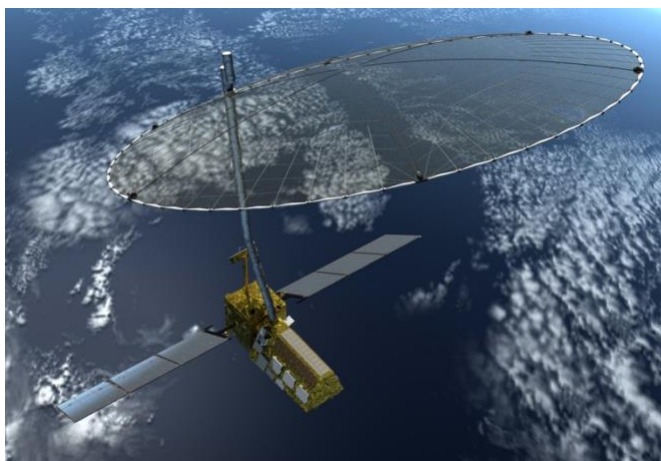
17. Use of AI/ML in Astronomy

Recently, astronomers used machine learning to mine data from South Africa's MeerKAT telescope. **MeerKAT**, (**Karoo Array Telescope**), is a radio telescope consisting of 64 antennas in the Meerkat National Park, in South Africa. It uses radio signals from space to study the evolution of the universe.

18. Magnetoresistance

Magnetoresistance is the tendency of a material to **change its electrical resistance in an externally-applied magnetic field**. This effect is used in **hard disk drives**, **magnetoresistive RAM in computers**, **biosensors**, **automotive sensors**, and **medical imagers**. Researchers have now discovered that graphene displays an anomalous giant magnetoresistance (GMR) at room temperature. *(Refer EPIC February 2022 for Graphene Innovation Centre in Thrissur, Kerala)*.

19. Uranium-241

Uranium-241 is an **isotope of Uranium**. It has an **atomic number of 92** and a **mass number of 241**. It has been **created artificially** by scientists in Japan. The discovery can have implications for **designing nuclear power plants** and models of exploding stars. **Isotopes** of an element have **same atomic number** (number of protons in nucleus) and **different mass number** (number of protons and neutrons in nucleus). Uranium has multiple isotopes like U-235, U-238 and now U-241. U-235 is used to produce energy in nuclear reactors. In nuclear physics, 'magic numbers' are specific numbers of nucleons (protons or neutrons) that correspond to particularly stable configurations (i.e., such isotopes are stable and undergo nuclear decay at a very slow pace) within atomic nuclei.

20. International Prize in Statistics, 2023 to CR Rao

Indian-American statistician **C Radhakrishna Rao** has been awarded the 2023 International Prize in Statistics often referred to as the **Nobel Prize of Statistics**. The International Prize in Statistics is awarded every two years. He was awarded for a paper published in 1945. It demonstrated 3 fundamental results that paved the way for the modern field of statistics including **Information geometry**. Information geometry has recently been used to aid the understanding and optimization of Higgs boson measurements at the Large Hadron Collider.

21. Racoon Stealer Malware

The National Technical Research Organisation (NTRO) has informed that 8 government entities were targeted by the Raccoon Stealer malware. It is a malware that steals data from an infected computer. The malware is usually delivered through email and is available as Malware-as-a-service.

Malware-as-a-Service (MaaS) is the term used to describe the **unlawful leasing of software and hardware** for the **purpose of conducting cyber-attacks**. This service is available for purchase on the **Dark Web** by hackers. It is often used by cybercriminals to launch attacks against individuals or organizations.

22. NTRO

It was established in 2004. It was set up after the 1999 Kargil conflict. It is a **technical intelligence agency** under the National Security Adviser in the Prime Minister's Office. The **National Critical Information Infrastructure Protection Centre** (NCIIPC) and the **National Institute of Cryptology Research and Development** (NICRD) function under NTRO. The NCIIPC has been created to monitor, intercept and assess threats to critical infrastructure and other vital installations from intelligence gathered using sensors and platforms which include satellites, drones etc.

23. Low Temperature Thermal Desalination (LTTD)

Chennai-based **National Institute of Ocean Technology** (NIOT) has set up Low-temperature Thermal Desalination (LTTD) plants in **Lakshadweep**. LTTD is a **desalination technique** for the **conversion of seawater to potable water**. It works on the principle that ocean water at the depth of 1,000 or 2,000 feet is about 4° C to 8° C colder than surface water. The cooler water is passed over vapours formed from pressurized salty surface water. Cooling of water vapours yields fresh water. *(Refer EPIC August 2022 for Low-Temperature Thermal Desalination (LTTD) and OTEC).*

24. Piezoelectric Effect in Liquids

Scientists have reported evidence of the piezoelectric effect in liquids for the first time. Piezoelectric Effect is the ability of certain materials to **generate an electric charge in response to applied mechanical stress**. **Quartz is the most famous piezoelectric crystal**. Piezoelectric crystals are used in clocks, wristwatches, cigarette lighters, electric guitars, TV remote controls, audio transducers, and other instruments where converting mechanical stress to a current is useful. Piezoelectric effect was discovered in 1880, in quartz, by Jacques and Pierre Curie. Discovery of piezoelectric effect in liquids can be utilized in new applications, especially in optics e.g., lenses with dynamic focus (that can be changed).

25. Ceramic Radome

Ceramic radome is regarded as an essential, state-of-the-art technology for ballistic and tactical missiles and high-performance aircraft. Missiles undergo extremely **high surface temperatures** while travelling through the atmosphere. To withstand those temperatures, radomes located at the **tip of a missile** are **made of ceramic**. The ceramic radomes have been developed indigenously by Research Centre Imarat (RCI) which has developed India's missile arsenal.

Ceramics are **inorganic** and **non-metallic materials**. Ceramics are **corrosion-resistant**, **hard**, and **brittle**. The majority of ceramics are **excellent insulators** and can **withstand high temperatures**.

Radomes are structures or enclosures designed to **protect an antenna** and **associated electronics** from the surrounding environment and elements such as rain, UV light, etc.

26. Prussian Blue Formulation Drug

The Ministry of Defence has announced that the Prussian blue insoluble formulations drug has been granted approval by the Drugs Controller General of India (DGCI). It is one of the critical medicines listed by the WHO for **radiological** and **nuclear emergencies**. It is used to treat the symptoms of Cesium or Thallium Contamination. The drug was developed under the **Technology Development Fund**.

27. Technology and Innovation Report, 2023 by UNCTAD

The United Nations Conference on Trade and Development (UNCTAD) has released the Technology and Innovation Report 2023. The Report analyzes the market size of **17 green and frontier technologies** such as artificial intelligence, the Internet of Things and electric vehicles, and their potential to create jobs. It also assesses **countries preparedness for frontier technologies** and presents a 'readiness index'.

28. Biotransformation Technology

A UK-based start-up claims to have developed a technology that can **change the state of plastics with time** and **make them biodegradable**. Plastics made using this technology look like normal plastic. After the product expires and is exposed to the external environment, it **self-destructs** and

bio-transforms into bioavailable wax. This wax is then **consumed by microorganisms**, converting waste into water, CO2, and biomass. The technology can have a revolutionary impact on **plastic waste management**.
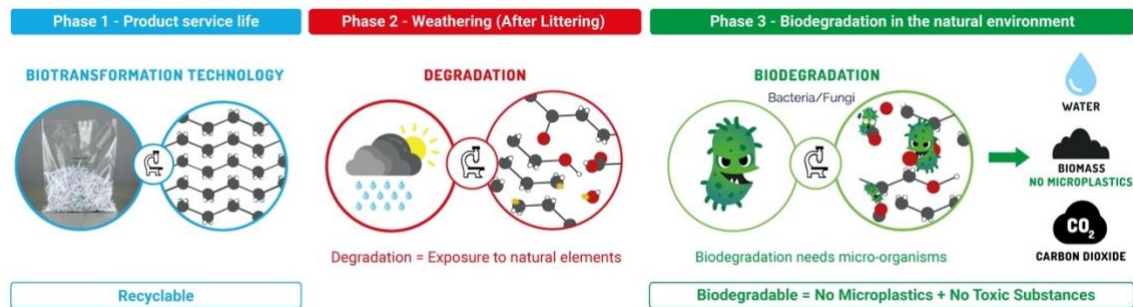
29. Clone of Indigenous Cow Breed

The National Dairy Research Institute, Karnal, has produced the first-ever clone of a calf belonging to the **indigenous Gir cow breed**. The calf has been named **Ganga**. Scientists used **three animals for producing this calf**: Oocyte was taken from the Sahiwal breed, a somatic cell from the Gir breed, and a surrogate animal was a crossbreed. **Gir**, **Sahiwal**, **Tharparkar**, and **Red Sindhi** are the Indian cattle breeds that are crucial for the Indian dairy industry's growth.

30. Cloning

Cloning involves a number of different processes that can be used to **produce genetically identical copies of a biological entity**. The copied material with same genetic makeup as the original, is referred to as a clone. Cloning can be **natural or artificial**. Natural Cloning occurs through **vegetative reproduction in plants**, (water hyacinth producing multiple copies of genetically identical plants through apomixis) or binary fission in bacteria.

31. Types of Artificial Cloning

Artificial cloning has 3 types: **Gene cloning** is the use of highly specialised DNA technology to produce multiple, **exact copies of a single gene** or other **segments of DNA** to secure sufficient material to examine for research purposes. **Therapeutic cloning** produces embryonic stem cells for experiments aimed at creating tissues to replace injured or diseased ones. **Reproductive cloning** is used to produce copies of the whole animal.

32. Bioluminescence

Bioluminescence occurs due to the presence of some **marine planktons** called **dinoflagellates** that **produce light** when the water is disturbed. These planktons emit light on the ocean surface at night. The dinoflagellates follow a **circadian cycle** (24-hour cycle) and as a result, this phenomenon occurs during the night which is visible in low light conditions. Many marine creatures like sponges, jellyfish, worms, species of fish, anthropods, echinoderms and unicellular alga exhibit bio-luminescence to either **evade predators**, **attract prey** or **during mating**. It occurs when the **luciferase enzyme** reacts with the luciferin compound in the presence of oxygen to produce light. Havelock Island in the Andamans, Thiruvanmiyur Beach in Chennai, Mattu Beach in

Karnataka, Bangaram Island in Lakshadweep and Vishakhapatnam have recorded events of bio-luminescence.

33. Enzyme Promiscuity

Enzyme promiscuity is defined as the capability of an enzyme to **catalyze a reaction other than the reaction for which it has been specialized**. Although the enzyme is known for its specificity, many enzymes are reported to be promiscuous i.e., they can catalyse multiple reactions.

34. SAFE Project

Safety Across Asia for the Global Environment (SAFE) was launched by the UN in 2021. Its aim is to focus on the **connection between wildlife trafficking** and **zoonotic disease transmission** with the aim to **prevent future pandemics**. It is coordinated by the **UN Office on Drugs and Crime** (UNODC), which monitors illegal wildlife trafficking. 4 Asian countries: China, Thailand, Vietnam and Laos were initially selected for the project but now China has walked out of the Project.

35. Jhamarkotra Fossil Park

The fossil park at Jhamarkotra is located in Rajasthan. It hosts **stromatolites** dating back **1.8 billion years**, exhibiting a variety of textures and sizes. Jhamarkotra's fossils are **phosphate-rich** because the trapped sediments were mainly phosphate minerals. It is **Geological Heritage Site**.

A stromatolite is a **layered sedimentary rock formed by microorganisms.** Stromatolite fossils preserve the record of **cyanobacteria**, (blue-green algae) the earliest life on the planet. These organisms developed the ability to photosynthesize and **make their own food**. By doing so, they pumped vast amounts of oxygen into the atmosphere of primordial Earth, allowing most other life to develop and flourish. Stromatolites are sometimes called '**alligator-skin rocks**' because of their unusual texture. (*Refer EPIC April 2022 for Geological Heritage Site*).

36. Copernicus Programme

Copernicus is the Earth observation component of the EU's Space Programme. It uses vast amount of data from satellites and ground, air and sea based systems to produce quality information that can be used to improve the management of the environment, understand and mitigate the effects of climate change and ensure civil security. The services provided by Copernicus fall into 6 categories: **Land management**, **Marine Environment**, **Atmosphere**, **Emergency Response**, **Security** and **Climate Change**.

37. CAG Report on Preservation of Mangroves, 'Kharai' Camels

CAG in its report tabled in the Gujarat Assembly has asked the Government to preserve mangroves and save the 'Kharai' breed of camels. The report found that ~117 hectares of mangroves have been destroyed which pose threat to Kharai Camels.

The Kharai are a rare breed of camel found in the **salt marshes of the Kutch district** in Gujarat. They are **well adapted to the saline desert environment** and are known for their **ability to swim**. They eat large volumes of mangroves or saline plant species. They live in a **dual ecosystem of land and coast** and are found only in Gujarat.

38. International Big Cat Alliance (IBCA)

The Prime Minister has launched the International Big Cats Alliance. IBCA will focus on the **protection and conservation of 7 major big cats** of the world: **Tiger**, **Lion**, **Leopard**, **Snow Leopard**, **Puma**, **Jaguar** and **Cheetah** in collaboration with countries harbouring these species. Membership to the alliance will be open to **97 'range' countries**, which contain the **natural habitat of these big cats**, as well as other interested nations, international organizations, etc. The IBCA will engage in advocacy, partnership, knowledge e-portal, capacity building, eco-tourism, partnerships between expert groups and finance tapping.

39. NGT Fine on Government of Kerala

The National Green Tribunal (NGT) has imposed a penalty of INR 10 crore on the Government of Kerala for failing to protect the Vembanad and Ashtamudi lakes. Both are listed as Ramsar wetlands.

Vembanad Lake is the longest lake in India. The lake is situated at sea level and is separated from the Laccadive Sea by a narrow barrier island. Vallam Kali (Nehru Trophy Boat Race) is a Snake Boat Race held every year in the month of August in Vembanad Lake. It is the **2nd-largest Ramsar site in India**, after the Sunderbans in West Bengal. The **Kumarakom Bird Sanctuary** is located on the east coast of the lake.

Ashtamudi Lake is a backwater lake. **Kallada River** is a major river discharging into the Ashtamudi Lake.

40. Aravalli Green Wall Project

The Government has launched the Aravalli Green Wall Project. It is part of the Government's vision to **create green corridors** across the country to **combat land degradation** and **desertification**. The project covers **Haryana**, **Rajasthan**, **Gujarat** and **Delhi**, where the Aravalli hills landscape span over 6 million hectares of land. Its objectives are to **improve the ecological health** of the Aravalli range, **prevent the eastward expansion of the Thar Desert** and to **reduce land degradation** by **creating green barriers** that will prevent soil erosion, desertification and dust storms. The project will involve **planting native species of trees** and **shrubs** on scrubland, wasteland and degraded forest land, along with **rejuvenating and restoring surface water bodies** such as ponds, lakes and streams. It will help contribute to India's commitments under various international conventions such as **UNCCD** (United Nations Convention to Combat Desertification), **CBD** (Convention on Biological Diversity) and **UNFCCC** (United Nations Framework Convention on Climate Change).

41. Bowenpally Biogas Plant

Bowenpally is located in Secundrabad, Telangana. In a recent Mann Ki Baat episode, the Prime Minister praised the **Bowenpally Vegetable Market** and **Bowenpally's Biogas Plant** for its electricity generation from vegetable waste. The waste from the vegetable market and other areas in the city is collected (~10 tonnes every day), and used to generate electricity through the **Biogas plant**. **Bio-manure is obtained as by-product**. It has helped generate employment for women, reduce electricity bills, prodive bio-manure for use in agriculture and create awareness about sustainability.

42. Fernarium in Eravikulam National Park

Eravikulam National Park is located in Kerala. It was the 1st National Park declared in Kerala in 1978. It is situated in the **Kannan Devan Hills of the southern Western Ghats.** The highest peak in southern India, **Anamudi** (2695 meters) is situated in this park. This is also the **land of 'Neelakurinji'**, the flower that blooms once in 12 years. The park is a natural habitat of **Nilgiri tahr.** A **Fernarium** has been set up inside the Eravikulam National Park. **Fernarium** is a botanical garden or complex devoted to the growth and displaying various species of ferns. (*Refer EPIC October 2022 for Neelakurinji*).

43. Ferns

Ferns are part of the **Epiphytic family**. They do not have flowers. They grow naturally in a **soilless condition**. The plants obtain water and nutrients through **leaching from trees**. Epiphyte (also called air plant) is any plant that **grows upon another plant or object merely for physical support**. Epiphytes have no attachment to the ground or other obvious nutrient sources and are **not parasitic** on the supporting plants.

44. Steps Taken to Conserve Wetlands

Wetlands authorities have been constituted in States/UTs through Wetlands Rules 2017 for notification, conservation and management of wetlands.

National Plan for Conservation of Aquatic Eco-systems (NCPA): It is a **conservation programme** for the management of identified wetlands (including lakes) in collaboration with State Governments/UTs. It covers various activities like treatment of wastewater, shoreline protection, lakefront development, in-situ cleaning, stormwater management, bioremediation, catchment area treatment, lake beautification etc.

Mission *Sahbhagita*: It is a step towards **participatory conservation** and **wise use of wetlands** to enable a society ownership approach with communities leading at the forefront.

Wetlands of India Portal: It is a dynamic **knowledge repository** for wetlands.

45. Prosopis Chilenis

According to a study, an alien invasive plant species Prosopis chilensis, is **threatening the native vegetation** across 21 islands in the **Gulf of Mannar Biosphere Reserve** (GoMBR). It is a **drought-resistant plant** native to the arid regions of South America. It is a small to medium-sized **legume tree** that grows up to 12 m in height and 1 m in diameter. It is also known as **Chilean mesquite**. The study has found the Prosopis chilensis in 7-8 islands. This will slowly kill native trees, mangroves and the marine life. *Prosopis Juliflora is another invasive species found in the Deccan Plateau, especially Tamil Nadu.*

46. Mangrove Pitta

Mangrove pitta is a species of passerine bird in the family Pittidae native to the **eastern Indian Subcontinent** and **western Southeast Asia**. It is found in Bangladesh, India, Indonesia, Malaysia, Myanmar, Singapore, and Thailand. In India, it is found in a few pockets of eastern India, including Odisha's **Bhitarkanika** and West Bengal's **Sundarbans**. It is found in **mangrove and nipa palm forests** where it feeds on crustaceans, molluscs and insects. Its IUCN status is Near Threatened due to habitat loss. The first census of mangrove pitta birds was conducted in two coastal districts of Odisha and a 179 individual mangrove pitta birds were sighted.

47. Wild Ass Sanctuary

It is located in the **Little Rann of Kutch** (Gujarat). It is the only place where the Indian wild ass, locally called *Khacchar*, is found. The sanctuary is home to a sizeable population of **Rabari and Bharwad tribes**. It can be considered a large **ecotone** (a transitional area between marine and terrestrial ecosystems). Gujarat is the **only abode for Indian wild ass** which have been pulled out from the brink of extinction by years of efforts.

Gujarat High Court recently sought a report from the State Government on the licenses and permissions it has granted for mining activities within Wild Ass Sanctuary in the Little Rann of Kutch.

48. Indian Wild Ass

It is a sub-species of **Asian Wild Ass**. Its distribution is restricted to Rann of Kachchh, Gujarat. Its habitat is in **Desert and Grassland ecosystems**. It falls in **Appendix II** of **CITES** and **Schedule I** of the **Wildlife Protection Act** (1972). Its IUCN is **Near Threatened**. It is characterized

by distinctive white markings on the anterior part of the rump and on the posterior part of the shoulder.

49. Racoon Dogs

Raccoon dogs are **neither dogs nor raccoons**. They belong to the **canid family** and are **closely related to foxes**. They are **omnivores** and relish food sources such as rodents and berries. Raccoon dogs are **originally from East Asia** and are commonly found in parts of China, Korea and Japan. They were brought to Europe in 1920s, but are now considered a threat to local ecosystems. A report has suggested that the **SARS-CoV-2 virus could have originated. In raccoon dogs** which were sold illegally at the Wuhan wet market. However, there has not been any consensus so far within the scientific community.

50. New Species of Catfish

A new catfish species named '*Exostoma Dhritiae*' has been discovered by scientists of the Zoological Survey of India (ZSI) in Arunachal Pradesh. It belongs to the genus Exostoma. It is a small fish called '*Ngorang*' by local tribals. The species has been named 'Exostoma Dhritiae' after **Dhriti Banerjee**, the first woman director of the ZSI. It has been found in **Siking stream**, a tributary of the **Siang River** in the Upper Siang district of Arunachal Pradesh.

51. New Species of Freshwater Fish, *Garra Laishrami*

Researchers from ZSI have found rare **freshwater fish** in **Kolab river** in the **Koraput, Odisha**. The species has been named '*Garra Laishrami*' after Dr Laishram Kosygin of the ZSI to honour his remarkable contributions to understanding the taxonomy of Indian freshwater fishes. The species is **edible and local people consume it**.

Kolab River is one of the major rivers of Odisha. It is one of the **major tributaries of Godavari river**. Its source is at **Sinkaran hills** of eastern Ghats in Koraput district**.**

52. Horseshoe Crab

Horseshoe crab is a marine arthropod that is often referred to as a **living fossil** because it has existed **virtually unchanged for millions of years**. Two of the four species of horseshoe crabs in the world are found in India. It falls under Schedule IV of **Wildlife Protection Act, 1972**.

Horseshoe crabs are **scavengers** and consume dead and decaying matter. They are valuable to biomedical research, as their blue blood contains a substance called **Limulus amebocyte lysate (LAL)**, which is used to test for bacterial contamination in medical equipment and vaccines. Threats to horseshoe crabs include habitat loss and overharvesting.

53. Lumpy Skin Disease

It is an **infectious disease in cattle** caused by a **virus of the family Poxviridae** (Neethling virus). Blood-feeding insects such as **mosquitos and flies act as mechanical vectors** to spread the disease. The outbreak of the disease is associated with **high temperature** and **high humidity**. It is characterized by fever, enlarged superficial lymph nodes and multiple nodules on the skin and mucous membranes. Morbidity varies between 2 and 45% and the **mortality rate is usually less**

than 10%. There is **no treatment for the virus**, so **prevention by vaccination** is the most effective means of control. Spread of the disease and the resultant fall in milk production is **one of the reasons for the recent rise in prices of dairy products**.

54. Hippopotamus

Hippopotamus is also known as the **river horse**. They live **along the rivers and lakes** throughout **sub-Saharan Africa**. These are **semi-aquatic herbivores**, which have often been posited as a '**missing link**' **between land-based and marine mammals** (whales, seals, etc). They **live under water during the day** to avoid heat and at **night they come ashore** to feed on short, soft grasses and fallen fruit. Their ears, eyes, and nostrils are located high on the head so that the rest of the body may remain submerged. Their **IUCN status** is **Vulnerable**. They weigh up to 8,000 pounds (~3,600 kg), the hippo is the heaviest land animal after the elephant. The Government of India is **planning translocation of some Hippopotamus from Colombia**.

55. Hikkimori

It is a term used to describe **people who have withdrawn from society**. It is associated with feelings of anxiety, depression, and social phobia. It is thought to be a **response to the pressures of modern society**, including high academic expectations, intense competition, and social isolation. Hikkimori is rapidly spreading in Japan. It can lead to **mental health problems**, anxiety, reduced productivity and exacerbate demographic challenges like declining birth rate and ageing population.

56. Vedic Heritage Portal

The Government has launched the Vedic Heritage Poral. It has been developed by the **Indira Gandhi National Centre for the Arts** (IGNCA). It is an effort to **map the Vedic heritage** of the country. The portal gives detailed information about oral traditions, textual tradition in the form of published books, manuscripts, or implements (yajna-related objects). The portal is available in a mix of English and Hindi, with audio content in Sanskrit.

57. Global Buddhist Summit

It was organized by the **Ministry of Culture** and the **International Buddhist Confederation** (IBC) in New Delhi. Its aim was to find solutions to problems such as climate change, poverty, and conflict, among others, by exploring the Buddhist teachings and practices. The theme of the Summit was 'Responses to Contemporary Challenges : Philosophy to Praxis'. Over 170 international and 150 Indian delegates participated in the summit. The Summit concluded with **New Delhi Declaration** that called for peace, environment sustainability and well-being of all. The IBC was formed in 2013 in New Delhi as an international Buddhist umbrella body to serve as as a common platform for Buddhists worldwide.

58. Bihu Dance

The world's largest performance of traditional Bihu dance (11,000 performers) and the **largest performance by folk musicians** was held in Assam (2 Guinness World Records).

Bihu dance is a **traditional folk-dance** popular across Assam. It is especially performed during **Bohag Bihu** or **Rongali Bihu**, the spring festival that marks the **arrival of the Assamese New Year** in mid-April. The earliest depiction of Bihu dance is found in the **9th-century sculptures** found in the Tezpur and Darrang districts of Assam. Bihu is mentioned in the **inscriptions of the 14th-century Chutia (Saidya) King Lakshminaryan** as well.

The Bihu dance is known for its lively attributes of joy with quick movements. Performing dancers usually wear bright colourful traditional costumes. The **red colour** of costumes signifies **fertility**, **ripe season** and **harvest**. The dance is usually performed by **men and women dancers** whirling and spinning to traditional songs of Assam.

59. Proected GI Tag for Kangra Tea by European Commission

Himachal Pradesh's Kangra Tea has got a **European Commission's Protected Geographical Indication Tag** (PGI tag). Kangra tea had received the Indian GI tag in 2005. The tag will help Kangra tea to get an opportunity to enter the European market. The tea is derived from the leaves, buds and tender stems of the Camellia sinensis species cultivated in the Kangra valley. It is grown 900-1,400 meters above sea level, on the slopes of the Dhauladhar range in the Western Himalayas.

60. GI Tag for Nagri Dubraj Rice

The Geographical Indication Registry has granted GI Tag to Chhattisgarh's aromatic rice, **Nagri Dubraj**. The women's self-help group '*Maa Durga Swasahayata Samuh*' of Nagri in Dhamtari district has been harvesting Dubraj and had applied for the GI tag. It has **small grains**, is **very soft to eat** after cooking, and is known as the **Basmati of Chhattisgarh** because of its fragrance. The grain finds reference in *Valmiki Ramayana*. Earlier, Jeeraphool rice (also from Chhattisgarh) was granted a GI tag in 2019.

61. GI Tag for Mircha Rice

Mircha rice of Bihar's West Champaran has been awarded the GI tag. The size and shape of the grain appear like that of **black pepper**. Hence, it is known as Mircha or Marcha Rice. The grains and flakes of this rice have a unique aroma. This rice is famous for its palatability and its aromatic chura (rice flakes) making qualities. The cooked rice is fluffy, non sticky, sweet and easily digestible.

62. GI Tag for Cumbum Grapes

Cumbum *Panneer Thratchai* also known as Cumbum grapes, is a variety of grapes grown in the **Cumbum Valley** (Grapes city of South India) located at the **Western Ghats in Tamil Nadu**, India. These grapes were introduced in Tamil Nadu in 1832 by a French priest. The grapes are rich in vitamins, tartaric acid, and antioxidants, and reduce the risk of some chronic diseases. They are suitable for **making wine**, **spirit**, **jams**, **canned grape juice** and **raisins**.

63. GI Tag for Gond Paintings

Gond painting is a traditional art of **Madhya Pradesh** that belongs to the Gond tribe. Patangarh village of Dindori district is famous for Gond paintings. Gond Paintings started as a traditional art

form that could be seen on the **mud walls of the houses**. However, by the early 1980s, it **gradually shifted to canvas and paper**. Gond Painting is often described as an 'On Line Work' as it is created out of meticulously drawn lines which convey a **sense of movement to the still images**. The paintings showcase the **beauty of nature**, including trees, plants, animals, the moon, sun, river, drains, God, and Goddesses. It also portrays

daily life activities such as food, plough making, and even how the king used to fight. There is use of **bright colours** such as yellow, red, white and blue.

64. Basholi Paintings

The Basohli Painting from Kathua district has obtained the GI Tag. This is the first time that the **Jammu region got a GI tag for handicrafts**. The form originated in Basholi region of Jammu and Kashmir. It is popular for its **miniature art style**. The Basholi painting style flourished during the **17ᵗʰ and 18ᵗʰ centuries** under the patronage of local rulers and wealthy merchants. The portraits of local rulers, *Radha-Krishna*, and *Madhava-Malati* love themes and themes from the *Bhagavata Purana* are the main subjects. It is considered the **first school of Pahari paintings**. These are **painted on paper**, **cloth**, or **wood** using **natural pigments and dyes**. Ochre yellow, brown, and green grounds are the predominant colours.
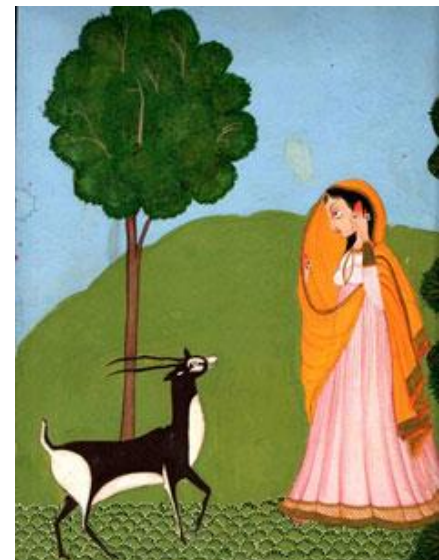
65. *Shree Anna* Conference (Global Millets Conference)

It was held in New Delhi and was organized by the **Agricultural and Processed Food Products Export Development Authority** (APEDA). It had sessions on all important issues related to millets (*Shree Anna*) like promotion and awareness of millets among producers, consumers and other stakeholders; millets' value chain development; health and nutritional aspects of millets etc. *(Refer EPIC December 2022 for Production of Millets in India)*.

66. Indian Army to Provide Millet Flour to Soldiers

The Indian Army has decided to reintroduce millet flour in the rations of soldiers. Millets were replaced by wheat in 1966. Three popular varieties of millets flour, bajra, jowar and ragi, will be issued to troops. The grains will be procured and issued to the troops based on options they exercise and the quantity they demand.

67. Chenab (Rail) Bridge

Chenab Bridge is the **world's highest railway bridge** and is part of the **Udhampur-Srinagar-Baramulla Rail Link Project** (USBRL). The bridge is being constructed over the **Chenab River**. It is 1315 m long and at a **height of 359 m over the river bed level**. The Bridge has been designed to

withstand high wind speed up to 266 km/hour and bear to bear **earthquake forces of highest intensity zone-V**. It is expected to be operational by January-February 2024.

68. USBRL

The Jammu-Udhampur rail line was started in 1983 and completed in 2004, with 20 major tunnels and 158 bridges. The line was later on extended to Srinagar and then Baramulla. The project faced several challenges like construction of bridges and tunnels in geologically unstable Pir Panjal range in seismically active Zones IV and V, heavy snow in winters etc. Indian Railways devised a novel **Himalayan Tunneling Method (HTM)** in which **horseshoe-shaped tunnels** were constructed instead of the usual D-shaped. The Rail link will bring down travel time between Srinagar and Jammu and a **reliable all-weather alternative** to the Jammu-Srinagar national highway which is frequently shut down by landslides. It will **improve economic activities** between Jammu and Kashmir Valley.

THE TRAIN TO KASHMIR

KATRA-QAZIGUND SECTION
ESTIMATED COST ₹21,653 cr

- QAZIGUND-BARAMULLA (119 km) COMMISSIONED in Oct 2009; Cost ₹3,493 cr
- BANIHAL-QAZIGUND (18 km) COMMISSIONED in July 2014; Cost ₹1,692 cr
- COMPLETED (129 km) (But not commissioned)
- UDHAMPUR-KATRA (25 km) COMMISSIONED in July 2014; Cost ₹1,111 cr

HIGHEST RAILWAY BRIDGE IN WORLD 359 m above Chenab bed, 35 m higher than Eiffel Tower

FIRST CABLE-STAYED BRIDGE of the Indian Railways on the Anji Khad, in Reasi district

LONGEST TRANSPORT TUNNEL in India; 12.75 km long, in Ramban district

38 TUNNELS with combined length 119 km   **927** BRIDGES with combined length 13 km

69. Reverse Flipping

The practice of an Indian company (mostly start-ups) transforming into a **100% subsidiary of a foreign entity** after it has **moved its headquarters overseas** is called Flipping. This is done generally for tax benefits and other procedural convenience. It leads to loss of tax revenue, market capitalization and Intellectual Property Rights. **Reverse Flipping refers to shifting of the headquarters back to India**. The International Financial Services Centres Authority (IFSCA) has formed a committee to design a road map to **attract Indian start-ups to set up bases in GIFT City** and not have their domicile in other nations.

70. Foreign Companies Exiting India

Over the past few years, **foreign businesses exiting India have outnumbered those entering it**. The number of foreign companies quitting India has exceeded the number of new entrants since 2018. This could largely be attributed to the **slump that followed the COVID-19 pandemic**, forcing a nationwide lockdown in 2020. **Crippled finances**, a **shortage of labour**, and **supply-chain issues**, among other problems, forced many of these entities to wrap up their operations.

Revolving door
Data since 2018 indicates foreign firm exits outnumber entries

Year	No. of foreign firms that started India operations	No. of foreign companies that ceased operations
2018	102	111
2019	137	133
2020	90	120
2021	75	115
2022	64	78
2023*	1	2
Total	469	559

*till March 9, 2023

Source: Ministry of Corporate Affairs

71. *Dabba* Trading

Dabba (box) trading refers to **informal trading** that takes place **outside the purview of the stock exchanges**. It is **akin to gambling** centered around stock price movements. The primary purpose is to **stay outside the purview of the regulatory mechanisms**, and thus, transactions are facilitated **using cash** and the mechanism is operated using unrecognized software terminals. Dabba Trading leads to **tax evasion** (avoids Commodity/Security Transaction Tax), causes **losses to investors** and leads to **generation of black money**. It is an offence under the Section 23(1) of the **Securities Contracts (Regulation) Act (SCRA), 1956**. Recently, National Stock Exchange (NSE) has issued several notices naming entities involved in 'dabba trading' and cautioned investors not to subscribe to their products.

72. REITs and InvITs Index

NSE Indices Ltd has launched India's first-ever Real Estate Investment Trusts and Infrastructure Investment Trusts indices: **Nifty REITs Index** and **InvITs Index**. They will track the **performance of REITs and InvITs** that are **publicly listed and traded on the NSE**.

A Real Estate Investment Trust (REIT) is a company that owns, operates, or finances income-generating real estate. They are modelled after mutual funds. REITs pool the capital of numerous investors. This makes it possible for individual investors to earn dividends from real estate investments—without having to buy, manage, or finance any properties themselves. Most REITs are publicly traded like stocks, which makes them **highly liquid** (unlike physical real estate investments). **InvITs are similar to REITs** except that they use the pooled money to own and run functional **infrastructure assets like highways**, **roads**, **pipelines**, **warehouses** and **power plants**.

73. Track and Trace System

The Union Government has extended the date for implementation of the track and trace system for exports of drug formulations till August 1,2023. Track and Trace system is a **software-based solution** to **track vehicles**, **loading units**, **shipments** or **products throughout the entire supply chain** from **supplier to consumer**. This system for the **export of pharmaceuticals consignments** is being implemented as a measure to **address counterfeit and product recall challenges**. It uses system of barcodes. Barcoding will help in **tracking and tracing the origin of drugs**, which minimizes the chances of genuine medicines being considered spurious or counterfeit.

74. e-Prosecution Portal

The Ministry of Home Affairs (MHA) e-prosecution portal has added a new feature that will **fix the accountability of government lawyers**. The system will send alerts to senior officers whenever a public prosecutor seeks a **stay in a criminal case more than twice**. The e-Prosecution portal is managed by the Government of India under the **Digital India Mission**. The portal facilitates **communication between the police department** and the **prosecution directorate** as part of the **Interoperable Criminal Justice System** (ICJS). It links and enables the **seamless transfer of data and information among different pillars of the criminal justice system**: Courts, Police, Jails and Forensic Science Laboratories. *(Refer EPIC March 2022 for Interoperable Criminal Justice System (ICJS)).*

75. herSTART

herSTART is an initiative of Gujarat University Start-up and Entrepreneurship Council (GUSEC). It is a **platform introduced to promote women-led Start-ups** and to **encourage women entrepreneurs**. The platform will support women entrepreneurs in helping their innovative ideas take off. It will include a digital platform to **provide resources** and **training modules free of cost** to **aspiring women**

entrepreneurs, a digital community for them and a digital publication to spread their success stories. It also encompasses the **herSTART Incubator**, a dedicated start-up incubator for women entrepreneurs and the **herSTART Accelerator**, a round-the-year accelerator programme for high-impact women-led start-ups.

76. Call Before u Dig (CBuD) App

The App has been launched the Department of Telecommunications, Ministry of Communications. Its aim is to **prevent damage to underlying assets** like optical fiber cables that occurs because of **uncoordinated digging and excavation**, **leading to losses of about INR 3,000 crore every year**. The CBuD app will connect excavators and asset owners through **SMS/Email notifications** and **click-to-call** so that **there are planned excavations** in the country while ensuring the safety of underground assets.

77. Nav Bharat (New India) Literacy Programme (NILP)

22.7 lakh adults from 10 States and UTs have qualified as literate adults in 2022-23 by passing an assessment test conducted under **New India Literacy Program**. More than 40% of the candidates were from Madhya Pradesh alone. *(Refer EPIC April 2022 for Nav Bharat (New India) Literacy Programme).*

78. *Sagar Parikrama*

Sagar Parikrama involves navigation journey in **all coastal States/UTs** through a pre-decided sea route to **demonstrate solidarity** with all fisherfolk, fish farmers and concerned stakeholders. Its objectives are to facilitate interaction with fishermen, coastal communities and stakeholders to **disseminate information on various fisheries-related schemes**, **promote responsible fisheries** with a focus on the sustainable balance between the utilization of marine fisheries resources for the food security and the livelihoods of coastal fisher communities and to **protect marine ecosystems**.

79. PTP-NER Scheme for Tribals of Northeast India

The Government has launched the scheme '**Marketing and Logistics Development for Promotion of Tribal Products from North-Eastern Region**' (PTP-NER). **Ministry of Tribal Affairs** is the nodal Ministry and **Tribal Cooperative Marketing Development Federation** (TRIDED) is the nodal agency. Its aim is to **strengthen livelihood opportunities for tribal artisans** through increased efficiency in procurement, logistics and **marketing of tribal products from North Eastern States**. It will facilitate tribal artisans to avail opportunities of enhancing income through the provision of backward and forward linkages through skill and entrepreneurship development, sourcing and procurement, marketing, transportation and publicity. The Union government will organize **Tribal Artisans Melas** (TAMs) to showcase tribal products.

80. *Sangathan se Samriddhi* Campaign

It has been launched under **Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM)**. Its aim is to empower marginalized rural households by **bringing all eligible rural women into the fold of Self Help Groups** (SHGs). The campaign aims to bring 10 crore women under the purview of SHGs from the existing 9 crore.

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.*