

MONTHLY

# EPIC!

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

AN EXCLUSIVE CURRENT AFFAIRS MAGAZINE FOR  
**PRELIMS + MAINS**  
PREPARATION

**March 2024**

**ForumIAS**  
WE BUILD OFFICERS

## Congratulations

Celebrating our CSE 2022 Topper's Remarkable Achievement!

IAS

# 1



**Ishita Kishore**

IAS

# 2



**Garima Lohia**

IAS

# 3



**Uma Harathi N**

IAS

# 4



**Smriti Mishra**

IAS

# 5



**Mayur Hazarika**

**8** Selections in Top 10


**64** Selections in Top 100

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

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

*Garima Lohia*  
AIR 2

**ForumIAS**  
WE BUILD OFFICERS



**SMRITI MISHRA**  
AIR 4, CSE 2022

*Smriti*

“

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

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

*Smriti*  
SMRITI MISHRA  
AIR 4, CSE 2022

”

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

**TABLE OF CONTENTS**

---

**TABLE OF CONTENTS**..... **3**

**Focus Article**..... **6**  
 One Nation One Election and the Recommendations of the Kovind Panel ..... 6

**General Studies Paper I**..... **9**

1. Role of Culture in Sustainable Development..... 9
2. Unconstitutional to Remove Woman Officer from Service Due to Marriage: SC Judgment ..... 10
3. Poor Representation of Women in the Justice System ..... 11
4. Women Urban Employment Guarantee Act to Improve Women Labour Participation Rate.....12
5. Gender Equality in Sustainable Energy Transition..... 13

**General Studies Paper II** ..... **15**

1. Expenditure on Elections and Political Funding ..... 15
2. The Need to Reform the Tenth Schedule ..... 16
3. Issues with the Judges Joining Politics .....17
4. Notification of CAA Rules..... 18
5. Electronic Evidence Rules Under the New Criminal Laws..... 20
6. Improving Financial Status of Local Governments..... 20
7. Issues with India’s Public Education System .....22
8. Open Book Examinations: Benefits and Concerns.....24
9. Success of the Khelo India Programme .....25
10. Importance of India’s Airstrip in Agaléga Atoll.....26
11. BBIN and the Importance of Railway Network .....28

**General Studies Paper III**..... **30**

1. World Inequality Lab Report: Income and Wealth Inequality in India 1922-2023..... 30
2. All India Household Consumption Survey, 2022-23.....32
3. Fintech Sector in India.....34
4. RBI’s View on Government Deficit and Capital Expenditure .....37
5. India-EFTA Trade Agreement.....39
6. 13<sup>th</sup> Ministerial Conference (MC 13) of the WTO..... 40
7. Primary Agricultural Credit Societies (PACS).....41
8. EU’s AI Act and MeitY’s AI Advisory .....43
9. R&D Funding in India.....44
10. Genome India Project.....46
11. Water Crisis in India ..... 47

**Factly** ..... **51**

**Polity**..... **51**

1. Voting for Elections for Rajya Sabha..... 51
2. Provisions Related to Payment of Income Tax by Political Parties ..... 51
3. SC Judgment on Immunity to Legislators for Taking Bribe for their Voting in Legislatures.....52
4. Unlawful Activities (Prevention) Act, UAPA .....53

5.	General Diary and First Information Report .....	53
6.	Dying Declaration.....	54
7.	Democracy Report, 2024 .....	55
<b>Policy .....</b>		<b>55</b>
1.	Holistic Performance Card .....	55
2.	Zero Food Children.....	56
3.	National Curriculum for Early Childhood Care and Education (NECCE).....	57
4.	Skill India Centre and Rashtriya Udyamita Vikas Pariyojana .....	58
5.	Amendments to Surrogacy Rules .....	59
6.	Support to Poor Prisoners Scheme .....	59
7.	Uniform Code for Pharmaceutical Marketing Practices (UCPMP), 2024 .....	60
<b>Economy .....</b>		<b>60</b>
1.	Types of Capitalism.....	60
2.	Change in EV Policy to Promote EV Manufacturing in India .....	61
3.	National Highway Infra Trust (NHIT).....	61
4.	UNNATI - 2024 .....	62
5.	Private Placement.....	62
6.	Inclusion of Government of India Bonds in Emerging Market Index by Bloomberg.....	63
7.	Digital Competition Law to Check Big Tech.....	64
8.	'Passing-off' Under Trademark Rules.....	65
9.	Kisan Credit Card (KCC).....	65
<b>International Relations.....</b>		<b>66</b>
1.	Grey Zone Warfare.....	66
2.	Nordic-Baltic Cooperation .....	66
3.	G-33 Group.....	67
4.	Dual-use Items .....	67
5.	Office of the UN High Commissioner for Human Rights.....	68
6.	Joint Logistics Over-the-Shore (JLOTS) Project.....	69
7.	SIPRI Report on Arms Import .....	69
8.	UN Economic and Social Commission for Asia and the Pacific (UNESCAP).....	70
<b>Science and Technology .....</b>		<b>71</b>
1.	Solar Maximum.....	71
2.	Cryogenic Engines.....	72
3.	India's Second Spaceport at Kulasekarapattinam, Tamil Nadu .....	73
4.	Using V-SAT to Provide Internet Services in Remote Areas .....	74
5.	Revised FDI Norms in the Space Sector.....	74
6.	IndiaAI Mission .....	75
7.	Large Language Models (LLMs).....	75
8.	Juice-Jacking.....	77
9.	Rhodamine-B.....	77
10.	Ultra-Processed Foods .....	78
11.	Parthenogenesis.....	78
<b>Environment.....</b>		<b>79</b>
1.	Impact of Global Warming on Climate in India.....	79

2.	Mass Coral Bleaching Event .....	79
3.	Global Methane Tracker, 2024 .....	80
4.	Global Resource Outlook, 2024 .....	81
5.	Stratospheric Aerosol Intervention (SAI) .....	82
6.	World Air Quality Report, 2023 .....	82
7.	Status of Leopard Population in India .....	83
8.	Genetic Rescue .....	83
9.	Forest Fires in India .....	84
10.	Classifying Orans (Sacred Groves) as Forests .....	84
<b>History, Art and Culture .....</b>		<b>85</b>
1.	The Religious and Cultural Significance of Dwarka City .....	85
2.	Shipra River .....	86
3.	Morodharo: Harappan-era Site in Kutch, Gujarat .....	86
4.	Vikramaditya Vedic Clock in Ujjain .....	86
5.	Badami Chalukyas .....	87
6.	Sant Ravidas .....	88
7.	Rani Chennamma .....	88
8.	Kochrab Ashram .....	89
9.	Nana Jagannath Shankarseth .....	90
10.	Paruveta Utsavam .....	90
11.	Shompen Tribe .....	91
<b>Miscellaneous .....</b>		<b>92</b>
1.	Anthropocene Epoch .....	92
2.	Pancheshwar Multipurpose Project .....	93
3.	Sudarshan Setu .....	94
4.	World Poverty Clock .....	94
5.	Study on Global Obesity Rates .....	95
<b>Pointly .....</b>		<b>96</b>

## Focus Article

### One Nation One Election and the Recommendations of the Kovind Panel

**News:** The Panel headed by the former President Ramnath Kovind regarding simultaneous polls for the Lok Sabha and the State Legislative Assemblies has submitted its recommendations to the President of India.

#### What are the recommendations of the Kovind Panel on Simultaneous Elections?

- The Panel has **recommended simultaneous elections** to the Lok Sabha and the State Legislative Assemblies. Elections to **local bodies should be synchronised**, so that they are held within 100 days of the simultaneous General and State Assembly Elections.
- To give effect to the recommendations, the Panel has suggested **15 Amendments to the Constitution**; in the form of both new provisions and changes to existing provisions through 2 Constitutional Amendment Bills.

#### Constitutional Amendment Bill # 1

- It deals with the transition to a simultaneous election system, and the procedure for fresh elections to Lok Sabha or a State Assembly before the expiration of their stipulated 5-year term.
- **Passage of the Bill:** The Bill can be passed by the Parliament **without the requirement of ratification by the State Legislative Assemblies**.

#### Major Provisions of the Bill

- **Insertion of Article 82A:** Article 82A will establish the process by which the transition to simultaneous elections for Lok Sabha and State Assemblies will be implemented.

Provision	Details
Article 82A(1)	The President will issue a <b>notification bringing Article 82A into effect</b> , on the date of the <b>first sitting of the House of the People</b> after a General Election. The date of this notification “shall be called the <b>Appointed Date</b> ”.
Article 82A(2)	All the Legislative Assemblies constituted in any General Election held after the appointed date shall come to an <b>end on the expiry of the full term of the House of the People</b> .
Article 82A(3)	ECI to hold General elections to the House of the People and the Legislative Assemblies simultaneously.
Article 82A(4)	If the ECI believes that elections to any Legislative Assembly <b>cannot be conducted simultaneously</b> , “it may make a recommendation to the President, to declare by an Order, that the election to that Legislative Assembly <b>may be conducted at a later date</b> ”.
Article 82A(5)	Even in cases where the State Assembly election is deferred, “the full term of the Legislative Assembly <b>shall end on the same date as the end of the full term of the House of the People constituted in the General Election</b> ”.

- **Amendment to Article 327**
  - Article 327 gives Parliament the power to make laws relating to elections to Lok Sabha, Rajya Sabha, and State Legislatures, including the preparation of electoral rolls and delimitation of constituencies.
  - The Panel has recommended that the power of Parliament under Article 327 should be expanded to include **conduct of simultaneous elections** as well.



- **Premature Dissolution:** The panel has recommended to **add Articles 83(4) and 172(4)** to the Constitution. In case of premature dissolution of the Lok Sabha or a State Legislative Assembly, the new Lok Sabha or the State Assembly will be **constituted only for the remaining unexpired term** (and not for full 5 year-term).
- **Amendment of Laws of UTs for**

#### Members of the Panel

The Panel was constituted in September 2023 under the **former President Ramnath Kovind**. The other members included Home Minister **Amit Shah**, former Leader of the Opposition in the Rajya Sabha **Ghulam Nabi Azad**, former Finance Commission Chairperson **N K Singh**, former Lok Sabha Secretary-general **Subhash C Kashyap**, former Chief Vigilance Commissioner **Sanjay Kothari** and senior advocate **Harish Salve**.

**Simultaneous Election:** The Panel has recommended amendments to The Government of Union Territories Act, 1963; The Government of National Capital Territory of Delhi Act, 1991; and The Jammu and Kashmir Reorganisation Act, 2019 to put into effect the system of simultaneous elections in the UTs.

#### Constitutional Amendment Bill # 2

- This Bill deals with municipal and panchayat elections, which fall under **Entry 5 of the State List** titled '**Local Government**'.
- **Passage of the Bill:** The Bill will need to be **ratified by at least half of the State Legislatures** before it can be passed by the Parliament.

#### Provisions of the Bill

- **Inclusion of a new Article 324A:** It would empower the Parliament to make laws to ensure that elections for local governments are held simultaneously with the General Elections (Lok Sabha and State Assemblies).
- **Amendments to Article 325**
  - **Article 325(2):** The new sub-clause will create a **Single Electoral Roll for every territorial constituency** for election to the House of the People, Legislature of a State or to a Municipality or a Panchayat.
  - **Article 325(3):** The single electoral roll shall be made by the Election Commission in consultation with the State Election Commissions and shall substitute any electoral roll prepared earlier by either the Election Commission under **Article 325** or the State Election Commissions under **Article 243K** and **Article 243ZA**.

#### What are the arguments in favour of 'One Nation One Election'?

- **Financial Burden:** Simultaneous elections will **reduce the financial burden** on the State Exchequer. The General Elections in 2014 cost INR 3,870 crore. The ECI has estimated cost of simultaneous elections to be INR 4,500 crore. Staggered elections (for State Assemblies) cost much higher (in excess of INR 10,000 crore).
  - Similarly, simultaneous elections will **reduce expenditure by political parties** e.g., ~INR 55,000 crore were spent by political parties in 2019 General Elections. ~INR 600 crore were spent during Assembly elections in 5 States in March 2022 (UP, Punjab, Uttarakhand, Manipur, Goa). Simultaneous elections will **reduce the need to spend on campaigns multiple times** between the General Election cycle.
- **Money 'Power' in Electoral Politics:** High cost of campaigning associated with frequent and staggered elections forces political parties to **raise large amount of funding**. Simultaneous elections will **reduce the funding required by political parties**. Some experts argue this will reduce reliance of political parties on use of black money for raising political finance.
  - It will also help smaller political parties to utilize their financial resources more efficiently.
- **Code of Conduct:** Frequent invocation of Model Code of Conduct **restrains the development works** and announcements of new projects by Government(s). Development works can continue without break with joint elections.

- **Administrative Efficiency:** Frequent elections disrupt governance as the focus of administration shifts to conduct of elections. With simultaneous elections, Government machinery can focus on development work more efficiently. It will ensure continuity of policies and programmes and **can help improve delivery of services**.
- **Security:** Only 1 election every 5 years means that the armed police forces can focus on more pressing security issues instead of frequent deployment on election duties.
- **Populist Measures:** Frequent elections force the political parties to resort to populist measures for short-term electoral gains. Simultaneous elections will reduce this tendency.
- **Voter Turnout:** Voter turnout is expected to increase, as voters can cast vote for both Lok Sabha and State Assembly together.

### What are the arguments against 'One Nation One Election'?

- **Accountability:** Regular elections ensure that political parties continuously engage with the electorate on a regular basis. Electoral outcomes provide **feedback to the parties**. One election every 5 years may lead to autocratic tendencies in the Government.
- **Federalism:** Experts contend that in simultaneous elections, national issues may take precedence over local and regional (State) issues. This may impact regional political parties in a negative manner.
- **Electoral Outcomes:** Voters exercise their choice based on the issues affecting them. If national issues take precedence, voters may tend to choose the same party in both General and State Assembly elections. This may impact electoral outcomes, if the elections (General and State) were held separately.
  - A report by the IDFC Institute observed that the winning party has 77% chance of victory if the Lok Sabha and Assembly elections are held together. However, only 61% voters will choose the same party if elections are held 6-months apart.
- **Logistical Challenges:** Heavy deployment of security forces is a logistical challenge. Diversion of forces on a large scale can have an impact on the internal security.
- **Democratic Will:** The present system has been consciously chosen by the makers of the Constitution to uphold the will of democracy by providing for regular elections. It enables the people to express their will through the **right to vote**. Modifying the election system and cycle would mean tampering with the power of people to express their democratic will.

### What Should be the Way Ahead?

- **Build All-party Consensus:** The Government must build an all-party consensus before introducing the two Constitutional Amendment Bills. Several parties had expressed their concerns to the Panel. The Government must suitably address these concerns. The decision on simultaneous elections should be unanimous.
- **22<sup>nd</sup> Law Commission Report:** The Government must also wait for the recommendations of the 22<sup>nd</sup> Law Commission on simultaneous polls before moving ahead with the idea.
- **Public Awareness:** Public awareness must be created around the issue of simultaneous election through media deliberations.

Simultaneous elections have several advantages. However, the issue is concerned with the federal structure of the Constitution. It must be discussed and debated properly across the political spectrum to address the concerns of the regional and opposition parties. This will make it easier to implement the idea.

If India opts for 'one nation, one election', the world's biggest democracy will set another unique example as India will be the 4<sup>th</sup> country in the world after Belgium, Sweden and South Africa which will conduct simultaneous election.



General Studies Paper I

1. Role of Culture in Sustainable Development

**News:** During its G20 Presidency, India pushed for culture to be main path in global sustainable development.

What is the G20 Kashi Culture Pathway?

- Under India’s G20 presidency, a new focus was placed on the role of culture in global development, resulting in the development of the document ‘Kashi Culture Pathway’.
- The document was adopted at the G20 Culture Ministers’ Meeting.
- It marked a major shift in development strategy, **emphasizing culture as an essential feature for inclusive and sustainable development.**
- The pathway outlines commitments to **integrating culture more deeply into public policies.**
- It acknowledges the role of culture in addressing modern challenges like **social inclusion** and **economic growth.**

Why is the importance of culture in sustainable development?

- **Facilitates Inclusive Growth:** Culture plays a key role in social inclusion and economic growth, making development more inclusive.
- **Impacts Key SDGs:** Culture contributes to multiple Sustainable Development Goals like **poverty reduction** (SDG 1), **quality education** (SDG 4), **employment** (SDG 8), and **preservation of environment** (SDG 13).
- **Social Justice:** Culture plays a role in achieving social justice, aligning with SDG 10. It helps in addressing inequalities within societies.
- **Drives Intergenerational Communication:** Culture serves as a conduit for learning and reinforcing social norms and values across generations.



THEMATIC INDICATORS FOR CULTURE IN THE 2030 AGENDA



Source: UNESCO. Culture affects 14 of the 17 SDGs and contributes across each of the 5 critical dimensions of sustainable development: People, Planet, Prosperity, Peace, Partnerships.

### Why should culture be recognized as a standalone goal in the post-2030 development agenda?

- **Filling Existing Gaps:** At present, culture is not a specific Sustainable Development Goal (SDG), despite its acknowledged importance in the **United Nations 2030 Agenda**.
- **Economic Impact:** Cultural and creative sectors account for 3.1% of the global GDP and 6.2% of all employment. Recognizing culture can help reshape and **diversify economies**, especially in the context of the G20, which accounts for 85% of the global GDP.
- **Addressing Modern Challenges:** Culture's role in tackling contemporary issues like climate change, rising inequalities, and digital transformation makes it indispensable for **shaping inclusive societies**.
- **Promoting Diversity and Inclusion:** Kashi Culture Pathway emphasizes the full respect and recognition of the diversity and equal dignity of all cultures, underscoring the need for a more inclusive global community.

### How does India embody sustainable cultural practices?

- **Tradition of Sustainability:** India's rich cultural heritage and ancient wisdom emphasize sustainable practices, which are applicable to modern challenges.
- **Circular and Low Waste Economy:** The Indian tradition of recycling and reusing items, like repurposing clothes (e.g., using old discarded clothes as floor mop) and recycling materials, demonstrates a long-standing practice of **resource efficiency** and **minimal wastage**.
- **Cultural Ethos of Co-existence and Peace:** India's cultural values emphasize mutual co-existence and interdependence, contributing to a holistic approach to sustainability.
- **Lifestyle for Environment (LiFE) Initiative:** This initiative was proposed by the Prime Minister of India at the COP26 Summit (UNFCCC). It reflects India's commitment to promoting sustainable lifestyles globally.

Moving forward, integrating culture into global development, as initiated by India during its G20 presidency, is crucial. This approach, backed by India's sustainable practices like recycling and the LiFE initiative, can lead to more inclusive and resilient societies worldwide, supporting all 17 Sustainable Development Goals.

## 2. Unconstitutional to Remove Woman Officer from Service Due to Marriage: SC Judgment

**News:** The SC has ruled that forcing women employees to leave their jobs due to marriage constitutes gender discrimination and is unconstitutional.

### What was the case?

- The petitioner in the case, Selina John, had joined the Military Nursing Service (MNS) in 1982.
- In 1986, she was married to a colleague in the Armed Forces Medical Services.
- In 1988, she was released from service under the 'Terms and conditions of service for the grant of permanent commissions in the Military Nursing Service, 1977'.

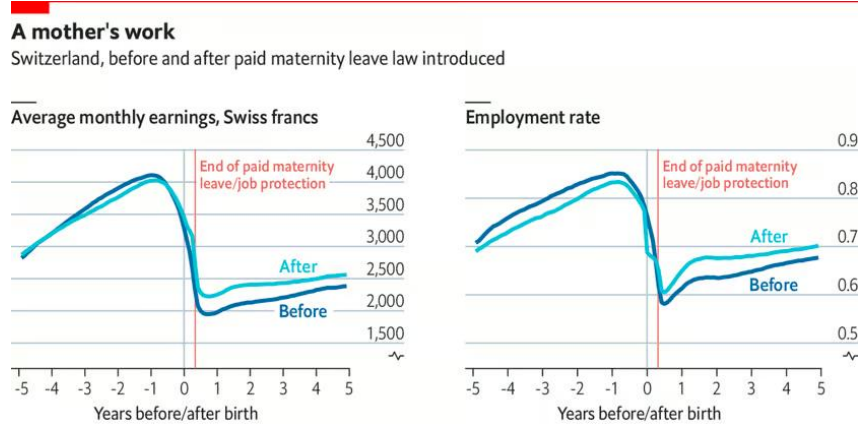
### What observations were made by the Supreme Court?

- **Incorrect and Unlawful:** The Supreme Court noted that her dismissal from service was both '**incorrect and unlawful**'. The regulation of release from service in case of **marriage applied solely to female nursing officers**. The SC found the regulation to be **arbitrary**.
- **Gender Discrimination and Inequality:** The SC stated that ending employment due to a woman's marriage is an example of **gender discrimination** and **inequality**.
  - Embracing such patriarchal norms **undermines human dignity**, the right to non-discrimination, and **fair treatment**.
  - Laws and regulations founded on gender bias are unconstitutional.
- **Terms and Conditions Withdrawn:** The SC noted that the Army instruction regarding the terms and conditions for granting permanent commissions in the Military Nursing Service was withdrawn in 1995.

- Hence, the discharge of the female officer in the Military Nursing Service is unlawful.
- The Court directed the Government of India to pay Ms. John INR 60 lakh in compensation.

**What challenges do women face in the workforce?**

- **Selection and Hiring Bias:** Women face uncomfortable personal questions about their marriage and motherhood plans during job interviews. This manifests the gender bias in hiring.
- **Low Participation Rate in the Workforce:** Data show that ~19.9% of women in India participate in the workforce, (data vary according to the source) highlighting a significant gender gap in employment.



Source: The Economist. A study conducted in Switzerland showed that pregnancy resulted in ~50% fall in monthly earnings (Swiss Franc 4000 to 2000 post delivery) of women and fall in employment rate from 85% to below 60%. The provision of Maternity leave improves both earnings and employment rate, but the impact is limited.

- **Education Barriers:** Many girls, especially from the poor families, drop out of school due to various reasons, ranging from economic challenges to lack of proper facilities like toilets.
- **Restrictive Social Norms:** Women are often bound by societal and cultural expectations, which limit their opportunities and advancement in the workforce.
- **Unequal Domestic Responsibilities:** The UN's Gender Snapshot 2023 indicates that women are expected to undertake a **disproportionate amount of housework and caregiving duties** compared to men.

**How does SC Judgment affect gender equality?**

- **Promotes Equal Treatment:** The Supreme Court's decision against penalizing women for marriage supports equal treatment in employment.
- **Encourages Women's Participation:** It will encourage more women to join and stay in the workforce, knowing their marital status won't affect their employment.
- **Supports Broader Gender Parity Efforts:** This decision aligns with efforts to achieve gender parity in areas like the military, where women recently gained the right to permanent commission.
- **Challenges Patriarchal Norms:** It challenges patriarchal norms and societal expectations that restrict women's professional opportunities.

To move forward, societal and cultural norms that restrict women's opportunities must change. Both public and private organizations should make workplaces supportive, not limiting women based on marriage or domestic roles. Increasing women's participation in the workforce is crucial for achieving gender parity.

**3. Poor Representation of Women in the Justice System**

**News:** Despite some progress, the representation of women in the justice system has remained limited.

**What the current status of representation of women in the Judicial System?**

- **Low Female Representation:** The India Justice Report indicates only about 300,000 women in the justice delivery system, including the police, judiciary, prisons, legal aid, and human rights commissions.

- This indicates a wide gender gap.
- **Disparity in Promotions:** Women hold 35% of subordinate judiciary roles. But the representation drops to 13% in High Courts. At present, there are only 3 women judges in the Supreme Court.
- **Lack of Leadership Roles:** No woman has ever been the Chief Justice of India. Only 16 women have served as Chief Justices in High Courts in over 70 years.
- **Gender Gap in Human Rights Commissions:** As of 2022, only 6 Commissions had female members or secretaries, with no women chairpersons.
- **Policing and Prison Administration:** Women constitute about 12% of police personnel and 14% in prison administration. Women largely hold lower ranks.

Court	Number of Women Judges	% of Women Judges
Supreme Court	3	9%
High Court	107	13.6%
Lower Subordinate Courts*	6765	35.10%

\*India Justice Report 2022

### Why is it important to reduce the gender gap in India?

- The absence of women in Higher Judiciary (SC and the HCs) and absence of women Chief Justices limits women's influence in judiciary leadership.
- The minimal presence of women in human rights commissions could lead to **insufficient attention to gender-specific issues** especially violation of women's rights.
- With low representation in police and prison administration, there's a **risk of gender biases** affecting **law enforcement** and **prison management**.
- The overall low representation of women implies an **institutional bias**, potentially impacting **justice delivery** and **equality within the system**.

### What should be done going ahead?

- **Promote Women to Leadership Roles:** The Judiciary should take a lead in promoting more women to leadership roles. **Gender diversity** can be made a criteria for promotions to higher judiciary.
- **Address Systemic Biases:** Institutional biases that hinder women's advancement should be addressed learning from the experiences of successful women like Justice Ruma Pal and IPS officer Kiran Bedi.
- **Empower Women in Policing and Prisons:** Steps should be taken to increase the proportion of women in police and prison administration to ensure a balanced and inclusive approach in these sectors.
- **Implement Supportive Policies:** Policies that support gender equality and address the specific needs and challenges faced by women in the justice system should be developed and enforced.

## 4. Women Urban Employment Guarantee Act to Improve Women Labour Participation Rate

**News:** Academics from Azim Premji University have proposed a Women Urban Employment Guarantee Act to improve female workforce participation rate in the urban areas.

### What are the current challenges in women's employment in urban areas?

- **Variations in Employment Rates:** More than half of the MGNREGA workers are women. However, in cities, women encounter challenges such as societal norms, **safety issues**, and **inadequate transportation**, which discourage them from entering the workforce.
- The Periodic Labour Force Survey (PLFS) shows that the employment rate for women in urban areas was 22.9% in the last quarter of 2023.

- **Unfulfilled Employment Needs:** Urban women, despite being educated and willing to work, experience higher unemployment rates than rural areas. In urban areas, the unemployment rate, reflecting those who desire jobs whether actively seeking or not, stands at 9%. In rural areas, it is 4%.
- **Need for Urban Job Programs:** Some States have started urban employment programs, but a national initiative like the **Women's Urban Employment Guarantee Act (WUEGA)** is needed to effectively address the challenges in providing employment to women in the urban areas.

#### What are the key features of the proposed WUEGA?

- **Objective:** The proposed Act seeks to achieve gender equality in job opportunities by requiring the inclusion of at least 50% women in program management.
- **Inclusivity:** The WUEGA would provide diverse job options within a 5-km radius and necessary amenities such as childcare services at work locations. It will offer **free public transportation** for women.
- It will provide incentives such as automatic enrolment in welfare boards to empower and assist women in the workforce.
- **Skill Building Programs:** The proposal aims to tackle **skill disparities** and ease the shift from education to employment by suggesting apprenticeships, information hubs, and empowerment programs specifically designed to meet the needs of women.

#### Is separate women-focused employment program feasible?

- **Women-Led Initiatives:** Waste management initiatives led by women in Karnataka showcase the effectiveness and achievements of programs focused on women, indicating the possibility of similar efforts under WUEGA.
- **Costs and Benefits:** According to the Academicians, the implementation of WUEGA remains feasible, despite the fiscal concerns. The projected costs amount to **~2% of GDP**. The program promises significant advantages in terms of women's empowerment, economic growth, and social inclusion.
- **Future Prospects:** By implementing WUEGA in phases and conducting regular assessments with necessary adjustments, groundwork can be laid for wider urban employment initiatives. This will guarantee income security and empowerment for women.

An Urban Employment Guarantee Act for Women will help narrowing gender gap and achieving the SDGs.

### 5. Gender Equality in Sustainable Energy Transition

**News:** Gender equality and greater involvement of women is crucial for the development of sustainable energy.

#### What is the current status of employment of women in the energy sector?

- The energy sector is not gender diverse. Only 32% of employees in renewable energy and 22% overall are women, compared to 48% in the global workforce.
- In India, only 10% of technical energy jobs are held by women.
- Women comprise only 11% of workers in the solar rooftop sector.

#### What are the reasons behind low participation of women in the energy sector?

- **Gender Stereotypes:** There is a general belief that women are unsuitable for certain technical roles. There are also concerns about the safety of women.
- **Low participation in manufacturing and engineering sector:** In India, Women constitute 42.7% of the total STEM graduates (Science, Technology, Engineering, and Mathematics). However, they represent only 30.8% in engineering, manufacturing and construction programmes which are the key sectors for green transition.



- **Lack of Robust Data:** There are no periodic gender analysis and gender statistics on sustainable energy jobs.
- **Lack of proper training:** A Skill Council for Green Jobs study indicated that 85% of the training for green skills was imparted to men. Due to lack of green skills, their participation is restricted.
- **Lack of women friendly policies:** There are no dedicated Gender-focused financial policies and products which could cater to the requirements of women entrepreneurs.

### Why is gender equality important in energy development?

- **Crucial Role in Household Energy Management:** Women primarily manage household energy for cooking, heating, and lighting, showing their integral role in energy consumption.
- **Impact on Health:** Limited access to clean energy forces women to use harmful alternatives like biomass, leading to significant health risks and deaths. Household air pollution causes ~3.2 million premature deaths annually, 60% of whom are women and children.
- **Economic and Environmental Benefits:** Gender equality in the energy sector can drive economic growth and environmental sustainability.
- **Innovative Solutions and Productivity:** Increasing women's participation in energy can lead to more innovative approaches, improved productivity, and enhanced social outcomes.
- **Global Impact:** Closing the gender gap could boost global GDP by trillions of dollars, showing the vast potential of women's empowerment in the energy sector.

### What are the challenges in achieving gender equality in the energy sector?

- **Limited Energy Infrastructure Access:** Limited access impacts the ability of women to manage household energy needs efficiently.
- **Educational and Skill Disparities:** Women face barriers in accessing education and training needed for technical roles in energy, further widening the gender gap.
- **Gender Stereotypes:** Gender stereotypes related to certain types of work being 'not fit for women', hinder their participation.

### What should be done?

- **Change Perceptions:** There is a need to change social perception related to participation of women in labour force. Women must be encouraged to take up jobs in the STEM and Energy sectors.
- **Mainstream Gender in Energy Policies:** Gender considerations should be integrated at sub-national, national, and international policy levels to ensure women's needs and contributions are addressed.
- **Women-led Initiatives:** Programs like the Women at the Forefront and the Energy Transitions Innovation Challenge (ENTICE) should be backed to encourage women's entrepreneurship in sustainable energy.
- **Promote Educational and Skill Development:** Women's access to education and training, especially in the technical fields within the energy sector should be promoted and facilitated. The Government should devise ways to ensure collateral-free lending, financial literacy training to unlock the true potential of women.
- **Distributed Renewable Energy (DRE) Projects:** DRE can be utilized to provide quick, affordable energy access, reducing women's workload and enhancing productivity, like the Solar Mamas initiative.
- **Plugging Data Gap:** There is a need to conduct gender analysis, collecting gender statistics on green jobs through periodic labour force surveys to emphasize women's role in the sustainable energy transition.
- **Multi-stakeholder Participation:** There should be partnerships across government, private sector and other stakeholders to ensure the availability of technology and finance for women entrepreneurs and workers.

Businesses and Governments must recognize the centrality of gender justice and ensure equity throughout the process of sustainable energy transition by mitigating existing barriers.



General Studies Paper II

1. Expenditure on Elections and Political Funding

**News:** The cost of elections is very high in India. There is a need for reforms to bring in transparency in the spending and funding.

What is the current status of election expenditure in India?

- **Government Ad Spending:** The Union Government spent INR 3,020 crore on advertisements from 2018-19 to 2022-23. There was a spike in the election year (2019). INR 1,179 crore were spent in 2018-19 (40% of the expenditure in this period).
- **Candidate Expenditure Limits:** There is a limit of INR 95 lakh per Lok Sabha constituency in larger States, and INR 75 lakh in smaller States. However, these limits are often exceeded.
- **Party Spending:** In the 2019 General Elections, several national parties spent funds to the tune of INR 500-1,200 crore individually. The estimated total spending by parties was estimated to be ~ INR 50,000 crore.

What are the concerns with election expenditure in India?

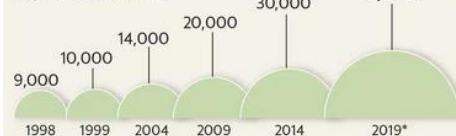
- **Lack of Spending Caps for Parties:** Individual candidates have specific spending limits. However, there is no limit on expenditure by political parties. This leads to excessive spending.
- **Influence of Money on Fairness:** The large amount of money spent, particularly by the larger parties, raises concerns about the fairness of elections.
- **Illegal Practices and Opacity:** Apart from legal expenditures, the distribution of cash to voters and opaque funding sources contribute to corrupt electoral practices, undermining the democratic process.

Politics and money

According to a report by Centre of Media Studies titled *Poll Expenditure, The 2019 Elections*, the last general elections were the 'most expensive ever, anywhere'. A look at its key findings:

Estimates of poll spending between 1998-2019

(Expenditure in ₹ crore)



10-12% voters acknowledged getting cash directly

TWO-THIRDS of them said they are aware other voters also received cash

NEARLY ₹100 crore spent per Lok Sabha constituency

₹700 spent per vote by political parties and independents

Estimates of expenditure in 2019 (in ₹ cr)



\*Estimate includes expenditure on assembly elections held in 2019 Source: Centre for Media Studies report 'Poll Expenditure, The 2019 Elections'

Source: Mint. Of the ~INR 55,000 crore spent in 2019, ~35% was spend on campaigning and ~25% was spent on the voters directly. The expenses rose from INR 9,000 crore in 1998 to INR 55,000 crore in 2019.

What are the concerns about political donations in India?

Pre-Electoral Bonds

- **Opacity in Donations:** Prior to 2018, political funding was primarily in cash and lacked transparency. Only donations over INR 20,000 were reported to the Election Commission and were eligible for income tax rebates.
- **Corruption:** Cash-based donations raised suspicions of corruption and possible influence on Government decisions.

Electoral Bonds

- **Increased Secrecy:** Introduction of electoral bonds led to a total lack of transparency about donors and recipients.

- **No Accountability:** The identities of both donors and recipients were kept secret, heightening concerns over quid pro quo arrangements.

The Supreme Court's ruling against the Electoral Bond Scheme highlighted the urgent need for reform in political funding for democracy's integrity.

### What should be done?

The Election Commission had submitted 'Proposed Electoral Reforms' in 2016 which included some key suggestions:

- **Ban Pre-Election Government Ads:** The Commission recommended a ban on Government advertisements 6 months before the elections to prevent misuse of public funds for political gains.
- **Equalize Party and Candidate Spending Limits:** The laws should be amended to include a spending cap for political parties, similar to the limits for individual candidates (INR 95 lakh in larger States, INR 75 lakh in smaller States).
- **Transparent Party Financing:** Greater transparency measures, with respect to electoral financing, should be implemented to reduce the influence of undisclosed donations and corporate funding.
- **Swift Legal Action on Violations:** Special arrangements should be made (like additional Judges in the High Court) for quick resolution of election-related cases, creating a deterrent against overspending and other violations.
- **Explore State Funding of Elections:** The Commission also recommended to consider state funding of elections, as suggested by the Indrajit Gupta Committee (1998) and the Law Commission report (1999), to reduce dependence on private donations.
- Apart from the above, a former Chief Election Commissioner has suggested that the accounts of the political parties should be audited by independent auditors, not in-house auditors, to ensure accountability.

## 2. The Need to Reform the Tenth Schedule

**News:** Continuous violation of the Tenth Schedule has led to calls for reforming the law to address the gaps.

### What are the new trends in manipulating the defections?

- **Pre-Defection Tactics:** The potential defectors often write a no-confidence letter against the Speaker before defecting. They often invoke **Nabam Rebia Judgment** as justification.
- **Speaker's Bias:** The Office of the Speaker has been criticized for no longer being **politically neutral** like in the past. Speakers are typically from the ruling party and tend to delay or speed up the decision on disqualification based on the defector's new affiliation. This affects the defectors of opposition and ruling parties differently.
- **Election Commission and Party Symbols:** Defectors may file a claim with the Election Commission of India (ECI) to be recognized as the real party, seeking the party symbol. The ECI often uses the legislative majority test. Hence a large number of defectors can collude to split the party.
- **Engineered Resignations:** Opposition parties sometimes engineer resignations in the ruling party. The defectors are promised lucrative positions in the new government.

Judgments Related to the Anti-Defection Law



- **Kihoto Hollohan vs Zachillhu (1992):** The Supreme Court held that judicial review cannot be available prior to the making of a decision by the Speaker nor at an interlocutory stage of the proceeding.
- **Ravi S. Naik vs Union of India (1994):** The Supreme Court had said "an inference can be drawn from the conduct of a member that he has voluntarily given up the membership of the party to which he belongs".
- **Nabam Rebia vs Deputy Speaker (2016):** The Supreme Court said that the Speaker shall not decide the disqualification cases till the no-confidence motion against him is disposed of.
- **Girish Chodankar vs The Speaker, Goa State Legislative Assembly (2021):** The Bombay High Court held that the merger of two-thirds of Members of the Legislative Assembly is deemed to be the merger of the original party. (An Appeal has been filed in the Supreme Court).

Created by | ForumIAS®

### How can these concerns be addressed?

- **Amend the Tenth Schedule:** The Tenth Schedule should be suitably amended. Any legislator changing party affiliation **must resign from the House and seek re-election**.
- **Prohibit Ministership Without Re-Election:** The defectors should be restricted from holding ministerial positions unless re-elected. This will discourage opportunistic defection for personal gains.
- **Role of the Speaker:** The law should be amended to address the bias displayed by the Speakers.
  - Several experts have suggested that the decision should be made by the ECI rather than the Speaker.
- **Selection of Speaker:** A new convention can be established where all political parties agree on a Speaker before the elections through consensus. (*Read more about the Working of the Anti-defection Act*).

### 3. Issues with the Judges Joining Politics

**News:** A sitting Judge of Calcutta High Court resigned from his office and joined a political party. Concerns are being raised about the impact on impartiality of the Judiciary.

### What are the Legal/Constitutional provisions regarding Judges joining politics?

- There is no legislation in India for **regulating the judicial conduct of judges** of Constitutional courts.
- They are not legally barred from occupying executive posts.

### What are the issues associated with judges joining politics?

- **Breach of Oath:** Third Schedule of the Constitution requires a judge-designate to swear that they will **perform their duties without fear or favour**, affection or ill-will. Joining political parties for electoral office raises questions over their **impartiality and propriety**.
- **Undermines Judicial Independence:** Judicial independence is of paramount importance for preserving the sanctity of the Constitution. The possibility of holding political office post-retirement may influence the Judges to give biased judgments (in return for political favours).
- **Violation Of Bangalore Principles of Judicial Conduct (2002):** The Declaration enlists certain judicial values necessary for a fair and independent Judiciary. It asks the judges to ensure that their conduct *“both in and out of Court maintains and enhances the confidence of the public and the legal profession in impartiality of the judges”*.
 

**Bangalore Principles of Judicial Conduct**

  - ★ The Bangalore Principles intend to establish **standards for ethical conduct** of Judges.
  - ★ They are designed to provide guidance to judges and to offer the judiciary a **framework for regulating judicial conduct**.
  - ★ They were drafted in 2001 and presented to the Round Table Meeting of Chief Justices in November 2002 (under the UN Office on Drugs and Crime).
  - ★ Resolution 23 of the **UN Social and Economic Council** promotes implementation of the Bangalore Principles by the judiciaries of Member States.
  - ★ The **6 Core Values** are:
    - Independence
    - Impartiality
    - Integrity
    - Propriety
    - Equality
    - Competence and Diligence

Created by | ForumIAS®
- **Breach of Public Trust:** The SC in *C. Ravichandran Iyer v. Justice A.M. Bhattacharjee (1995)* held that, *“To keep the stream of justice clean and pure, the Judge must be endowed with sterling character, impeccable integrity and upright behaviour”*. Joining a political party puts question over integrity and reduces public trust.
  - In *All India Judges’ Association v. Union of India (1991)*, the SC highlighted the significance of society’s expectation from judicial officers. All the lofty ideals are violated when judges compromise on neutrality.

### What should be the way forward?

- The SC should expressly prohibit judges of Constitutional courts from taking up political roles even after their retirement or resignation.

- The Parliament can also consider enacting a law to ensure judicial accountability in India. The Judiciary should be consulted extensively to ensure a balance between judicial accountability vis-à-vis judicial independence.

#### 4. Notification of CAA Rules

**News:** The Government has notified the rules for the implementation of the Citizenship Amendment Act (CAA), 2019.

#### What is the Citizenship Amendment Act (CAA) 2019?

- The legislation grants citizenship to **6 minorities** (Hindu, Sikh, Buddhist, Jain, Parsi, and Christian) **fleeing religious persecution** from Pakistan, Afghanistan, and Bangladesh.
- The citizenship will be granted to those who entered India from these countries **on or before December 31, 2014**.
- **Relaxation of Process to Acquire Citizenship (Naturalisation):** CAA 2019 amends the **Citizenship Act, 1955**. It relaxes the residence requirement to acquire citizenship through naturalization for these migrants from 11 years to 5 years.
- **Exemption from Criminal Cases and Deportation:** CAA exempts the members of the 6 communities from any criminal case and deportation under the **Foreigners Act, 1946** and the **Passport Act, 1920**.
- **Exceptions to the Act:** The provisions on citizenship for illegal migrants will not apply to two categories:
  - States protected by the **'Inner Line Permit'**.
  - Areas covered under the **Sixth Schedule of the Constitution**.

#### What are the provisions of the notified CAA rules?

- **No Requirement of Valid Passport:** The rules have done away with the earlier **mandatory requirement of passport** of Pakistan, Bangladesh or Afghanistan and a **residential permit** issued by India. Any document from a **list of the documents** would serve as evidence of nationality of these countries. These documents include Birth or educational institution certificate, Identity document of any kind, Any licence or certificate, Land or tenancy records, or any other document issued by these countries which proves their citizenship.
- **No Requirement of Visa:** The rules have removed the mandatory requirement of Visa and have provided that even a certificate issued by an elected member of a local body would be sufficient.
- **No Requirement of Certificate for Eighth Schedule Languages:** The rules have done away with the requirement of producing a certificate from an educational institution that the applicant knows one of the languages mentioned in the Eighth Schedule of the Constitution. Being able to speak the language and a declaration to that effect will be enough.
- **Proof of entry into India before December 31, 2014:** The Rules provide that any one of the listed 20 documents would be admissible.

#### Documents of Proof

Valid visa, Residential permit issued by FRRO, Slip issued by Census enumerators in India, Driving licence, Aadhaar card, Ration card, Any letter issued by the government or court, Indian birth certificate, Land or tenancy records, Registered rent agreement, PAN card issuance document, Document issued by Centre, State, PSU or bank, Certificate issued by an elected member of any rural or urban body or officer thereof or a revenue officer; Post Office account; Insurance policy; Utility bills; Court or tribunal records; EPF documents, School leaving certificate; academic certificate; municipality trade licence; and marriage certificate.



- **Limited Powers of the State Governments:** The rules tweak the process to **limit the role of State Governments** in the process. Earlier, citizenship applications were made to the District Collector (under State Government). The new rules provide for an **Empowered Committee** and a district level committee to be instituted by the Centre for **receiving and processing the applications**, which are to be submitted electronically. The Committee would be headed by a Director (Census Operations),

### What are the arguments in favour of the Citizenship Amendment Act 2019?

- **Dignified life for refugees:** The CAA would help to remove legal barriers to rehabilitation and citizenship and give a dignified life to refugees who have suffered religious persecution for decades.
- **Protection of Rights:** Citizenship rights will protect the cultural, linguistic, and social identity of the refugees while ensuring economic, commercial, free movement and property purchase rights within India.
- **Relief to victims of Partition:** CAA provides relief to the victims of partition who were facing religious persecutions on account of becoming religious minorities after the establishment of Pakistan, Bangladesh and Afghanistan into **theocratic Islamic republics**.

### What are the arguments against the Citizenship Amendment Act 2019?

- **Against the Right to Equality:** Critics have argued that using religion as a qualifier violates the fundamental right to equality granted by Article 14 of the Constitution.
- **Violation of Secularism:** Making religion a ground for eligibility for citizenship violates secularism, which is a **basic feature of the Constitution**.
- **Exclusion of other persecuted minority groups:** Other persecuted minority groups like the Tamil Hindus in Sri Lanka, or the minority Muslim sects like Ahmadiyyas and Hazaras in Pakistan, Afghanistan have been excluded from the Act.

#### CAA and Article 14 and 15

The proponents of CAA argue that Article 14 provides for **similarity of treatment** and **not identical treatment**. Article 14 does not prevent **classification for the purpose of legislation**.

Moreover, religion-based discrimination is not allowed under Article 15, which is available only to the citizens. The **migrants seeking refuge** from the religious persecution are **not citizens**.

Hence, according to supporters of CAA, the provisions of Amendment Act do not violate the Article 14 and 15.

- **Concerns of the North-Eastern States:** North-eastern States have opposed the CAA as they are fearful that migrants would pose a threat to their **cultural and linguistic identity** and put a strain on resources and economic opportunities.
- **Violation of Assam Accord:** There have been protests in Assam citing the violation of Assam Accord by extending the cut-off date for citizenship to illegal migrants. CAA has extended the cut-off date to December 31, 2014 from the cut-off date of March 25, 1971 provided in the Assam Accord.

### What should be the way forward?

The Government has notified the rules. The challenge to the Constitutionality of CAA is pending in the SC.

- **Allay the Fears:** The Government must allay the fears of a nationwide NRC among the communities. There is a fear that NRC can deprive them of their citizenship rights in case of failure to provide the requisite documents.
- **SC Verdict on Constitutionality of the Act:** The SC must provide its verdict on the petitions challenging the Act at the earliest.
- **Assurance to International Community:** The Government should assure its neighbours about the effective implementation and no discrimination against Muslims regarding CAA provisions.

- **Inclusion of other persecuted minorities:** It has been suggested that the Government should consider the gradual inclusion of other persecuted minorities like Tamil Hindus in Sri Lanka in the Act.
- **Federal Cooperation:** The Union Government must assuage the fears of the North-eastern states like Assam regarding the impact of CAA on their cultural and ethnic identity.

## 5. Electronic Evidence Rules Under the New Criminal Laws

**News:** The new criminal laws have modified the rules of electronic records and evidence. The rules bring the laws in consonance with the modern technology. However, certain challenges remain in implementation.

### What changes have been made in electronic evidence rules?

- **Definition of Electronic Records:** Electronic records now include a wide range of digital data such as emails, server logs, documents on electronic devices, messages, websites, and digital voice mails.
- **Primary Evidence Rule:** All copies of a video recording stored and transmitted electronically are considered primary evidence. This helps in proving cyber-crimes even if the original record is destroyed.
- **Admissibility of Electronic Records:** Following the Supreme Court's Guidelines, a special certificate is required for electronic records to be admitted in court (under the *Bharatiya Sakshya Adhiniyam*). This certificate must be signed by two individuals: the person managing the device and an expert.

### What are the judicial views on electronic evidence rules?

- **Mandatory Certificate:** The Supreme Court Judgment in *Arjun Panditrao Khotkar vs Kailash Kushanrao Gorantyal & Ors. (2020)* requires a certificate under Section 65-B (4) of the Indian Evidence Act (now Section 63(4) in the *Bharatiya Sakshya Adhiniyam*) for the **admissibility of electronic records**.
- **Curable Defect:** Non-submission of the certificate in time is considered a curable defect. Courts may allow its **later submission without prejudicing the trial**.
- **Impossibility Principle:** The Court's view that if it is impossible to produce the required certificate, the court may excuse this requirement, recognizing the practical difficulties in obtaining the certificate.

### What are the challenges in enforcing electronic evidence rules?

- **Insufficient Manpower and Resources:** Many cyber labs may not have enough staff or are not notified under the IT Act to provide expert opinions on electronic records.
- **Complexity in Handling Vast Data:** With the ubiquity of smartphones in crimes, the volume of data needing certification is enormous, posing logistical challenges.
- **Timing of Expert Certification:** Experts have suggested that requiring expert certification for every case could be excessive, proposing its necessity only when the integrity of the electronic record is disputed.

### What should be the way forward?

- To effectively implement the new electronic evidence rules, a dual approach is needed
  - The **capacity and resources of cyber laboratories** must be **enhanced**.
  - Widespread **training and awareness programs** about encryption and electronic record handling, especially for private entities using electronic security systems should be initiated. This will ensure smoother enforcement and compliance with the updated legal framework.

## 6. Improving Financial Status of Local Governments

**News:** The financial status of local governments in India has remained poor. Empowering local governments is essential for both rural and urban development and economic growth of India.



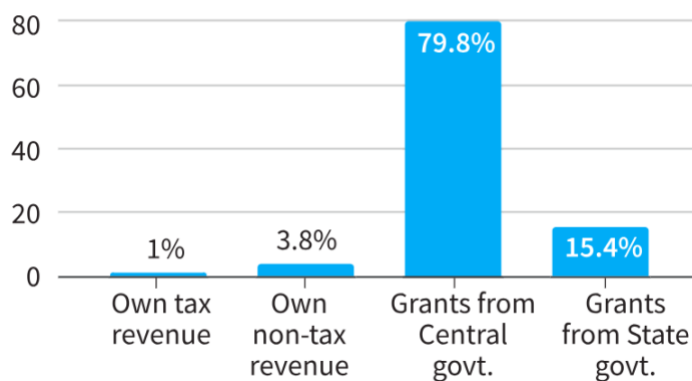
### What are the issues in empowering urban local governments in India?

- **Limited Financial Resources:** Local Governments in India receive minimal funding. They get only 4% of the divisible pool, with cities receiving a meagre 1.4%. This amount is significantly less than countries like China, where urban investment was 2.8% of GDP from 2000–2014.
- **Outdated Census Data:** Decisions are based on the 2011 Census, which doesn't accurately reflect the current pace of urbanization.
- **Limited Modern Criteria:** Current definitions do not adequately consider modern urban characteristics like mobility, labour markets, and built-up forms.
- **Complex and Varied Administrative Structures:** There are 88 Municipal Acts across different States and UTs, leading to inconsistent governance and planning standards.
- **One-size-fits-all approach:** Different types of cities, like large metropolitan areas and smaller towns, have unique needs. A one-size-fits-all approach doesn't work well for resource allocation.

### What are the challenges faced by Panchayats in India?

- **Lack of Tax Collection Authority:** Gram, Intermediate and District panchayats lack the authority to collect taxes.
- **'Freebie Culture' and Public Resistance:** Freebie culture results in reluctance to pay taxes.
- **Role of Elected Representatives:** Imposition of taxes might affect the popularity of elected representatives negatively, leading to hesitation in enforcing tax laws.
- **Increased Grants from Union Finance Commission:** With substantial increases in allocations from the Union Finance Commission, panchayats show less interest in collecting local revenue. (Refer EPIC February 2024 (click) for RBI Report on Panchayati Raj Institutions).

| The chart shows the revenue per panchayat in percentage terms in 2022-23.



Source: The Hindu. Grants from the Union (79.8%) and State Government (15.4%) contribute 95.2% to Panchayat's revenues.

### What should be done to improve financial status of panchayats?

- **Educate on Revenue Importance:** Awareness should be raised among elected representatives and the public about the significance of local revenue generation for the development of panchayats.
- **Effective Implementation of Taxes:** Panchayats should enforce appropriate financial regulations for taxation, including determining tax rates and enforcing collection.
- **Encourage OSR Activities:** Activities that generate **Own Source Revenue** (OSR) should be promoted like rural business hubs, renewable energy projects, and commercial ventures.
- **Incentivize Local Revenue Collection:** Policies to provide matching grants or incentives to panchayats that successfully raise their own funds should be implemented.
- **Transparent Financial Management:** Accountability and transparency should be ensured in financial matters to build community trust and support for local revenue initiatives.

### How can allocations to urban areas be improved?

- **Advanced Identification of Cities:** Geospatial tools and **alternative data** can be used for **more accurate identification of city limits**, moving beyond reliance on 2011 Census data. Examples include population

projections from the Union Ministry of Health and Family Welfare, night-time luminosity, consumption expenditure, and data from vehicle and property registrations.

- **Special Focus on Metropolitan Areas:** Resources to metropolitan areas should be allocated based on outcomes and goals related to economic growth, sustainability, and equity, covering the entire area and treating census towns within these areas as urban.
- **Differentiated Resource Allocation:** The 16<sup>th</sup> Finance Commission should encourage differentiation between large, mid-sized, and smaller cities for resource allocation, based on their unique needs and capabilities.
- **Utilization of Districts for Allocation:** The district should be recognized as a key unit for resource allocation, especially in the context of India's unique urbanization pattern, to facilitate integrated development.
- **Local-Government-Centric Approach:** Resources should be allocated to urban local bodies based on their share of the total urban population, focusing more on local needs rather than a State-centric model.

Implementing these changes in urban allocations can lead to **better urban planning and development**. This approach is crucial for India's economic growth and achieving 'Viksit Bharat', especially aiding smaller cities with populations under 100,000, by setting them on the path of planned urbanization and development.

## 7. Issues with India's Public Education System

**News:** Public Education System is essential to reap the demographic dividend. India's education system has shown improvements, yet several challenges remain.

### Why is investing in education important?

- **Leveraging Demographic Dividend:** Investing in public education systems is crucial for countries seeking to leverage their demographic dividend e.g., South Korea's literacy rate was ~22% in 1945. South Korea invested heavily in public education post the Korean war. By 1970, the literacy had touched 88%. South Korea's emphasis on education provided the **necessary skills for industrial and technological sectors**, which contributed to its economic development.
- **Economic Growth:** Empirical research shows that educational investment is positively correlated with economic growth.
  - According to the World Bank, **each additional year of schooling is associated with up to 10% increase in individual earnings**, and countries prioritizing educational quality generally exhibit higher economic growth rates.

### What is the 'Pyramidal Structural' challenge in India's public education system?

- The Right to Education (RTE) Act, 2009 mandates distance norms for primary and upper-primary schools (1 km and 3 km respectively). This has significantly **increased accessibility to primary education** and has expanded educational infrastructure.
- However, the Act's **focus on elementary education** has led to:
  - **Scarcity of Secondary and Higher-secondary Schools:** There are 743,000 schools at the

#### Improvements in Public Education System

The **Unified Digital Information on School Education (UDISE+)** 2023 data indicate significant improvements in India's public education system. These include:

- ★ **Decrease in Pupil-Teacher ratio (PTR):** It has seen a remarkable decrease across all levels of education, signifying smaller class sizes and more individualized attention to students. It reflects an effort to improve the quality of education through increased teacher recruitment.
- ★ **Gender Parity in Teaching Staff:** The teaching staff has attained a gender balance, with female teachers now comprising 52.3% of the teaching workforce in 2022-23, up from 46.9% in 2014-15.
- ★ **Improvement in Learning Outcomes:** Between 2013 and 2022, the number of students within the public education system passing with 60% and above has surged, with 'pass' students in Class 10 rising from 5.8 million to nearly 9.8 million and in Class 12 from 3.6 million to over 4.3 million.
- ★ **Rise in Female Education:** The pass rates of female students rose by 72% in Class 10 and 87% in Class 12, surpassing the improvement rates of male students.

Created by | ForumIAS®

primary level, accounting for 50.7% of all schools. However, only 150,000 schools (10.3%) are present at the higher-secondary level.

- **Skewed Enrolments:** According to UDISE+ data, there are 122.5 million enrolments in primary schools. However, it decreases to 38 million at the secondary level, and only 27.8 million at the higher-secondary level.

### What are the issues with teaching practices in Indian classrooms?

- **One-Way Communication:** Many teachers don't engage students effectively, impacting their motivation and learning. Classes are typically teacher-led with minimal interaction or feedback from students. Teachers tend to focus more on front-row students who may be more responsive in the class.
- **Rote Learning:** There's a heavy reliance on memorization rather than understanding concepts, limiting critical thinking skills.
- **Passive Learning:** Students copy from the board and answer in unison, leading to low cognitive engagement.
- **Poor Attendance:** Low student attendance demotivates teachers, further reducing engagement efforts.

### What are the concerns with the Budget Allocation to Education?

- **Substantial Cut in Higher Education:** The Budget has reduced funding for higher education by over 60%, cutting INR 9,600 crore from last year. This affects institutions like IITs and IIMs.
- **Funding for Specific Projects:** There's a small increase in school education funding. But significant portions allocated for specific projects like PM-SHRI schools and Eklavya Model Residential Schools, which impacts the budget for existing schools.

### What are the impacts of financial strain on education?

- **Increased Dependency on Loans:** Funding is being redirected from the University Grants Commission to the Higher Education Financing Agency (HEFA), **increasing reliance on loans instead of grants.**
- **Financial Pressure on Institutions:** The cuts compel colleges and universities to introduce more self-financing courses, likely leading to **increased tuition fees.**
- **Negative Impact on Marginalized Students:** The reduction in funding exacerbates the challenges faced by marginalized groups in accessing higher education, as their Gross Enrolment Ratios are already below the national average.
- **Impact on Quality:** The shift in funding priorities and the ensuing financial challenges might adversely affect the overall quality of education offered in Indian higher education institutions.
- **Contradiction with Education Goals:** The budget cut is at odds with India's commitment to the '**Education 2023: Incheon Declaration**', which calls for **allocating 4-6% of GDP to education.** India's current allocation stands at ~2.8% of GDP, significantly lower than the target range.

### What should be done going ahead?

- The Governments should target to **allocate 4-6% of the GDP to education.** More focus should be on **plugging the gaps in the secondary, higher-secondary and higher education.**
- The **infrastructure** of higher-secondary and higher education should be improved in terms of buildings, facilities, classrooms etc.
- The **teacher-pupil ratio should be improved further.** Emphasis should be on teacher education and training them to engage more interactively with students.
- Teachers should be encouraged to **understand each student's needs**, customizing their approach for more effective learning. Their focus shouldn't be limited to only theoretical knowledge.
- Effectiveness of teachers should be measured through **learning outcomes of students.**

## 8. Open Book Examinations: Benefits and Concerns

**News:** The CBSE will conduct a comprehensive pilot study to assess the viability of implementing Open Book Exam (OBE) for students from classes 9 to 12.

### What is Open Book Examination (OBE)? What is the History of OBE in India?

- It is an examination pattern where students are allowed to refer to their books and notes to answer questions during the examination.
- There are 2 types of open book examination.
  - **Restricted Open Book Assessment:** Students are allowed to refer only the study material approved by the exam-conducting authority.
  - **Free-type Open Book Assessment:** Students are allowed to bring any material of their choice.

### Earlier attempts at Open Book Examinations

- In 2014, CBSE introduced **Open Text Based Assessment (OBTA)** which was implemented in Class 9 (Hindi, English, Mathematics, Science, and Social Science) and Class 11 (Economics, Biology, and Geography).
  - It was aimed to **ease the burden of memorization** and **promote information processing skills**.
  - However, it was discontinued in the 2017-18 academic year due to its **failure to develop critical thinking skills** among students.
- In 2019, All India Council for Technical Education (AICTE) permitted open book exams in engineering colleges following a recommendation from an advisory body.
- During COVID-19 pandemic, various Central Universities like DU, JNU, AMU, IIT Delhi, IIT Indore, and IIT Bombay had conducted open book tests to evaluate students.

### What are the advantages of Open Book Examination (OBE) in India?

- **Shift of Focus from 'rote learning' to 'conceptual understanding':** OBE will help the students focus on core concepts, high-order foundational skills, and peer assessments.
- **Promotion of critical and creative thinking:** OBE helps to assess

#### CBSE's Proposal for Open Book Examination: Rationale

- ★ **Transformation of Culture of assessment in line with NEP 2020:** The National Education Policy 2020 has recommended implementation of **various modes of exams** for the benefit of students. CBSE is exploring Open Book Examination (OBE) as an alternative for regular exams.
- ★ **On the lines of National Curriculum Framework:** The CBSE has proposed this form of assessment based on the National Curriculum Framework (NCF) released last year. The National Curriculum Framework for School Education has highlighted the need to **reform the current assessment process**, which is 'focused on measuring rote learning'.

Created by | ForumIAS®

learner readiness, application of course content to real-life scenarios, analysis of case studies and connection of content with real-world situations.

- **Prevents the proliferation of coaching industry:** The examination system using an open book would prevent the proliferation of board-exam based coaching industry.
- **Encourages Resource Management Skills:** Through the use of Open Book method of examination, students learn to efficiently navigate and use reference materials. This leads to the development of a valuable skill in quickly finding relevant information, which is of great help in academic and professional settings.
- **Reduction in examination related stress:** According to a 2021 study involving medical students from All India Institute of Medical Sciences (AIIMS) Bhubaneswar, it was found that open book exams were less stressful. OBE can be helpful to reduce the cases of **student suicides in India**.

### What are the challenges/limitations associated with the system of OBE?

- **Challenge for Teachers:** There is lack of training for school teachers to design innovative OBE assessments.

- Questions in an open book exam, unlike a traditional exam, cannot be direct.
- **Reduction in student's motivation for studies:** Students often get complacent in an open book examination assessment system, by completely ignoring the need for memorization or critical thinking skills.
- **Challenges of Time Management:** Students may spend too much time searching for information in their materials leading to incomplete or rushed answers.
- **Exacerbation of Inequality among students:** The availability of different resources can create inequality among students. Students with better access to quality materials may have an advantage over their peers.
- **Logistical Challenges:** Organizing and administering OBEs can be logistically difficult for the teachers, with the students trying to bring too many books into the exam environment.
- **Risk of plagiarism:** There are risks of plagiarism, with students being tempted to copy answers or use unauthorised materials.

### What should be the way forward?

- **Implementation of Yash Pal Committee Report:** The Yash Pal Committee Report, 'Learning Without Burden' had recommended reducing the burden of exams and introduction of measures like OBEs to reduce the 'catch up' syndrome. (*Catch up syndrome is the popular belief that India needs to catch up with the explosion of knowledge in the West through strict curriculum and rigorous examinations*).
- **Development of spirit of critical pedagogy:** Teachers must engage in a meaningful dialogue with young students. They should remove their whole attention from "completing" the official syllabus in time. The focus should be on learning outcomes of the students rather than completing syllabus.
- **Training of students:** Students must be trained on how to write an open book exam, and develop the necessary skills of analysing concepts to get the benefits of Open Book Exam.
- **Training of teachers:** Teachers must be trained on formulating comprehensive, unique questions for an OBE different from the formulaic and archaic questions in a regular exam.

## 9. Success of the Khelo India Programme

**News:** The Ministry of Youth Affairs and Sports has inaugurated the *Khelo India* Rising Talent Identification (KIRTI) programme under the *Khelo India* Initiative.

### What are the unique features of KIRTI Programme?

Aspect	Details
About the Scheme	It is a <b>scouting and training programme</b> to <b>build a culture of sports</b> and <b>create a cradle of talent</b> that can win medals for India at the global competitions.
Aim	It aims to scout talent among <b>school-goers between the 9-18 years</b> .
Objectives	To hunt talent across India and to use sports as a <b>tool to curb addiction towards drugs</b> and other <b>gadgets distractions</b> .
Features	<ul style="list-style-type: none"> <li>● It aims to conduct <b>20 lakh assessments</b> across India throughout the year to identify talent through notified <b>Talent Assessment Centres</b>.</li> <li>● It has been launched across 50 centres in India. 50,000 applicants are being assessed in the 1<sup>st</sup>-phase across 10 sports, including athletics, boxing, wrestling, hockey, football and wrestling.</li> <li>● It has a <b>transparent selection methodology</b> based on use of IT tools.</li> <li>● <b>Data analytics</b> based on AI are being used to <b>predict the sporting acumen</b> in an aspiring athlete.</li> </ul>



### What is the Khelo India Programme?

- It was introduced by the Ministry of Sports and Youth affairs to **revive sports culture at the grass-roots level**.
- Its objective is to **build a strong framework for all sports** played in India and **establish India as a great sporting nation**.

#### New Initiatives Under Khelo India

- ★ **Youth Games in South India:** For the first time, the Youth Games were held in Tamil Nadu, adopting a **multi-city approach** for better access to venues.
- ★ **University Games in the Northeast:** The first-ever University Games spanned 7 North-eastern States, with Assam hosting 16 sports.
- ★ **Focus on Indigenous Sports:** Added emphasis has been placed on local sports like *Yogasana, Gatka, Mallakhamba, Silambam, and Kalaripayattu*, which saw overwhelming participation.
- ★ **Winter Games in Ladakh:** A portion of the *Khelo India Winter Games* was hosted in Ladakh for the first time, featuring ice hockey and ice skating.

Created by | ForumIAS®

- *Khelo India Programme* has merged programmes like *Khel Abhiyan, Urban Sports Infrastructure Scheme, National Sports Talent Search Scheme* etc.
- **Khelo India School Games** are also conducted as a part of the *Khelo India programme*. (Read More about the *Khelo India Initiative* here).

### What are the achievements of the Khelo India Programme?

- **Increased Medal Count:** In 2022, *Khelo India* athletes won 312 medals, a significant rise from 2018 where 92 athletes won 82 medals.
  - In the 2022 Commonwealth Games (Birmingham, England), India stood 4<sup>th</sup> in the medal tally (behind Australia, England, Canada) with 61 medals (22 Gold, 16 Silver and 23 Bronze).
  - In the latest Asian Games (2022-23, Hangzhou, China) India stood 4<sup>th</sup> (behind China, Japan, South Korea) with 107 medals (28 Gold, 38 Silver, and 41 Bronze).
- **International Success:** Athletes from the *Khelo India* ecosystem have shown **consistent success** in international events like the Olympics, World Championships, Asian Games, and Commonwealth Games.
- **Balanced Participation:** The male-to-female ratio in the *Khelo India Games* this season was nearly 50:50, demonstrating a strong commitment to **gender equality in sports**.
- **Improving Performance in New Sports:** Traditionally, India's medal count was limited to sports like Hockey, Wrestling, Shooting etc. Now, more and more Indian athletes are winning medals in sports like athletics (Javelin throw, Long jump, Shot put, Steeplechase), Squash, Equestrian etc.

### What steps have been taken by the Government to promote sports in India?

- **Supporting Athletes:** The Government offers jobs to deserving *Khelo India* medal winners, ensuring a **stable future for athletes** beyond their sporting careers.
  - In addition, the Government provides them with funds to **hire best coaches** or **train abroad** in the best sporting facilities to raise the level of their game.
- **Infrastructure Development:** Over 300 sports infrastructure projects have been approved in 34 States and UTs, with funding exceeding INR 3,000 crore, demonstrating a commitment to enhancing sports facilities.
- **Talent Identification:** A 2-tier structure, including a Scouting Committee and a Developmental Panel, is in place for selecting genuine talent. Currently, approximately 2,800 athletes across 21 sports disciplines have been chosen as *Khelo India* athletes.
- **Gender Equality in Sports:** Efforts to maintain a near-equal male-to-female athlete ratio and the successful *Asmita Khelo India Women's League* are examples of **promoting gender equality in sports**.

## 10. Importance of India's Airstrip in Agaléga Atoll

**News:** The Prime Minister of India and Mauritius jointly inaugurated an airstrip and a jetty that India has built on Agaléga Atoll in Mauritius.



### What are the features of the Agaléga Atoll?

- It is a tiny atoll in the Western Indian Ocean.
- The atoll comprises of **2 islands**, North and South Agaléga, separated by a short channel.
- It is located 684 miles (1,122 km) **northeast** of main island of **Mauritius**.
- It is surrounded by the **Seychelles** to the north, the **Maldives**, US base **Diego Garcia**, **Chagos Island** to the north-east, and **Madagascar**, and the Mozambique Channel, and the entire eastern coast of Africa to the west
- The 12 km-long and 2 km-wide northern island has a small airstrip which used to be occasionally visited by **Coast Guard** planes and helicopters.
- Agaléga is known for its production of coconuts and is also home to the Agaléga day gecko.
- Its strategic location makes it vulnerable to **terrorism**, **piracy** and the **illegal narcotics trade**.



### What is the significance of creating infrastructure in Agaléga Island for Mauritius?

#### Economic Significance

- It will reduce 2-day journey time from the Agaléga island to Mauritius to less than an hour's flight.
- It will create employment for the local population and improve their overall well-being.
- It would help in tapping the tourism potential of the islands.

#### Strategic Significance

- The new jetty and airstrip will allow the stationing or **forward deployment of ships** of the Mauritius Coast Guard. This will significantly enhance the capabilities and capacities in **marine surveillance and security**.

### What is the significance of development of Agaléga island for India?

#### Deepening of India-Mauritius relations

- **Enhanced Goodwill:** It will enhance the goodwill and trust between India and Mauritius. This would help India to project itself to other maritime neighbours **a benign and friendly country** that respects **sovereignty of independent States**.
- **Multi-dimensional Cooperation:** India and Mauritius are cooperating in all areas like monitoring of Exclusive Economic Zone, joint patrolling, hydrography, and **Humanitarian Assistance and Disaster Relief (HADR)**. This will help India to sustainably use its exclusive economic zone in Indian Ocean region.

#### Geostrategic Significance

- **Strengthen SAGAR initiative:** The joint development of Agaléga highlights India's commitment to the vision of **Security and Growth for All in the Region (SAGAR)** by assisting smaller maritime nations in building capacities and developing capabilities.

- **Counter String of Pearls:** China has built many assets in the Western Indian Ocean, such as the bases in Djibouti and Gwadar. The development of ports in Agaléga will **provide strategic access to India** dubbed by some analysts as the “necklace of diamonds” as against the “string of pearls” ports that provide access to the Chinese.
  - The importance of building infrastructure in Agaléga island becomes even more marked in light of the **Maldives’ anti-India posturing**, which is highlighted by the signing of an agreement with Beijing “on China’s provision of military assistance” and Indian military forces being asked to vacate the island nation.
- **Enhanced surveillance of Indian Ocean:** With the maritime empowerment of Mauritius through the Agaléga project, India can also **monitor important ocean lines** in the Western Indian Ocean.
- **Reinforce India’s role as net peace provider in the Indian Ocean Region:** It will help India to transform into influential **blue-water power** and become the **voice of the Global South**.
  - It will also highlight India’s critical role as a **net peace provider** in the Indian Ocean region and maintaining overall peace, stability and security in the region.



## 11. BBIN and the Importance of Railway Network

**News:** The Railway network between Bangladesh, Bhutan, India and Nepal has the potential to reduce transportation costs and time, improve trade, and support economic growth in these countries.

### What is the BBIN Initiative?

- **Regional Collaboration:** The initiative involves Bhutan, Bangladesh, India, and Nepal working together to enhance regional connectivity.
- **Focus on Railway Development:** The initiative prioritizes developing rail networks to improve economic ties and transportation efficiency.
- **Economic Growth and Development:** By improving connectivity, the initiative aims to boost economic growth and reduce transportation costs.

### How can improved connectivity through railways foster regional growth?

- **Cost and Time Efficiency:** Railways reduce transportation costs and travel times significantly e.g., rerouting a freight train from Kolkata to Agartala through Bangladesh cuts transit time and costs by two-thirds (~67%).
- **Access to Ports:** Landlocked Nepal and Bhutan can gain access to major ports like Chattogram and Mongla, enhancing their trade capabilities.
- **Economic Integration:** Improved rail connectivity fosters economic interdependence and growth among BBIN countries.
- **Revenue Generation:** Enhanced railway links can increase revenue for countries like Bangladesh through transit fees and other charges.

### About BBIN

**Bangladesh, Bhutan, India and Nepal** had signed a framework **Motor Vehicles Agreement (MVA)** in June 2015.

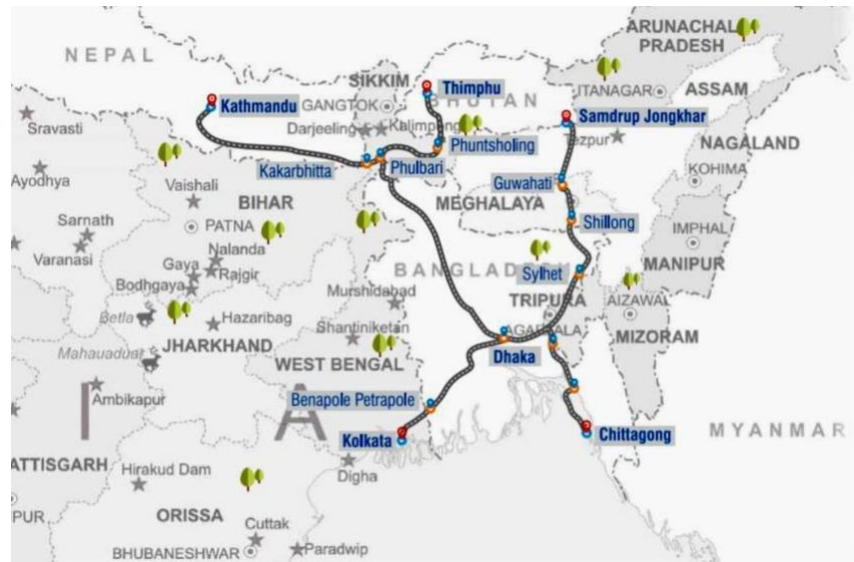
Its aim is to provide **seamless people-to-people contact** and **enhance economic interaction** by facilitating **cross-border movement of people and goods**.

Bhutan has not yet ratified the pact for its entry to come into force. But it has provided its consent for the entry into force of the MVA among Bangladesh, India and Nepal without obligation to Bhutan.

- **Environmental Benefits:** Railways offer a **greener mode of transport**, reducing greenhouse gas emissions compared to road transport.

### What are the key projects in the BBIN initiative?

- **Agartala-Akhaura Rail Link:** It connects North-east India with Bangladesh, reducing the Kolkata to Agartala route from 1,600 km to ~500 km.
- **Khulna to Mongla Port Railway:** This line is in Bangladesh and will enhance connectivity between the western-northern Bangladesh, India, and Bhutan.
- **Tongi-Akhaura Line Dual Gauging:** Upgrading this line is part of the India-Bangladesh joint initiatives, improving connectivity and efficiency.
- **Hilli-Birampur Connection:** This new link is aimed at enhancing cross-border rail connections between India and Bangladesh.
- **Jayanagar-Bijalpura-Bardibas Line in Nepal:** It is the only cross-border rail link between India and Nepal, with plans to extend it further.
- **Gelephu-Kokrajhar Link Between Bhutan and India:** A proposed rail line connecting Bhutan directly to the Indian railway network, facilitating easier access to Bangladesh through the Haldibari-Chilahati interchange.



Source: Wikimedia Commons. Proposed connectivity corridors in the BBIN Network.

### How are the regional rail connectivity projects being funded?

- **Joint Funding and Execution:** Unlike traditional individual country financing, these rail projects are being funded and executed through collaboration among the BBIN countries.
- **Support from the Indian Government:** India is playing a significant role by extending lines of credit, offering assistance from the MDoNER (Ministry of Development of North Eastern Region) budget, and supplying rolling stock.
- **Involvement of International Organizations:** The World Bank and the Asian Development Bank (ADB) are providing long-term loans and viability gap funding, contributing to the financial support of these projects.
- **Development Plans by Each Country:** Governments of Bangladesh, Bhutan, and Nepal have also put forth their own development plans, showing commitment to the project and shared regional growth.

### What should be the way forward?

- To progress, the BBIN initiative should focus on timely completion of key railway projects.
- Effective **cross-border protocols** and **regulatory frameworks** should be established. They are crucial for **seamless operation** and **maximizing the economic and environmental benefits** of these rail networks.

General Studies Paper III

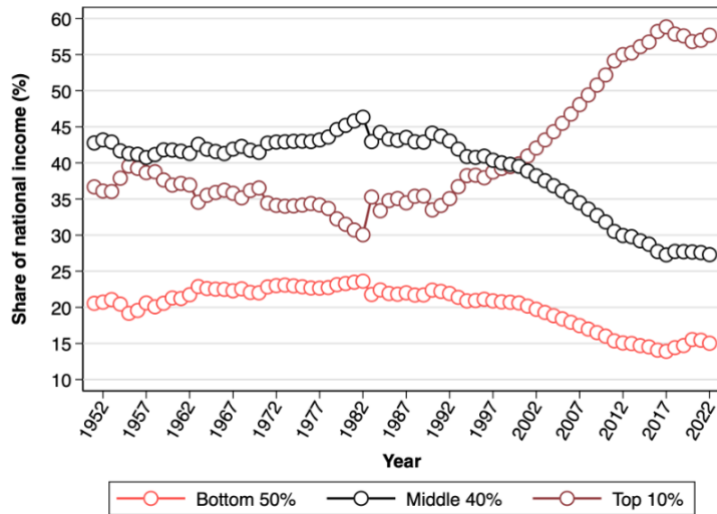
1. World Inequality Lab Report: Income and Wealth Inequality in India 1922-2023

**News:** The recent working paper by World Inequality Lab titled ‘Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj’ has put the spotlight on the status of inequality in India.

What are the main takeaways from the Report?

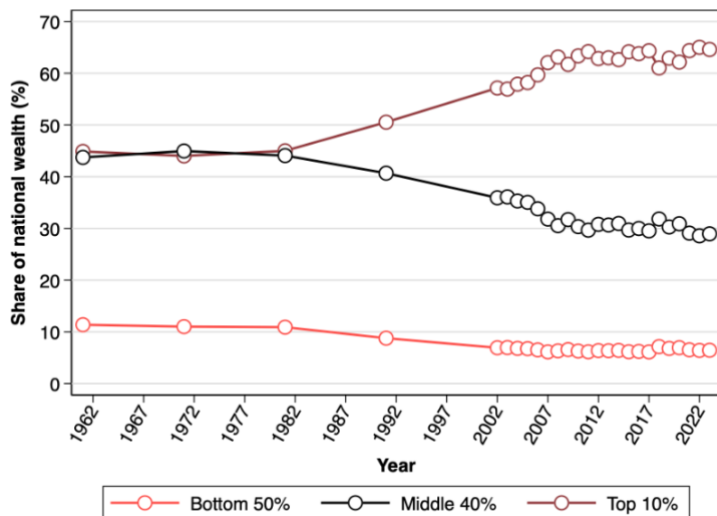
- **Growth in average incomes:** India’s average income grew at 2.6% per year in real terms between 1960 and 2022.
- **Emergence of very high net worth individuals:** The period between 1990 to 2022 witnessed a rise in national wealth and the emergence of very high net worth individuals (those with net wealth exceeding US\$ 1 billion at the market exchange rate). The number of high net worth individuals has increased from 1 (1991) to 52 (2011) to 162 (2022).
- **Rise in the percentage of Income Taxpayers:** The share of adult population filing an income tax return has increased from 1% till the 1990s to 5% in 2011 to 9% between 2017-2020.
- **Extreme Levels of Inequality in India:** In 2022-23, India’s top 1% earned 22.6% of India’s national income and owned 40.1% of the country’s wealth. According to the report, the ‘**Billionaire Raj**’ headed by India’s modern bourgeoisie is now more unequal than the British Raj headed by the colonialist forces.
- **Extreme Wealth Concentration at the Top:** Between 1961 and 2023, the top 1% wealth share has increased three-fold, from 13% to 39%.
- **International comparison of Income and Wealth Inequality:** India’s top 1% income share and wealth share is among the very highest in the world, behind only perhaps Peru, Yemen and a couple of other small countries..
- **Poor Economic Data:** Quality of economic data in India is notably poor, and it has seen a decline recently, leading to **likely underestimation** of level of inequality.

Long-run income inequality in India, 1951-2022



Source: World Inequality Lab. The share of bottom 50% in income fell from 20% in 1951 to 15% in 2022. The share of middle 40% fell from ~43% to ~26%. The share of top 10% rose from ~37% to ~58%.

Long-run wealth inequality in India, 1961-2023



Source: World Inequality Lab. The share of bottom 50% in wealth ownership fell from 10% in 1961 to ~8% in 2023. The share of middle 40% fell from ~43% to ~30%. The share of top 10% rose from ~43% to ~65%.



- **Policy Solution to Reduce Inequality:** Implementing a **super tax** on billionaires and multimillionaires, restructuring the **tax schedule to include both income and wealth**, and finance major investments in education, health and other public infrastructure, could be effective measures to reduce inequality in India.

### What are the implications of rising inequality?

- **Higher Vulnerabilities to Extreme Events:** Poor people have little or no savings or wealth which makes it very difficult for them to survive in extreme situations like pandemics, disasters etc.
- **Hampers progress of Future Generations:** Lack of access to income and wealth hampers the ability of the poor to access the levers, like education, that enable upward mobility. Children born in poor families remain perpetually caught in the poverty trap.
- **Undermines Dignity:** People with less resources have to work day and night without any holiday. They starve for food, clothing and other basic things, which undermines their right to a dignified life under Article 21.
- **High Crime Rates:** Inequitable distribution of wealth leads to lower social trust and higher crime rates.

### What are the challenges in addressing inequality?

- **Low Female Labour Force Participation:** Lack of education, early marriage, household responsibilities etc. force women to opt out of jobs which reduces their income and increases income inequalities.
- **Poor Coverage of Schemes:** There is poor coverage of health and education schemes, which increases the out-of-pocket expenditure of poor people and exacerbates income and wealth inequalities.
- **Global Uncertainties:** The continuation of Russia-Ukraine conflict have pushed the inflation levels globally, thereby increasing income and wealth inequality.
- **High level of in-formalisation of economy:** A significant portion of India's workforce is engaged in the informal sector, which typically lacks job security, social protections, and access to formal financial services. Workers in the informal sector often face exploitative working conditions and lower wages compared to their counterparts in the formal sector.
- **Skewed Economic Growth Patterns:** High growth rates have primarily benefited certain sectors and regions, leading to a concentration of wealth and opportunities among a relatively small portion of the population.

### What should be the way forward?

- **Super-Rich Tax or Wealth Tax:** The Government should levy **wealth tax** and **super-rich tax** on Indian billionaires and multimillionaires. This will reduce levels of income inequality in India.
- **Raising Minimum Wage Rate:** The Government should raise the minimum wage rate especially in the unorganized sector wherein people get very less social security benefits like the gig workers.
- **Higher Investment in Education and Health:** The Government of India must invest 6% of GDP in Education and 2.5% of GDP in Health to ensure equitable development and reduce inequalities.
- **Better Targeting of Welfare Schemes:** There should be greater focus on digitization and JAM usage in order to reduce inclusion and exclusion errors in schemes.

### 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.

Created by | ForumIAS®



## 2. All India Household Consumption Survey, 2022-23

**News:** The Ministry of Statistics and Program Implementation (MoSPI) has released the data of the All-India Household Consumption Expenditure Survey 2022-23.

### What is the All India Household Consumption Survey?

- **About the Survey:** The Household Consumption Expenditure Survey (HCES) is conducted to gauge **household spending habits**. It provides crucial insights into household consumption patterns, their living standards and overall well-being.
- **Interval of the Survey:** It is a **quinquennial** survey (recurring every 5 years). It is conducted by the National Sample Survey Office (NSSO, which now comes under the **National Statistical Office** in the MoSPI).
- **History of the Survey:** The survey has been conducted every 5 years, since 1972-73. The survey results were junked in 2017-18 due to '**data quality issues**'. Now, new surveys are being conducted in 2022-23 and 2023-24, according to new methodology.
- **New Methodology:** In the new methodology, several new features have been introduced:
  - Segregation of the consumption basket into **3 broad categories**: Food items, Consumables and Services, and Durable goods.
  - Inclusion of questions seeking inputs on free items and subsidies under welfare schemes, like food-grains.

### What are the recent findings of the All India Household Consumption Survey?

#### Increase in Average Monthly Per-capita Consumption Expenditure (MPCE)

- An increase in the per capita expenditure of households indicates **rising disposable incomes**, narrowing inequality between rural and urban areas, and **declining poverty levels**.
- Rural per capita consumption expenditure has increased more sharply as compared to urban expenditure in the period from 2011-12 to 2022-23.
- Rural per capita consumption expenditure has **increased by 164%**. It has increased to **INR 3,773** in 2022-23 from INR 1,430 in 2011-12.
- Urban per capita consumption expenditure has **increased by 146%**. It has increased to **INR 6,459** in 2022-23 from INR 2,630 in 2011-12.

#### Decline in the Share of Expenditure on Food in both Rural and Urban Households

- The decline in share of food expenditure indicates the **aspirational spending** of households in consumer durables, clothing and footwear, and entertainment. It has decreased in both rural and urban areas.
- In rural India, the share of food in the average MPCE has fallen to 46.4% in 2022-23 (59.5% in 1999-2000).
- In urban India, the share of food in the average MPCE has fallen to 39.2% in 2022-23 (48.1% in 1999-2000).

Year	% Share of Food in MPCE, Rural	% Share of Food in MPCE, Urban
1999-2000	59.46	48.06
2004-05	53.11	40.51
2022-23	52.90	42.62
2011-12	46.38	39.17

#### Share of Expenditure on Different Food Items in the Food Expenditure

- The data help to ascertain the amount of money spent for **better nutrition** (eggs, fish, meat, fruits and vegetables), **beyond just cereals** (rice, wheat).
- The spending on **high-value nutritional items** (eggs, fish, meat, fruits and vegetables) **has increased more in rural households** as compared to urban households over the last two decades.

- The rural household expenditure on high-value nutritional items has increased to 14% in 2022-23 from 11.2% in 1999-2000. The expenditure on cereals has decreased to 4.9% in 2022-23 from 22% (1999-2000).
- The urban household expenditure on nutritional items has increased to 11.7% in 2022-23 from 10.7% in 1999-2000. The expenditure on cereals has decreased to 3.64% in 2022-23 from 12% in 1999-2000.

#### Imputed Average MPCE

- The data help to ascertain the impact on expenditure by adding the imputed value of free items received by households through various social welfare programmes. It also **highlights socio-economic disparities**.
- The imputed MPCE of both rural (INR 3,860) and urban (INR 6,521) households is higher as compared with the average MPCE (rural INR 3,773 and urban INR 6,459) which does not include the free items.
- The imputed MPCE of top 5% of rural population is 7.65 times more than its bottom 5%.
- The imputed MPCE of top 5% of urban population is 10 times more than its bottom 5%.

#### State-wise Consumption Expenditures

- The data compile and compare the State-wise consumption expenditures and presents a picture on the economic well-being of households in a particular state.
- Sikkim has the highest MPCE for both rural (Rs. 7,731) and urban households (Rs. 12,105).
- Chhattisgarh has the lowest MPCE for rural (Rs. 2,466) and urban households (Rs 4,483).

#### Decline in the real growth rate of Rural Spending

- While the gap between rural and urban per capita consumption is reducing, however, **in real terms the rural per capita expenditure growth has registered a decline**. In both nominal and real terms, these growth rates are lower than in the period between the two earlier surveys.

Nominal MPCE Increase between 2011-12 and 2022-23	Real MPCE Increase between 2011-12 and 2022-23
Rural areas: 9.2%	Rural areas: 3.1%
Urban areas: 8.5%	Urban areas: 3.3%
Imputed Nominal MPCE Growth when Imputed with Social Welfare Schemes (excluding Education and Health)	Imputed Real MPCE Growth when Imputed with Social Welfare Schemes (excluding education & health)
Rural areas: 9.4%	Rural area: 2.7%
Urban areas: 8.6%	Urban areas: 2.7%

#### What is the significance of the Survey Data?

- **Changing the weightage of components to accurately capture inflation:** The survey serves as a benchmark for assigning and changing the weightage for different components of Consumer Price Index (CPI) e.g., lowering the weightage for food in CPI in accordance with the survey data.
- **Macro Analysis of the Economy:** The survey data are used by the economists to analyse the structural shifts in the Indian economy and take further measures, like rebasing the GDP and the poverty levels.
- **Assessment of Economic Growth Trends and Inequalities:** The Household consumption expenditure survey indicates a narrowing gap in per capita spending between rural and urban India. However, it also highlights the wide income gaps within households, with the top 5% of households spending significantly more than the bottom 5%.
- **Fine-tuning tool for Policymakers:** The Imputed MPCE provides critical insights for policymakers to fine-tune social schemes by understanding evolving consumer's expenditure behaviour.
- **Compass for the State Governments:** State Governments can use the survey to reorient their budgetary strategies to increase disposable incomes in the hands of people.

- **Fore-casting Tool for the Industry:** The survey provides the industries an insight into the changing consumer behaviour, which helps them to refine their strategies and tap into emerging markets.

#### What are the challenges/concerns associated with the survey?

- **Robustness of the Revised Methodology:** The latest survey of 2022-23 has been done according to the revised methodology. Next set of consumer expenditure survey for 2023-24 is necessary to confirm the robustness of the revised methodology.
- **Small Data Set:** The survey has covered 2.62 lakh households (1.55 lakh in rural areas and 1.07 lakh in urban areas). This is a small sample size for a large and diverse country like India.
- **Temporal and Regional Variations:** Incorporating accurate **seasonal variations** and **regional disparities** in household expenditure is another major challenge to obtain accurate survey results.
- **Risks of Pent-up Demands:** The survey has been conducted after 2 long years of COVID. The year 2022 (survey year) has been a year of pent-up demand, as the last two COVID years had witnessed suppressed demands. Hence, the accuracy of the data can be confirmed by the succeeding surveys.

#### What should be the way forward?

- **Fine-tune the Social Programs:** The survey data must be used to fine tune various social security schemes like **PM Garib Kalyan Anna Yojana**, being run by the Govt by measuring their impact.
- **Finalising the Survey for 2023-24:** The survey results for 2023-24 must be finalised at the earliest to confirm the robustness of the methodology.
- **Regularisation of the Survey:** The new survey methodology must be institutionalised at the earliest to establish the usual quinquennial survey cycle (recurring every 5 years).
- **Changes in the Bases of Inflation Indices:** Since the survey was conducted in a year of pent-up demand, any changes to the weights of different parameters in the inflation indices based on the survey results will introduce significant bias. The change should be done after the results of 2023-24 survey are published and the robustness of the survey is established.

### 3. Fintech Sector in India

**News:** The Parliamentary Standing Committee on Communications and Information Technology has raised concerns over dominance of fintech apps owned by foreign entities. It has recommended the promotion of fintech apps owned by domestic companies.

#### What are the Key Highlights of the Report?

- **Dominance of Foreign-owned Entities:** Walmart backed PhonePe and Google backed GooglePay, dominate the Indian fintech sector. They command 46.9% and 36.4% market share respectively (volume terms).
- **Low Adoption of Indian Fintech Apps:** Indian fintech apps are not preferred by the customers for payments. NPCI's BHIM UPI's market share in terms of volume stands at a mere 0.22%.
- **Use of Fintech Apps for Money Laundering:** Scammers have been using these financial companies to dupe people and launder illegitimate money e.g., Abu Dhabi-based app called Pyppl, operated by the Chinese investment scammers was used for money laundering in India.
- **Fraud-to-Sales Ratio:** Fraud-to-Sales ratio represents the total number of fraudulent transactions in comparison to the total number of transactions in a financial year. This ratio has remained ~ 0.0015%, despite the increase in volume of transactions over the past 5 years. The frauds are rising at the same pace as the volume of transactions.
- **Role of Regulatory Bodies:** The Committee has pointed to the feasibility of regulatory bodies such as RBI and NPCI to control local apps as compared with foreign apps.

- Foreign apps operate in multiple jurisdictions, which makes their regulation challenging.

### What are the Major Recommendations of the Report?

- **30% Volume Cap on Transactions:** The total number of transactions initiated by any third-party app (like PhonePe and Amazon Pay) individually, should not exceed 30% of the overall transactions made using the interfaces cumulatively over 3 preceding months. This recommendation is in line with the NPCI's guideline issued earlier.
- **Effective Regulation of Digital Payment Apps:** The Committee has recommended effective regulation of Digital payment apps due to the rise of digital platforms to make payments in India.
- **Multi-fold Penetration of the Digital Payment Market:** The Committee has recommended that existing and new players (banks and non-banks) must scale-up their consumer outreach for the growth of UPI payments through their platforms. This will help to achieve overall market equilibrium.

### What is the meaning of Fintech?

- The term 'FinTech' is a contraction of the words Finance and Technology. It refers to businesses that use technology to enhance or automate financial services and processes.

Type	Details
Payment Fintechs	These offer digital payment solutions, such as mobile wallets, online payment gateways, and peer-to-peer (P2P) payments e.g., Phonepe.
Lending Fintechs	These offer digital lending solutions, such as personal loans, business loans, and credit cards e.g., Lending Kart.
Insurance Fintechs	These offer digital insurance solutions, such as health insurance, life insurance, and car insurance e.g., Policy bazaar.
Investment Fintechs	These offer digital investment solutions, such as stock trading, mutual funds, and cryptocurrency trading e.g., Zerodha.

### What is the Status of Fintech Sector in India?

- **FinTech Ecosystem:** India is the world's 3<sup>rd</sup>-largest FinTech ecosystem. 17 Indian Fintech companies have gained 'Unicorn' Status as of December 2021.
- **Highest Fintech Adoption Rate:** India's Fintech adoption rate of 87% is highest in the world. The world's average Fintech adoption rate is around 64%.
- **Growth of Unified Payments Interface (UPI):** Total UPI transactions crossed 100 billion mark in 2023 and commanded a share of 73.5% share of the total digital payments in terms of volume in FY 2022-23.
- **Government's Initiatives Propelling the Fintech Growth:** The Government of India's initiatives such as the JAM trinity, India Stack, Open Network for Digital Commerce (ONDC), Unified Payments Interface (UPI), and Central Bank Digital Currency (CBDC), have contributed to the growth of Fintechs in India.

### What are the benefits of the Fintech Sector?

- **Promotion of Financial Inclusion:** Innovation driven by Fintech has widened citizens' access to financial services e.g., the use of UPI has improved the financial inclusion of small vendors in India.
- **Improved Credit availability:** Lending Fintechs have improved credit availability options for the financially marginalised sections in India. Many Fintechs are providing hassle-free loan options to the MSMEs.
- **Improved Customer Experience:** Fintechs have improved the customer service experience in financial sector by employing leveraging big data, machine learning tools. Investment fintechs like Zerodha have eased the process of investing in the share markets.

- **Increased FDI Inflows and Employment Opportunities:** The growth of Fintech sector in India has attracted huge FDI inflows in India, with 17 fintech companies crossing the valuation of US\$ 1 billion mark. These fintech startups have enhanced formal sector employment opportunities.
- **Social Change and Justice:** Fintech startups have been used as a tool to bring social change and justice e.g., **Crowdfunding apps** like Keto have helped in raising funds for health care treatment of the poor.

**What steps have been taken by the Government for Regulation of the Fintech Sector?**

Step	Details
<b>Payment and Settlement Systems Act, 2007</b>	It forbids the establishment and operation of any ‘payment system’ in India without the prior approval of the RBI.
<b>Peer-to-Peer Lending Platform Directions 2017</b>	It defines the lender exposure rules and borrowing restrictions regarding the activities of P2P lending platforms in India.
<b>NPCI Regulations on UPI Payments</b>	NPCI acts as a quasi-regulator for UPI and Rupay. According to this framework, banks must create money transfer services using UPI platforms.
<b>RBI Regulatory Sandbox Framework 2019</b>	It allows FinTech companies to test their products and services in a controlled environment. This helps in fostering innovation while maintaining regulatory oversight.
<b>RBI Guidelines on Digital Lending 2022</b>	It aims to bring unregulated digital lending players within the RBI’s ambit and create a comprehensive framework to protect consumers’ data.

**What are the challenges with the Fintech Sector In India?**

- **Increase in Cyber-Attacks:** The Fintech startups are vulnerable to cyber-attacks and hacking. According to the CERT-In data, a total of 13.91 lakh cases of cyber-attacks were reported in India.
- **Data Privacy Issues:** Fintechs face the challenge of maintaining data privacy to prevent the misuse of personal information and financial data. Fintech startups have not fully complied with the provisions of Digital Data Protection Act.
- **Money Laundering:** Some Fintechs have indulged in money laundering activities like the Pyppl App.
- **Indulgence in Unethical Practices:** The fintech sector in India has been found to be indulged in unethical financial practices like Illegal Digital Lending, mis-selling of financial products, opaque lending practices, brutal collection methods and customer harassment.
- **Infrastructural Issues:** The sector is marred by infrastructural inadequacies like slow internet connectivity in rural areas.
- **Lack of Comprehensive Regulatory Guidelines:** Due to the diverse and dynamic nature of Fintech Sector, the formulation of a comprehensive regulatory guideline for its regulation and development, has become a major challenge. Cryptocurrency based fintechs are still not adequately regulated.

**What should be the way forward?**

- **Comprehensive legal framework for Fintech Regulation:** RBI must adopt a comprehensive approach to regulation. Fragmented and reactionary approach stifles development of fintech sector.
- **Strengthening of Cybersecurity Infrastructure:** Fintech companies must collaborate with the law enforcement agencies to address cyber threats. Reporting mechanisms for cybercrimes must be established to encourage users to report any suspicious activities.
- **Addressing Infrastructural Issues:** Fintech companies should enable offline access to financial services so that users can perform essential transactions with limited or no internet connectivity.



- **Compliance Program for Fintechs:** Fintechs should develop a program to ensure their regular compliance with all applicable laws and regulations like the Personal Data Protection Act. This will help them avert any crisis in the future like that happened with PayTM.
- **Increase in Customer awareness:** Customer awareness and digital literacy must be increased to help the customers in making informed choices.

#### 4. RBI's View on Government Deficit and Capital Expenditure

**News:** RBI's research has highlighted that Government's focus to reduce debt and improving spending on long-term growth areas like infrastructure, technology, health and education can lead to economic growth.

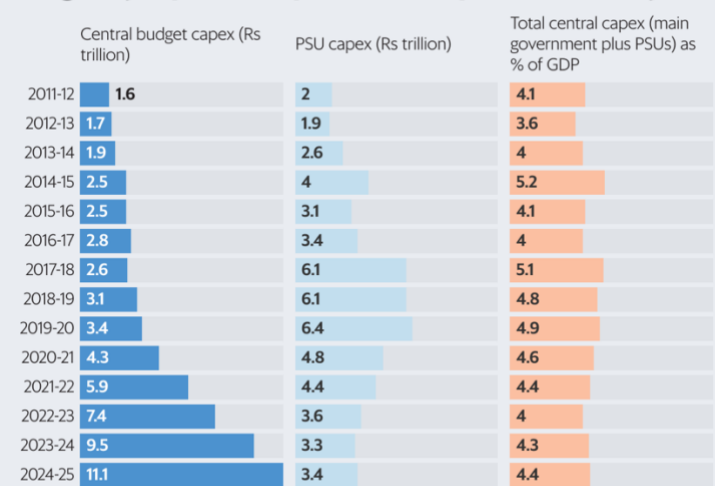
#### What is the Government's Planning for Fiscal Deficit and Borrowing?

- **Fiscal Deficit Goal:** The Government intends to bring the gross fiscal deficit down to 5.1% of GDP for FY2024-25, a consolidation from the previous fiscal year.
- **Limiting Foreign Borrowing:** The emphasis is on reducing reliance on external borrowing, focusing on domestic fiscal management.
- **Increase in Tax-GDP Ratio:** There has been a rise in the tax-GDP ratio, from 10.1% in FY2013-14 to 11.7% in FY2024-25, reflecting **improved tax revenue efficiency**.
- **Prioritizing Capital Expenditure:** The Government is shifting its spending towards capital expenditure over routine revenue expenses, indicating a focus on **long-term infrastructural investments**.

#### What does RBI research say about economic growth and fiscal consolidation?

- **Linking Fiscal Consolidation and Growth:** The Reserve Bank of India's research explores how fiscal consolidation can positively impact economic growth.
- **Redefinition of Capex:** The Paper suggests a **broader approach to capital expenditure** by considering the **Developmental Expenditure (DE)**, which includes spending on health, education, skilling, digitisation, and climate-risk mitigation.
- **Growth Impact of DE:** A 1% increase in real DE can produce a cumulative **5% rise in GDP** over 4 years.
- **Employment and Productivity:** Increasing employment by 5% in high labour productivity sectors, like financial services, and transport, could add more than 1 percentage point to GDP growth in the 2024-2031 period.
- **Digitisation and Energy Efficiency:** The Paper highlights that digitisation and reduced energy intensity can enhance growth by improving labour and capital technology.
- **Balancing Short-term and Long-term Effects:** The Paper acknowledges short-term concerns, like a sharp rise in debt-GDP ratio, but emphasizes that long-run gains outweigh these costs.

#### Budgetary capex has replaced PSU capex in the last 5 years



Source: Budget documents; Ministry of statistics and programme implementation

Source: Mint. The share of Union Budget in total capex has risen sharply, while PSU capex has fallen. Overall total central capex has increased marginally (from 4.1% of GDP to 4.4% between 2011-2024).

#### What is the trend of Capital Expenditure in India?

- There has been a **significant increase in the Capex by the Union Government**. It

reached INR 11 trillion in 2024-25, ~4.5 times higher than in 2014-15. It represents **3.4% of GDP in 2024-25**, up from **2% in 2014-15**.

- **PSU capex has decreased** from well above 10-11% of GDP in the 1980s to around 6-8% in recent years.
- Significant rise in State Government capex, from 3.2% of GDP in 2011-12 to around 4.4% in 2022-23.
- Private Sector Capex hasn't fully recovered since the 2008 financial crisis.

### How has the Capital Expenditure been centralized?

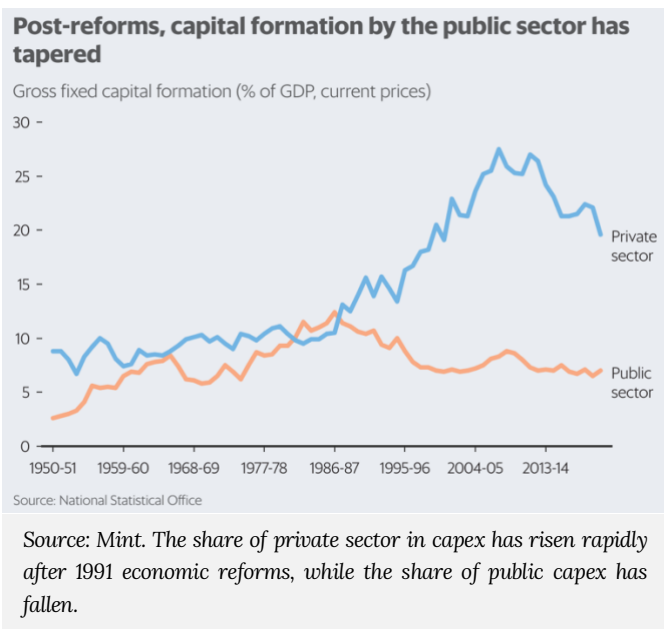
- **Funding Shift:** The entire funding of National Highway Authority of India (NHAI, INR 1.7 trillion) and the Indian Railways (IR, INR 2.5 trillion) has been shifted to the Budget of the Union Government. Earlier, both NHAI and IR **fully or partially funded their own Capex**.
- **Overall Trend:** This centralization reflects a structural shift in how capex is financed, increasingly moving away from PSUs and being incorporated into the Union Government's budget.

### What factors have contributed to an increase in Capex by the State Governments?

- **Rising Tax Revenues:** State Governments have experienced strong growth in tax and non-tax revenues, boosting their fiscal capacity for capital expenditure.
- **GST Compensation:** States received compensation from the Union Government for revenue losses due to the shift to the Goods and Services Tax (GST) regime.
- **Special Assistance Scheme:** The Union Government's scheme offering **50-year interest-free loans** for capital investment has significantly contributed to State capex. For 2024-25, this is budgeted at INR 1.3 trillion.

### How does Government Spending Stimulate Private Sector Investment?

- **Government Capex as a Catalyst:** The Government's increased spending in capital projects is expected to trigger private sector investment. The Government-led infrastructure development creates opportunities for private companies.
- **Creating Demand:** By building assets like roads and bridges, the Government's capex can generate demand in related industries (like steel), encouraging participation of the private sector.
- **Healthy Corporate Balance Sheets:** With high profits and stable or improving debt position, corporates are in a better position to invest. The Reserve Bank of India notes that the corporate sector's improved financial health could lead to **increased private investment**.
- **Economic Environment:** The Government's substantial capex is intended to create a more favorable economic environment, encouraging the private sector to take over the investment baton in the long run.



### What should be the way forward?

- Moving forward, the Government should continue **focusing on developmental expenditure** in areas like **health, education, and digitisation**. This approach, as RBI research shows, can lead to a **significant rise in**

the GDP. Investing in high-productivity sectors and enhancing labour skills are essential for sustainable economic growth and long-term fiscal health.

- To sustain economic growth, it's crucial to **maintain Government capex** while simultaneously **stimulating private sector investment**. This requires balancing Union and PSU expenditures and **enhancing capex spending by the State Governments**, supported by strong tax revenues and funding schemes of the Union Government.

### 5. India-EFTA Trade Agreement

**News:** India has signed a Free Trade Agreement with 4-nation European Free Trade Association (EFTA).

#### What is the European Free Trade Association (EFTA)?

- It is an **intergovernmental organization** set up for the promotion of **free trade** and **economic integration** to the benefit of its 4 Member States: **Iceland, Liechtenstein, Norway, and Switzerland** – and the benefit of their trading partners around the globe.
- These are very **high-income countries** and have a **strong position** in certain supply chains e.g., in the world of **finance**, both **Switzerland** (through its banking sector) and **Norway** (through its sovereign wealth fund) have a disproportionate influence. Liechtenstein has an **innovative financial sector**, particularly when it comes to ESG (**Environment, Social, Governance**) investing.
- EFTA was founded by the **Stockholm Convention** in 1960.
- In 2021, it was the **10<sup>th</sup>-largest trader in the world in merchandise trade** and the **8<sup>th</sup>-largest in trade in services**. It is also among the most important trading partners in goods and services for the EU.
- In 2022, the combined EFTA-India merchandise trade surpassed **US\$ 6.1 billion**. The primary imports to the EFTA States consisted of organic chemicals (27.5%). Machinery (17.5%) and pharmaceutical products (11.4%), constituted the main exports to India.

India's trade with EFTA (in million dollars)			
EFTA countries	Exports	Imports	Trade balance
Iceland	13	5	8
Liechtenstein	0	8	-8
Norway	484	782	-298
Switzerland	1,382	19,657	-18,275
<b>TOTAL</b>	<b>1,879</b>	<b>20,452</b>	<b>-18,574</b>

\*CY2023

Source: HT. India has a trade deficit with all the 4 EFTA countries. Switzerland is India's largest trade partner.

#### Significance of India-EFTA Trade Agreement

- The FTA envisions a goal of reaching **US\$ 100 billion in investments in India** and **creation of 1 million jobs within 15 years**.
- It will **ensure tariff reduction**, increase in **market access**, and **simplification of customs procedures**.
- It will **empower Indian exporters access to specialized inputs** and create **conducive trade and investment environment**. This would boost exports of Indian made goods as well as provide opportunities for services sector to access more markets.
- Over 40% of Switzerland's global services exports are to the EU. Indian companies can look to Switzerland as a base for extending its market reach to EU.
- It will encourage domestic manufacturing in various sectors like Infrastructure and connectivity, manufacturing, machinery, pharmaceuticals, chemicals, food processing etc.
- EFTA countries could help India **integrate cutting-edge technological advancements** in its manufacturing, agriculture and service sectors. It could also help India in **production of green energy**.
- India has innovated by including a different kind of **'behind-the-border'** requirement in its deal with the EFTA countries. It has conditioned the lowering of tariffs on the mobilization of largescale investment by the EFTA

countries. This could serve as a template when India has to negotiate trade agreements with other developed countries.

- For the first time, the FTA has included a chapter on **commitments to human rights and sustainable development**.
- The **Trade and Economic Partnership Agreement (TEPA)** marks the second such full-fledged FTA signed after India's agreement with the United Arab Emirates. (*Read More About India-EFTA TEPA*).

## 6. 13<sup>th</sup> Ministerial Conference (MC 13) of the WTO

**News:** The 13<sup>th</sup> Ministerial Conference (MC 13) of the WTO was held in Abu Dhabi.

### What are the significant outcomes of the MC 13?

- The MC 13 introduced new regulations to simplify international trade in services. ~72 nations have agreed to take on **additional commitments in services** under the **General Agreement on Trade in Services (GATS)** to **facilitate non-goods trade** among themselves and extended similar concessions to all other WTO members.

○ These regulations apply on a **Most Favored Nation (MFN)** basis.

○ The aim of the regulations is to **enhance transparency** and **accessibility** in authorization processes, along with commitments to gender equality.

○ The regulations address the **bureaucratic hurdles in cross-border service trade**, aiming to **simplify procedures** and **ensure equal opportunities** for service providers globally.

○ However, only 72 out of the 164 members of the WTO are parties to the Agreement. India and South Africa were among the countries that did not sign this agreement.

- **Dialogue on Plastic Pollution and Environmentally Sustainable Plastics Trade (DPP):** It aims to encourage WTO members to **decrease plastics pollution** and support **environmentally sustainable** trade in plastics.
  - 78 members, excluding India, are involved in the **Dialogue on Plastics Pollution**, representing 85% of global trade volume. Global leaders have advocated for reducing plastic trade due to its greenhouse gas emissions.
  - According to UN data, global plastic trade exceeded US\$ 1.2 trillion in 2022. It is forecasted that 19% of greenhouse gas emissions will originate from plastics by 2040.
- **Fossil Fuel Subsidy Reform (FFSR) Initiative:** Global leaders stressed the importance of streamlining, phasing out, or **eliminating harmful fossil fuel subsidies** through current or new methods.
  - The FFSR initiative builds on WTO members' pledges outlined in Sustainable Development Goal 12(c) of the 2030 Agenda and aligns with the Paris Agreement on Climate Change.
  - It also supports the shift away from fossil fuels in energy systems.
  - **India has been ranked 4<sup>th</sup>** among the top 5 countries in **fossil fuel subsidies**. China held the first position, followed by the US and Russia.
- **e-commerce Tariff Moratorium Extended:** WTO members have agreed to extend the moratorium on e-commerce tariffs for 2 more years. India, Indonesia and South Africa had signalled their opposition to

### Key Agreements under the WTO

- **Agreement on Subsidies and Countervailing Measures (SCM):** The WTO SCM Agreement contains the **definition of the term 'subsidy'**. A subsidy contains three basic elements: **(a)** A financial contribution **(b)** By a Government or any public body within the territory of a Member **(c)** Confers a benefit. All three of these elements must be satisfied in order for a subsidy to exist.
- **General Agreement on Trade in Services (GATS):** The GATS was inspired by essentially the same objectives as its counterpart in merchandise trade, GATT. It aimed at **creating a credible system of international trade rules** and **ensuring fair and equitable treatment of all participants** (Principle of Non-discrimination).
- **The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS):** It sets down minimum standards for many forms of **intellectual property (IP) regulation** as applied to nationals of other WTO Members. It was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994.
- **Agreement on Agriculture:** It was concluded in 1994. It was aimed to **remove trade barriers, promote transparent market access** and **integration of global markets**. It is often criticized as a tool in the hands of developed countries to exploit weak countries. Negotiations are still going on for some of its aspects.

Created by | ForumIAS®



renewing the e-commerce moratorium, but supported it in the end. They are among countries worried about **losing control of data flows**.

- **Strengthen Multilateral Trading System:** Members pledged to uphold and enhance the capacity of the multilateral trading system, with the WTO as its foundation, to address present trade challenges.

**What challenges have remained unaddressed at the MC 13?**

- **US Obstructionism in WTO:** The appointment of new members to the **Appellate Body (AB)** has been unilaterally blocked by the US. The body was supposed to be reformed by 2024, but that deadline has been missed.
- **Fisheries Subsidies:** Developing countries like Brazil emphasized their commitment to discussions on fisheries subsidies, as the West attempted to ban such subsidies. They highlighted the importance of resolving the issue to advance sustainable fishing practices globally.
- **India’s Food Security Challenge:** India urged for a permanent solution to the **public stockholding (PSH)** issue for food security at the ministerial meeting. India stated that resolving the pending issue of PSH is crucial for achieving food security and improving the livelihoods of millions.

India, as a leader of the Global South, should form alliances with like-minded nations such as South Africa and small island states. Through this approach, India can offer alternative viewpoints and initiatives that better reflect the concerns and objectives of developing countries. *(Read More about WTO Reforms).*

**7. Primary Agricultural Credit Societies (PACS)**

**News:** The Government of India plans to establish world’s largest grain storage programme, with 700 lakh tonne storage capacity, over the next 5 years with the help of Primary Agricultural Credit Societies (PACS).

**What are Primary Agricultural Credit Societies (PACS)?**

- PACS are the cooperative credit societies at the Village level. They are the last link, at the village level, in the rural cooperative banking structure in India.

**Structure of Cooperative Banking in India**

Rural Cooperative Banks		Urban Cooperative Banks	
Short Term	Long Term	Scheduled	Non-Scheduled
<b>State Level</b> State Cooperative Banks	<b>State Level</b> State Cooperative Agriculture and Rural Development Banks	<b>UCBs Operating in a Single State</b> Registered under State Cooperative Societies Act	
<b>District level</b> District Central Cooperative Banks	<b>District and Village Level</b> Primary Cooperative Agriculture and Rural Development Banks	<b>Multistate UCBs operating in 1 or more States</b> Registered under Multi State Cooperative Societies Act, 2002	
<b>Village Level</b> Primary Agricultural Credit Societies			

**Functioning of PACS**

- PACs provide short-term and medium-term **agricultural loans to the farmers**.
- Credit from the State Cooperative Banks (StCBs) is transferred to the District Central Cooperative Banks (DCCBs). DCCBs provide credit extension to the farmers through PACS.



### What are the advantages of Primary Agricultural Credit Societies (PACS)?

- **Extension of Credit to Agriculture:** PACS have the capacity to extend agricultural credit with minimal paperwork within a short time e.g., the Kisan Credit Card (KCC) scheme, launched by the Government to provide short term agricultural credit, is facilitated through the PACS.
- **Addressing Problems of Farmers:** PACS play a vital role during times of strife like droughts, agricultural distress for the small and marginal farmers, by extending them credit and group support.
- **Financial Inclusion:** According to an RBI report, there are **1.02 lakh PACS at the grassroot level** (March 2021). PACS offer the **last mile connectivity** and **promote financial inclusion** e.g., social security schemes like *Atal Pension Yojna (APY)*, *Pradhanmantri Suraksha Bima Yojna (PMSBY)* are extended through PACS.
- **Agricultural Marketing:** PACS also assist farmers in the **marketing their agricultural produce** and provides support in finding better markets. Thus, PACS help in **improving farmers' income** and **reducing dependency on middlemen**.
- **Training and Capacity Building:** PACS also conduct the training programs on **modern agricultural practices** and **organic farming** for small and marginal farmers.

### Government Initiatives for PACS

- ★ **Model Bye-laws for PACS:** Enabled PACS to diversify their business activities by undertaking more than 25 business activities like dairy, fishery, floriculture, setting up godowns, procurement of foodgrains, fertilizers, seeds etc.
- ★ **Computerisation of PACS:** The project entails bringing all the functional PACS onto an Enterprise Resource Planning (ERP) based common software, linking them with NABARD through State Cooperative Banks (StCBs) and District Central Cooperative Banks (DCCBs).
- ★ **Largest Grain Storage Plan:** To address the shortage of agricultural storage infrastructure by creating infrastructure such as godowns, etc. at selected 'viable' Primary Agricultural Credit Societies (PACS).
- ★ **PM Jan Aushadhi Kendras through PACS:** 2,000 PACS have been selected across the country to open *Pradhan Mantri Jan Aushadhi Kendras*.

Created by | ForumIAS®

### What are the challenges faced by PACS?

- **Inadequate Geographical Coverage and representation:** PACS are largely concentrated in western India. There are numerous exclusions in the membership of PACS. Women and members of the marginalized communities are underrepresented in the PACS.
- **Inadequate Financial Resources:** PACS have low deposit mobilization, and they are largely dependent upon the **devolution from higher financing agencies** like District Central Cooperative Banks (DCCBs) and State Cooperative Banks.
- **Loss-making PACS:** According to an RBI report, out of ~1 lakh PACS, only 47,297 are in profit. Large over-dues and NPAs have hit profitability of PACS. According to the RBI, PACS have NPAs of INR 72,550 crore out of the total lending of INR 1,43,044 crore.
- **Politicisation of PACS:** PACS as a credit institution has been politicised with the election of dominant local politicians as the chairperson of PACS. There is a partisan basis of awarding loans.
- **Governance Challenge:** PACS are **not under the control of RBI** and the provisions of **Banking Regulation Act, 1949** do not apply to them. Further, the small size and scattered nature of these societies, makes their governance and regulation, a challenge for the regulators.

- **Infrastructural Challenges:** PACS face logistical challenges like substandard software and substandard book-keeping systems, which has made them susceptible to frauds.

#### What should be the way forward?

- **Bringing PACS under RBI:** Efforts must be made towards extension of the provisions of Banking Regulations Act, 1949 to PACS, for their effective regulation and decreasing their NPAs.
- **Cooperative Federation for Regular Audits:** A cooperative federation must be formed to conduct regular and comprehensive audits of these cooperative societies.
- **Upgradation of Infrastructure:** Provisions must be made for a common and standardized software and book-keeping systems. These must be linked to a central database for proper financial monitoring using artificial intelligence and pattern recognition.
- **Removal of Political Influence:** There is a need to promote **democratization of PACS** elections by reducing the influence of local politicians and **increasing the representation of women** and marginalised groups as chairpersons.

### 8. EU's AI Act and MeitY's AI Advisory

**News:** The EU has passed the Artificial Intelligence Act. In India, MeitY has issued an Advisory on the use and deployment of AI tools.

#### What are the provisions of the Artificial Intelligence Act?

- The EU's new Artificial Intelligence Act is a comprehensive law to regulate AI technologies.
- The objective of the Act is to improve the internal market's functioning by laying down a **uniform legal framework for use of AI systems** in the EU.
- The provisions will apply to AI providers for services in the European Union, irrespective of whether the providers are in the EU or in a 3<sup>rd</sup> country.
- The Act **prohibits certain AI practices** that can **distort the behaviour** of a person or a group of persons by **impairing their ability to make an informed decision**.
- The Act will establish the **European Artificial Intelligence Board**. The Board will have representatives from member States and the European Commission. Within each nation State, a **National Supervisory Authority** will be tasked with monitoring the application and implementation of the new law.
- Fines will vary from **€ 30 million** or 6% of the total worldwide annual turnover. Fines will depend on the **severity of the infringement**.
- The new law gives AI developers and providers time to familiarize themselves with the regulations. The law will **come into force in phases varying from 6 to 36 months** (~3 years).

#### What are the unique aspects about the Act?

- The Act introduces a **risk-based approach**, categorizing AI into **4 groups**: Prohibited, High-risk, Limited-risk, and Minimal-risk.
  - **Prohibited AI** includes systems that **threaten human rights**, like social scoring and mass surveillance. Such uses are explicitly banned.
  - **High-risk AI**, crucial in areas like biometric identification, healthcare, and law enforcement, requires **strict compliance**, human oversight, and security assessments before market deployment.
  - **Limited-risk AI**, such as chatbots and image-generation programs, **must disclose their AI nature to users**, allowing opt-out options.
  - **Minimal-risk AI**, like spam filters and smart appliances, face **minimal regulation** but must comply with existing laws.

- This act is expected to **influence global AI regulation**, similar to the impact of the EU's GDPR.
  - The Act is like the EU's General Data Protection Regulation (GDPR) law for data privacy. It's the first big framework for AI regulation and might affect laws worldwide. However, there's concern it might slow down innovation, similar to the impact of GDPR.

#### What are the features of MeitY's AI Advisory?

- To check rising instances of **deep fakes** and **misinformation** posing a threat to users and **electoral integrity**, MeitY has directed **intermediaries** (who were failing to undertake due diligence obligations), to **deploy technical interventions to label and monitor** the presence of such forms of information on platforms.
- The intermediaries must ensure that users are not able to host, display, publish, or transmit any content that is **restricted under the IT Rules** or which **violates any provision of the IT Act**, through the use of collectively 'AI Models' (Generative AI, Large Language Models (LLMs), software or algorithms).
- The intermediaries and AI developers should ensure that AI Models **do not permeate bias or discrimination** or **threaten the integrity of the electoral process**.
- The Advisory requires explicit information and **disclosure to users of possible fallibilities** and unreliability of AI Models and their outputs.
- A **permanent unique metadata** (or identifiers) must be deployed on all forms of **information that may potentially be a deepfake or misinformation**. This permanent unique metadata (identifiers) must be capable of **pinpointing the originator of such information** over the platforms i.e., such permanent 'labels' must result in the ability to identify that the content is '**synthetic**', and identify the user or computer resource through which information has been generated.

#### What is the controversy around MEITY's advisories?

- **Legal Clarity:** They are not well-defined under the principal legislation of the IT Act, causing uncertainty about their legal standing.
- **Reactive to Specific Events:** Advisories have been issued in response to events like the viral deepfake video of popular celebrities etc. They lack a comprehensive approach to AI regulation.
- **Vague Requirements:** Terms like '**bias prevention**' and '**unreliable AI**' in the advisories are undefined, leading to ambiguity and confusion.
- **Enforcement:** The advisories imply compliance but don't state clear penalties or legal consequences. (*Refer EPIC June 2023 (click) for Regulation of Artificial Intelligence (AI) and EPIC November 2023 (click) for Bletchley Declaration: On Regulation of Artificial Intelligence*).

### 9. R&D Funding in India

**News:** The Interim Budget announced a corpus of INR 1 lakh crore for R&D funding in India. The status of R&D funding in India is gradually improving yet several challenges remain to be addressed.

#### What are the positive aspects of R&D Funding in India?

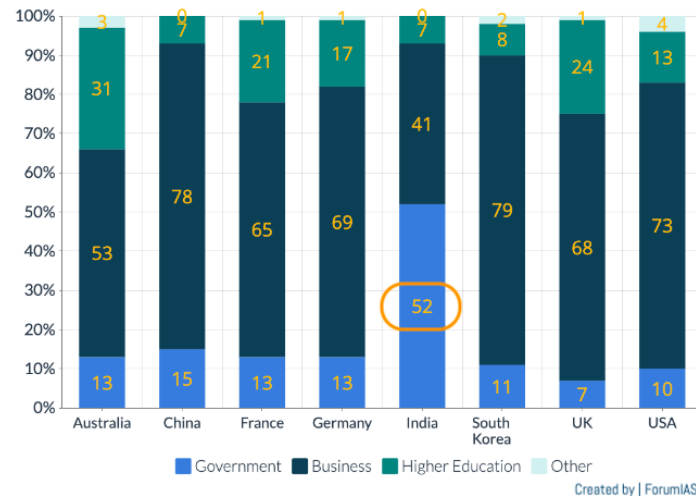
- **Significant Growth in R&D Expenditure:** India's R&D is witnessing significant growth, with a notable increase in **Gross Expenditure on Research and Development (GERD)** from INR 601.96 billion in 2010-11 to INR 1,273.810 billion in 2020-21.
- **Academic Talent:** India generates an impressive 40,000 PhDs and is in 3<sup>rd</sup>-place after the US and China. This reflects India's commitment to **fostering intellectual capital** and contributing significantly to global research endeavours.
- **Substantial Research Output:** India ranks 3<sup>rd</sup> globally in terms of scientific and research publication, with over 300,000 publications in 2022.

- **Patent Grants:** India has also demonstrated commendable performance in patent grants compared to the R&D Funding. India has secured the 6<sup>th</sup>-position globally with 30,490 patents granted in 2022.
- **Emphasis on Autonomous R&D Laboratories/Institutions:** The autonomous laboratories serve a pivotal role in driving research and technology development with strategic implications. According to the Department of Science and Technology, India's total investment in R&D reached US\$ 17.2 billion in 2020-21. Within this sum, 54% (\$9.4 billion) was allocated to the Government sector and predominantly utilised by 4 key scientific agencies: the DRDO (30.7%), the DoS (Space, 18.4%), ICAR (12.4%), and DAE (Atomic Energy, 11.4%). Rest 46% has been used by the autonomous R&D laboratories and Institutions.

**Sectoral Composition of Spending on R&D (2017-18)**



In most countries, majority of R&D spending (~60-70%) is undertaken by the Business Enterprise sector. In India, the Government contributes the majority of funding (52%). Contribution of the Higher Education sector is significant in Australia (31%) and the UK (24%).



**What are the shortcomings in India's R&D Funding?**

- **Low R&D Investment as Percentage of GDP:** India's R&D investment as percentage of GDP stands at 0.64%. India falls behind major developed and emerging economies in R&D investment as % of GDP, such as China (2.4%), Germany (3.1%), South Korea (4.8%) and the United States (3.5%).
- **Less Contribution by Private Sector:** In India, the private sector industry contributed only 36.4% of GERD during 2020-21. GERD is primarily driven by the Government sector (Union Government (43.7%), State Governments (6.7%), Higher Education Institutions (HEIs) (8.8%), and the public sector industry (4.4%). In leading innovative economies such as China, Japan, South Korea, and the U.S., a significant portion (> 70%) of R&D funding is from private industries.
- **Under-utilisation of Allocated Funds:** In 2022-2023, the Department of Biotechnology (DBT), used only 72% of its estimated budget allocation on Centrally Sponsored Schemes (CSSs)/Projects while the DST used only 61% of its allocated budget. This points to massive under-utilisation of allocated funds.
- **Lack of Support from State Governments:** According to the RBI report 'State Finances: A Study of Budgets of 2023-24', the R&D expenditure of State Governments was 0.09% of the GSDP on average.

**What are the other challenges faced by the R&D Sector in India?**

- **Lack of Skilled Personnel:** The best talent of India in R&D migrates to foreign countries, resulting in **brain drain**.
- **IPR Violation:** Poor IPR compliance discourages foreign investment flow into the field of R&D in India.
- **Outdated Curriculum and Pedagogy:** The curriculum in many eminent universities is still focused on rote learning and oriented to getting jobs. Many eminent universities are unable to duly utilise the research grant provided to them.



- **Lack of Focus on Application:** Indian university system has been focussing on basic research rather than application research. That has limited its value to industry, and hence diminished the industry support.

**Government Initiatives for R&D**

Initiatives	Details
<b>National Deep Tech Startup Policy (NDTSP)</b>	This Policy aims to promote technological progress and innovation, especially in private sector engagement.
<b>Anusandhan National Research Foundation (ANRF) Act</b>	This Act has been enacted to catalyse research and innovation, focusing on development. The Act is designed to bridge India’s R&D investment gap and nurture a robust research culture within Higher Education Institutions (HEIs).
<b>Atal Innovation Mission (AIM)</b>	It aims to promote innovation and entrepreneurship across India. AIM’s objectives are to create and promote an ecosystem of innovation and entrepreneurship across the country at school, university, research institutions, MSME and industry levels.

**What should be the way forward?**

- **Encouraging Private Sector Collaboration in R&D:** Incentives for private investment, including relaxation of FDI, tax rebates, and clear regulatory roadmaps for products will encourage private sector collaboration in R&D.
- **Increasing R&D Expenditure:** The Government must aim to **spend 3% of GDP every year** until 2047 on R&D to have a meaningful impact on development.
- **Ensuring the Increased Role for HEIs:** Government should promote **Government-Industry-Academia partnership** to support the R&D Ecosystem in India. HEIs would play an integral role in the partnership.
- **Strong IPR Protection:** National IPR policy of 2016 should be duly adhered in order to gain investor confidence and attract more investment in R&D.
- **Proper Utilization of Allocated Funds:** The allocated funds and budgets to the research organisations must be properly utilized. (Refer EPIC July 2023 (click) for Status of R&D in India and the National Research Foundation (NRF)).

**10. Genome India Project**

**News:** The Government has announced the completion of sequencing 10,000 healthy genomes from various regions across India, representing 99 different populations.

**What is the Genome India Project?**

- The project was initiated by the Department of Biotechnology (DBT). It was started in 2020 to better understand the **genetic variations** and **disease-causing mutations** specific to the Indian population.
- Its aim is to collect **10,000 genetic samples** from citizens across India, to build a **reference genome**. It will help in studying genetic differences in Indians for better diagnosis.
- The project involves 20 institutions across India and is led by the Centre for Brain Research at the Indian Institute of Science in Bangalore.

**What are the outcomes of the Genome India Project?**

- **Population Diversity:** India has more than 4,600 distinct population groups, with many practicing endogamy. These factors contributed to the genetic diversity of the current population.
- **Unique Variations:** Some Indian groups have a higher prevalence of disease-causing mutations due to unique variations in their population. This underscores the importance of studying India’s genetic landscape.



- All the data will be stored at the **Indian Biological Data Centre** (IBDC) for public research. The IBDC is India's only databank for life science data, established in 2022.

### What are the benefits of the Genome India Project?

- **Creation of a Reference Genome:** The project has sequenced 10,000 Indian genomes, creating a crucial reference for understanding the genetic diversity in India.
  - A map of genetic diversity is essential for understanding the history of our evolution, **discovering the genetic basis for various diseases**, and **creating therapies of the future**.
  - India with population of 1.4 billion has more than 4,600 distinct groups.
- **Disease Research:** It aids in identifying genetic links to diseases. For instance, the discovery of the **MYBPC3 genetic variant**, prevalent in 4% of Indians, is associated with **heart failure**.
  - Endogamy (marrying within the same community) is quite common in some groups in India; so these groups have been able to maintain their distinct genetic makeup. This can help in understanding the **impact of genetic variations on physical health**.
- **Personalized Medicine:** The findings can lead to **tailored healthcare solutions** based on genetic information.
  - It can help in targeted treatments, especially for rare diseases that usually arise from **genetic anomalies**. It can help **develop new therapies** that can cure these diseases e.g., the **mRNA vaccine** (under development stage) which will be used to prevent relapse of pancreatic cancer.
- **Identification of Resistance-indicating Variants:** It can help in identifying resistance-indicating variants. These variants genes might make certain medicines or anaesthetics ineffective in certain populations e.g., Vaishya community from South India lack the gene for properly processing common anaesthetics.
- **Understanding Genetic Complexity:** It sheds light on the unique genetic makeup due to India's diverse population and endogamy practices, helping in future genetic research and healthcare planning.

### Genome Sequencing

- ★ It is the process of determining the **precise order of Nucleotides (Adenine, Guanine, Cytosine, and Thymine)** within an organism's DNA.
- ★ The human genome is made up of **23 chromosomes pairs** with a total of about 3 billion DNA base pairs. It involves **reading the genetic code** contained in the DNA molecules to identify **specific sequences of nucleotides**.
- ★ **Significance:** It allows scientists to understand the complete genetic makeup of an organism, including its genes, regulatory sequences, and other functional elements.
- ★ **Applications:** Medicine, agriculture, evolutionary biology, and forensic science etc.
- ★ **Extraction**
  - Researchers first extract the information from the blood to sequence the genome.
  - Scientists **cut 3 billion pairs into small pieces** and tag because a complete sequence of 3 billion pairs would be extremely hard to handle.
  - The A, C, G, T code of these smaller chunks are written down by a **DNA sequencer** and then the **complete sequence is put together**.

Created by | ForumIAS®

### What are the challenges faced by the Genome India Project?

- **Representative Diversity:** Sequencing 10,000 genomes is not fully representative of India's over 1.4 billion diverse population, which includes around 4,500 population groups.
- **Complex Genetic Landscape:** India's history of endogamy within castes has preserved rare, potentially harmful genetic variants, complicating genetic analysis.
- **Monogenic Disease Focus Limitations:** Most diseases are not **monogenic** (caused by a single gene), challenging the simplification of genetic research to direct disease links.
- **Affordability of Treatments:** Even when genetic causes of diseases are identified, treatments, if available, are often too expensive for many who need them.
- **Data Accessibility:** Ensuring that the project's findings are widely accessible and not confined to academic circles is a significant challenge.

## 11. Water Crisis in India

**News:** The water crisis in Bangalore has put spotlight on the broader water crisis prevalent all over India.

### What is the status of water crisis?

- Water crisis arises when the **available potable, safe water** in a region is **less than its demand**. The World Bank refers to water scarcity as a condition when the annual per-capita availability is less than 1,000 cubic metres.
- India possesses ~4% of the world's freshwater resources, despite supporting ~17% of the world's population.
- According to NITI Aayog's Composite Water Management Index (CWMI) Report, **India is undergoing the worst water crisis in its history**. ~600 million people are facing high to extreme water stress.
- India's annual per capita availability of 1,486 m<sup>3</sup>/person in 2021 is in the **water stress category** (< 1,700 cubic meters). As per Govt estimates, this may reduce to 1,341 m<sup>3</sup> by 2025 and 1,140 m<sup>3</sup> by 2050.
- The Report further highlighted that:
  - 200,000 people die every year due to inadequate access to safe water.
  - 40% of India's population will have no access to drinking water by 2030.
- **India is the largest user of groundwater in the world**, with its total use exceeding 25% of the global usage.
- ~70% of Ground water is contaminated. India has been ranked 120 among 122 countries in the water quality index.

#### Falkenmark Water Stress Indicator

It relates the **total freshwater resources** with the **total population** in a country and indicates the **pressure that population puts on water resources**, including the need for natural ecosystems.

- **Water Stress:** Water availability (WA) below 1700 m<sup>3</sup>/person/year.
- **Water Scarce:** WA below 1000 m<sup>3</sup>/person/year.
- **Absolute Water Scarce:** WA below 500 m<sup>3</sup>/person/year.

### What are the reasons for the water crisis in India?

- **Rising Water Demand:** According to NITI Aayog, India's water demand will be twice the available supply by 2030. Also, the rate of depletion of groundwater in India during 2041-2080 will be thrice the current rate.
- **Groundwater Use for Agriculture:** There is high groundwater usage in agriculture due to **faulty cropping patterns**. The situation is alarming in Punjab and Haryana due to cultivation of water-intensive paddy.
- **Encroachment of Natural Water Bodies:** There has been destruction of lakes and small ponds to meet the infrastructure needs of burgeoning populations. The water crisis in Bengaluru has been exacerbated by encroachment and **disappearance of lakes and water bodies in Bengaluru**.
- **Climate Change:** Climate Change has led to erratic monsoon and reduced water levels in many rivers. The lower than normal monsoon rainfall in Southern India in 2023 has made the crisis more severe this year.
- **Discharge of Pollutants:** Groundwater resources have been contaminated by the discharge of industrial chemicals, improper mining, overuse of fertilizers etc. This has reduced availability of potable water.
- **Lack of Proactive Water Management Policies:** Water management policies in India have failed to keep pace with changing demands of time. The **Easement Act of 1882** grants groundwater ownership rights to the landowner. It has led to indiscriminate use of water resources.
- **Governance issues**
  - Water Governance in India has been **fragmented**. The Union and States Governments have their respective departments for governing various issues related to water. There are separate departments for surface and groundwater (Central Water Commission (surface water) and Central Ground Water Board (groundwater)).
  - Politicization of Inter-state disputes by the political parties have hindered the quick resolution of disputes.

### What are the impacts of water crisis in India?

#### Economic Impact

- According to the World Bank, India's GDP could decline by as much as 6% by 2050 due to water scarcity.
- Water scarcity will result in decline of food production. This will hamper India's food security and will have serious impact on the livelihood of farmers and farm labourers.

- Decline in industrial production as industrial sectors such as textiles, thermal power plants etc. may suffer due to water shortage.

### Ecological Impact

- Water scarcity may lead to extinction of flora and fauna.
- Heavy metal contamination (Arsenic, Cadmium, Nickel etc.) in rivers may threaten **aquatic biodiversity**.

### Social Impact

- Health of citizens may deteriorate due to intake of contaminated water. It will reduce the human capital.
- The increased out-of-pocket expenditure on medical expenses adversely impacts the poorest and the most vulnerable sections.
- Water scarcity leads to increased hardships for women. Girls dropout from education, 'water wives' fetch water from far-off in drought prone regions.

### Federal Relations

- Prolonged inter-state water disputes like Kaveri, Krishna, Godavari hamper federal relationship. There might be emergence of new disputes in the future.
- There will be a rise in regionalism among States and may hinder growth of national unity.

### International Relations

- Water scarcity can lead to conflict among nations to get control over the water bodies. There are calls within India for renegotiation of Indus Water Treaty. China is planning to build dams on the Brahmaputra river causing concerns in India.

## Government Initiatives for Conservation of Water

Initiative	Details
<b>Jal Shakti Abhiyan (JSA)</b>	<ul style="list-style-type: none"> <li>• It was started in 2019 as a movement for <b>water conservation, recharge, and rainwater harvesting</b> in 256 water-stressed districts.</li> <li>• The JSA now covers all 740 districts in the country.</li> </ul>
<b>Atal Bhujal Yojana</b>	<ul style="list-style-type: none"> <li>• The programme lays emphasis on the <b>recharge of groundwater resources and better utilization</b> of the groundwater resources.</li> </ul>
<b>Amrit Sarovars</b>	<ul style="list-style-type: none"> <li>• Centre has decided to build <b>50,000 water bodies (Amrit Sarovar)</b>, with an approximate area of 1 acre, across India for water conservation.</li> </ul>
<b>Nal Se Jal Scheme</b>	<ul style="list-style-type: none"> <li>• The scheme was started to <b>ensure piped drinking water to every rural household</b> by 2024.</li> <li>• It is a component of the Government's <b>Jal Jivan Mission</b>.</li> </ul>
<b>Namami Gange Programme</b>	<ul style="list-style-type: none"> <li>• It is a comprehensive program with <b>twin objectives of effective abatement of pollution</b> in Ganga (<i>Nirmal Dhara</i>), <b>conservation and rejuvenation</b> of Ganga (<i>Aviral Dhara</i>).</li> </ul>
<b>Jal Shakti Ministry</b>	<ul style="list-style-type: none"> <li>• Jal Shakti Ministry has been formed by merging the Ministry of Water Resources, River Development and Ganga Rejuvenation and the Ministry of Drinking Water and Sanitation.</li> <li>• Its aims include providing clean drinking water, implementing the Namami Ganga project, resolving the inter-state water disputes etc.</li> </ul>
<b>National Water Policy</b>	<ul style="list-style-type: none"> <li>• It focuses on the <b>conservation and protection of water</b>.</li> <li>• It promotes measures like <b>rainwater harvesting</b> for meeting the demand of water.</li> </ul>

### What should be the way forward?

- **Promotion of Water Conservation:** Rainwater harvesting should be encouraged to capture monsoon runoff. Traditional water conservation practices like Kudimaramath practice (Tamil Nadu), Ahar Pynes (Bihar), Bamboo Drip irrigation System (North-East) must be revived. *(Read More About Traditional Conservation Methods)*.
- **Demand-side Management:** The States should adopt a **participatory approach** with the involvement of local communities. The *Swajal* model adopted by Uttarakhand focuses on **community-based management** of water resources. Revival of *Johads* in Rajasthan desert by Rajendra Singh (Waterman of India) is a role-model example.
- **Nature-Based Solutions:** Nature-based solutions refer to the solutions that **mimic natural processes** to provide human, ecological and societal benefits e.g., Floodplains can be used to increase water retention.
- **River Basin Management:** River basin management must be done through hydrological-basin approach rather than administrative boundaries. Steps must be taken to promote interlinking of rivers, while addressing the environmental concerns.
- **Evidence-based policy-making:** Robust water data systems with real-time monitoring capabilities must be created e.g., Andhra Pradesh's online water dashboard provides for mapping of hydrological resources for better policymaking.
- **Implementing the Mihir Shah Committee Report:** The Mihir Shah Committee recommendations must be implemented for restructuring the water governance:
  - Establish **National Water Commission** by merging Central Water Commission (CWC) and Central Groundwater Board (CGWB). It would ensure that the **surface and the groundwater are taken as a single entity**.
  - Focus should be on **management and maintenance of dams** rather than construction of new dams.
  - Adoption of **participatory approach** to water management.




# UPSC PRELIMS TOOLKIT

ULTIMATE PACK OF 13 BOOKLETS

- 15000+ questions covers in 3 layers
  - 6 PYQs Books consisting of the last 30 years' topic-wise questions
  - 6 Practice Books consisting of 7500+ questions
  - 1 Book consisting of 15 full-length tests
- Solution with detailed explanation
- Factual information about the topics for supplementary knowledge base

15000+  
QUESTIONS

## Factly

### Polity

#### 1. Voting for Elections for Rajya Sabha

**News:** Several MLAs were accused of cross-voting during the recent elections for Rajya Sabha.

##### About the Rajya Sabha Elections

- According to Article 80 of the Constitution, Rajya Sabha representatives from each State are **indirectly elected** by the **elected members of their Legislative Assembly**.
- Before 1998, the candidates were nominated by various parties in accordance to their strength in the Assembly. Generally, they used to be elected unopposed.
- However, in June 1998, the Rajya Sabha elections in Maharashtra saw cross-voting, and this tradition was broken.

##### Legal Provisions to Curb Cross-voting

###### Open Ballot System

- In 2003, an amendment was made to **Section 59** of the **Representation of the People Act, 1951**, (RPA) to prevent MLAs from cross-voting.
- This amendment **introduced open ballot voting in Rajya Sabha elections**.
- MLAs from political parties must **display their ballot papers to their party's authorized agent**. Failure to do so or showing it to anyone else will invalidate the vote.
- Independent MLAs cannot show their ballots to anyone.

###### Tenth Schedule

- It was introduced in 1985.
- The Schedule states that if a member of a Parliament or State Legislature voluntarily leaves their political party or votes against their party's instructions, they can be disqualified from the House.
- However, in 2017, the Election Commission of India (ECI) had clarified that the Tenth Schedule **does not apply to Rajya Sabha elections**.
- The political parties cannot issue any whip to their members for Rajya Sabha elections, and members are not **bound by party instructions in these elections**.

##### Supreme Court Ruling

- The Supreme Court in **Kuldip Nayar vs Union of India (2006)**, upheld the system of open ballot for Rajya Sabha elections. The SC reasoned that secrecy can become a source for corruption. Transparency has the capacity to remove it.
- The SC also held that an **elected MLA of a political party would not face disqualification** under the Tenth Schedule **for voting against their party candidate**. However, the Party can take disciplinary action against them.

#### 2. Provisions Related to Payment of Income Tax by Political Parties

**News:** There has been criticism of demand of outstanding tax dues by the Income Tax Department from an opposition party at the time of General Elections.

##### About Political Parties in India

- The provision of registration of political parties has been provided in the RPA, 1951.



- For any association of Indian citizens to be recognised as a political party, it needs to make an application to the Election Commission to get itself registered under **Section 29A of RPA, 1951**.
- **Section 13A of the Income Tax Act, 1961** deals with tax provisions relating to political parties.

### Provisions Related to Income Tax

- Section 13A has given **100% exemption to political parties** on its **income from house property, income from other sources, capital gains and voluntary contributions received from any person**. These exemptions are subject to conditions.
  - They need to be registered under **Section 29A of the RPA**.
  - They need to maintain books of account and other documents to enable the Assessing Officer to deduce its income.
  - They need to **maintain records of each contribution of more than INR 20,000** including name and address of the person making such contribution.
  - They need to get their books of account audited by a chartered accountant.
  - They should not receive any donation of more than INR 2,000 by cash.
  - Treasurer of political party need to furnish a **report of donations received in excess of INR 20,000** to Election Commission of India for the financial year.
- Though political parties have 100% exemption on specified income, they are **not exempted from filing IT returns**.
  - It is the responsibility of the Chief Executive Officer of the political party to file the return of income and also to sign and verify the same.

### 3. SC Judgment on Immunity to Legislators for Taking Bribe for their Voting in Legislatures

**News:** A 7-judge Constitution Bench has overruled its decision in 1998 Judgment. Now MPs and MLAs can be prosecuted for taking bribery to alter their voting decision or speeches in the Legislatures.

#### Background to the Current Judgment

- In 1993, Jharkhand Mukti Morcha (JMM) leader Shibu Soren and some of his party MPs were accused of accepting bribes to vote against the no-confidence motion against the then PV Narasimha Rao Government.
- In 1998, a 5-judge Supreme Court Bench, in its majority ruling, dismissed the case against the MPs of JMM, **citing immunity under Article 105(2)**.
- It set a precedent where lawmakers' actions within Parliament, like speeches and voting, were protected from legal scrutiny under the **Parliamentary Privileges**.

#### New Judgment of the Supreme Court

- The SC stated that **Legislators' freedom of speech and expression**, along with their voting rights in the House, **do not protect them from giving or taking bribes**.
- Similarly, the immunities provided under Article 105 and 194 also do not shield them in such cases.
- The SC held that the such privilege will be governed by a 2-fold test
  - The privilege claimed must be tethered to the collective functioning of the House.
  - Its necessity must bear a functional relationship to the discharge of the essential duties of a legislator.
- **Dual Jurisdiction:** It was clarified that both the Court and Parliament have the jurisdiction to deal with lawmakers' misconduct, serving different purposes.
- The SC highlighted that even accepting a bribe **without a direct quid pro quo action constitutes corruption**.
  - The act of bribery is considered complete **when the legislator accepts the bribe**. It doesn't matter if the legislator votes as agreed or doesn't vote at all.

- The reference came in an appeal filed by JMM leader Sita Soren, who was accused of taking a bribe to vote for a particular candidate in the 2012 Rajya Sabha elections.

#### About the Constitutional Immunities for Members of Legislatures (MPs/MLAs)

- **Article 194(2)** of the Constitution grants immunity to members of the State Legislatures, while **Article 105(2)** provides the same protections to the Members of Parliament.
- Article 105(2) states that no Member of Parliament can be held accountable in court for statements made or votes cast in Parliament or its Committees.
- These Constitutional provisions were interpreted to grant immunity to lawmakers from any proceedings in court related to their Parliamentary activities.

#### 4. Unlawful Activities (Prevention) Act, UAPA

**News:** The Union Ministry of Home Affairs has declared certain outfits from Jammu and Kashmir as ‘unlawful associations’ under the UAPA. The groups were involved in actions against sovereignty and integrity of India.

#### About the Unlawful Activities (Prevention) Act (UAPA)

- It is the **primary counter-terrorism law in India**. It was enacted in 1967.
- Its objective is to **enhance the prevention of unlawful activities** by both individuals and groups, to **combat terrorism**, and to more **effectively address actions that threaten the integrity and sovereignty of India**.
- Activities covered under the Act include:
  - Assisting and supporting terrorists.
  - Providing funding to the terrorists.
  - Encouraging anti-national sentiments among the public.
  - Other unlawful activities against the State.

#### Key provisions of UAPA

- It also applies to **offenses outside of India**. Both **Indian citizens** and **foreign nationals** can face charges.
- The **Union Government** has been granted **extensive authority** to **designate organizations as terrorist entities**. It also prescribes the penalties for involvement in the activities of such organizations.
- The investigating agency can **file a charge sheet in a maximum of 180 days after the arrests**. The duration can be extended further after intimating the court.
- Under **Section 3** of the UAPA Act, the Union Government has powers to declare an association ‘**unlawful**’.
- **Appeal against the Ban**
  - Within 30 days of notification, the Government must **establish a tribunal** led by a **sitting High Court Judge** to review evidence and allegations.
  - The tribunal can examine evidence, listen to objections from the organization or its members/supporters, and decide whether to confirm or reject the ban.

#### 5. General Diary and First Information Report

**News:** The Supreme Court has ruled that information revealing the occurrence of a cognizable offense must be documented as a First Information Report in a book format, rather than in the General Diary maintained by the Police under the Police Act, 1861.

#### About General Diary

- The General Diary is kept according to **Section 44 of the Police Act, 1861**, or the relevant provisions of State police acts or manuals. It is also called **Station Diary** or Daily Diary in some States.

- It comprises **records of significant transactions** and **events within a police station**, such as the movement of police personnel, the transfer of responsibilities, individual arrests, law enforcement tasks, visits by senior officers, and similar occurrences.
- **Section 44 of the Police Act, 1861:** It mandates that every officer in charge of a police station must maintain a general diary as per the format specified by the State Government.
- The diary should document all complaints, charges filed, names of arrested individuals, complainants, offenses charged, seized weapons or property, and the names of witnesses examined.

### About First Information Report (FIR)

- It is a written document prepared by a police officer following information provided by a victim or any other individual, either in written form or orally, regarding the **commission of a cognizable offense**.
- The investigation commences only after the FIR is filed.
- The term FIR is **not specified in the Indian Penal Code (IPC)**, the **Code of Criminal Procedure (CrPC)** of 1973, or any other legislation.
- However, within police regulations or rules, information documented under **Section 154 of the CrPC** is referred to as the First Information Report (FIR).

Aspect	First Information Report	General Diary
<b>Transmittal Obligation</b>	A copy of every FIR is forwarded to the higher-ranking officers and the relevant Judicial Magistrate.	GD copy not sent to Magistrate; but sent to higher officer. Magistrate can inspect if necessary.
<b>Signature requirement of complainant</b>	The complainant's signature is taken in the FIR Book when the complaint is submitted to the police station.	There is no such requirement.
<b>Copy to complainant</b>	A copy of FIR is required to be provided to the complainant.	It is an internal police record, and is not required to be provided to the complainant.

## 6. Dying Declaration

**News:** The Supreme Court has upheld the use of dying declaration as a basis for prosecution of an accused.

### About Supreme Court Judgment

- The Supreme Court has held that the conviction of the accused can be **sustained solely based on the dying declaration**, if the declaration made by the victim inspires the confidence of the court and proves to be trustworthy.
- The victim must have been in a **fit state of mind** when providing the dying declaration. The court ensures that the **statement was not a result of imagination or coercion**.

### About Dying Declaration

- The Dying Declaration is the statement of a person who had died **explaining the circumstances of their death**.
- A dying declaration is considered **credible and trustworthy evidence**, based upon the **general belief** that most **people who know that they are about to die, do not lie**.
- **Section 32 of the Indian Evidence Act** deals with the cases related to that person who is dead or who cannot be found.
- **Anyone can record the dying declaration** of the deceased as per law. The law does not compulsorily require the presence of a Judicial or Executive Magistrate to record a dying declaration.

## 7. Democracy Report, 2024

**News:** The Democracy Report, 2024 released by V-Dem has classified India as ‘Electoral Autocracy’.

### About the Report

- The Report has been released by the V-Dem Institute at Sweden’s University of Gothenburg.
- The report is a joint effort that engages 4,200 scholars representing 180 countries. It draws from 31 million datasets spanning 1789 to 2023 and covers 202 countries.
- The report classifies countries into **4 regimes** using the Liberal Democratic Index (LDI): **Liberal Democracy**, **Electoral Democracy**, **Electoral Autocracy**, and **Closed Autocracy**.

### Key Findings of the Report

#### India’s Performance

- India has been ranked 104 in the Liberal Democratic Index (LDI), among the 179 countries reviewed.
- It has slipped further down in the Electoral Democracy Index, to 110.
- India is at rank 92 in Liberal Component Index.

#### Spread of Autocratization

- The report notes a **global trend of increasing autocratization**, affecting 42 countries and 2.8 billion people, or 35% of the world’s population.
- The report indicates that South and Central Asia has become the 2<sup>nd</sup>-most autocratic region globally. In regional terms, Bhutan stands as the sole liberal democracy.
- India, with 18% of the world’s population, holds about half of the population in countries experiencing autocratization.

### Criticism of the Report

- In 2022, a paper released by the Economic Advisor to the PM of India had questioned the methodologies of such indices.
  - The questions in the questionnaire are very subjective, and it is difficult to ascertain an objective quantitative answer to such questions.
  - The credentials of experts consulted for assessment are not revealed.
  - The information related to opinion polls (like sample size or quality of representativeness of the sample) are not available in the public domain.
- Recently, **World Happiness Report, 2023** had classified residents of Ukraine and Palestine (warzone regions with large displaced populations) as happier than Indians putting into question the authenticity of such reports. (Refer EPIC December 2022 (click) for Analysis of India’s Performance on Various Global Indices).

## Policy

### 1. Holistic Performance Card

**News:** PARAKH, a standard-setting body under the NCERT, has introduced Holistic Progress Card (HPC). HPC includes feedback from parents, peers, and self-assessment by students to monitor their holistic development regularly.

#### Key Features of the Holistic Progress Card (HPC)

- Traditionally, schools have focused on **year-end exams**, with teachers solely responsible for assessment.
- The HPC, aligning with **National Curriculum Framework for School Education (NCFSE)** guidelines, aims for a **learner-centred evaluation**.

- The HPC has been created for the **foundational stage** (classes 1-2), **preparatory stage** (classes 3-5), and **middle stage** (classes 6-8). Efforts are currently underway to develop a similar framework for the **secondary stage**.

#### Parameters of Evaluation

- Besides academics, students are evaluated on self-awareness, relationships, problem-solving, emotional intelligence, and creativity. After each activity, students reflect on their progress by circling statements like “I learned something new”, “I expressed creativity”, or “I helped others”.

#### Method of Evaluation

- **Self-assessment:** It is included for all students from Class 1-8. In middle school (Classes 6-8), students are **prompted to set academic and personal goals** with specific timelines at the start of the year.
  - The middle stage HPC also involves an ‘**ambition card**’ where students list their goals for the year and areas for improvement, as well as the skills and habits needed to achieve them.
- **Parents Feedback:** The HPC will connect home and school by involving parents in their child’s learning. Parents will provide feedback on homework completion, classroom engagement, and the child’s ability to balance screen time with extracurricular activities at home.
- **Peer Evaluation:** After each classroom activity, students must indicate whether their classmates effectively participated in learning and engagement.
- PARAKH has urged all States to implement the HPC by adjusting it to suit their specific needs. **States can also translate the HPC into regional languages as needed.**

## WHAT IS HOLISTIC PROGRESS CARD

■ New form of student evaluation based on recommendations of NEP 2020

■ Doesn't depend on marks or grades to evaluate a student's academic performance

■ Instead, it gives greater role to parents in tracking a student's achievements in class



■ Students' own perception of their performance and what they wish to achieve in school included for the first time

## 2. Zero Food Children

**News:** A recent study had ranked India as having the third-highest percentage of children who had not eaten any food for 24 hours.

### About Zero-food Children

- It refers to children between 6 to 23 months of age, who did not consume any milk, formula, or solid or semi-solid food in the last 24 hours.
- This category is critical because, at ~6 months of age, breastfeeding alone is insufficient to meet the nutritional needs of a child.

### Findings of Recent Studies

- According to a study published recently in the peer-reviewed JAMA Network Open journal, India ranks 3<sup>rd</sup>-highest globally, with **19.3% of children not receiving food**. Guinea (21.8%) and Mali (20.5%) are ahead of India.
- In terms of numbers, India has the highest number of zero-food children at more than 6 million.
- According to a study by Lancet Discovery Science, Uttar Pradesh alone accounts for 28.4% of zero-food children in India followed by Bihar (14.2%), Maharashtra (7.1%), Rajasthan (6.5%), and Madhya Pradesh (6%).
- The Government has criticized the JAMA study noting that the authors of the study themselves admitted to **significant limitations in their data**, rendering their conclusions unreliable. The authors had noted 9 limitations in their study.



### Steps Taken by Government to Curb Malnutrition

- **Integrated Child Development Services (ICDS) Scheme:** It was launched in 1975 to provide food, preschool education, primary healthcare, immunization, health check-ups, and referral services to children under 6 years old and their mothers.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY):** It is a Centrally-sponsored DBT scheme with a cash incentive of INR 5,000 (in 3 instalments) being provided directly in the bank/post office account of Pregnant Women and Lactating Mothers.
- **National Nutrition Mission (NNM):** The Government of India has launched the National Nutrition Mission (NNM), also known as **POSHAN Abhiyaan**, to eradicate malnutrition.
- **Anaemia Mukh Bharat Abhiyan:** The mission was launched in 2018 to accelerate anaemia decline by 1-3 percentage points annually.
- **Mid-day Meal (MDM) Scheme:** It aims to improve nutrition levels among school children in addition to increasing enrolment, retention, and attendance.
- **National Food Security Act (NFSA), 2013:** It ensures food and nutrition security for the most vulnerable section of society.

### 3. National Curriculum for Early Childhood Care and Education (NECCE)

**News:** The Ministry of Women and Child Development has launched a National Curriculum for Early Childhood Care and Education (NECCE) for children aged 3-6 years and National Framework for Early Childhood Stimulation (NFECS) for children from birth to three years.

#### About the NFECS and NECCE

Both documents have been created by the **National Institute for Public Cooperation and Child Development (NIPCCD)** and will be incorporated into the **Poshan Tracker**. NIPCCD will conduct training sessions for Anganwadi workers on the new Curriculum and Framework.

Aspect	NFECS (National Framework for Early Childhood Stimulation)	NECCE (National Curriculum for Early Childhood Care and Education)
<b>Age Group</b>	Children from birth to 3 years.	Children from age 3 to 6 years.
<b>Aim</b>	<b>Empower caregivers and Anganwadi Workers for early stimulation and learning</b> to support children's optimal development.	<b>Improve early childhood care and education at Anganwadi Centres.</b> It aligns with the <b>National Curriculum Framework</b> for Foundational Stage 2022 (NCF-FS).
<b>Developmental Domains Covered</b>	Physical, thinking, language, social-emotional, cultural/aesthetic, good habits.	Physical, thinking, language, social-emotional, cultural/aesthetic, good habits.
<b>Methodology</b>	Attentive care, early learning opportunities.	Lesson plans based on skills, fun learning, readiness for primary school
<b>Activities</b>	36 month-wise age-based activities.	Weekly plan with 36 weeks of learning, 8 weeks of review, and 4 weeks of introduction.
<b>Special Attention</b>	It emphasizes serve and return, care-giver actions: love, talk, play, and positive guidance.	Screening, inclusion and referrals of <i>Divyang</i> children in every activity.

#### 4. Skill India Centre and Rashtriya Udyamita Vikas Pariyojana

**News:** India's first Skill India Centre was inaugurated recently in Sambalpur, Odisha. *Rashtriya Udyamita Vikas Pariyojana* was also launched on the occasion.

Aspect	Details
Objective	<ul style="list-style-type: none"> <li>To empower youth with <b>industry-relevant skills</b>.</li> <li>To <b>democratize access to quality education</b> and establish a level-playing field for the aspiring youth.</li> </ul>
Implementation	<ul style="list-style-type: none"> <li>The <b>National Skill Development Corporation (NSDC)</b> will designate a Centre Manager who will monitor the implementation of training programs.</li> </ul>
Salient Features	<ul style="list-style-type: none"> <li>The Centre is equipped with <b>best-in-class infrastructure</b>, cutting-edge technologies and modern facilities.</li> <li>The Centre will play a pivotal role in <b>designing curriculum</b> along with <b>industry experts</b>. The curriculum will be aligned with the <b>changing industry needs</b>.</li> <li>The Centre will offer courses in sectors which are <b>high in demand</b> like media and entertainment, leather, tourism and hospitality, IT-ITeS, banking etc.</li> </ul>
Significance	<ul style="list-style-type: none"> <li>It will <b>revolutionize the skilling landscape in India</b> by offering enhanced accessibility, personalized learning experiences, and improved career guidance to learners.</li> <li>It will enable learners to <b>acquire relevant skills</b> and stay updated with industry trends.</li> <li>It will <b>harness the potential of demographic dividend to promote rural development</b>, nurture local entrepreneurship and advance socio-economic growth.</li> </ul>

#### About Rashtriya Udyamita Vikas Pariyojana

- It stands for **National Entrepreneurship Development Project**. It has been designed for beneficiaries of **PM SVANidhi Scheme**. It reflects the Government's commitment to fostering job creation across India.
- Its goal is to provide individuals with **comprehensive entrepreneurship training**, creating job providers instead of job seekers.
- It emphasizes **reskilling and upskilling of employees** to **boost their competitiveness** and **adaptability** in an age of **disruptive technology**.
- It will provide **extensive entrepreneurship training for 22 weeks**, integrating theoretical understanding with practical experience through **hands-on learning**.
- The training will be delivered via **offline, online, and hybrid methods**. The certificates granted upon completion to enhance the course's credibility and significance.
- The Government of India has **collaborated with Flipkart** to provide training to **street vendors** and **small shopkeepers**.
- In the pilot program, street vendors from 10 major cities will receive both training and a stipend to help expand their businesses. In the pilot phase, the project focuses on **ensuring 40% participation by women**.

#### About the PM SVANidhi Scheme

- It was launched in 2020. The Ministry of Housing and Urban Affairs (MoHUA) is the nodal ministry.

- It is Central Sector Scheme.
- It is a **micro credit scheme for urban street vendors** that aims to provide **collateral-free working capital** loans up to **INR 50,000**.

## 5. Amendments to Surrogacy Rules

**News:** The Union Government has amended the Surrogacy Rules, 2022 allowing couples to utilize donor gametes. This overturns the ban on donor gametes that was imposed in March 2023.

### About Amendments to Surrogacy Rules

- **Medical Condition Certification of Intended Couple:** According to the latest amendments, if the District Medical Board certifies that either the husband or wife in the intending couple has a medical condition that requires the use of a donor gamete, then surrogacy using a donor gamete is permitted..
- **At least One Gamete from the Intending Couple:** The use of a donor gamete is permissible under the condition that the child born through surrogacy must possess **at least one gamete from the intending couple**.
- **Single Woman (widow or divorcee) Directive:** The Rules also state that a single woman (widow or divorcee) choosing surrogacy must use her own eggs and donor sperm for the procedure.

### Gametes

Gametes are reproductive cells that unite during sexual reproduction to create a new individual. In humans, gametes include **sperm cells** (from males) and **egg cells** (from females).

### Need for Amendments

- The previous Rules insisted on using both eggs and sperm from the intending couple. However, this prevented married couples from using donor gametes for surrogacy in case **they suffered from medical ailments** that made it difficult to conceive.
- The Rules were challenged in the Supreme Court by a woman with **Mayer-Rokitansky-Kuster-Hauser (MRKH) Syndrome**. MRKH is a **rare congenital disorder** that affects the reproductive system and can cause infertility. The Supreme Court doubted the correctness of the previous Rules. (*Refer EPIC February 2022 (click) for Regulating ART and Surrogacy*).

## 6. Support to Poor Prisoners Scheme

**News:** The Union Government has allocated an annual fund of INR 20 crore to aid poor prisoners. It is part of Support to Poor Prisoners Scheme under the priority of “*Reaching the Last Mile: no one to be left behind*”.

### About the Support to Poor Prisoners Scheme

- It has been launched by the Union Ministry of Home Affairs.
- Its aim is to **provide financial support to poor prisoners** who are not being released from jails as they are **unable to pay the fine** imposed on them or are **unable to secure bail due to financial constraints**.
- An **Empowered Committee** at the district level and an **Oversight Committee** at the headquarters level will be established to identify prisoners requiring help.
- The National Crime Records Bureau (NCRB) has been designated as the Central Nodal Agency.
- Funds to the States/UTs will be provided through the Central Nodal Agency.

### Significance of the Initiative

- It will offer assistance to poor prisoners who cannot afford to pay fines or obtain bail because of financial limitations.

- According to the NCRB data of 2020, **~76% of individuals in Indian prisons were under-trials**. Among these, ~68% were either illiterate or school dropouts.
- Lengthy detention of under-trials is often linked to their economic status. Many lack the financial resources to pay for bail or legal representation.

## 7. Uniform Code for Pharmaceutical Marketing Practices (UCPMP), 2024

**News:** The Union Government has recently issued the Uniform Code for Pharmaceutical Marketing Practices (UCPMP), 2024. It aims to regulate unethical practices in the pharmaceutical industry.

### Key Provisions of UCPMP 2024

- **Prohibits Gifts:** The Code prohibits pharmaceutical companies, agents, distributors, retailers, wholesalers, etc. from offering or providing gifts that benefit healthcare professionals or their family members.
- **Restriction on Travelling Facilities:** The UCPMP 2024 limits providing travel and vacation benefits to healthcare professionals or their families, unless the individual is a speaker at an event.
- **Financial Limitations:** The Code restricts financial benefits or perks from being offered or promised to individuals qualified to prescribe or supply drugs by pharmaceutical companies or their representatives.
- **Ban on CME Workshops Abroad:** The Code prohibits companies from conducting continued medical education (CME) workshops in foreign countries.
- **Drugs Promotion Directive**
  - The UCPMP Rules require **drug promotion to adhere to marketing approval terms**. The drugs must not be promoted before approval.
  - Claims of effectiveness of the drug must be **backed by current evidence**. Terms like 'safe' must not be used without qualification.
  - Additionally, drugs can't be labelled as 'new' if they've been available or promoted in India for over a year.
- **Rules Violation and Adherence Directive**
  - Violations of the Code will be handled by **Ethics Committees for Pharma Marketing Practices (ECPMP)** set up within each association to ensuring accountability.
  - The CEOs of pharmaceutical companies are responsible for following the code and ensuring compliance with UCPMP 2024 regulations.
  - Companies must submit **annual self-declarations of adherence to the Code**, which will be posted on the association's website or the UCPMP portal of the Department of Pharmaceuticals. (*Refer EPIC September 2022 (click) for Unfair Marketing Practices in Pharma Industry*).

## Economy

### 1. Types of Capitalism

**News:** Various models of Capitalism are prevalent in the major economies.

#### About Various Types of Capitalism in the World

- The major forms are **Liberal Market Economies (LMEs)** and **Coordinated Market Economies (CMEs)**.
- **Liberal Market Economies (LMEs):** Examples include the US, UK, and Canada, where firms interact mainly through market mechanisms. These economies emphasize **free market principles** and **minimal State intervention**.
- **Coordinated Market Economies (CMEs):** Found in countries like Germany and Japan, where firms rely more on **non-market relationships** for coordination. These economies often feature **strong labour unions** and **close collaboration between Government and Industry**.

### Intermediate Models Between LMEs and CMEs

- **Mediterranean Capitalism:** Found in countries like Spain and Italy, it combines elements from both LMEs and CMEs, with a notable presence of **family businesses** and **State intervention**.
- **East Asian Capitalism:** Seen in South Korea and Singapore, this model **mixes State-guided policies** with **market operations**, often focusing on **export-driven growth**.
- **Social Capitalism:** Characteristic of Sweden, where there's a blend of **market mechanisms** and **strong social welfare systems**.
- **State-guided Capitalism:** Exemplified by China, where **the State plays a crucial role in controlling and guiding the economy**, often through **ownership of key sectors**.

## 2. Change in EV Policy to Promote EV Manufacturing in India

**News:** The Government has announced reduction in import duties on Electric Vehicles (EVs) if the EV manufacturer produces vehicles in India.

### Provisions of Trade in EVs

- The objective of the new Policy is to **position India as a manufacturing hub for electric vehicles (EVs)** with cutting-edge technology.
- A minimum investment of INR 4,150 Crore (~US\$ 500 Million) is required to participate. There's no upper limit on investment, encouraging large-scale manufacturing facilities.
- Companies have 3 years to set up manufacturing plants in India and begin EV production. They must achieve a **Domestic Value Addition (DVA)** of 25% within 3 years and 50% within 5 years.
- To incentivize participation, companies can import a limited number of EVs at a concessional customs duty of 15% e.g., for models of electric cars with a combined cost, insurance, and freight price in India of US\$ 35,000 or above, the tariffs will be slashed from 100% to 15%.

### Issues and Concerns with the New Policy

- It is possible that China's BYD which dominates the EV market could enter India and gives stiff competition to domestic manufacturers.
- To build a global value chain, it is important that not only the tariffs on the final product be reduced, but also on intermediate goods. There is **no clarity on reduction of important duties for intermediate goods**.
- It will be difficult to track the cooperation of a company that has received a reduction in duties. It is possible that a beneficiary **company may not fulfil its commitment**.
- There will be delays in the investment and meeting of localization requirements by the companies that have been granted concessions. There is no clarity on how the Government will deal with firms that ultimately fail to fulfil investment targets.
- According to experts, **trade policy requires overall low and stable tariffs** for sectors that are relevant for entering global value chains. To build a robust EV manufacturing ecosystem, the Government must **formulate favourable policies for all related sub-sectors**.

## 3. National Highway Infra Trust (NHIT)

**News:** National Highways Infra Trust (NHIT) has completed fundraising through 'InvIT Round - 3' for National Highway stretches totalling 889 kms.

### About National Highways Infra Trust (NHIT)

- The National Highways Infra Trust (NHIT) is an **Infrastructure Investment Trust (InvIT)** sponsored by the **National Highways Authority of India (NHAI)**.



- It was established in 2021.

#### About Infrastructure Investment Trusts (InvITs)

- InvITs are instruments that **work like mutual funds**. They are designed to **pool small sums of money** from a **number of investors** to **invest in infrastructure assets** that give cash returns over a period of time.
- InvITs are listed on exchanges just like stocks – through **Initial Public Offerings (IPOs)**.
- InvITs are regulated by the Securities and Exchange Board of India (SEBI) Infrastructure Investment Trusts Regulations, 2014.

#### About NHAI InvIT

- It is a Trust established by NHAI under the **Indian Trusts Act, 1882** and SEBI regulations.
- In December 2019, the Government approved **NHAI's Infrastructure Investment Trust (InvIT)**. NHAI launched its InvIT in 2021.
- NHAI introduced its InvIT to **enable the monetization of roads** and to **attract both foreign and domestic institutional investors** to **invest in the roads sector**.

#### 4. UNNATI - 2024

**News:** The Government has approved the *Uttar Poorva* Transformative Industrialization Scheme, 2024.

#### About UNNATI - 2024

- It is for the development of Industries and generation of employment in the **States of North East Region**. It is a **Central Sector Scheme**.
- Its objective is to **generate gainful employment**, leading to the overall **socio-economic development**.
- It will be driven by the **Ministry of Commerce and Industry**.
- INR 10,037 crore has been earmarked for the scheme.
- The duration of the scheme is 10 years from the date of notification along with 8 years for committed liabilities. All eligible industrial units will have to commence their production or operation within 4 years from the grant of registration.
- Under the scheme, Districts will be categorized in two zones: Zone A (**Industrially Advanced Districts**) & Zone B (**Industrially Backward Districts**).
- 60% of the outlay of Part A has been earmarked to 8 NE states and 40% on First-In-First-Out (FIFO) basis.
- It will create **productive economic activity** in the **manufacturing and service sectors**.
- It is anticipated that direct employment opportunities for about 83,000 individuals will be generated during the period of the scheme, with creation of additional indirect employment opportunities.

#### 5. Private Placement

**News:** SEBI has decided to repeal certain circulars that provided relaxation for the allotment of securities through the private placement route.

#### About Private Placement

- It is the **sale of stock shares/bonds** to **selected investors** and **institutions** rather than being offered publicly in the open market.
- Private placement programs invite investors like wealthy individuals, banks, mutual funds, insurance companies, and pension funds.
- **Benefits**
  - Private placement has minimal regulatory demands.

- Through private placements, companies can maintain closer investor relationships, negotiate flexible terms, and possibly retain more control over their direction and growth strategies.
- Under the Companies Act, 1956, issuing securities to 49 people was considered as private placement. This limit was raised to **200 under the Companies Act, 2013**.

## Types of Private Placements

### Preferential Allotment

- This method involves a company issuing new shares to a select group of existing shareholders or specific investors, **usually at a price lower than the current market price**.
- This method is often used when a company aims to **reward or retain existing shareholders**, like promoters, by offering them the chance to buy more shares.
- Preferential allotment in India is regulated by SEBI regulations and the Companies Act. The company needs permission from its shareholders to proceed with preferential allotment.

### Qualified Institutional Placement (QIP)

- QIP is a private placement option **for listed companies only**.
- With QIP, a listed company can issue shares or securities to **Qualified Institutional Buyers (QIBs)**, like mutual funds, banks, insurance companies, and foreign institutional investors, without going public.
- Companies use QIP to **quickly and efficiently raise capital** from institutional investors for various purposes such as expansion, debt reduction, or other corporate needs.
- SEBI has set guidelines for QIP issuances in India.

## 6. Inclusion of Government of India Bonds in Emerging Market Index by Bloomberg

**News:** Bloomberg has added Government of India bonds to its Emerging Market Index.

### About the Inclusion of Government of India Bonds

- Bloomberg will include Government of India bonds in its emerging market index from January 31, 2025.
- This follows **JP Morgan's inclusion of Indian bonds** starting in June 2024. (Refer EPIC October 2023 (click) for Inclusion of Government of India Bonds into Emerging Market Government Bond Index).

### Significance of Inclusion

- Bloomberg's inclusion of Indian bonds in its index significantly boosts the Indian debt market. It is expected to **attract US\$ 2-3 billion initially**.
- Following JP Morgan's inclusion, Bloomberg's decision signals **strong confidence from international investors in the Indian economy**.
- It also reflects confidence in India's **macroeconomic stability**, highlighting its growth and substantial foreign exchange reserves.
- It will help the Government of India to **finance fiscal and current account deficits** by bringing in foreign savings.
- Investments from funds tracking the index are typically passive and **considered more stable**.
- However, it also requires a more agile **macroeconomic management** due to the increased risks associated with higher foreign exposure.

### Risks Involved

- Higher foreign investment can lead to **greater market volatility**, especially during global financial stress.
- Large foreign fund movements can cause **instability in the value of the Indian Rupee**.

- According to the RBI Governor, an increase in index weighting brings inflows, but a decrease could **lead to outflows**, posing economic challenges.

To manage the risks from Bloomberg's inclusion of Indian bonds, the Government must maintain low fiscal and current account deficits, ensure stable inflation, and actively manage foreign exchange flows. The Reserve Bank of India will play a crucial role in stabilizing the currency and mitigating volatility.

## 7. Digital Competition Law to Check Big Tech

**News:** The Committee on Digital Competition Law has recommended to enact a new legislation to regulate the market power of Big Tech firms such as Google and Meta.

### About the Report

- **Competition Act Outdated:** The Committee says the **Competition Act, 2002** deals with anti-competitive behaviour **after it occurs**.

It does not consider today's rapid pace of digitalization. If adopted, the suggestions would improve the ability of the Competition Commission of India to address issues of competition in the tech sector.

- **Market dominance of Big Tech:** It expresses concern

about the market dominance of Big Tech companies. It cites their '**network effects**', which enable rapid growth of their user base and establish a market position that is challenging for new competitors to overcome.

- **Proposal of New Digital Law:** The recommendation suggests **forming a new law**, the **Digital Competition Act**, to introduce proactive legislation aimed specifically at large digital companies, to complement the Competition Act.

- **Identification of SSDEs**

- A draft proposed by the panel identifies companies with a '**significant presence**' in the market for a '**Core Digital Service**' as '**Systemically Significant Digital Enterprises**' (SSDEs).
- According to the draft, companies would be required to assess if they fall into this category.
- Failure to self-designate could **result in penalties** based on the **entire global turnover** of the corporate group, rather than just domestic revenues. Specific rules for SSDEs would be determined after public consultations.

## Big Tech

- Big Tech (Tech Giants) refers to the **most dominant companies** in the technology and digital industry.
- The term is most notably used for the 5 largest American Tech companies (Big 5): **Alphabet** (Google), **Amazon**, **Apple**, **Meta** (Facebook), and **Microsoft**.
- The Big Five are **dominant players** in their respective areas of technology like Artificial Intelligence, e-commerce, online advertising, consumer electronics, cloud computing, computer software, media streaming, and social networking.
- They are among the **most valuable public companies**. (very high market capitalization).
- They have been criticized for creating a new economic order called **surveillance capitalism**. They offer services to millions of users, and are **able to influence user behaviour**.
- Concerns over **monopolistic practices** have led to **antitrust investigations** in the US and the EU.



Created by | ForumIAS®

### About the Committee on Digital Competition Law

- It has been constituted by the Ministry of Corporate Affairs.
- It consists of 16 members, including government officials, legal experts, and industry representatives.
- Its functions include:
  - Examine if the Competition Act of 2002 and the rules framed under it are **equipped to address the challenges presented by the digital economy**.
  - It also studies the requirement of the digital competition law and provides suggestions regarding competition norms.

## 8. 'Passing-off' Under Trademark Rules

**News:** The Delhi High Court has, in a recent case, ruled against 'Passing-off' of Trademark registration.

### About Trademarks

- A trademark is a **symbol, design, word, or phrase** that **represents a business**. Registering a trademark gives its owner **exclusive rights to use it**.
- The **Trademarks Act, 1999** regulates trademarks and their registration in India. It ensures protection for trademarks registered with the **Controller General of Patents, Designs, and Trademarks**, also known as the **Trademark Registry**.
- Under **Section 25 of the Act**, a trademark remains **valid for 10 years after registration** and **can be renewed** by the owner regularly.

### About 'Passing-off' under Trademark Rules

- Passing-off involves **using someone else's goods or services without authorization**, which **can mislead customers** about the origin of those products.
- Passing-off occurs when someone sells their products as if they belong to someone else.
- The concept of Passing-off under the Indian Trademarks Act, 1999 aims to **protect the reputation linked with unregistered trademarks**.
- While Passing-off **isn't specifically defined** in the Indian Trademarks Act, 1999; **Section 27** recognizes the **common law rights of a trademark owner**. This allows the owner to take legal action against anyone who tries to pass-off goods or services as belonging to another person.

### Difference between Infringement and Passing-off

- If the trademark is registered and someone else uses the trademark, it's a case of infringement.
- If the trademark isn't registered and someone else uses the trademark, it's a case of passing off.

### Supreme Court's Ruling on Passing-off

- In *Cadila Healthcare Limited vs. Cadila Pharmaceuticals Limited* (2001), the SC described passing-off as a form of unfair trade competition.
- The SC elaborated that 'Passing-off' occurs when one brand deceives consumers by trying to pass-off its product or service as another, benefiting from the latter's reputation.
- To prove passing-off, there needs to be some kind of **deception or damage to the original owner's reputation** and goodwill.

## 9. Kisan Credit Card (KCC)

**News:** The Department of Fisheries has included the Kisan Credit Card (KCC) Fisheries Scheme on the *JanSamarth* Portal to provide better access to credit for fishers, fish farmers, and stakeholders across India.

### About the JanSamarth Portal

- It is an innovative online platform that **directly links lenders with beneficiaries**.
- Citizens can **access loans** through 13 Union Government schemes across 4 loan categories.

### About the KCC Fisheries Scheme

- The Kisan Credit Card (KCC) facility was extended to fishers and fish farmers in 2018-19, to support their **working capital needs**.

- The Scheme covers different categories of farmers, such as individuals, joint borrowers, Joint Liability Groups, and Self-Help Groups.
- It provides an annual interest subsidy of 2%, along with an extra subsidy of 3% for timely repayment.

### About Kisan Credit Cards (KCC) Scheme

- The KCC scheme was started in 1998 to offer **timely credit to farmers** for farming and related needs. It was initiated based on the recommendation of the **RV Gupta Committee**.
- KCC aims to **fulfil short-term credit needs** for farming, post-harvest costs, marketing, consumption, farm asset maintenance, and agriculture-related investments.
- Commercial Banks, Regional Rural Banks (RRBs), Small Finance Banks, and Cooperatives participate in the execution of the scheme.
- **Features**
  - KCC offers an **ATM-enabled RuPay debit card** and streamlined processes.
  - The Government helps farmers by **reducing interest rates** and **offering rewards for prompt loan repayment** to **make agricultural loans more affordable**.
  - Farmers must link their Aadhaar to avail themselves of interest rate reductions.
  - The Scheme was expanded in 2004 to cover investment credit needs for farmers in various activities beyond farming. In 2018-19, it was extended to include fisheries and animal husbandry farmers.

## International Relations

### 1. Grey Zone Warfare

**News:** At the Raisina Dialogue, India's Chief of Defense Staff, Gen. Anil Chauhan discussed about Grey Zone Warfare.

#### About Grey Zone Warfare

- Grey Zone Warfare is a strategy where a country tries to **gain an advantage without openly going to war**.
- It involves tactics like **cyberattacks**, **misinformation**, and **economic pressure** to weaken an opponent.
- China has been skilfully using this strategy, especially against India and neighboring countries.

#### About China's Grey Zone Tactics

- **Activities in the South China Sea:** China employs naval and civilian vessels to assert its control over the South China Sea. It causes tensions with neighboring countries.
- **Infrastructure in Border Areas:** China builds infrastructure and establishes villages close to India's borders. It reinforces its territorial assertions and gains strategic benefits.
- **Investments in Digital Technologies:** China has directed investments into apps, media, and various digital platforms within India. This presence in the digital sphere holds the potential to **mould public perceptions and narratives**.
- **Cyber-warfare:** The cyber-attack on AIIMS database was linked to Chinese hackers. Hackers based in China have repeatedly undertaken malware attacks on India's power grid and critical infrastructure.

### 2. Nordic-Baltic Cooperation

**News:** 8 Nordic-Baltic Countries participated in the Raisina Dialogue in New Delhi. They represented Nordic-Baltic Cooperation.



### About Nordic-Baltic Cooperation

- The NB8 is a **regional cooperation** format that brings together the **Nordic and Baltic Countries**. Since 2000, the Nordic-Baltic Cooperation has been called as NB8.
- Its objective is to **discuss important issues** in an **informal atmosphere**.
- Its members include **5 Nordic countries** (Denmark, Finland, Iceland, Norway, and Sweden) and **3 Baltic countries** (Estonia, Latvia, and Lithuania).
- All of them are members of the European Union (EU) except Iceland and Norway.
- The Nordic-Baltic **cooperation with India** spans fields as diverse as innovation, green transition, maritime, health, intellectual property rights, new technologies, space cooperation etc. Trade and investment figures between the Nordic region and India are steadily increasing.



### 3. G-33 Group

**News:** At the 13<sup>th</sup> Ministerial Conference of the WTO, most G-33 countries urged for a permanent solution to public stockholding for food security.

### About G-33

- It is a **coalition of developing nations** known as the '**Friends of Special Products**'.
- It was established before the 2003 Cancun Ministerial Conference that was coordinated during the **Doha Round** of World Trade Organization (WTO) negotiations, **specifically in regard to agriculture**.
- Despite the name, at present there are **47 member nations**. Some of the main countries include India, China, Indonesia, Pakistan, Nigeria, Philippines, Turkey, Tanzania, Kenya, and South Korea.
- They emphasize on the need for a **rules-based, non-discriminatory, and transparent trading environment** to address **global food security challenges**.
- The group has '**defensive**' concerns regarding agriculture in relation to WTO negotiations and **seeks to limit the degree of market opening** required of **developing countries**.

### 4. Dual-use Items

**News:** The EU has sanctioned Si2 Microsystems, an Indian tech firm, for its alleged connections with Russia regarding dual-use items. The US has also banned it from transferring dual-use technology.

### About Dual-use Items

- Dual-use items are products and technology that can be used both for **civilian** and **military applications**.
- Governments **strictly regulate** the **export, transfer, and use** of dual-use items to **prevent their misuse** in activities such as weapons development, terrorism, or other illicit purposes.

- Dual-use items find use in global positioning satellites, missiles, nuclear technology, chemical and biological tools, night vision technology, thermal imaging, some models of drones etc.

### Global Control Mechanisms for Dual-Use Items

#### Missile Technology Control Regime (MTCR)

- It is a multilateral export control regime aimed at reducing the risks of proliferation of **weapons of mass destruction** (WMD).
- It was established in 1987 by G7 countries.
- It consists of 35 member countries. India became its 35<sup>th</sup> member in 2016.

#### Wassenaar Agreement

- It is a multilateral export control regime that aims to **regulate the export of conventional arms and dual-use goods and technologies**.
- It was established in July 1996, in Wassenaar, near The Hague, Netherlands.
- It consists of 42 participating countries. India is a member.

#### Nuclear Suppliers Group

- NSG is a group of **nuclear supplier countries** that frames and implements agreed rules for **exporting nuclear equipment** with a view to controlling the spread of nuclear weapons.
- It was set up in 1974 as a response to India's nuclear tests.
- It has 48 member States and the European Commission acts as an Observer. India is not a member.

## 5. Office of the UN High Commissioner for Human Rights

**News:** A report by the Office of the UN High Commissioner for Human Rights (OHCHR) stated that the expansion of Israeli settlements in the West Bank and East Jerusalem constitute a war crime.

### About the Observations in the Report

- **Increase in the Settlements:** During the 1-year span from November 1, 2022, to October 31, 2023, ~24,300 housing units in existing West Bank settlements were 'advanced' or approved. This marks the highest annual figure since monitoring commenced in 2017.
- **Israel committing a war crime:** Building and expanding settlements means Israel moves its people into occupied areas, **breaking international law** and possibly committing a war crime.

### About Office of the UN High Commissioner for Human Rights (OHCHR)

- The Office of the High Commissioner for Human Rights (UN Human Rights) is the leading UN entity on human rights.
- It works to promote and protect the human rights that are guaranteed under international law and stipulated in the **Universal Declaration of Human Rights of 1948**.
- It was established in December 1993, by the **UN General Assembly**, through its Resolution 48/141. The resolution was passed after the **World Conference on Human Rights** adopted the **Vienna Declaration**.
- Its mandate is to **ensure universal enjoyment of all human rights**.
- It is headquartered in **Geneva, Switzerland**.

### About UN Human Rights Council (UNHRC)

- It is an inter-governmental body within the UN system. The UNHRC works closely with the Office of the High Commissioner for Human Rights (OHCHR).
- The UNHRC **replaced the former United Nations Commission on Human Rights**. The Council was created by the UN General Assembly in 2006 by a resolution.

- It is headquartered in **Geneva, Switzerland**.
- It is responsible for strengthening the **promotion** and **protection of human rights** around the globe. It addresses situations of human rights violations and make recommendations on them.

### 6. Joint Logistics Over-the-Shore (JLOTS) Project

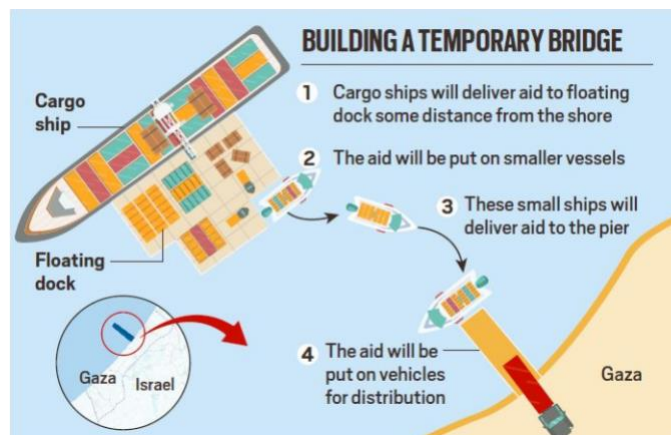
**News:** The US is planning to construct a floating pier (Joint Logistics Over-the-Shore (JLOTS) project) off the coast of Gaza to facilitate the delivery of humanitarian aid.

#### About the Joint Logistics Over-the-Shore (JLOTS) Project

- JLOTS is a military project by the US Department of Defense.
- Its main objective is to **enhance the military's capacity** for logistics operations in regions **lacking adequate fixed port facilities**.
- These operations involve teamwork among military branches. The navy transports and secures goods, while the army or other agencies handle tasks like building infrastructure and delivery.
- JLOTS uses special equipment like **floating causeways** and barges to **move cargo between ships and shore**, even in challenging areas.
- This is especially useful during **humanitarian and disaster relief (HADR)** efforts when quick delivery of aid is essential. The US military has used JLOTS before in Kuwait, Somalia, Haiti, and Central America for disaster relief missions.

#### JLOTS in Gaza

- The floating pier in Gaza will be constructed **without any direct US military involvement**. Instead, the US will collaborate with **Fogbow**, a private company led by former military and intelligence personnel.
- The project will have two main parts: a **floating dock** and a **pier** about 548 meters long with a causeway.
- The steel floating dock will be transported by a **roll-on, roll-off ship**, designed for heavy cargo. While the pier links to the shore, the dock can be positioned up to a kilometre away, preventing aid ships from getting stuck in shallow coastal waters.
- After the ship unloads aid on the dock, **smaller Logistics Support Vessels (LSVs)** will ferry the cargo to the floating pier or jetty connected to the shore.
- The pier will feature a causeway extension to prevent vehicles transporting aid from getting stuck in soft sand.



### 7. SIPRI Report on Arms Import

**News:** According to the latest report by SIPRI, India was the leading arms importer for the period 2019-23.

#### Key Findings of SIPRI Report

- Russia is still India's main arms supplier, making up 36% of imports. However, it's the first time since 1960-1964 that **Russia's deliveries comprised less than half of India's arms imports** in a 5-year period.

- After Russia, **France (33%) stands as India's 2<sup>nd</sup>-largest arms supplier**, while the **US (13%)** ranks as the **3<sup>rd</sup>-largest provider** of weapons to India.
- In 2019-2023, 9 of the top 10 arms importers, including India, Saudi Arabia, and Qatar, were from Asia, Oceania, or the Middle East.
- The report shows a notable **94% rise in European arms imports** from 2014-2018 to 2019-2023 which is likely due to the ongoing conflict in Ukraine.
- In 2019-2023, European countries imported ~55% of their arms from the US, which increased from 35% in 2014-2018.
- The **US is the biggest arms supplier globally**, and experienced a 17% increase in exports from 2014-2018 to 2019-2023. **France became the world's 2<sup>nd</sup>-largest arms supplier**, with exports growing by 47%.

**About Stockholm International Peace Research Institute (SIPRI)**

- It is an independent international institute headquartered in Stockholm, Sweden, dedicated to researching conflict, armaments, arms control, and disarmament.
- Its vision is about a world in which sources of insecurity are identified and understood, conflicts are prevented or resolved, and peace is sustained.

**8. UN Economic and Social Commission for Asia and the Pacific (UNESCAP)**

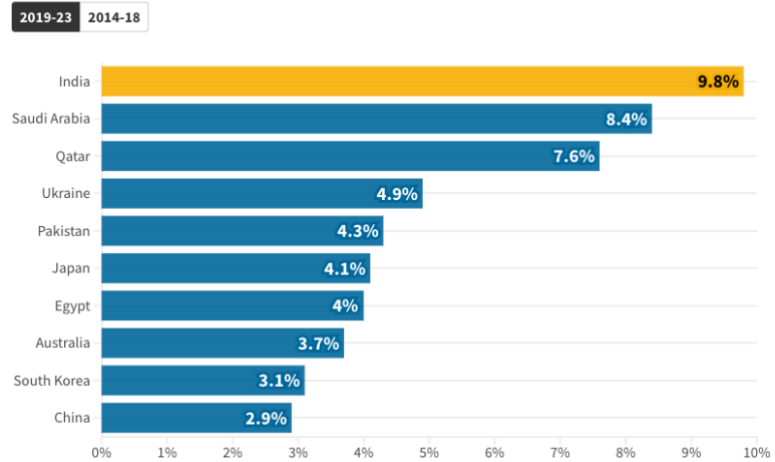
**News:** According to a report by the UNESCAP, at the current pace of growth, the region will not attain the 17 Sustainable Development Goals (SDGs) until 2062, 32 years behind the scheduled year (2030).

**About the UN Economic and Social Commission for Asia and the Pacific (UNESCAP)**

- It is an **intergovernmental platform** in the Asia-Pacific region. It is 1 of the 5 **Regional Commissions** of the UN.
- It was established in 1947. It is headquartered in **Bangkok, Thailand**.

**Share in global arms imports (%) - top 10 countries**

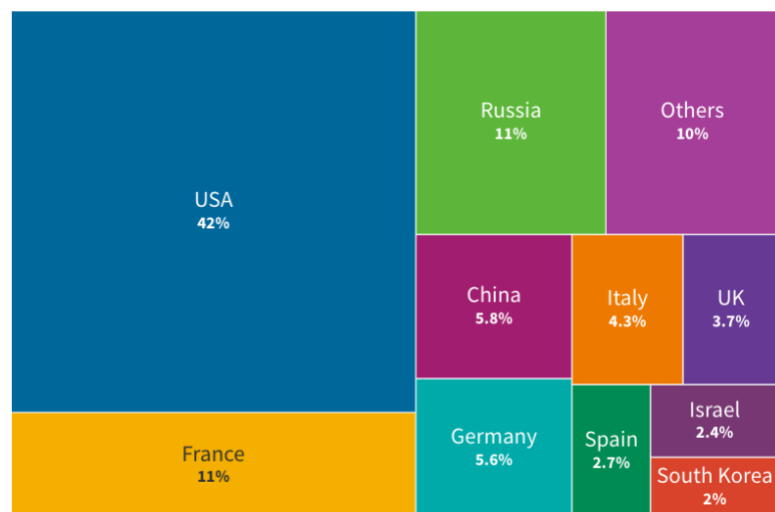
For 2019-23



Source: The Hindu. India alone accounts for ~10% of global arms imports.

**Share in global arms exports (%)**

For 2019-23



Source: The Hindu. The US (42%) is the largest arms exporter, followed by France (11%), Russia (11%), China (5.8%) and Germany (5.6%).

- Its objective is to **promote economic and social development** in the **Asian and Pacific region** by fostering cooperation between its members and associate members.
- It has **53 member States** and **9 associate members**.
- Its functions include:
  - It supports inclusive, resilient and sustainable development in the region by generating action-oriented knowledge.
  - It provides **technical assistance** and **capacity building services** to support **national development objectives**, regional agreements and the implementation of the 2030 Agenda for Sustainable Development.
  - It provides support to partners at the national level.
- It carries out work in the areas like **Macroeconomic Policy, Poverty Reduction and Financing for Development, Trade, Investment and Innovation, Transport, Environment and Development** etc.
- It publishes the Asia-Pacific SDG Progress Report.

## Science and Technology

### 1. Solar Maximum

**News:** A new visualization from the European Space Agency (ESA) has shown the increase in activity on the Sun's surface as it approaches solar maximum this year.

#### About Solar Maximum

- The Sun goes through a **natural solar cycle** ~ every 11 years. The cycle is marked by the **increase and decrease of sunspots**, which are visible as dark blemishes on the Sun's surface.
- The greatest number of sunspots in any given solar cycle is designated as '**solar maximum**'. It occurs roughly in **the middle of each cycle**.
- As the Sun approaches the solar maximum, more brilliant explosions, dark sunspots, loops of plasma, and swirls of super-hot gas are observed.



The sun experiences differential rotation; it rotates faster at the equator than at the poles.

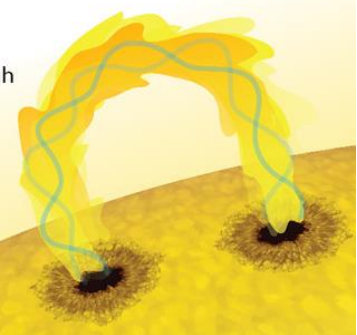


The sun's magnetic field lines become twisted as it rotates.

#### Impact of Solar Maximum

- The increased solar activity can cause **extreme space weather events**, including **solar flares** and eruptions.
- It can also **disrupt radio communications** and the **power grid** and have **serious health consequences** for **astronauts**.

The twisted magnetic field lines burst through the surface of the photosphere. They suppress convection and inhibit heat flow, causing dark regions called sunspots.



#### About Sunspots

- These are areas that appear dark on the surface of the Sun (photosphere). They appear dark because they are **cooler than other parts of the Sun's surface**. They can be as large as 50,000 km in diameter.
- Sunspots are relatively cool because they are formed at areas where **magnetic fields are particularly strong**. These strong magnetic fields **keep some of the heat within the Sun** from reaching the surface. The magnetic field in such areas is about 2,500 times stronger than Earth's.
- Sunspots consist of a dark region called the '**umbra**', which is surrounded by a lighter region called the '**penumbra**'.



- Sunspots can cause disturbances such as **solar flares** and **Coronal Mass Ejections (CMEs)**.

## 2. Cryogenic Engines

**News:** ISRO has successfully completed the human rating of CE20 Cryogenic Engine. It marks a significant milestone in India's Gaganyaan mission to send humans into space.

### About CE20 Cryogenic Engine

- The CE20 cryogenic engine is an advanced propulsion system developed by ISRO.
- It is designed to **operate using cryogenic fuel**, which is stored at **extremely low temperatures**.
- CE20 cryogenic engine powers the cryogenic stage of the human-rated **LVM3 (Geosynchronous Satellite Launch Vehicle Mark III)** launch vehicle for Gaganyaan missions.
- It is the first cryogenic engine to use the **gas-generator cycle**. This discards the exhaust from the pre-burner instead of sending it to the combustion chamber. It reduces fuel efficiency. However, it makes the **CE-20 engine easier to build and test**.

### About Human Rating

- Rockets that carry humans to space require 'human-rating'. Human-rating is the process of **certifying a spacecraft** or its parts to **meet safety standards for human space travel**.
- For the CE20 cryogenic engine, being human-rated means that it has been extensively tested and has been confirmed safe and reliable for crewed space missions like India's Gaganyaan.
  - **Comprehensive Evaluation:** It includes life demonstration tests, endurance tests, and performance assessment under nominal operating conditions as well as off-nominal conditions relative to thrust, mixture ratio, and propellant tank pressure.
- ISRO has also completed acceptance tests for the flight engine selected for the first unmanned Gaganyaan mission.

### About Cryogenic Engines

- Cryogenic engines use mix of **liquefied gases** (usually hydrogen and oxygen), which deliver greater thrust to weight.
- These rockets can carry **greater payload** at higher speeds (Over 6,000 kg into Low Earth Orbit and over 2,000 kg into higher geostationary orbits).
- **Liquid hydrogen** and **oxygen** are stored separately at very low temperatures and combust explosively when brought together. These complexities require expertise in design and material sciences.

### Implications of Cryogenic Engines

- **Aerospace:** Since it can put greater payloads into higher orbits, it would be vital to **future missions** to the Moon or Mars, setting up a **space station**, or putting **Gaganyaan into orbit**.
- **Military: Material science capabilities** can be harnessed in many military applications.
  - The capacity to put more and larger payloads into space translates into more robust communications, including **military communications**.
  - Modern ballistic missiles with intercontinental ranges generally use **semi-cryogenic engines** (mix of kerosene and liquid oxygen). Expertise in cryogenic technologies will also make semi-cryogenic R&D easier.
- **Commercial:** Since it can put larger loads into higher orbits, it will make India a significant player in the global satellite launching business.

### 3. India's Second Spaceport at Kulasekarapattinam, Tamil Nadu

**News:** The Prime Minister has laid the foundation stone for India's 2<sup>nd</sup> Spaceport at Kulasekarapattinam in Tuticorin District, Tamil Nadu.

#### About the New Spaceport

- A spaceport or cosmodrome is a site for **launching or receiving spacecraft**. The port reference is analogous to seaport for ships and airport for aircraft.
- India's 2<sup>nd</sup> spaceport is being established in **Kulasekarapattinam**, a coastal village in the Thoothukudi district of Tamil Nadu. Kulasekarapattinam is an ancient port town dating back to the 1<sup>st</sup>-century AD.
- The new spaceport will be dedicated to **Small Satellite Launch Vehicles (SSLVs)** developed by the private sector.
- ISRO launched a Rohini sounding rocket from a mobile launch pad to mark the beginning of work at the site.

#### Location of Spaceports on East Coast Near Equator

- Rocket launching sites are generally located on the Eastern coast because of certain benefits.
- **Fuel Savings:** Launching rockets from the eastern coast **harnesses Earth's rotation**, granting them initial velocity and reducing fuel requirements for orbit.
- **Debris:** In case of failure of rocket, the debris will fall in the sea, reducing danger to human lives and infrastructure.
- **Equatorial Position:** The spaceport's proximity to the Equator further enhances launch efficiency. Rockets launched closer to the Equator **receive an additional boost from the Earth's rotational speed**, making it easier to reach orbit. (Earth's rotational speed is maximum at the Equator and minimum at the Poles).

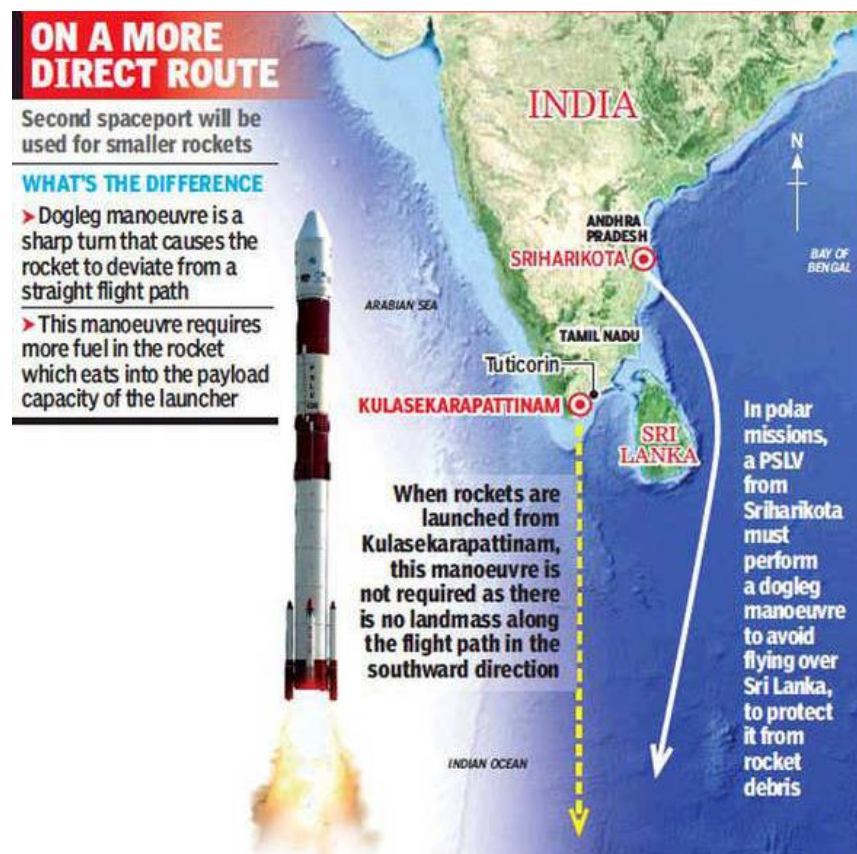
#### Advantages of New Spaceport

##### Diversion due to Sri Lanka's Airspace:

- At present, rockets launched from the existing spaceport at Sriharikota (Andhra Pradesh) must head east before turning South (**Dogleg manoeuvre**). This trajectory is necessary to avoid flying over the airspace of Sri Lanka. A direct path is more efficient.

##### Proximity to ISRO's Propulsion Complex

- ISRO's propulsion complex is located in **Mahendragiri**, which is much closer to Kulasekarapattinam (~88 km) than to Sriharikota (~780 km).
- This proximity facilitates transportation of rocket components, reducing both time and cost.

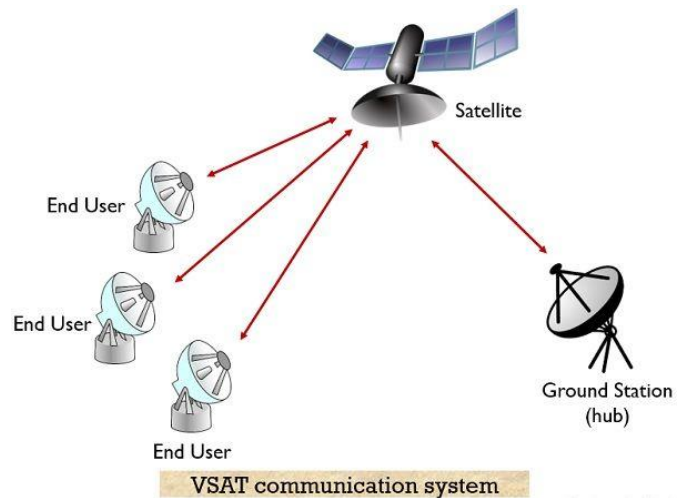


#### 4. Using V-SAT to Provide Internet Services in Remote Areas

**News:** The Ministry of Tribal Affairs is planning to collaborate with ISRO to deploy V-SAT stations on a pilot basis for ~80 tribal villages to bring internet services to geographically remote and challenging areas.

##### About V-SAT

- A Very Small Aperture Terminal (VSAT) is a **2-way satellite ground station** equipped with a dish antenna ranges from 75 cm to 1.2 meters.
- VSATs **facilitate two-way communication via satellite**. They relay data between small remote Earth stations (terminals) and **other terminals or central Earth Station hubs**.
- VSATs handle both narrow-band data and broadband data. Narrow-band applications include credit card transactions, RFID data. Broadband applications include satellite internet access, VoIP or video calls etc.
- VSATs find use in **providing connectivity to remote locations**, supporting transportable or on-the-move communications (using phased array antennas), and enabling mobile maritime communication.
- VSATs offers a number of advantages:
  - **No physical network needed:** VSATs rely on satellite signals instead of physical links like ethernet cables, reducing the risk of structural issues and eliminating the need for extensive infrastructure.
  - **Independent Operation:** VSAT systems can operate independently for local telecommunication networks, serving as a backup for wired networks in case of failure.
  - **Easy Deployment:** VSATs can be installed in remote locations with minimal infrastructure requirements, as satellite signals can be redirected to various locations through a central hub.
- VSATs have some disadvantages:
  - **Latency:** VSATs suffer from latency due to the **time delay in signals** traveling between space and the ground, especially noticeable in 2-way communication.
  - **Signal Quality:** Weather conditions and obstructions like buildings or trees can cause distortion in signals between the satellite and earth station.



#### 5. Revised FDI Norms in the Space Sector

**News:** The Union Cabinet has approved the revised FDI policy for the Space Sector.

##### Proposed Changes in the FDI Norms

- Under the updated FDI policy, the satellite sub-sector has been divided into **3 different types**, with defined limits for foreign investment in each type.
- **Manufacturing of Components and Systems/Sub-systems:** FDI of up to 100% will be permitted under the automatic route. Until now, foreign investment was permitted up to 100% through the **Government route**.
- **Satellite Manufacturing and Operation:** The updated policy allows up to 74% FDI under the automatic route. For investments beyond 74%, Government approval is required.
- **Launch vehicles and Components:** Up to 49% FDI under the automatic route will be allowed. Investments beyond 49% will require government approval.

### Significance of the Updated Norms

- The revised policy aims to **attract investors** to invest in Indian space companies.
- It will **boost the growth of Indian space sector**, as the Indian space economy is expected to increase from approximately US\$ 8.4 billion at present to US\$ 44 billion by 2033.
- Increase in private sector involvement will **create jobs**, facilitate the **adoption of modern technology**, and **promote self-sufficiency** in the sector.
- The revised policy is expected to **link Indian firms with global supply chains**, allowing them to set up manufacturing plants locally. (Refer EPIC May 2023 (click) for India's Space Policy, 2023 and EPIC August 2022 (click) for Space Economy in India).

## 6. IndiaAI Mission

**News:** The Government has approved the IndiaAI Mission with a budget of INR 10,372 crore for next 5 years.

### About IndiaAI Mission

- The Mission aims to create a **comprehensive ecosystem**, **drive AI innovation**, and encourage AI use across sectors. It **prioritizes skill development** and **socio-economic change**, in line with the vision of 'Making AI in India' and 'Making AI Work for India'.
- The Mission will be driven by the Ministry of Electronics and Information Technology.
- 'IndiaAI' Independent Business Division under Digital India Corporation will be the implementing agency.

### Key Components of the Mission

- **IndiaAI Compute Capacity:** The objective is to develop an **AI compute infrastructure** comprising 10,000 or more Graphics Processing Units (GPUs) via partnerships between the public and private sectors.
  - An AI marketplace will be developed to provide **AI-as-a-service** and pre-trained models to AI innovators.
  - The AI compute infrastructure will be implemented through a public-private partnership with 50% viability gap funding.
- **IndiaAI Innovation Centre:** The Center will create and use its own **Large Multimodal Models (LMMs)** and domain-specific foundational models in critical sectors.
- **IndiaAI Datasets Platform:** It will simplify access to high-quality, non-personal datasets for AI innovation. It aims to offer Indian startups and researchers a single platform for easy access to non-personal datasets.
- **IndiaAI Application Development Initiative:** This initiative will promote AI applications in critical sectors by addressing problem statements obtained from Central Ministries, State Departments, and other sources.
- **IndiaAI FutureSkills:** It aims to **reduce barriers to entry into AI programs** and will expand AI courses at undergraduate, master's, and Ph.D. levels. Data and AI Labs will be established in Tier 2 and Tier 3 cities across India to offer basic level courses.
- **IndiaAI Startup Financing:** This pillar aims to help and **speed up deep-tech AI startups**, offering them easier access to funding for futuristic AI projects.
- **Safe & Trusted AI:** This pillar will support the execution of responsible AI projects, which involves creating indigenous tools and frameworks.

## 7. Large Language Models (LLMs)

**News:** LLMs serve as the backbone of the AI-based chat boxes like ChatGPT and Gemini.

### About Large Language Models (LLMs)

- Large language Models (LLMs) are large general-purpose language models that can be **pre-trained and fine-tuned for specific purposes** like text classification, question answering and document summarisation.



- LLMs enable the **Generative AI** models like ChatGPT and Gemini to “**converse**” with humans and predict the next word or sentence.
- LLMs **use extensive size of training data**. They also have **large parameter count**. Parameters in machine learning represent the memories and knowledge acquired by a machine during model training. They **determine the proficiency of the model** in addressing a particular problem.
- This means the model is sufficient to **solve general problems** that are based on the commonality of human language regardless of specific tasks, and resource restrictions.
- It is a tool that helps computers understand and **produce human language**.

Basis to Classify Various Types of LLMs		
Architecture	Training Data	Availability
<ul style="list-style-type: none"> <li>• <b>Autoregressive Model:</b> They predict the next word in a sequence based on previous words e.g., GPT-3.</li> <li>• <b>Transformer-based Model:</b> They use a specific type of neural network architecture for language processing e.g., LaMDA or Gemini (formerly known as Bard).</li> <li>• <b>Encoder-decoder Model:</b> They encode input text into a representation and then decode it into another language or format e.g., T5, Pegasus, ProphetNet, Marge.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Pre-trained and fine-tuned:</b> These language models are trained with multiple data set and are fine-tuned to provide accurate results..</li> <li>• <b>Multilingual Models:</b> These LLMs can understand and generate text in multiple languages.</li> <li>• <b>Domain-specific Models:</b> These are trained on data related to specific domains such as legal, finance or healthcare.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Open Source:</b> They use open source data from the web for training e.g., LLaMA2, BLOOM, Google BERT, Falcon 180B, OPT-175 B..</li> <li>• <b>Closed Source:</b> These models with close data sets e.g., Claude 2, Bard, GPT-4, are some proprietary LLMs.</li> </ul>

### Working Methodology

- **Deep learning** is a key technique in training LLMs. Deep learning involves using **artificial neural networks** inspired by the human brain.
- For LLMs, the neural network **learns to predict the probability of a word or sequence of words** by analysing the patterns and relationships between words in the data set used for training.
- Once trained, an LLM can predict the most likely next word or sequence of words based on inputs also known as **prompts**.

### Uses of LLMs

- They generate text and are **capable of producing human-like content** for purposes ranging from stories to articles to poetry and songs.
- They can strike up a conversation or **function as virtual assistants**.
- They show proficiency in language understanding tasks, including sentiment analysis, language translation, and summarisation of dense texts.
- LLMs engage with users providing information, answering questions, and maintaining context over multiple exchanges.
- They can **create content and personalise it**, aiding in **marketing strategies**, offering personalised product recommendations, and tailoring content to specific target audiences.



### Advantages of LLMs

- **Versatility:** LLMs display a wide versatility as these can be applied to a broad range of tasks with just one model, due to their training on extensive datasets.
- **Efficiency with Limited Data:** LLMs can perform effective tasks despite the availability of only small amounts of domain-specific data. This is because they utilize the extensive knowledge gained from their general language training.
- **Continuous Improvement:** The performance of LLMs is enhanced as they are fed more data and parameters. This showcases a capacity for ongoing learning and development.

### 8. Juice-Jacking

**News:** The RBI has issued a warning to mobile phone users regarding the risk of juice jacking.

#### About Juice Jacking

- It is a form of cyberattack where hackers manipulate **public USB charging ports** to steal data from connected devices by infecting them with **malware** or **altering hardware**.
- Hackers utilize this attack to **steal users' passwords, credit card details, addresses**, and other **sensitive data** stored on the targeted device.
- This form of attack has become increasingly concerning, with reported incidents occurring in **various public spaces** including **airports, hotels**, and shopping centers.
- RBI has stressed the need to safeguard personal and financial data when using mobile devices.

#### Preventing Cyberattacks like Juice Jacking

- Mobile phone users should utilize their **personal chargers** and refrain from connecting their devices to public USB ports.
- Employing a **virtual private network (VPN)** and ensuring devices are equipped with the **latest security updates** can aid in reducing the vulnerability to cyberattacks.

### 9. Rhodamine-B

**News:** The Government of Tamil Nadu has banned the sale and production of cotton candy after it was found that a toxic chemical Rhodamine-B was being used to make it.

#### About Rhodamine-B

- It is a chemical commonly used for **dyeing in various industries**, including textiles, paper, leather, and paints. It serves as a **colouring agent**, producing red and pink hues.
- When in powdered form, it appears green. However, when water is added, it changes into pink colour.

#### Harmful Effects of Rhodamine-B

- **Neurological Damage:** Regular consumption of food containing Rhodamine B can damage the **cerebellum tissue in the brain** and the brainstem. This damage can result in functional abnormalities and **hinder motor functioning**.
- **Liver Dysfunction and Cancer Risk:** Rhodamine B ingestion can cause liver dysfunction and may increase the risk of cancer. Larger quantities consumed over a brief period may lead to acute poisoning.
- According to the **Food Safety Standards Act, 2006**, preparation, packaging, importing, selling and serving food items with Rhodamine-B in wedding ceremonies and other public events is a **punishable offence**.

### Allowed Food Colours

- **The Food Safety and Standards Authority of India (FSSAI)**, India's top food safety regulator, permits only a limited number of natural and synthetic colors in food products.
- **Permitted Natural Food Colours:** Carotene and carotenoids (yellow, orange), chlorophyll (green), riboflavin (yellow), caramel, annatto (orange-red, from the seed of an American tree), saffron, and curcumin (yellow, from turmeric).
- **Approved Synthetic Colours:** Red from Ponceau 4R, Carmoisine, and Erythrosine; yellow from Tartrazine and Sunset Yellow FCF; blue from Indigo Carmine and Brilliant Blue FCF; and green from Fast Green FCF.

### 10. Ultra-Processed Foods

**News:** Concerns have been raised about the harmful effects of the Ultra-processed foods.

#### About Ultra-Processed Foods

- They usually have 5 or more ingredients, including **additives** that are **not used in home cooking**.
- These other ingredients are usually **flavour and taste enhancers**, **emulsifiers** and **colours**, and all of them are meant to **improve the shelf life and taste** or make the food convenient to eat.

#### Rise of Ultra-Processed Foods

- **Surplus Food Production:** This industry rose on account of farming surpluses. Due to extra food production, it becomes necessary to transform extra production into processed food.
- **Affordability:** A WHO report highlighted the affordability aspect of junk food. Due to affordable prices of junk food, there has been an increase in readymade and convenience food especially during Covid pandemic.

#### Issues with Consumption of Ultra-processed Foods

- **Health Issues:** These foods are **not healthy to consume regularly or in large quantities**. They can cause obesity, hypertension, cardiac issues and lifestyle diseases.
- **Addiction:** They are taste enhancers, so people automatically get addicted to them.

#### Addressing the Concerns

- **Labelling:** The most effective step food regulators can take is to ensure that **UPFs are accurately labelled**.
- **Awareness:** Consumers must be made aware of potential harmful impacts.
- **Promotion of Home-made food:** It is the best way to get **nutritional and healthy** food.
- **Promotion of Local and Indigenous Food:** India has a great **culinary tradition**. This is based on a mix of **fresh ingredients** which have the least negative impact on health.

### 11. Parthenogenesis

**News:** Researchers have achieved a significant breakthrough by engineering a sexually reproducing fruit-fly species to reproduce asexually.

#### About Parthenogenesis

- It refers to the process of reproduction **without fertilization by males**, resulting in offsprings derived from unfertilized eggs.
- **Facultative Parthenogenesis:** When organisms can give birth both sexually as well as asexually, then this process is known as facultative parthenogenesis. Few organisms such as **crayfish, snakes, komodo dragons, and sharks** can **reproduce sexually as well as asexually**, exhibiting facultative parthenogenesis.

### Significance of Parthenogenesis

- It is a type of **adaptive strategy** to reproduce when environmental conditions are not proper and sexual reproduction is not possible.
- It allows the species to continue thriving and multiplying in some environments where there is **less male population**.
- It enables sex determination in some organisms like wasps, bees.
- It is the simplest, most stable and easy process of reproduction.
- It supports the **chromosomal theory of inheritance**, which proves that **chromosomes are the vehicles of genetic heredity**.
- Advantageous mutant characters may develop through this method of reproduction.

## Environment

### 1. Impact of Global Warming on Climate in India

**News:** A 50-year analysis of meteorological records suggests that various States in India are registering a change in the climate like warming of winters and withdrawal of spring.

#### Key Findings of the Study

- There has been **warming of winter season across India**, affecting every region during this season.
- Winter is the fastest warming season for 12 out of the 34 States and UTs. Autumn was the fastest warming season in 13 regions.
- There were significant differences in the pattern of temperature changes during the winter.
  - **Manipur has witnessed highest rise in average winter temperature** since 1970, with an increase of 2.3°C.
  - Sikkim (2.4°C) and Manipur (2.1°C) had the largest changes in temperature in December and January, respectively.
  - The southern part of India also had strong warming in December and January.
  - The **northern part of India had much weaker warming**. Some parts even registered slight cooling in December and January.
  - Delhi had the lowest rates during this period, with only 0.2°C difference.
  - Among the States, Uttar Pradesh had the lowest warming rates.
- The pattern changes dramatically between January and February.
  - **In February, all regions experienced warming**. Areas that had minimal warming in Dec/Jan have witnessed the most significant warming in February.
  - Jammu and Kashmir had the highest warming, while Telangana had the lowest.
  - In northern India, the contrast between January trends (cooling or slight warming) and February (strong warming) means that northern India now have the potential for **abrupt transitions from cool winter-like temperatures to much warmer conditions traditionally observed in March**.
  - Rajasthan has highest warming rates where the warming in February was 2.6°C higher than in January.
  - 9 States/UTs showed a January-February difference of more than 2°C: Rajasthan, Haryana, Delhi, Uttar Pradesh, Himachal Pradesh, Ladakh, Punjab, Jammu and Kashmir, and Uttarakhand.
- Warming of winter in South India and the lack of rainfall in the North in winter is due to an aberration in the pattern of Western Disturbances and the jet stream.

### 2. Mass Coral Bleaching Event

**News:** The Great Barrier Reef is experiencing its 5<sup>th</sup> mass coral bleaching event in eight years.

### About Coral Bleaching

- When corals are stressed by changes in conditions such as temperature, light, or nutrients, **they expel the symbiotic algae living in their tissues, causing them to turn completely white**. This is called coral bleaching.
- **Change in ocean temperature** caused by climate change, **run-off** and **pollution**, overexposure to sunlight, extreme low tides cause coral bleaching.
- Coral reefs support some of the **most biodiverse ecosystems** on the planet.
  - Coral reefs are vital ecosystems supporting diverse marine life, including sea turtles, fish, crabs, and more.
  - They offer shelter, breeding grounds, and protection, crucial for survival of many species.
  - **Reef collapse threatens this biodiversity**, risking extinction of at-risk species.
- Coral bleaching threatens livelihoods, food security, and safety.
  - **Reefs act as natural barriers**, protecting coastal communities from waves and storm surges. Without them, costly and less effective seawalls become necessary, harming the environment.
  - Bleaching exacerbates **overfishing** by disrupting the food web and depriving species of vital habitats for spawning. This impacts those reliant on marine resources for income and sustenance.
  - Reef tourism is a multi-billion-dollar industry faces jeopardy as bleached reefs deter visitors and impact local economies and jobs.

**CORAL BLEACHING**  
Have you ever wondered how a coral becomes bleached?

**HEALTHY CORAL**  
1 Coral and algae depend on each other to survive.

**STRESSED CORAL**  
2 If stressed, algae leaves the coral.

**BLEACHED CORAL**  
3 Coral is left bleached and vulnerable.

**WHAT CAUSES CORAL BLEACHING?**

- Change in ocean temperature**  
Increased ocean temperature caused by climate change is the leading cause of coral bleaching.
- Runoff and pollution**  
Storm generated precipitation can rapidly dilute ocean water and runoff can carry pollutants — these can bleach near-shore corals.
- Overexposure to sunlight**  
When temperatures are high, high solar irradiance contributes to bleaching in shallow-water corals.
- Extreme low tides**  
Exposure to the air during extreme low tides can cause bleaching in shallow corals.

NOAA's Coral Reef Conservation Program  
<http://coralreef.noaa.gov/>

### 3. Global Methane Tracker, 2024

**News:** According to the International Energy Agency's Global Methane Tracker 2024, methane emissions from fuel usage in 2023 nearly reached their highest level ever, totalling 120 million tonnes (MT).

### About Global Methane Tracker

- It is an annual report released by the **International Energy Agency (IEA)**.
- It uses the latest data on methane emissions from the energy sector and includes new scientific studies, measurements, and satellite data.

### Key Findings of the Global Methane Tracker 2024

- **Record-high Methane Emissions:** In 2023, methane emissions from fuel use were nearly the highest ever, reaching 120 million tonnes (MT). This represents a slight increase compared to 2022.
  - Out of the 120 MT, ~80 million tons (~66%) came from only 10 countries.
- **Top Emitters:** The **US tops the list in methane emissions** from oil and gas operations, with **Russia** following closely. Meanwhile, **China leads in emissions from coal operations**.
- **Additional Emissions:** Bioenergy, produced from plant and animal waste, resulted in an additional 10 million tons of emissions.
- **Emission Trends:** Although studies indicate that emissions are declining in certain areas, the overall emissions remain excessively high to achieve the world's climate objectives.

### Actions Needed

- The world must **reduce methane emissions from fossil fuels by 75% by 2030** to meet the Paris Agreement target of limiting warming to 1.5°C.
- The IEA estimated that this goal would require about **US\$ 170 billion in spending**. This is less than 5% of the income generated by the fossil fuel industry in 2023.
- Methane has contributed to **~30% of the global temperature increase** since the preindustrial era. The energy sector, covering oil, natural gas, coal, and bioenergy, makes up more than one-third of human-caused methane emissions.

## 4. Global Resource Outlook, 2024

**News:** The Global Resource Outlook 2024 report has been published by UNEP.

### Key Findings of the Report

- **Production and Consumption of Resources**
  - The consumption and use of resources is largely driven **by demand in upper income countries**.
  - Global production and consumption of material resources has **grown more than three times** over the last 50 year.
- **Extraction and processing of material resources**
  - The extraction and processing of material resources accounts for over **55% of greenhouse gases (GHG)** emissions and 40% of particulate matter poisoning the environment.
  - The extraction and processing of **agricultural crops and forestry** products accounts for **90% of land-related biodiversity loss** and **water stress** and a **one-third of GHG emissions**.
  - The extraction and processing of **fossil fuels, metals** and **non-metallic minerals** including sand, gravel and clay account for **35% of global emissions**.
- The report predicts that **resource exploitation could increase by ~60% by 2060** (from 2020 levels) from 100 to 160 billion tonnes.
- The report shows **global inequality** where low-income countries consume 6 times lesser materials compared to wealthy nations.
- The report highlights that **upper middle-income countries have more than doubled their resource utilization** over the past 5 decades to facilitate their own infrastructure growth.

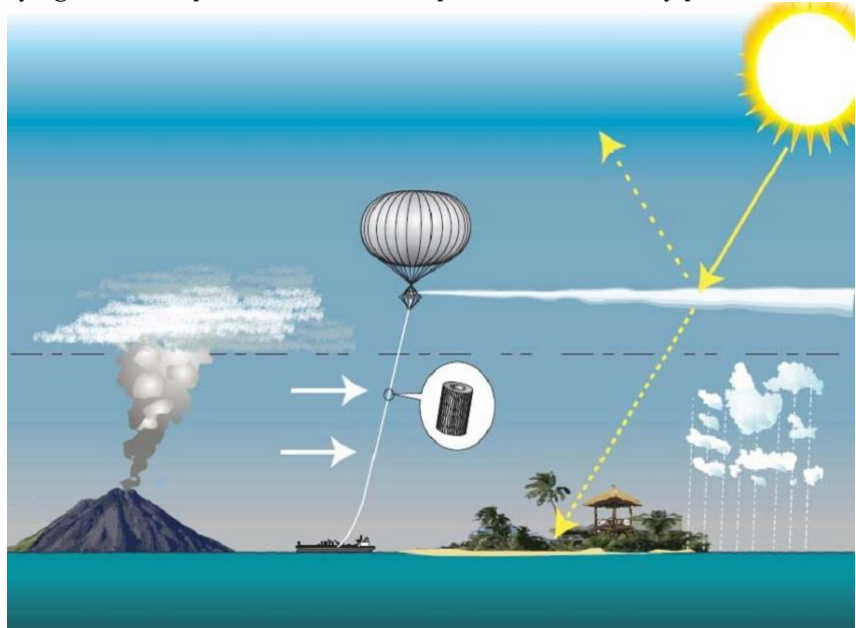


## 5. Stratospheric Aerosol Intervention (SAI)

**News:** Studies are being conducted to measure the impact of Stratospheric Aerosol Intervention in mitigating the impact of global warming.

### About Stratospheric Aerosol Intervention (SAI)

- Stratospheric Aerosol Intervention (SAI), is a **geoengineering or climate engineering** approach that aims to mitigate the effects of global warming.
- It is done by spraying large quantities of **tiny reflective particles** into the stratosphere to cool the planet by **reflecting sunlight back into space**.
- Methods of SAI range from spraying reflective particles, such as sulphur dioxides, finely powdered salt or calcium carbonate. These are either **sprayed from aircraft** or are **shot from artillery guns** or large hoses to reach the sky.
- SAI aims to **replicate the cooling impact of volcanic eruptions** by introducing sulphur dioxide (SO<sub>2</sub>) directly into the stratosphere. Within the stratosphere, the SO<sub>2</sub> transforms into **sulphate aerosols** that reflect sunlight.
- As more radiation is scattered in the stratosphere by these aerosols, **less solar energy is absorbed by the troposphere**.



Source: Wikimedia Commons. The aerosols injected through balloon reflect the sunlight back into the upper atmosphere. Lesser radiation is received and absorbed by the Earth's surface.

### About Aerosols

- Tiny solid or liquid particles suspended in air or as a gas are called aerosols.
- Aerosols can be **natural**, such as fog or gas from volcanic eruptions, or **artificial (anthropogenic)**, such as smoke from burning fossil fuels.
- Aerosols are significant players in the **global water cycle** as they attract water vapour in the atmosphere, leading to the condensation of water molecules around particles such as dust, soot, salt, or ash.

## 6. World Air Quality Report, 2023

**News:** The World Air Quality Report, 2023 has been released.

### Key Findings of the World Air Quality Report, 2023

- It is published by the Swiss Organization IQAir. The data encompassed information from 7,812 sites across 134 countries, regions, and territories.
- **India has been ranked 3<sup>rd</sup> in terms of air quality**, with an average annual concentration of particulate matter 2.5 (PM2.5) at 54.4 micrograms per cubic meter.
- Only Pakistan and Bangladesh have poorer air quality than India.

- Bangladesh had the highest pollution level globally, with an average PM2.5 concentration of 79.9 micrograms per cubic meter, while Pakistan ranked second with 73.7.
- It also named **Delhi as the world's most polluted capital city** for the 4<sup>th</sup> year in a row.
- **Begusarai** in Bihar was identified as the **most polluted metropolitan area globally**.
- India has 10 of the top 11 most polluted cities globally, with the remaining one being Lahore in Pakistan.
- 96% of India's population faces PM2.5 levels that exceed the WHO annual guideline by more than 7 times.

### Particulate Matter (PM)

- Particulate Matter (PM) is the term for particles found in the air, including dust, dirt, soot, smoke, and liquid droplets.
- They remain suspended in the air for long periods of time.
- Some particles are visible as soot or smoke due to their size or colour, while others are so tiny that they can only be seen with an electron microscope.

## 7. Status of Leopard Population in India

**News:** The Ministry of Environment, in collaboration with the National Tiger Conservation Authority and the Wildlife Institute of India, has unveiled the 5<sup>th</sup> cycle of leopard population estimation in India.

### Key Findings of the Estimates

- **Population Estimate:** India's leopard population has been estimated to be 13,874; showing stability compared to the previous count. The numbers have risen by 8% from 12,852 in 2018 to 13,874 in 2022.
  - However, this only covers 70% of leopard habitat, with the Himalayas and semi-arid regions not included in the survey.
- **Region-wise Trends:** In Central India, the leopard population has remained stable, whereas in the Shivalik hills and Gangetic plains, there has been a decline in their population.
- **State-wise distribution**
  - The highest number of leopards have been reported in Madhya Pradesh (3,907), followed by Maharashtra (1,985), Karnataka (1,879) and Tamil Nadu (1,070).
  - The locations with the highest leopard populations include Nagarajunasagar Srisailem in Andhra Pradesh, followed by Panna and Satpura in Madhya Pradesh.
- **Survey Methodology:** The study targeted forested habitats across 18 States with tiger populations, employing foot surveys and camera traps. It captured over 47,081,881 photographs, resulting in 85,488 images of leopards.

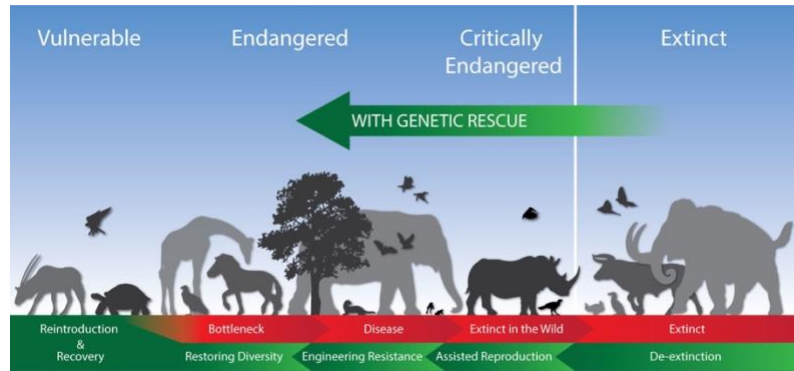
## 8. Genetic Rescue

**News:** Genetic Rescue has been suggested as a strategy to preserve the tiger population in Ranthambore National Park.

### About Genetic Rescue

- Genetic rescue is the process of **increasing population growth**.
- This is done by **introducing new genetic diversity** through the **migration of individuals** into another small population, a process known as **gene flow**.
- In practice, wildlife managers take individuals from a larger, healthier population and bring them to a smaller one to **introduce new variation** and **aid in population growth**.
- This strategy aims to **reduce genetic problems, lower extinction risks, and improve the survival of endangered species** and populations.

- It is commonly used in **conservation biology** to check **inbreeding depression**.
- Inbreeding depression occurs when **closely related individuals mate within a population**, resulting in reduced success in reproduction and **offspring viability**.
- Genetic rescue can have **positive or negative effects**, influenced by factors such as the extent and duration of gene flow, as well as genetic and non-genetic factors that impact population dynamics.
- **Moving animals around can pose risks**, which is why it's usually considered a final option.



### 9. Forest Fires in India

**News:** As the summer season is approaching, the frequency of forest fires has risen across India.

#### Current Status of Forest Fires in India

- **Frequency and Season:** According to the India State of Forest Report (ISFR) 2019, forest fires are common in India, particularly from **November to June**.
- **High Risk Areas:** The ISFR 2019 identifies over **36% of India's forest cover as fire-prone** (~4% extremely prone to fire, and another 6% was 'very highly' fire prone).
  - Northeast India, Odisha, Maharashtra, and Uttarakhand face severe risks.
- **2024 Fire Incidents:** Forest Survey of India data show the highest number of fires in Mizoram (3,738), Manipur (1,702), Assam (1,652), Meghalaya (1,252), and Maharashtra (1,215).
- Despite generally lower risk, Tamil Nadu has experienced increased wildfire incidents.

#### Reasons for Forest Fires in India

- **Human Actions:** Fires often start due to human activities like discarding cigarettes, leaving campfires unattended, and burning debris.
- **Natural Causes:** Lightning strikes are a frequent natural cause of forest fires.
- **Climatic Factors:** The spread of forest fires is influenced by **high aridity, above-normal temperatures, and clear sky conditions**, especially in Southern India.
- **Recent Temperature Trends:** Southern India has experienced exceptionally high temperatures in recent times, with February being the hottest since 1901, contributing to **dry forest conditions**.
- **Specific Regional Conditions:** The Indian Meteorological Department (IMD) reported high **Excess Heat Factor (EHF)** in western Andhra Pradesh and Karnataka, with temperatures hitting 40°C, unusually high for mid-March, increasing the risk of fires.

### 10. Classifying Orans (Sacred Groves) as Forests

**News:** Villagers in Western Rajasthan are worried about the State's plan to classify orans (sacred groves) as deemed forests.

#### About Orans

- Orans are traditional sacred groves found primarily in Rajasthan, India.
- They are **community-conserved sacred spaces, rich in biodiversity** and usually include a **water body**.

- The local community has a close relationship with orans holding cultural, religious, social and ecological significance:
  - **Religious:** Orans are often associated with **local deities**. Cutting and felling trees in Orans is often barred due to spiritual and religious connections. The places of worship, last rites, and religious events take place inside the Oran and are related to the trees, water bodies, and other entities of the sacred groves.
  - **Ecological:** They are among the last natural habitats of the **Great Indian Bustard**. The open stretch of land receives **long hours of sunlight** and **brisk winds** and has become a hub of green energy with windmills and solar photovoltaic dotting it.
  - **Social:** Orans are used for **livestock grazing** and are also places for **communal congregations, festivals,** and other social events. The villagers also use gum, timber, forest produce, and wild vegetables from orans for their livelihood and daily use.

### Challenges and Concerns

- Orans face threats due to current categorization as **wastelands**.
- Large portions of land are being **allocated for solar plants**, impacting biodiversity and livelihoods.
- The recent declaration of Orans as **deemed forests** raises concerns about access to resources and restrictions on movement.

## History, Art and Culture

### 1. The Religious and Cultural Significance of Dwarka City

**News:** The PM recently participated in underwater prayers at Dwarka Nagari, the Kingdom of Lord Krishna.

#### About Historic City of Dwarka

- It is located on the western side of the State of Gujarat.
- The **submerged city of Dwarka** has been the focus of **marine excavations** and research endeavours.
- It is one of Hinduism's **7 sacred cities (Sapt Puris)**. Dwarka is believed to have been **reclaimed from the sea by Lord Krishna** after He **relocated from Mathura** in Uttar Pradesh to Dwarka in Gujarat.
- In the **Vishnu Purana**, references indicate that Dwarka was a city adorned with stunning gardens, moats, ponds, and palaces.
- Legend holds that Dwarka was **submerged under the Arabian Sea** as Lord Krishna departed from the world, marking the beginning of the *Kali Yuga*.



#### Present day Dwarka

- It is a coastal town situated at the entrance of the Gulf of Kutch, facing the Arabian Sea.
- It serves as a significant point along the **Krishna pilgrimage route**, connecting **Vrindavan, Mathura, Govardhan, Kurukshetra, and Puri**.
- Dwarka is renowned for its 13<sup>th</sup>-century **Dwarkadheesh Temple**, devoted to Lord Krishna.
- It is one of **12 heritage cities** chosen nationwide by the Government of India for civic infrastructure development under the **Heritage City Development and Augmentation Yojana (HRIDAY) scheme**.



## 2. Shipra River

**News:** A performance audit by CAG has raised concerns about degradation of Shipra river.

### About Shipra River

- Shipra (also known as the **Kshipra**) is a river in Madhya Pradesh.
- It is a **perennial river** and is considered **as sacred as the Ganga River**.
- The Shipra River originates in the **Vindhya Range** from a hill called **Kakri-Tekdi**, situated ~11 kms **north of Ujjain** in Madhya Pradesh.
- This perennial river flows across the **Malwa Plateau** and eventually **joins the Chambal River**.
- Kahn and Gambhir are its major tributaries.

### Religious Significance

- According to ancient Hindu texts (the Puranas), the Shipra River is believed to have sprung from the **heart of Varaha**, an incarnation of Lord Vishnu in the form of a boar.
- Along the banks of the Shipra lies the ashram (hermitage) of **Sage Sandipani**, where Lord Krishna, the 8<sup>th</sup> incarnation of Lord Vishnu, received his education.
- The holy city of **Ujjain**, situated on the right bank of the Shipra, hosts the famous **Kumbha Mela (Sinhastha fair)**. Pilgrims gather on the city's elaborate riverside ghats to celebrate the river **Goddess Kshipra**.
- The Shipra River also finds mention in **Buddhist and Jain texts**.

## 3. Morodharo: Harappan-era Site in Kutch, Gujarat


**News:** Archaeologists have discovered a Harappan-era fortified settlement Morodharo, near Dholavira.

### About Morodharo

- It is a fortified settlement of the Harappan-era
- It is located near the village of **Lodrani**, ~51km from Dholavira in **Kutch District**, Gujarat.
- The settlement looks **mature** (2,600-1,900BCE) to **late** (1,900-1,300 BCE) **Harappan**.
- Burial cairns, which are mounds of stones to demarcate a boundary, have been found here.
- **Harappan pottery** with perforated jar sherds, reserved slipware, and terracotta cakes have been unearthed.
- All these items have a striking resemblance to those found in Dholavira.
- Archaeologists say both **Morodharo and Dholavira were dependent on the sea**; indicating the presence of navigable waters near Rann of Kutch in ancient times.

### TIMELESS TREASURES

- This is a fortified settlement dating back to the Harappan era
- The fortification measures 102 m east to the west and 58 m north to the south
- The thickness of the wall is an average of 3.3 m
- It has a 10X10 m platform on the south-west side and a well on the north-east side
- Burial cairns, which are mounds of stones to demarcate a boundary, found



Perforated jar sherds

- Harappan pottery with perforated jar sherds, reserved slipware, and terracotta cakes unearthed
- All these items found have a striking resemblance to those found in Dholavira

## 4. Vikramaditya Vedic Clock in Ujjain

**News:** Vikramaditya Vedic Clock mounted on 85-foot tower at Jantar Mantar in Ujjain has been inaugurated.

### About Vikramaditya Vedic Clock

- The 'Vedic Clock' is the world's first timepiece engineered to display time based on the **ancient Indian traditional Panchang** (time calculation system).
- It offers details on planetary positions, *Muhurat*, astrological computations, and forecasts.



- It also displays **Indian Standard Time (IST)** and **Greenwich Mean Time (GMT)**.
- It can be connected to the internet and offers numerous features through a mobile app.
- The clock will **measure time between two sunrises**.
  - The time span between the two sunrises will be split into **30 segments**, with each hour comprising 48 minutes, according to ISD.
  - The measurement will begin at 0:00, coinciding with sunrise, and will continue for 30 hours (where each hour equals 48 minutes).

### Choice for Ujjain

- Ujjain has a long heritage in timekeeping, spanning centuries. Ujjain has played a crucial role in establishing India's time zones.
- Ujjain is said to be situated precisely at the intersection point of the **Zero Meridian** and the **Tropic of Cancer**.
- Before the adoption of the 82.5°E longitude for IST, **Ujjain (75.78°E) was regarded as India's standard time meridian**.
- The **Vikrami Panchang** and **Vikram Samvat** calendars originated from Ujjain, making it the perfect location for the Vedic Clock.

### Prime Meridian and Greenwich Mean Time

Greenwich Mean Time (GMT) is the average solar time at the Prime Meridian, located at **0° Longitude** in Greenwich, London. The Shepherd Gate Clock at the Royal Observatory in Greenwich always displays GMT. It is said that longitude passing through **Ujjain was considered the Prime Meridian (Zero Meridian)** before it was shifted to Greenwich in England.

## 5. Badami Chalukyas

**News:** Two Badami Chalukya temples, at least 1,300–1,500 years old and a 1,200-year-old label inscription have been recently discovered in Mudimanikyam village along the banks of Krishna in Nalgonda, Telangana.

### About Badami Chalukyas

- **Pulakesin I** established the Chalukya dynasty in 550. He took Vatapi (Badami in Bagalkot, Karnataka) under his control and made it his capital.
  - Historians refer to Pulakesin I and his descendants as the Chalukyas of Badami.
- **Art and Architecture:** The period saw the evolution and proliferation of a new style of architecture known as **Vesara**, a combination of the South Indian and the North Indian building styles.
  - The rock-cut temples of **Pattadakal** have been granted UNESCO World Heritage Site. Badami and Aihole have several celebrated monuments.
- **Coinage:** Their coins had **Nagari** and **Kannada legends**. They minted coins with symbols of temples, lions, boars, and the lotus.
- **Religion:** They initially followed **Vedic Hinduism**. Later, from the time of Vikramaditya I, the people took an inclination towards **Shaivism**, and sects like Pashupata, Kapalikas, and Kalamukhas emerged.
  - They also **patronised Jainism**. Badami cave temples and other Jain temples in the Aihole complex signify their religious faith.



Newly discovered Chalukya Temples in Nalgonda.

### Governance Structure of Badami Chalukyas

- **Defence:** The army consisted of infantry, cavalry, elephant corps, and a powerful navy.

- **Hiuen-Tsang** mentioned that the Chalukya army had hundreds of elephants, which were intoxicated with liquor prior to the battle.
- Rashtrakuta inscriptions use the term **Karnatabala** to refer to their powerful armies.
- **Taxation:** The government levied taxes called **Herjunka**, **Kirukula**, **Bilkode**, and **Pannaya**.
- **Administrative Division:** The empire was divided into **Maharashtrakas** (provinces), then into smaller **Rashtrakas** (Mandala), **Vishaya** (district), **Bhoga** (group of ten villages).
- **Local Governance:** Groups of **Mahajanas** (learned brahmins) looked after **Agraharas**. Agraharas were the place of higher learning.
  - There were many autonomous regions which were ruled by feudatories like **Alupas**, **Gangas**, **Banas**, and **Sendraka**.

## 6. Sant Ravidas

**News:** The Prime Minister unveiled the statue of Sant Ravidas in Varanasi and offered floral tribute on the occasion of his 647<sup>th</sup> birth anniversary.

### About Sant Ravidas

- Guru Ravidas was a mystic poet saint of the **Bhakti Movement**, and founded the **Ravidassia religion**. He was a **revered poet** and a **renowned philosopher**.
- He was born in 1377 CE in **Seer Govardhanpur** in Uttar Pradesh. His place of birth is now known as Shri Guru Ravidass Janam Asthan.
- Despite belonging to a community whose initial occupation was in leatherwork, Ravidas shifted his focus to **spiritual pursuits**, spending much of his time on the banks of the Ganga. Throughout his life, he associated with Sufi saints, sadhus, and ascetics.
- At the age of 12, Ravidas was married to Lona Devi, and they had a son named Vijay Dass.
- **Teachings and Works**
  - Since his birth, Guru Ravidas devoted his life to **advocating for human rights** and **equality**.
  - A few of his compositions are also included in **Guru Granth Sahib**, the Holy text of Sikhism.
  - He is one of the most famous personalities of the **nirguna sampradaya** (sant parampara) and was one of the prominent leaders of the North Indian Bhakti movement.
  - He also became a **symbol of opposition to untouchability** in society.
- **Guru Ravidas Jayanti:** Sant Guru Ravidas Jayanti is observed in the Northern part of India including Punjab, Himachal Pradesh, and Haryana.
  - Sant Ravidas Jayanti or birthday anniversary is celebrated every year on **Magh Purnima** on full moon day of **Magh** month.
  - On this special day, a ceremony of **Nagar Kirtan** procession is performed by people with the chants of mantras during Aarti. Music, songs, and Doha are sung in the temples located on the streets.
  - Some of the followers and devotees also perform the ceremony of **holy bath in the Ganga River** or other holy places then go to worship his image at home or in a temple.

## 7. Rani Chennamma

**News:** A national campaign “Naano Rani Chennamma” (“I am Rani Chennamma too”) was launched to commemorate the 200<sup>th</sup> anniversary of Rani Chennamma’s rebellion against the British.

### About Rani Chennamma

- Rani Chennamma was a **freedom fighter** and **Rani of the Kittur**, a **princely state in Karnataka**.

- She led the **Kittur revolt of 1824**, which stands as one of the earliest **woman-led anti-colonial struggles** against British rule in India.
- She was born on October 23, 1778, in Kagati, a small village in Belagavi district of Karnataka.
- She married **Raja Mallasarja** of Kittur at 15 and played a crucial role in defending her kingdom after his death.
- She initiated a rebellion against the British in 1824 after they declined to acknowledge her adopted son as the successor according to the '**Doctrine of Lapse**'.
- Although she was initially successful, the **British captured Kittur Fort** in their 3<sup>rd</sup> attempt in **December 1824**, resulting in **Rani Chennamma's imprisonment** and eventual death in 1829.
- Her brave resistance to colonial oppression has made her a symbol in Karnataka's political imagination and an important figure in Indian history.



### Doctrine of Lapse

- The doctrine of lapse was an **annexation policy** applied by the British East India Company until 1858-59.
- Under the doctrine, if the ruler of an independent State died childless, the right of ruling the State reverted or 'lapsed' to the Sovereign.
- The policy is most **commonly associated with Lord Dalhousie** who was the Governor General of the East India Company in India between 1848 and 1856.
- However, it was not solely his invention. The East India Company had **annexed Kittur in 1824, Mandvi in 1839, Kolaba and Jalaun in 1840 and Surat in 1842** by imposing a 'Doctrine of Lapse'.

### 8. Kochrab Ashram

**News:** The Prime Minister inaugurated the redeveloped Kochrab Ashram in Ahmedabad, Gujarat to mark the 94<sup>th</sup> anniversary of the Dandi March.

#### About Kochrab Ashram

- Kochrab ashram is located in **Kochrab village**, in Ahmedabad, Gujarat.
- It is the **first ashram established by Mahatma Gandhi** in India.
  - Upon returning to India from South Africa, he settled in Ahmedabad emphasizing that as a Gujarati, he could best serve the country through the Gujarati language.
  - On May 20, 1915, Gandhi took up residence in a bungalow located in Kochrab village later renamed it as **Satyagraha Ashram**.
  - The bungalow was generously provided by **Jeevanlal Desai** who was a fellow lawyer and colleague of Gandhi.
  - Mahatma Gandhi based himself here for about 1.5 years before moving to the new campus of Sabarmati Ashram.
- It is a **colonial-style building** with a white-washed façade.



- The ashram holds a historical significance:
  - The ashram served as the **starting point for Gandhi's advocacy of khadi, equality for the poor, Hindi as the national language, self-reliance, and independence.**
  - It also served as a communal living space promoting self-improvement and community service.

## 9. Nana Jagannath Shankarseth

**News:** The Government of Maharashtra has requested the Ministry of Railways to rename Mumbai Central Railway Station after Nana Jagannath Shankarseth.

### About Nana Jagannath Shankarseth

- He is often called the '**architect**' of Mumbai (previously Bombay) and is recognized as a social reformer, educator, and philanthropist.
- He provided invaluable contributions, ideologically and financially, across numerous sectors, establishing a robust foundation for the city.
- He was born (February 10, 1803) in a wealthy family in Murbad, Thane district, Maharashtra.
- He was deeply influenced by the renowned merchant and philanthropist **Sir Jamsetjee Jeejeebhoy**.
- He was the first Indian to be appointed to the **Legislative Council of Bombay**.



### Main Contributions

#### Education

- Shankarseth was **dedicated to expanding education** in Bombay and **donated his family's land for educational purposes.**
- He established the **Native School of Bombay**, later known as the Bombay Native Institution and then the Board of Education. Eventually, it became the renowned **Elphinstone College**.

#### Museum, Temples

- Shankarseth was one of the wealthy donors who supported the development of the Dr. Bhau Daji Lad Museum in Byculla, which was designed by a renowned architect from London.
- The Bhawani Shankar Temple near Nana Chowk was built by Shankarseth in honour of his late mother.

#### Railways

- The first train journey in India took place on April 16, 1853, between Boribunder and Thane, covering a 34-km route managed by the Great Indian Peninsular Railway Company. Sir Jamsetjee Jeejeebhoy and Nana Shankarseth were part of the committee overseeing the project.

## 10. Paruveta Utsavam

**News:** Efforts are being made to get UNESCO Intangible Cultural Heritage Status for Paruveta Utsavam.

### About Paruveta Utsavam

- It is an **annual mock hunting festival** held at the **Sri Narasimha Swamy temple** in **Ahobilam**, Andhra Pradesh.
- The festival serves as a testament to communal harmony. During this time, the deity from the inner sanctum of the temple is carried to the **32 Chenchu tribal settlements** surrounding Ahobilam for a period of 40 days.



- According to legend, **Lord Vishnu**, in his **Narasimha** form, married **Maha Lakshmi**, who was born as a tribal girl named **Chenchulakshmi** in Ahobilam.
- The Kurnool District Gazetteers, published by the Government Press in 1881, documents various beliefs of the Chenchu tribes. They include their respect for **Ahobila Narasimha** as their brother-in-law and the tradition of **inviting him home for Makara Sankranti**.
- **Activities:** Participants observe ‘Narasimha Deeksha’ by wearing **yellow robes**, ‘Tulsi Mala’, and practicing celibacy.
  - During the ceremony, tribal members shoot arrows at the deity’s palanquin as a gesture of respect and protection.
  - Paruveta Utsavam is celebrated by people of all castes.
- **Administrative Body & Tribal Link**
  - The 600-year-old **Ahobila Mutt**, through the ‘Guru Parampara’, oversees the temple.
  - It has promoted this tribal festival to spread **Srivaishnavism** among the local tribes.
  - The connection between the tribes and Lord Vishnu is affirmed in **Vasanthika Parinayam**, a Sanskrit drama written by the 7<sup>th</sup> Jeeyar of the Mutt centuries ago.



## 11. Shompen Tribe

**News:** The Port Development project in Great Nicobar Island has raised concerns about Shompen Tribe.

### About Shompen Tribe

- The Shompen (Shom Pen) are the **indigenous people** of the interior of **Great Nicobar Island**. They are designated as a **Particularly Vulnerable Tribal Group (PVTG)**.
- They are **one of the most isolated tribes on Earth**. Most of them are **uncontacted**, refusing all interactions with outsiders.
- They are **semi-nomadic hunter-gatherers**, and their main sources of livelihood are **hunting**, gathering, **fishing**, and a little bit of **horticultural activities** in a rudimentary form.
- They collect a wide variety of forest plants, but their staple food is the **pandanus fruit**, which they call larop.
- According to the Census (2011), their **estimated population is 229**.
- They speak their own language, which has many dialects. Members of one band do not understand the dialect of the other.
- They have **nuclear families** comprising husband, wife, and their unmarried children.
- The family is **controlled by the eldest male member**, who controls all activities of the women and kids.
- Monogamy is the general rule, although polygamy is allowed too.





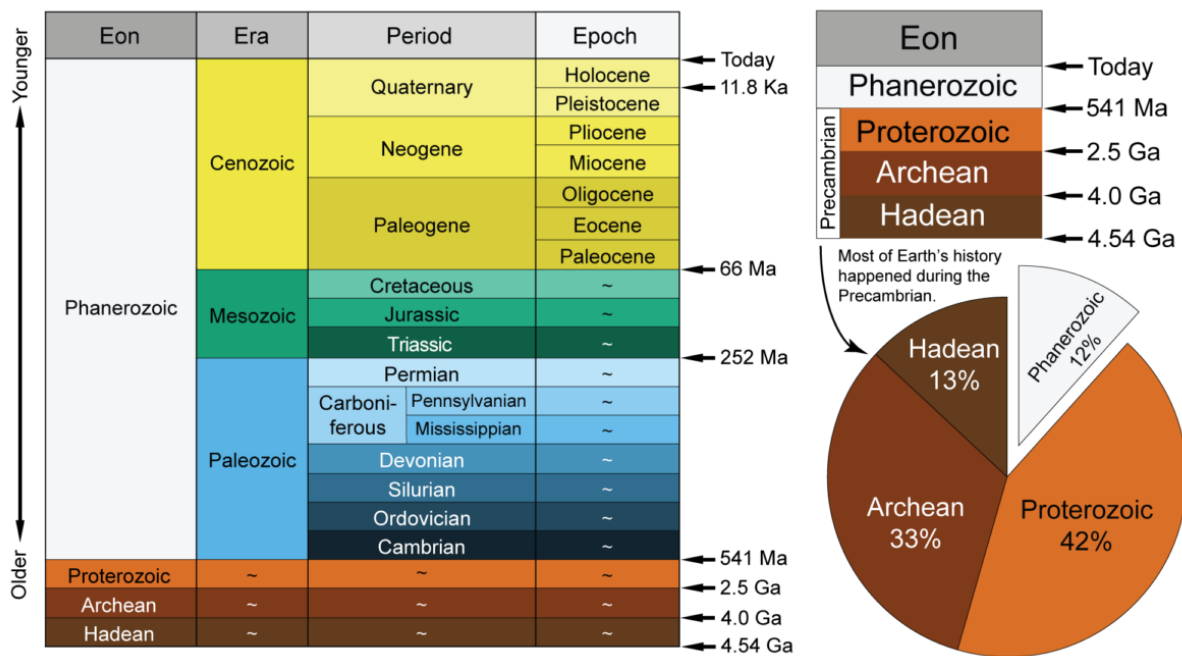
Miscellaneous

1. Anthropocene Epoch

**News:** A Committee of 18 scientists has voted against the proposal to declare the start of the Anthropocene or Human Epoch in the geological time scale.

About the Geological Time Scale (GTS)

- Scientists have designed the Geological Time Scale to measure the history of planet Earth.
- GTS organizes Earth’s history into different sections like **Eons, Eras, Periods, Epochs, and Ages**. It begins with Earth’s formation and arranges them from longest to shortest durations. Eon is the broadest category of geological time, age is the shortest.
- The GTS is based on **chrono-stratigraphic classification**. Stratigraphy is the branch of geology that focuses on **studying rock layers**, while chrono-stratigraphy specifically examines how these layers relate to the measurement of geological time.
- The present time has been classified as **Phanerozoic Eon, Cenozoic Era, the Quaternary Period, the Holocene Epoch**, and the **Meghalayan age**.



Source: National Geographic. Ka represents 10<sup>3</sup> (thousand) years, Ma 10<sup>6</sup> (million) years and Ga 10<sup>9</sup> (billion) years.

Proposal for Human Epoch

- **Holocene Epoch:** The Holocene epoch started **11,700 years ago**, at the end of the **Last Glacial Period (LGP)**. All recorded human history falls within this epoch. During the Last Glacial Period (LGP), about 25% of Earth’s land was under glaciers, sea levels were up to 400 feet lower, and temperatures dropped to 8°C on average.
- **Proposal for Anthropocene:** The Anthropocene concept suggests that **human activities have changed the Earth** so much that a **new geological epoch has started**. The term Anthropocene was coined in 2000 by Dutch meteorologist Paul Crutzen and American botanist Eugene Stoermer.

- The **Anthropocene Working Group (AWG)**, consisting of 37 researchers, started discussions in 2009 to determine the beginning of the epoch. After several years of discussion, they settled on 1952 as the starting point.
- The period after World War II is seen as the '**Great Acceleration**' during which, there was a **surge in human population, fossil fuel consumption, nuclear testing fallout**, widespread use of **nitrogen-based fertilizers**, and **increased prevalence of plastics**.
- The AWG submitted its proposal to the **International Union of Geological Sciences (IUGS)** in 2023. The Sub-commission on Quaternary Stratigraphy (SQS), a body of the **International Commission on Stratigraphy**, voted on the proposal, and rejected it.

### Rejection of Proposal

- **Contention on Starting Date:** The proposal had identified **1952 as the beginning of the Anthropocene**, citing the global plutonium fallout from nuclear weapons tests. Opponents contend that **human impact began earlier**, including **activities like farming**, and cannot be confined to a single date.
- **Epoch Definition Standards:** The IUGS committee found that adding an Anthropocene epoch and ending the Holocene didn't match the usual standards for defining epochs using chrono-stratigraphy.

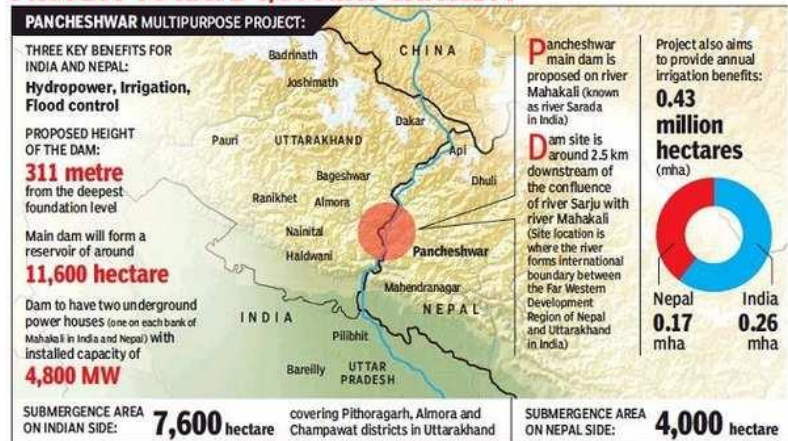
## 2. Pancheshwar Multipurpose Project

**News:** Despite recent progress, the discussions between India and Nepal over Pancheshwar Multipurpose Project are deadlocked.

### About the Pancheshwar Multipurpose Project (PMP)

- In February 1996, India and Nepal entered into the **Mahakali Treaty**. The focal point of this treaty is the **implementation of the Pancheshwar Multipurpose Project**.
- It is a **bi-national hydropower project** between India and Nepal, planned for development along the Mahakali River, which forms the border between the two countries.
- Its main goals are to **produce energy** and **improve irrigation** in both countries.
- It includes building a **315-meter tall dam** across the Mahakali River (Sharda in India).
- The project aims to generate about **6,480 MW of energy**, divided equally between both sides.
- It will also provide water for **irrigating 130,000 hectares of land in Nepal** and **240,000 hectares in India**.
- Environmentalists have raised concerns about potential impact on **regional ecology** and **local communities**.

### PROJECT TO HAVE 4,800MW CAPACITY



### About Mahakali Treaty

- It is an agreement between the Governments of India and Nepal regarding the integrated development of the Mahakali River.
- The treaty **recognizes the Mahakali River as a boundary river between India and Nepal**.
- The treaty was signed in 1996.

**About Mahakali river (Sharda River)**

- The Sharda River, also called **Kali** or **Mahakali** River, originates from **Kalapani in the Himalayas**, situated in the Pithoragarh district of Uttarakhand.
- The river flows along Nepal’s western border with India and **joins the Ghaghara** (Karnali/Manchu) River, which is a tributary of the Ganga.
- Its tributaries include Chameliya, Ramgun in Nepal and Kuthi, Dhauli, Gori, Sarju, Ladhiya in India.

**3. Sudarshan Setu**

**News:** The Prime Minister has inaugurated the Sudarshan Setu Bridge in Dwarka, Gujarat.

**About Sudarshan Setu**

- ‘Sudarshan Setu’ is the India’s **longest cable-stayed bridge**.
- It is on the Arabian Sea, connecting **Beyt Dwarka island** to mainland **Okha** in Gujarat’s Devbhumi Dwarka district.
- It has a **unique design**, featuring a footpath adorned with **verses from Bhagavad Gita** and **images of Lord Krishna** on both sides.
- The bridge is **energy efficient** as **solar panels installed on the bridge** will provide electricity for the illumination of the bridge at night.
- The bridge is **2.32 km in length** which, includes 900 metres of central double span cable-stayed portion.
- The bridge was earlier known as ‘Signature Bridge’. It has now been renamed as ‘Sudarshan Setu’ or Sudarshan Bridge.
- Beyt Dwarka is an island near Okha port, which is nearly 30 km from Dwarka town, where the famous **Dwarkadhish temple** of Lord Krishna is situated.
- Earlier, the devotees visiting the temple at Beyt Dwarka could travel only during the day by boat. However, after the construction of the bridge, they can now travel at all times.



**4. World Poverty Clock**

**News:** According to recent data from the World Poverty Clock, India has made significant progress in reducing extreme poverty. Less than 3% of India’s population now lives below the poverty line.

**Key Findings of the World Poverty Clock**

- The clock uses a **daily income limit of US\$ 2.15** to present its findings.
- Accordingly, the number of people in India living in extreme poverty decreased to ~3.44 crore in 2024 from 4.69 crore in 2022, making up 2.4% of the total population.
- The US\$ 2.15 per day poverty line, also called the **extreme poverty line**, represents national poverty lines in numerous poorest countries. It measures progress toward the World Bank’s goal of reducing extreme poverty to under 3% by 2030.
- A recent paper by NITI Aayog, titled ‘**Multidimensional Poverty in India since 2005-06**’ states that **multidimensional poverty has dropped significantly** from **29.17% in 2013-14 to 11.28% in 2022-23**. This led to **24.82 crore individuals escaping multidimensional poverty** over 9 years.

Growth in poverty control

	Total population	Number of people living in extreme poverty	%
	(in crore)		
2016	132.37	7.59	5.7
2018	135.29	6.26	4.6
2020	138.21	6.73	4.9
2022	140.85	4.69	3.3
2024	143.48	3.44	2.4

Source: www.worldpoverty.io

### About the World Poverty Clock

- The World Poverty Clock offers real-time poverty forecasts until 2030 for almost every country globally.
- It is supported by the International Fund for Agricultural Development (IFAD) and the Federal Ministry for Economic Cooperation and Development of Germany.
- The Clock illustrates the **global count of individuals living in extreme poverty**. It categorizes them by age, gender, and whether they reside in rural or urban areas.
- Every second, some individuals rise out of poverty while others slip into it, and the Clock registers all these changes.

### 5. Study on Global Obesity Rates

**News:** According to a study published in Lancet, the global obesity rates among adolescents and children have increased 4 times from 1990 to 2022. Meanwhile, obesity rates among adults have more than doubled.

#### About the Study

- The study has been conducted by the **NCD Risk Factor Collaboration (NCD-RisC)**, in collaboration with the WHO.
- NCD Risk Factor Collaboration (NCD-RisC) is a global network of health scientists offering thorough and prompt data on risk factors for non-communicable diseases.
- More than 1,500 researchers from 190+ countries analyzed weight and height data from over 220 million individuals aged 5 and older.
- They used **body mass index (BMI)** to study global changes in obesity and underweight from 1990 to 2022.

THE OBESITY MAP					
India			World		
	1990	2022		1990	2022
Men	1.1	26	Men	67	374
Women	2.4	44	Women	128	504
Boys	0.2	7.3	Boys and girls (total)	31	160
Girls	0.2	5.2			

*Source: Lancet* *All figures in million*

#### Key Findings of the Study

##### Global Findings

- More than 1 billion people worldwide are living with obesity.
- In 2022, there were 159 million children and adolescents, as well as 879 million adults, who were obese.

##### Findings About India

- **Children and Adolescents:** The obesity rate for girls rose from 0.1% in 1990 to 3.1% in 2022, while for boys, it increased from 0.1% to 3.9%. In terms of obesity rates among girls and boys, India ranked 174<sup>th</sup> globally in 2022.
- Among women, the obesity rate surged from 1.2% in 1990 to 9.8% in 2022, while among men, it rose from 0.5% to 5.4%.

#### Significance of the Study

- This discovery is important given **India's existing high rates of non-communicable diseases**, including heart disease, strokes, and diabetes.
- Obesity significantly increases the risk of developing these diseases, including Type 2 diabetes in teenagers, at an early age.
- According to WHO, obesity refers to an **excessive accumulation of fat that can be harmful to health**. A **Body Mass Index (BMI) over 25** is considered **overweight**, and **over 30** is classified as **obese**.



Pointly

1. Gulf of Tonkin

It is a shallow, crescent-shaped body of water located in the northwest part of the **South China Sea**. It is known as **‘Beibu Gulf’** in Chinese and **‘Bac Bo Gulf’** in Vietnamese.

The gulf is bordered by **Vietnam** to the west and northwest, **China** to the north, and the east (Leizhou Peninsula and Hainan Island). The Gulf of Tonkin receives water from multiple rivers, primarily the **Red River (Yuan River)** in Chinese). It connects to the South China Sea through its southern mouth and the **Hainan Strait** (Qiongzhou Strait) to the northeast. Vietnam has urged **respect for international law after China has set a baseline in the Gulf of Tonkin**. This action sparks concerns due to overlapping claims in the South China Sea.



2. Darien Gap

Illegal immigration to the US has in recent weeks moved its focus south to the Darien Gap. It is a **stretch of densely forested jungle** across **northern Colombia** and **southern Panama**.

It is roughly 60 miles (97 kilometres) across. The terrain is muddy, wet and unstable. It has become a **major route for global human migration** despite of no paved roads exist in the Darien Gap.

The Darién Gap is home to the **Embera-Wounaan** and **Guna indigenous peoples**. It was also inhabited by the **Cueva people**, who became extinct after the Spanish invasion of Panama in 1535.

The route people take when they migrate from South America to North America is **controlled by criminal organisations**. The route is also prone to **extortion, kidnapping and mass sexual assault**. The extreme nature of the swamp like jungle also makes the movement in this region dangerous. **Vector-borne, water-borne and fungal-related illnesses** are also quite common in this region.



3. Lake Retba (Senegal, Africa)

Lake Retba, located in Senegal, is under threat of extinction due to increase in **nitrate level and pollution**. Lake Retba is also known as **Lac Rose** (meaning pink lake). Lake Retba is separated only by some narrow dunes from the Atlantic Ocean. The lake has **high salinity content**. Due to high salinity, many living organisms are not able to survive with the exceptions of few microscopic algae and





bacteria. The distinct colour of the lake water is caused by the **Dunaliella salina bacteria**. The **bacteria produces a red pigment to absorb the sunlight**, thus giving the lake its unique colour.

#### Some Other important lakes in West/Central Africa

Lake **Bosumtwi** in Ghana is the largest natural lake in West Africa.

Lake **Volta** in Ghana is one of the largest man-made reservoir in the world.

Lake **Chad** is a man-made reservoir located in Chad.

#### 4. World's Largest Iceberg

The World's Largest Iceberg, named A23a, is gradually shifting northward, away from Antarctica.

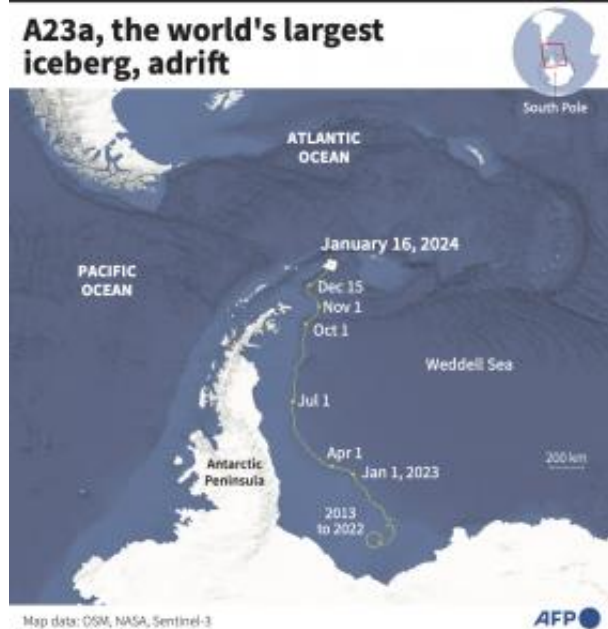
An iceberg is large piece of **freshwater ice that breaks off from glaciers or shelf ice and floats in open water**. To be qualified as an iceberg, the height of the ice must be **greater than 16 feet above sea level** and the **thickness must be 98-164 feet** and the ice must **cover an area of at least 5,382 square feet**.

A23a first broke off the Antarctic coast in 1986.

It is the **world's oldest and largest iceberg**.

It is a tooth-shaped iceberg. It is ~4,000 square kilometres (twice the size of greater London). Its thickness is up to 400 m at some places. It contains an estimated one trillion tons of fresh water.

It is currently drifting between Elephant Island and the South Orkney Islands.



#### 5. Vaitarna River

The river rises in the **Sahyadri hill range** in the **Nasik district** of Maharashtra. It drains into the **Arabian Sea near Mumbai**. The Vaitarna supplies much of **Mumbai's drinking water**. It is the largest river in the Northern Konkan region and drains Maharashtra's whole Palghar district. It is one of the **west flowing rivers** in the region North of Mumbai and South of the Tapi river. The Vaitarna is one of the most polluted rivers in India.

A fisherman from Maharashtra's Palghar district was attacked by a **bull shark** in the Vaitarna river.

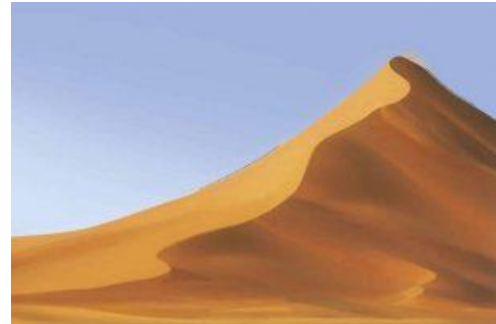
#### 6. Kiru Hydro-electric Project

It is being developed over the **Chenab River** in **Kishtwar district**, Jammu and Kashmir (J&K). It is a **624 MW run-of-river project**. The project is being developed by Chenab Valley Power Projects (CVPP). It is a joint venture between National Hydroelectric Power Corporation (NHPC, 49%), Jammu & Kashmir State Power Development Corporation (JKSPDC, 49%) and Power Trading Corporation (PTC, 2%). The beneficiary States include J&K, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Uttaranchal, Rajasthan, UTs of Chandigarh & Delhi.

It is a **135m-high concrete gravity dam** near Kiru. The project will have a **catchment area of 10,225 km<sup>2</sup>**. Its reservoir will have a capacity of 41.5 million m<sup>3</sup> of water. It will have one 700m-long horse-shoe shaped diversion tunnel with two openings to divert the flow of the river to enable the dam construction.

7. **Star Dunes**

Star dunes are the **tallest** and **most complex type of desert sand formations**. They reach **hundreds of meters in height**. Star dunes are **pyramid-shaped sand formations** with arms stretching out from a central peak. This gave them a **star-like appearance** when viewed from above.



Star dunes comprise about **10% of desert dunes on Earth**. These dunes are found in various deserts across the globe, including Africa, Arabia, China, Saudi Arabia, North America.

A study was done to estimate the formation time of a star dune named **Lala Lallia** in eastern Morocco, located within the Sahara Desert. The findings suggest that Lala Lallia took ~900 years to form, accumulating ~ 6,400 metric tons of sand annually as wind carries it across the desert.

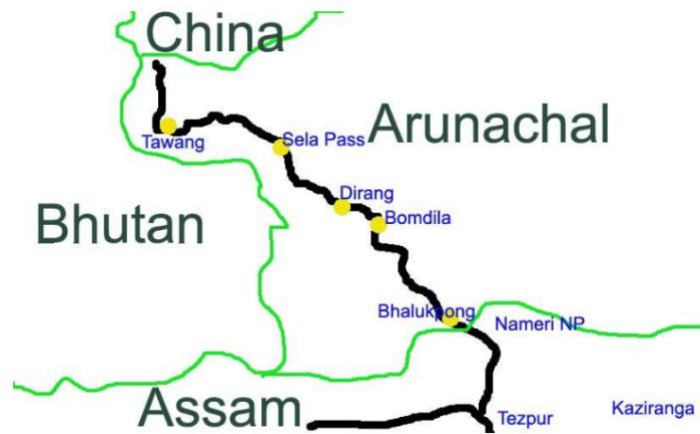
8. **Exercise Steadfast Defender**

The **NATO** is undertaking the military exercise Steadfast Defender 2024. It is **NATO's largest military exercise since the Cold War**. It is being held from January to May 2024. The first part of the exercise focuses on **securing the Atlantic up to the Arctic** and the second part focuses on **moving troops across Europe**, from the High North to Central and Eastern Europe. It has ~90,000 troops from all 31 NATO Allies and Sweden as Invitee. The exercise will showcase a wide range of military equipment.



9. **Sela Tunnel Project**

The PM has inaugurated the strategically significant **Sela Tunnel in Arunachal Pradesh**. The tunnel is situated at an altitude of **13,700 feet** in the **West Kameng district**, on Balipara-Chariduar-Tawang road that **connects Tezpur** in Assam to Tawang in Arunachal Pradesh. It has been constructed by the **Border Roads Organisation**. It is world's **longest twin tunnel**. It is the **highest tunnel in India**. It provides an **all-weather connectivity to Tawang** via the Sela Pass, as well as to other nearby



areas along the border with China near the **Line of Actual Control (LAC)**. It will reduce the travel time from Tezpur to Tawang by over an hour.

**10. Advanced Medium Combat Aircraft**

The Cabinet Committee on Security (CCS) has approved the project for the design and development of India's **5<sup>th</sup>-Generation fighter jet, Advanced Medium Combat Aircraft (AMCA)**. It is 5<sup>th</sup>-generation **stealth, multirole combat aircraft**. It is being developed for the **Indian Air Force** and the **Indian Navy**. It is designed by ADA, the **Aeronautical Development Agency** – an Aircraft Design Agency under Ministry of Defence. It will be produced by a **public-private joint venture** between the DRDO, HAL and an Indian private company. It is designed as a **single-seat, twin-engine combat aircraft**. It will **replace the Sukhoi Su-30MKI** air superiority fighter, which forms the backbone of the IAF fighter fleet.

**India designing new stealth fighter**

India is beginning preliminary design work for a new fifth generation fighter jet, named the **Advanced Medium Combat Aircraft (AMCA)**, with the first flight scheduled for 2024

**AMCA:** Multi-role aircraft designed to replace *Mirage 2000* fighter and *Jaguar* strike aircraft in Indian Air Force service from 2030

**Performance:** Aircraft intended to fly supersonically without afterburning

**Fuselage:** Faceted design and blended wing-body. Radar-absorbing paint and composites

**Crew:** One

**Tail:** Canted twin fins

**Avionics:** Include AESA\* radar, infrared search and track system and situational awareness sensors

**Engines:** Twin turbofans with thrust vectoring. Likely choice is upgraded General Electric F414 (115 kN class)

**Serpentine ducts:** Block direct line of sight to engine fan blades, hiding them from incoming radar

**Internal weapons bay:** Maintains stealthy configuration – capacity for four missiles or bombs

**Leading edge**

**Trailing edge**

**Engines**

**Underneath view**

**External fuel tank**

**Trapezoidal wing:** Aligned edges help to improve stealth characteristics by deflecting radar waves in different directions

**External weapons:** Non-stealth payload carried below fuselage and on three hardpoints under each wing

**Shape offers efficient supersonic flight, and better handling at subsonic speeds needed for ground-attack role**

**Specifications:** Maximum weight: **25 tonnes**  
Endurance: **Two hours**

**11. INS Jatayu**

INS Jatayu is the 2<sup>nd</sup> Naval base in Lakshadweep after INS Dweeprakshak in Kavaratti, which was commissioned in 2012. The existing Naval Detachment Minicoy will be commissioned as INS Jatayu. Naval Detachment Minicoy was set up in the 1980s. A naval detachment provides administrative, logistics, and medical support. INS Jatayu will become a **naval base with more facilities** like an **airfield, housing, and personnel** once it gets the necessary clearances.

The establishment of INS Jatayu **enhances Navy surveillance and operations**. Situated on Lakshadweep's southernmost island, Minicoy, **overlooks vital Sea Lines of Communication (SLOCs)** in the Arabian Sea. It provides a strategic vantage point for **monitoring maritime traffic**.

The commissioning of INS Jatayu **broadens the Navy's operational range, enhancing anti-piracy and anti-narcotics efforts** in the Western Arabian Sea.

**12. Exercise Samudra Laksamana**

It is a bilateral naval exercise between the Indian Navy and the Royal Malaysian Navy. It is being conducted under the Visakhapatnam-based Eastern Naval Command. It is the 3<sup>rd</sup> edition of the exercise.

**13. Quasars**

These are very luminous objects in faraway galaxies that **emit jets at radio frequencies**. They are located in **supermassive black holes**, which sit in the centre of galaxies. Quasars are formed when an event causes a **huge amount of gas to pile onto the central supermassive black hole** in a galaxy. As the

supermassive black hole consumes a lot of the gas, it **releases huge amounts of energy in the form of radiation**. This leads to the formation of quasar. Most quasars are larger than Sun's solar system. **A quasar is a supermassive black hole** that is growing rapidly by gobbling up huge amounts of gas.



#### 14. International Astronomical Union (IAU)

IAU is a global organization of **professional astronomers**, at the PhD level and beyond who are active in professional education and research in astronomy. It was founded in 1919. Its headquarters are in Paris, France. Its objective is to **promote and safeguard the science of astronomy** in all its aspects, including research, communication, education and development, through international cooperation. The IAU has **92 member countries**, with 85 being National Members. It collaborates with scientific organizations globally. It is the internationally recognized authority for **assigning designations to celestial bodies** (stars, planets, asteroids, etc.) and any surface features on them.

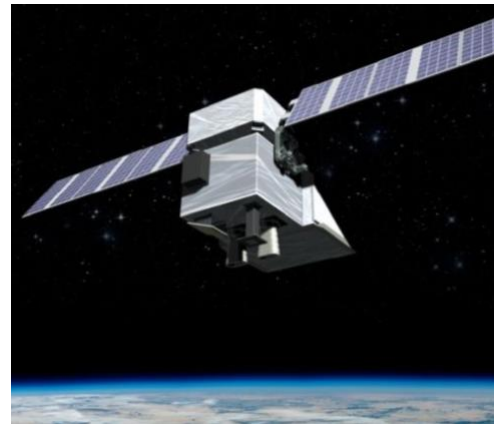
#### 15. MethaneSAT

It is a satellite designed to **track and measure methane emissions** globally. It is an **Earth observation satellite** designed to monitor and study global methane emissions to aid in combating climate change. The agencies involved include the Environmental Defense Fund (EDF), Harvard University, the Smithsonian Astrophysical Observatory, and the New Zealand Space Agency.

It will make **15 orbits around the Earth each day, observing the activities of the oil and gas industry**. It will generate extensive data to indicate '*where methane originates, who is accountable, and whether emissions are increasing or decreasing over time*'.

The satellite, equipped with a **high-resolution infrared sensor and a spectrometer**. It can detect changes in methane levels **as small as three parts per billion in the atmosphere**, allowing it to identify smaller sources of emissions. It also has a broad camera perspective, covering ~200 km by 200 km, enabling it to **detect larger emitters known as super emitters**.

MethaneSAT will aid efforts to reduce methane emissions.



#### 16. Positronium

It is a **fundamental atomic system** that comprises a **bound electron (e<sup>-</sup>) and positron (e<sup>+</sup>)**. Its mass is **twice the electron mass** and enjoys the unique distinction of being a **pure leptonic atom**. Due to its very short life, it annihilates with a **half-life of 142 nano-seconds**. (10<sup>-9</sup> seconds).

#### 17. SIMA

Google DeepMind has introduced its **newest AI gaming agent, SIMA**. It can **understand and execute tasks in video game environments** based on **natural language instructions**. SIMA stands for **Scalable Instructable Multiworld Agent (SIMA)**. SIMA is an **AI agent** that can process data and take actions autonomously. It can be referred to as a **generalist AI agent** capable of performing various tasks.



By processing human language, SIMA “understands” human commands, so when anyone asks it to build a castle or locate a treasure chest in a video game, it knows precisely what is meant.

One notable trait of this AI Agent is its **ability to learn and adjust**. SIMA learns from its experience and interactions with users.

Google partnered with multiple game developers to train SIMA in various video games. This research marks the first time an **agent has demonstrated the ability to understand various gaming environments and perform tasks** within them using natural-language instructions, similar to a human.

### 18. AI Model vs AI Agent

Aspect	AI Model	AI Agent
Actionability	AI models undergo training on extensive datasets and have <b>limitations in independent operation</b> .	An AI Agent has the ability to process data and <b>take actions autonomously</b> .
Data input	AI models process input data and generate outputs <b>using pre-defined algorithms and learned patterns</b> .	They might use AI models to help make decisions, but they also add <b>extra layers of logic, learning, or planning to handle complex situations</b> .
Examples	OpenAI’s ChatGPT, Google Gemini.	Siri, Alexa, and Google Assistant.

### 19. Devin AI

It is the world’s first AI software engineer. It possesses an array of **advanced capabilities in software development**, including coding, debugging, and problem-solving.

It uses **machine learning algorithms** to continuously learn and improve its performance, thus adapting to new challenges over time. It can **build and deploy apps end-to-end** and train and fine-tune its own AI models. It can handle difficult engineering projects from beginning to end, making many decisions along the journey. Cognition can remember important details, learn from experience, and fix errors on its own. It actively collaborates with users by reporting progress in real-time, accepting feedback, and working alongside engineers through design choices as needed.

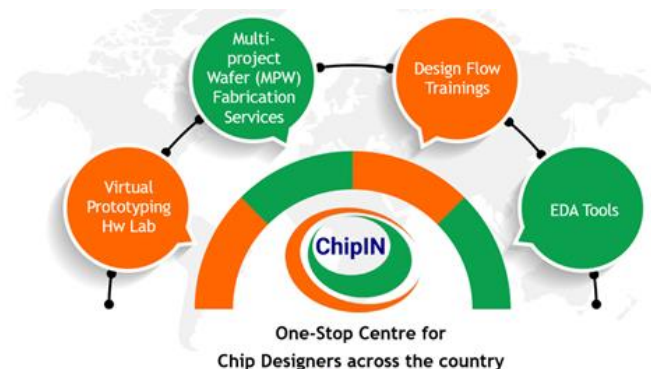
On the **SWE-Bench benchmark**, Devin outperformed previous state-of-the-art models. It correctly resolved **13.86% of issues unassisted**, compared to **1.96% from the previous model**.

It significantly **augments efficiency** and speed within software development processes, automating repetitive tasks, generating code instantly, and reducing development expenses. It is **immune to human errors or inconsistencies**.

### 20. ChipIN Centre

The Ministry of Skill Development and Entrepreneurship, Electronics and IT has started the ChipIN Centre at the **Centre for Development of Advanced Computing**.

It has been set-up as a **one-stop centre** for providing **centralized access to chip design and fabrication services** to **domestic start-ups** and academia across India. Its aim is to





bring the **chip design infrastructure at doorsteps of semiconductor design community**. It has a centralized design facility hosting the **most advanced tools** for entire chip design cycle going up to **5nm or advanced node**. It also provides **aggregate services for fabrication** of design at foundries and packaging.

#### 21. Green Hydrogen Plant in Steel Sector

India's first Green Hydrogen Plant in the Stainless Steel sector has been unveiled. It is situated at Jindal Stainless Limited in Hisar and has been commissioned by Hygenco and Jindal Stainless. This project will be the **world's first off-grid Green Hydrogen plant for the stainless steel industry**. It will also be the first Green Hydrogen facility with rooftop and floating solar installations. It aims to reduce about 2,700 metric tonnes annually and 54,000 tons of CO<sub>2</sub> emissions over the next 20 years.

#### 22. Hyodol Robot (Doll)

The Government of South Korea has deployed about 7,000 Hyodol dolls to **provide companionship and medication reminders for senior citizens**. It has been developed by a South Korean company Hyodol. It is an **AI care robot** that offers **customized care for seniors**.

Hyodol Robots look like cuddly toys, and have advanced features like **language processing, emotion recognition, and music playback** which provides engagement for seniors. It has **safety features** to alert when there's no movement detected for a while. It offers **touch interaction**, check-ins, health coaching, voice messages, 24-hour reminders, music, quizzes, exercise tips, and more.

The robot gathers data by interacting with people and having conversations with them. It can **engage in full conversations** and includes a **companion app and web platform for caretakers to monitor from a distance**.

#### 23. Frontier Technology Labs (FTLs)

**Atal Innovation Mission** (AIM) under NITI Aayog and **Meta** have collaborated to set up **Frontier Technology Labs (FTLs)** in schools deemed strategically important. This partnership aims to make frontier technologies accessible to everyone and **encourage innovation among students**.

The FTL is an **advanced version of the Atal Tinkering Lab**, featuring **cutting-edge infrastructure** that includes all elements found within the Tinkering Lab.

It **enables students to innovate** using technologies such as **Artificial Intelligence, Augmented & Virtual Reality, Blockchain, Cybersecurity, Robotics, 3D Printing, and Internet of Things**.

The FTLs are a component of **Meta's Education to Entrepreneurship program**. Meta will finance the FTLs.

#### 24. Dry Ice

Dry ice is solid carbon dioxide (CO<sub>2</sub>) formed by **compressing and cooling carbon dioxide gas**. Regular ice melts into liquid water. **Dry ice undergoes sublimation, transitioning directly from a solid to a gas** without going through a liquid phase.

Dry Ice is commonly used as a **cooling agent for food products** like ice cream, frozen desserts etc. It is also used for applications such as preservation and for creating special effects like fog or smoke.

Dry ice can be hazardous if ingested because it releases CO<sub>2</sub> gas which could pose a danger of breathlessness (hypercapnia). It **may also cause burns**, bloating, vomiting, and even life-threatening complications like stomach or intestinal perforation.

25. **Ecocide**

Belgium has become the first in Europe to recognise ‘**ecocide**’ as both a **national and international crime**. Ecocide means **significant harm or destruction to ecosystems**, often caused by humans. Deforestation during the Vietnam War, the destruction of the environment during the Russian invasion of Ukraine, deforestation in Indonesia and the Amazon rainforest, oil pollution in the Niger Delta and the Chernobyl disaster are commonly cited examples of ecocide.

There is currently **no international law prohibiting ecocide during peacetime**; however, the **Rome Statute criminalizes it**.

The term ‘ecocide’ was popularized by **Olof Palme** when he **accused the United States of ecocide** at the 1972 UN Conference on the Human Environment.

26. **BioTRIG**

It is a new **waste management technology** which works on the **pyrolysis system**. Pyrolysis is a kind of **chemical recycling** that turns **leftover organic materials into their component molecules**.

Waste is sealed inside an oxygen-free chamber. The sealed waste is then **heated above 400°C**.

During this process, useful chemicals are produced.

BioTRIG generates three valuable products: **Bio-oil, Syngas and Biochar fertilizer**.

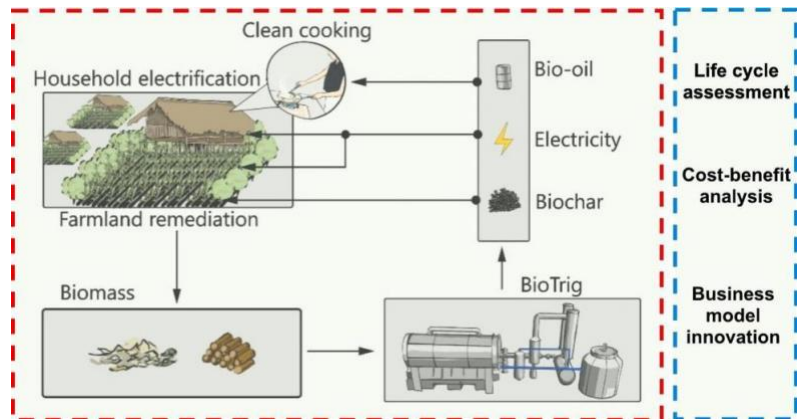
The **bio-oil** is a **clean-burning alternative** to dirty cooking fuels in homes.

The **syngas and bio-oil** facilitates **heating and powers the pyrolysis system**, and surplus electricity is utilised to power supply to local homes and businesses,

**Biochar improves soil fertility** and helps store carbon.

The BioTRIG system could help to **reduce greenhouse gas emissions** from communities by nearly 350 kg of CO<sub>2</sub>-eq per capita per annum.

The BioTRIG system could help to **reduce greenhouse gas emissions** from communities by nearly 350 kg of CO<sub>2</sub>-eq per capita per annum.



27. **Begonia Narahari**

A new flowering plant species named Begonia Narahari has been discovered by researchers in Arunachal Pradesh.

It belongs to the Begonia genus within the Begoniaceae family.

It stands-out for its vibrant **blue iridescence** when **exposed to direct light**, a unique characteristic that helps distinguish it from related species during identification.

Currently, it is only found in **the Demwe area within the Lohit district of Arunachal Pradesh**.

Due to limited information about its global population, the species is temporarily labelled as **Data Deficient (DD)** per the **IUCN species assessment guidelines**.

The limited habitat and possible threats like agricultural expansion, fires, and timber extraction highlight the importance of focused conservation efforts.



### 28. Roen Olmi Mushroom

Researchers have claimed to have synthesized **gold nanoparticles** from the **Roen olmi mushroom**. It is a **widely consumed wild mushroom species** in Goa. It belongs to the **Termitomyces species**. It grows on termite hills. They rely only on their **association with termites for growth** and cannot exist independently. Termites provide mushrooms the **organic material** they need to grow. Termites eat them to obtain enzymes and nitrogen.



It is **found only in the Western Ghats**, where **dense forests** and **high humidity** create perfect breeding conditions. It is crucial as a strong decomposing fungus in forests and grasslands, turning 50% of dead plant material into nutrient-rich soil.

#### Termitomyces Species

All Termitomyces species are **edible** and valued for their texture, flavour, nutrients, and health benefits. They have a variety of **beneficial antioxidant** and **antimicrobial properties**.

### 29. Bugun Liocichla

It (*Liocichla bugunorum*) is a bird species. It was first spotted in 1995 in Arunachal Pradesh. However, it was officially documented in 2006 after it was discovered in in **Arunachal Pradesh's Eaglenest Wildlife Sanctuary**. Its IUCN status is **Critically Endangered**. There are only 14-20 of these birds in the State and seen almost exclusively in the Sanctuary.



This bird is a small babbler, measuring just 20 cm, with olive-grey feathers and a black cap. The Buguns, a major tribe living near Eaglenest Wildlife Sanctuary in Arunachal Pradesh, have generously donated

**1,470 hectares of land to conserve the Bugun Liocichla bird.**

### 30. Bugun Tribe

The Buguns **migrated from Tibet** through East Kameng, Arunachal Pradesh. Their daily lives are **deeply connected to their environment**. Similar to other Indo-Mongoloid tribes in Arunachal Pradesh, the Buguns, also **construct their homes using bamboo**. The Buguns are known for their hard work in farming and their skill in extracting oil from a local wood species called **Chiblem**, which is found in the forests.



They have separate borders with neighboring tribes and speak a distinct language called **Khowa**. They have their own **decision-making body called Nimiang**, which oversees the community's affairs. Buguns tend to **practice endogamy** by marrying individuals within their own community. The Bugun people celebrate their **annual festival** known as '**Pham-Kho**'.



### 31. Golden Langur

The latest survey of the primate has revealed that there are an estimated **7,396 golden langurs in India**. It is an **Old World monkey** found in a small region of **Western Assam**, India and in the neighbouring foothills of the **Black Mountains of Bhutan** (endemic to these regions). Their habitat is restricted to the region surrounded by four geographical landmarks: the foothills of Bhutan (North), Manas river (East), Sankosh river (West), and Brahmaputra river (South). They are easily recognizable by the **golden colour of their fur**. They are highly dependent on trees, living in the upper canopy of forests. They are also known as **leaf monkeys**.



Their IUCN status is **Endangered**. They are classified under **Appendix I of the CITES** and **Schedule I of the Wildlife Protection Act, 1972**.

They face threats due to **restricted habitats, habitat fragmentation** and **inbreeding**. Obstructions such as wires, and gaps in the forest due to felling, have reduced intermingling of populations and increased the threat of inbreeding among golden langurs.

### 32. Spotted Deer

The Axis Deer, also known as **Chital** or **Spotted Deer**. Axis Deer are **crepuscular**, which means that they are **most active during the dawn and dusk**. It is native to the Indian subcontinent (India, Nepal, Sri Lanka, Bhutan and Bangladesh). They **primarily eat grasses** and **vegetation** but will also ingest their shed **antlers** as a source of nutrients. These deer prefer moderate to dense forests and grasslands near water sources. Their lifespan is ~20-30 years. They have **golden colour with white spots and a white underbelly**. The spotted deer has a prolonged mating season, as the perpetually warm climate allows females to remain fertile and to give birth to fawns any time of year. Their **IUCN status is endangered**.



### 33. Bull Sharks

**Bull Sharks** are commonly found worldwide in warm, shallow waters along coasts and in rivers.

It is considered **particularly dangerous to humans** due to its large size, freshwater presence, and proximity to human populations. It is often considered the most dangerous shark species. Bull sharks are **euryhaline** and can thrive in **salt, brackish** and **fresh water**.

### 34. Cantor's Giant Softshell Turtle

It is also known as the **Asian giant softshell turtle** and the **frog-faced softshell turtle**. They inhabit **inland, slow-moving, fresh-water rivers, lakes, streams, and estuaries**. It is found in eastern and southern India, Bangladesh, Burma, Thailand, Malaysia, Laos, Cambodia, Vietnam, eastern and southern China.

It is a species known for its **rarity and secretive** nature. It **spends most of its life buried** and motionless, with only their eyes and mouth





protruding from the sand. These turtles are primarily **carnivores** (piscivores) feeding on fish, crustaceans, and mollusks.

Its IUCN status is **Critically Endangered**. It is classified in **Appendix II of CITES** and **Schedule I of the Wildlife Protection Act, 1972**.

**35. Gorsam Kora Festival**

It is **held annually** in **Zemithang valley in Tawang**, Arunachal Pradesh. The festival is centred around the **93-foot tall stupa ‘Gorsam Chorten’**. This stupa was built in the 13<sup>th</sup> century.

The **3-day event** starts with prayers at the revered **Khinzemane Holy Tree** which is believed to be planted by the 14<sup>th</sup> Dalai Lama.

It is organized by the **Zemithang community** in collaboration with **civil authorities** and **local Indian Army Units**.



It honours the **shared Buddhist cultural heritage** and celebrates the **longstanding friendship between India and Bhutan**. The festival features various events, including cultural performances by local troupes and Indian Army bands, as well as martial performances like **Mallakhamb** and **Zanjh Pathaka**.

Zemithang valley is part of the **Vibrant Village Programme**.

**36. GI Tag for Rupa Tarakasi**

Odisha’s famous **silver filigree Rupa Tarakasi** has got a GI tag. Rupa Tarakasi is one of the most exquisite **silver crafts**, practised in the **Silver City of Cuttack**, Odisha.

The art form has a rich history, dating back as far as the 12<sup>th</sup> century. The craft resembles **filigree traditions** from places such as **Arabia, Malta, Genoa, and ancient Greece**, suggesting long-standing cultural exchanges.

In this work of craft, **silver bricks are transformed into thin fine wires** called **tara** or foils, from which silver filigree is made with all designs called **kasi**. While different grades of silver are used in the main metal alloy, the craftsmen also use other metals like **copper, zinc, tin** and **cadmium**.



The skilled artisans involved in this filigree work are known as “**Rupa Banias**” or “**Roupyakaras**” in Odia. They create various items, **including jewellery worn by Odissi dancers**, decorative artefacts, accessories, and religious and cultural pieces.

**37. GI Tag for Risa**

It is a **traditional handwoven cloth**. The Tripuri attire is believed to have existed before the rule of the **Manikya kings**, who reigned over Tripura for over 500 years from the 15<sup>th</sup> century. Risa is common in almost **all 19 indigenous tribal communities of Tripura**. Each community has its own design. The traditional Tripuri female attire consists of 3 parts: **Risa, Rignai** and **Rikutu**.

**Rignai** is primarily worn as the **lower garment** and literally means ‘to wear’. It is an indigenous variety of the sari of mainland India.

**Rituku** is mainly used as a **wrap**, or like a ‘chunri’ or a ‘pallu’ of the Indian saree. It is also used to cover the heads of **newly married Tripuri women**.

Risa holds **social, cultural and religious significance** in Tripura. Adolescent Tripuri girls are first given a risa to wear in an event called **Risa Sormani**, at age 12 to 14.

The risa is used in **religious festivals** such as **Garia Puja** by tribal communities, a turban by men during weddings and festivals, a cummerbund over the dhoti. It is also used as a **headscarf by young girls and boys**, and as a muffler during winters. It is presented as a **mark of honour to distinguished recipients**.



### 38. GI Tag for Majuli Mask

These are handmade masks that are traditionally used to depict characters in **bhaonas**, or **theatrical performances** with **devotional messages** under the **neo-Vaishnavite tradition**. Majuli is the **largest river island** in the world and the seat of Assam’s neo-Vaishnavite tradition. Neo-Vaishnavite tradition was introduced by the 15<sup>th</sup>-16<sup>th</sup> century reformer Saint **Srimanta Sankardeva**.

The masks can depict gods, goddesses, demons, animals and birds. Narasimha, Hanuman, Varaha, Garuda, Ravana, Surpanakha all feature among the masks. They come in different sizes like **Mukh mukha** (cover just the face) or **Cho mukha** (cover the whole head and body of the performer).

The masks are made of **bamboo, clay, dung, cloth, cotton, wood** and other materials available in the riverine surroundings.



### 39. Sattras

Sattras are **monastic institutions** established by **Srimanta Sankardev** and his disciples as centres of religious, social and cultural reform. Sattras are also **centres of traditional performing arts** such as **borgeet** (songs), **xattriya** (dance) and **bhaona** (theatre), which are an integral part of the **Sankardev tradition**.

Majuli has **22 sattras**, and the mask-making tradition is largely concentrated in four of them: Samaguri Sattras, Natun Samaguri Sattras, Bihimpur Sattras and Alengi Narasimha Sattras.

### 40. Majuli Manuscript Painting

It is a form of painting originated in the 16<sup>th</sup> century. It is done on **sanchi pat**, or manuscripts made of the **bark of the sanchi** or **agar tree**, using homemade ink. The earliest example of an illustrated manuscript is said to be a rendering of the **Adya Dasama** of the **Bhagwat Purana** in Assamese by Srimanta Sankardev. This art was patronised by the **Ahom kings**. It continues to be practised in every sattras in Majuli.

#### 41. Pandavula Gutta

Pandavula Gutta has gained official recognition as the **exclusive Geo-heritage site in Telangana**. It is an **ancient geological marvel** older than the Himalayas. It is located in Jayashankar Bhupalpally district in Telangana. The discovery of this site dates back to 1990. The site is rich in **paintings, rock shelters**, and evidence of habitation, spanning from the Mesolithic to medieval periods.



The paintings exhibit geometric designs and impressions using green, red, yellow, and white pigments. The **rock art paintings** show animals such as bison, antelope, tiger, and leopard. They also feature shapes like the swastika symbol, circles, squares, as well as weapons like bows, arrows, swords, and lances.

#### 42. Geo-heritage Sites

Geo-heritage encompasses geological features that hold either intrinsic or cultural importance. It provides valuable insights into the Earth's evolution or history for earth science or educational purposes. Geo-heritage sites are designated by the Geological Survey of India.

India is a member of the UNESCO Convention concerning the **Protection of the World Cultural and Natural Heritage** and safeguards these sites with appropriate laws, following global standards.

#### 43. World Monuments Fund Programme

World Monuments Fund is a private, international, **non-profit organization** dedicated to the **preservation of historic architecture and cultural heritage sites around the world** through fieldwork, advocacy, education, training and providing grants.



It is a **nomination-based programme** that connects local heritage preservation to global awareness and action. It was launched in 1996. It is a **biennial program**.

It provides a critical platform to **raise awareness of and support for heritage places** of global significance that are facing pressures relating to the most important global issues. The issue ranges from climate change and under representation to recovery from crisis and beyond.

Conservationists plan to propose the **Kazhuvveli watershed region in Villupuram district**, Tamil Nadu, for nomination to the **World Monuments Fund Watch 2025 programme**.

#### 44. Pritzker Architecture Prize

It is the highest distinction in the field of architecture, also referred to as the '**Nobel Prize of Architecture**'. It was instituted by **Jay A. Pritzker** and his wife Cindy in 1979. Its purpose is to **recognize architects** whose work has a **consistent impact on both humans and the built environment**. The winner is picked from a list of more than **500 nominated candidates on average**. They are nominated by experts including past laureates, academics, and professionals, who make visits to sites of the projects. The prize includes a **cash award of US\$ 100,000**; a formal **certificate** and a **Bronze Medallion** (designed by Louis Sullivan, called father of Skyscrapers). In 2018, the award was presented to **Balkrishna Doshi**, who remains the **sole Indian to receive this prize**.

#### 45. Purple Fest 2024

It is a first-of-its-kind **inclusive festival in India**. It is organized by **Ministry of Social Justice and Empowerment**. The festival aims to **raise awareness about different disabilities** and their **impact on**



people's lives. It also aims to **promote understanding, acceptance and inclusion of persons with disabilities within society**. It showcases **best practices in the disability field, focusing on enhancing accessibility and addressing implementation challenges** in various disability schemes and programs.

#### 46. Cinematography Rules, 2024

These rules are based on the Cinematograph (Amendment) Act, 2023, which had modified the Cinematograph Act, 1952. They have been **updated to fit online certification processes, improving transparency and efficiency**. The age based certification now includes sub-categories like **UA 7+**, **UA 13+**, and **UA 16+** to **aid parents in determining a film's suitability for their children**.

The older certification categories; **U (Universal)**, **A (Adult Only)**, and **S (for specific groups)** will remain unchanged. These updates align with the recommendations of the **Shyam Benegal Committee**.

The new rules **streamline film certification** by going **fully digital**, with a provision for "priority screening" for urgent cases. This would enhance transparency and impartiality.

The new rules mandate **increased representation of women** in the Central Board of Film Certification (CBFC) and Advisory Panels.

Movies/feature films must **incorporate accessibility features** for certification to **ensure inclusivity for disabled individuals**. CBFC certificates will have **Perpetual validity**, removing the **previous 10-year limit**.

#### 47. National Electronic Fund Transfer (NEFT)

NEFT reported its highest-ever daily number of transactions at 4.10 crore on February 29, 2024. NEFT is a **nationwide payment system** that facilitates convenient **one-to-one electronic fund transfers**. Through NEFT, individuals, firms, and corporations can electronically transfer funds from their accounts in any bank branch to the account of another account in any bank branch within the country. The NEFT system is **available round the clock throughout the year on all days**. There is **no minimum or maximum limit for the amount of money** that can be transferred using NEFT.

A person **who does not have a bank account can also remit funds through NEFT** to a beneficiary having a bank account, with another NEFT member bank. It can be done by depositing cash at the **nearest NEFT enabled branch of any bank**. Such cash remittances will, however, be restricted to a maximum of INR 50,000 per transaction.

**Difference between NEFT and RTGS:** Real-Time Gross Settlement (RTGS) operates on a **continuous and real-time basis for individual transactions**. NEFT transactions occur in batches, so there might be a slight delay for actual transfers.

#### 48. Multi-modal Transport Hubs by Railways

The Indian Railways aims to establish **mega railway terminals** featuring **multi-modal connectivity in aspirational cities** with a **population of more than 10 lakh nationwide**. The programme is part of the infrastructure being developed for '**Viksit Bharat**' initiative.

These projects will **consolidate different modes of transportation**, including trains, buses, taxis, and other public transit options, at a single site. These hubs will act as **pivotal points for passengers to transition between various modes of travel, improving connectivity and ensuring more seamless journeys**. These hubs may **offer additional amenities** like parking, waiting areas, and shops to accommodate travellers' needs.



#### 49. India's First Underwater Metro Line

The PM recently inaugurated India's first underwater metro line in Kolkata. The underwater Metro line is a part of the Howrah Maidan-Esplanade section of **Kolkata Metro's East-West corridor**. The underwater tunnel section is **13 meters below the riverbed and 33 meters below ground level**. Its total length is **520 meters**. This section **connects Kolkata and Howrah**, located on the east and west banks of the Hooghly River, respectively. This section has the distinction of having the **deepest metro station in India at Howrah**, which is 30 meters deep.

#### 50. Kolkata Metro

It is **India's first rapid transit system**, serving Kolkata and the wider Kolkata Metropolitan Region in West Bengal. It was **first operationalized in 1984**. As of January 2023, it is the **2<sup>nd</sup> busiest and 4<sup>th</sup> longest metro network in India**.

#### 51. Digital Intelligence Platform (DIP)

The Union Minister of Communications launched the Department of Telecommunications (DoT)'s **Digital Intelligence Platform (DIP)** and the **Chakshu** facility on the **Sanchar Saathi portal**.

DIP serves as a secure and unified platform for **real-time intelligence sharing**, information exchange, and coordination among various stakeholders. Stakeholders includes **Telecom Service Providers (TSPs)**, **Law-enforcement Agencies (LEAs)**, **Banks and Financial Institutions (FIs)**, **Social Media Platforms**, and **Authorities issuing identity documents**.

The portal also includes details of **cases identified as misuse of telecom resources**. It also functions as a **backend storage system** for requests initiated by citizens on the **Sanchar Saathi portal**, which stakeholders can act upon.

Citizens do not have access to this platform.

#### 52. Chakshu Facility

It is the latest feature added to the **citizen-centric services** already available on the **Sanchar Saathi portal**. It allows citizens to **report suspected fraudulent communications** received through calls, SMS, or WhatsApp. Fraudulent messages include messages related to KYC updates, changes to bank accounts, payment wallets, SIM cards, gas connections, or electricity connections, as well as instances of sextortion or impersonation as a government official or relative requesting money, and disconnection of all mobile numbers by the Department of Telecommunications.

#### 53. Rubber Board of India

It is a statutory organization constituted under the Rubber Act, 1947. It functions under the control of the **Ministry of Commerce and Industry**. It is headquartered at Kottayam, Kerala. The Board is headed by a Chairperson appointed by the Union Government. It has 28 members representing various interests of the natural rubber industry.

It is responsible for the **development of rubber industry** in India by assisting and encouraging research, development, extension and training activities related to rubber.

It maintains statistical data related to rubber. The Board also takes steps to **promote marketing of rubber** and undertake **labour welfare activities**. It **issues licences to rubber traders, producers, and manufacturers**.

**54. ADITI Scheme**

The **Acing Development of Innovative Technologies with iDEX** (ADITI) scheme was launched by the Department of Defence Production.

Its objective is to **create an ecosystem for fostering innovation and technology development in defence and aerospace** by engaging industries, startups and academia. It has a funding of INR 750 Crore. It specifically focuses on **promoting innovations in critical and strategic defence technologies** such as ammunition and explosives, armaments, aerospace, surveillance, sensors, propulsion, AI and other future technologies. It aims to develop about **30 deep-tech critical and strategic technologies** in the proposed timeframe. The ADITI scheme is expected to provide major benefits to the defence sector by **reducing import dependence in critical technologies**, development of advanced technologies and **stimulate technology innovation, manufacturing** and creation of livelihood opportunities.

**55. PM Suraj Portal**

The *Pradhan Mantri Samajik Utthan and Rozgar Adharit Jankalyan* (PM-SURAJ) portal has been launched.

It will be managed by the **Ministry of Social Justice and Empowerment**. This portal will provide **credit support** to entrepreneurs from **disadvantaged sections of society**. The portal will serve as a **one stop point** for individuals from **marginalized communities** to easily apply for and track the status of various **loan and credit programs** they are eligible for.

Credit support will be offered nationwide to eligible individuals through **Banks, Non-Banking Financial Company-Micro Finance Institutions** (NBFC-MFIs), and other organizations.

**56. Railway Police Force (RPF) Initiatives for Safety of Women**

**Meri Saheli Initiative:** It has been launched by RPF to provide **security to lady passengers** in long distance trains **particularly travelling alone** or those who are vulnerable to crime.

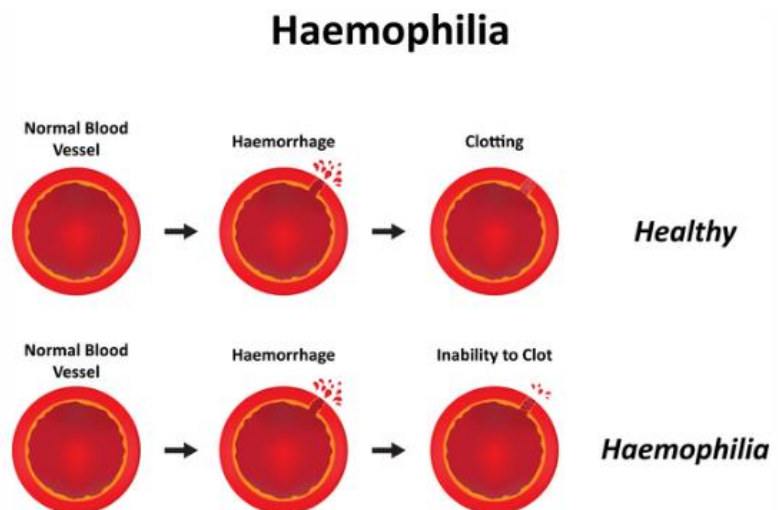
**Operation AAHT:** Operation AAHT launched to **curb human trafficking**. It involves special teams deployed on long-distance trains or routes, focusing on **rescuing victims**, especially **women and children**, from traffickers.

**Operation Matrishakti:** RPF personnel, especially **female officers**, provide **assistance to pregnant women in labour** during train journeys by going beyond their regular duties.

**Operation Dignity:** Under this, RPF rescues destitute, helpless, mentally unsound, trafficked adults in need of care and protection. RPF helps them reunite with their families or facilitates relocation to shelter homes in collaboration with NGOs.

**57. Haemophilia A**

Christian Medical College, Vellore has conducted the first human clinical trial of gene therapy for 'haemophilia A'. It is a **genetic bleeding disorder** caused by a deficiency in **clotting factor VIII**



(blood-clotting protein), which is **necessary for blood clotting**.

It is a **sex-linked disorder** determined by the **X and Y chromosomes**. The gene for haemophilia is found on the X chromosome. Haemophilia is **much more common in males than in females**. Its symptoms include prolonged bleeding after injuries, surgeries, or spontaneous bleeding into muscles and joints.

Its treatment includes **replacement therapy**, where clotting factor concentrates are infused into the bloodstream to assist blood clotting. Other treatments may **involve medications** to encourage clotting or surgery to **mend bleeding-related damage**.

#### 58. Blue Leaders

It is an alliance of countries calling for **urgent action to save the global oceans** in the face of the **climate crisis, overfishing, pollution**, and other threats.

There are **24 member countries** of Blue Leaders. **India is not the member of this alliance**.

The Blue Leaders are committed to **2 major goals**:

Securing a new international target to **protect at least 30% of the global oceans** through a network of **highly and fully protected marine areas by 2030**.

The **rapid and successful conclusion of a new High Seas Treaty** that provides for establishment of **fully and highly protected marine areas** in the high seas and strengthens management of human activities outside protected areas.

**Highly Protected** means **only light extractive activities**, such as subsistence or small-scale fishing with minimal impact, are allowed.

**Fully Protected** means that **no extractive or destructive activities are allowed**.

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