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## Focus Article

### India-Ukraine Relationship and India's Role in Ending the Russia-Ukraine Crisis

**News:** The Prime Minister of India visited Ukraine, the first by an Indian PM since the establishment of diplomatic relationship in 1992. India's warm relationship with both Russia and Ukraine has led to calls for India's mediation for a diplomatic solution to end the Russia-Ukraine war.

#### What has been the historical evolution of India-Ukraine Relationship?

Phase	Description
<b>Establishment of Diplomatic Relations</b>	<ul style="list-style-type: none"> <li>India was one of the first countries to recognize Ukraine, after the disintegration of the Soviet Union.</li> <li>India established diplomatic relations with Ukraine in January 1992, with the opening of The Embassy of India in Kyiv in May 1992. Ukraine opened its Mission in Delhi in February 1993, which was <b>its first mission in Asia</b>.</li> </ul>
<b>Phase of Engagement but Below Full Potential</b>	<ul style="list-style-type: none"> <li>Even though India and Ukraine cooperated in a range of domains ranging from defence to diaspora; however, India's tilt towards Russia prevented full engagement with Ukraine.</li> </ul>
<b>Decline in Bilateral Cooperation after the Russia-Ukraine War</b>	<ul style="list-style-type: none"> <li>There has been decline in the bilateral relations after Russia-Ukraine war e.g., the volume of India-Ukraine trade dropped from US\$ 3.39 billion in 2021-22 to US\$ 0.71 billion in 2023-24.</li> </ul>

#### What are the areas of cooperation between India and Ukraine?

- Geopolitical:** The USSR under the **Ukrainian-born Leonid Brezhnev**, supported India in the 1971 war against Pakistan. India had very warm relationship under another Ukrainian-born Soviet leader Nikita Khrushchev.
  - Indian leadership has maintained regular communication with Ukraine since the beginning of the Russia-Ukraine war in 2022.
  - India and Ukraine have undertaken regular interactions through Joint-Working Groups and Foreign Office consultations.
- Defence:** Ukraine has provided military technology and equipment to India since its independence e.g., Ukraine manufactured **R-27 air-to-air missiles** are used on the SU-30MKI fighters operated by Indian Air Force.
- Economic:** In 2020, India was Ukraine's 5<sup>th</sup>-largest export destination and its largest in the Asia-Pacific region. Bilateral trade between India and Ukraine had reached US\$ 3.4 billion in 2021-22.
  - India imports agricultural products, metallurgical products, plastics & polymers from Ukraine and exports pharmaceuticals, machinery, chemicals, food products etc.
- Humanitarian Assistance:** India has provided 12 consignments of humanitarian assistance, measuring 99.3 tons, to Ukraine in the wake of the Ukraine-Russia war. The aid and assistance comprises medicines, medical equipment, blankets, tents, tarpaulin etc.
  - Indian Pharmaceutical Companies have donated more than US\$ 8 million worth of medical aid and financial assistance to Ukraine.
- Diaspora:** Indian community in Ukraine comprises mostly business professionals and students of medicine. Indian business professionals are predominantly engaged in manufacturing, packaging, trading, and service industry. Indian community has formed an association called India Club which organizes cultural and sports events.

- **Cultural:** More than 30 Ukrainian cultural associations/groups are engaged in promotion of Indian art forms, yoga, philosophy, Ayurveda, and spirituality.
- **Education/Institutional:** ITEC (Indian Technical and Economic Cooperation) initiative offers training or capacity building programs in different centres of excellence in India.
  - ICCR (Indian Council for Cultural Relations) scholarship offers higher-level courses covering wide range of subjects in eminent Indian Institutions.
  - Kendriya Hindi Sansthan Scholarship program offers scholarships to Ukraine students to pursue higher-level Hindi language courses.

### What are the challenges in India-Ukraine Relations?

- **Declining bilateral Trade:** The volume of India-Ukraine trade has dropped from US\$ 3.4 billion in 2021-22 to US\$ 0.71 billion in 2023-24, due to the ongoing Russia-Ukraine Crisis. This decline has impacted India's import of agricultural, machine-building and military goods from Ukraine.
- **India's Relations with Russia:** India's continued engagement with Russia, and the decision to avoid all public criticism of Russian invasion, has led to dampening of the spirit of India-Ukraine cooperation.
- **Ukraine's Past Criticism of India's Policies:** Ukraine's criticism of India's Nuclear Tests and India's policy on Kashmir has also been a major irritant in India's engagement with Ukraine.

### What are the emerging opportunities which make India-Ukraine relations significant?

The possibility of post-war reconstruction in Ukraine offers various opportunities for India.

- **Enhanced Defence Cooperation:** India has been looking to reduce its reliance on Russia for defence equipment. Ukraine provides an alternative to India's rising defense needs.
- **Geo-strategic Cooperation in the Indian Ocean:** Cooperation with Ukraine could be a strategic game-changer for India, especially in the Indian Ocean. Ukraine's modern, low cost and innovative waterborne technology, outsmarted Russia's vastly superior Black Sea Fleet. India can use Ukraine's expertise to counter China in the Indian Ocean region.
- **Shift Production Base to India:** Close cooperation between India and Ukraine can help in shifting production bases of Ukrainian manufacturing companies like gas turbines in India.
- **Employment Opportunities:** Ukraine's future reconstruction will offer large opportunities for India's strained labour market. Ukraine would require many workers for rebuilding infrastructure which can be provided by India.
- **Cooperation in Digital Sector:** India's deepened relations with Ukraine can enhance the digital cooperation between the two nations and can help improve the governance in both countries e.g., Indian electronic voting machines could prove invaluable to wartime Ukraine, while Ukraine's ground-breaking DIIA App, which places government documents and services securely in one's smart phone, could help revolutionise governance in India.

### What should be the way forward for India-Ukraine Relationship?

- **Diplomatic Balancing:** India must continue to diplomatically balance its relations with Russia and Ukraine, and with the US. India should not let its engagement with Ukraine change the equations with Russia, nor should it let Russia's engagement with China impact the India-Russia relationship.
- **Greater Role for Delivering Peace:** India should take centre stage as a peaceable yet principled global player, and take the lead in negotiations of the Ukrainian peace formula.
- **Demonstrate Multi-alignment:** India must demonstrate the changed approach from non-alignment to multi-alignment in the foreign policy by deepening its relationship with Ukraine while maintaining its close

cooperation with Russia. Indian foreign policy approach has changed from maintaining equal distance from all countries to **maintain close ties with all countries**.

#### What has been India's stand on the Russia-Ukraine crisis?

- **Strategic Autonomy:** India's foreign policy stance has been driven by the historical principles of **non-alignment and strategic autonomy**. India has sought to balance its relationship with global powers while seeking for **peaceful negotiation** of territorial disputes.
- **Neutrality and Abstention:** India has avoided taking sides. Much to the ire of the West, which has wanted India to condemn Russian role in the conflict, India has **abstained on resolutions** in the UN Security Council (UNSC) and the General Assembly (UNGA).
- **Economic and Strategic Interests:** India has continued to import discounted Russian oil, prioritizing its energy security amidst rising global prices. At the same time, India has sought to reduce its dependence on Russian military supplies, recognizing the need for diversification in the procurement of defence equipment.
- **Settlement Through Institutional Mechanisms:** India has always advocated respect for the UN Charter and peaceful settlement of disputes through institutions such as the UN. The approach of India's foreign policy has been consistent with India's broader strategy of managing complex geopolitical landscapes **without compromising its national interests**.

#### Heightened Expectations of India's Role

Prime Minister's recent diplomatic activities which include **visits to Ukraine and Russia**, conversations with the **US President Biden and Russian President Putin**, recent visit to the US and possible engagements at the **BRICS summit in Russia**, have all **heightened expectations that India may play a more active role in mediating the Russia-Ukraine conflict**.

In communications with both Russian President Putin and Ukrainian President Zelenskyy, India's PM has **emphasized the need for a cessation of violence**. This diplomatic engagement highlights **India's intention to act as a mediator**, even as it refrains from taking a definitive side.

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#### What is the significance of PM's recent visit to Ukraine and India's intention of mediation?

- **Balancing Act:** The recent visit by the Indian PM is seen by analysts as a balancing act by India, especially after the PM's recent visit to Russia, which attracted criticism from the West.
- **Neutral Positioning:** By engaging with both Russia and Ukraine, India could position itself as a neutral player in the conflict. This would reinforce its image as a **responsible global actor** committed to **peace and stability**.
- **Active Role as a Mediator:** This balancing approach aligns with India's historical role as a mediator in international conflicts, like in the **Korean War armistice negotiations** and the **Colombo Plan**. India seeks to leverage its unique position as a country that maintains strong ties with both Russia and the US, to play a more active mediation role.
- **Reinforcing the Leadership of the Global South:** India's proposal at mediation, puts weight to the already ongoing effort from Global South countries in the negotiation. The push from India reinforces its prominence in the Global South.

#### What will be the advantages of peace in the Russia-Ukraine Conflict?

- A temporary cessation of hostilities or a limited peace agreement facilitated by a neutral party such as India might serve the interests of all parties involved.
- **United States:** Peace in Europe will allow US to focus on other pressing foreign policy challenges, such as the Gaza conflict in West Asia, or the rising Chinese challenge, especially in the Indo-Pacific.



- **Europe:** The peace would help in the economic reconstruction and **addressing energy insecurity**. It would alleviate the challenges of **energy shortages** and inflationary pressures, and provide breathing room for European policymakers.
- **Russia:** Engagement in negotiations through a neutral party such as India could offer an honourable exit from the conflict without appearing to surrender to the Western pressure.
- **India:** India's success as a mediator in the resolution of the conflict would align with the broader vision of India as a "Vishwamitra", a country that contributes to global economic and technological advancements and plays a central role in maintaining international peace and security.

#### What are the challenges that India would face as a mediator in the Peace Process?

- **Maximalist Positions:** Both Russia and Ukraine remain focused on **military gains**, as seen by Russia's attacks on Ukraine before Indian PM's visit to Russia and Ukraine's operations in Kursk Oblast before his visit to Ukraine. The refusal of either parties to budge from their stands is a major challenge in the peace process.
- **Competing Demands:** The situation is complicated by the firm positions of both sides: President Zelenskyy demands a complete Russian withdrawal from Ukraine, while President Putin requires Ukraine to pull back from occupied regions and drop its bid for the NATO membership.
- **Deeply Entrenched Interests:** The geopolitical interests of the US and Russia are deeply entrenched, and both powers are unlikely to agree on a peace deal proposed by the other.

### Geopolitical Challenges to Peace in the Ukraine War

- ★ **Divisions in Europe:** Europe is divided on handling Russian threat. **Finland** and **Sweden** have **joined the NATO** but **Hungary** and **Turkey** pursue independent approaches with **closer ties with Russia**.
- ★ **Internal Differences in the US :** The US is divided on its approach to Ukraine, with different factions within the Republican Party either wanting to **escalate or de-escalate the conflict**. Many in the US want **Europe to take more responsibility** for its defense.
- ★ **China's Role:** Europe is torn between **criticizing China** for supporting Russia and **seeking China's help** to restrain Russia.
- ★ **Self-Defense for Europe:** Europe must build its own defense capacity, which requires unity and seriousness of purpose. This is a **long-term challenge** given the current geopolitical environment.
- ★ **Economic and Security Implications:** The war has introduced significant economic challenges and security uncertainties, impacting not only Europe but also countries like India.

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#### What should be the way forward?

- **Realistic Assessment:** Indian foreign policy establishment needs to make a realistic assessment whether Ukraine and its Western partners want India to get actively engaged as a mediator in the peace process.
- **Effective Conflict Mediation:** India needs to define its own principles for a ceasefire and lasting peace. India should derive learnings from effective mediations like the Black Sea Grain Initiative and the recent exchange of prisoners between Russia and the US.
- **Learning from Historical Mediation Successes:** India should also refer to the historically successful interventions as a mediator in the Austria-Soviet crisis in 1950, Korean War Armistice negotiations and the Colombo Plan.
- **Overcoming Perceptions of Partiality:** For effective mediation of the conflict, India should overcome perceptions of partiality towards Russia. (Refer EPIC July 2024 for India-Russia Relationship).

## General Studies Paper I

### 1. Increase in Gender Budget (Union Budget 2024-25)

**News:** The Gender Budget reached 1% of GDP for the first time in 2024-25. Overall allocations for Gender Budget currently stand at more than INR 3 lakh crore for pro-women programmes.

#### What is the meaning of Gender Budgeting (GB)?

- Gender Budgeting is the **use of fiscal policies** and public financial management tools to **promote gender equality**.
- It is an exercise that applies a ‘**Gendered-lens**’ to **allocation and tracking of public funds**.
- It entails analyzing fiscal and budgetary decisions to understand their **impact on gender equality** and using this information to design and **implement more effective gender policies**. (Refer EPIC February 2023 for Gender Budgeting: Status, Benefits and Challenges).
- It translates the **gender commitments** into **fiscal commitments**.

#### Gender Budgeting in India

★ In India, **Gender Budget** comprises three parts (3rd part added in 2024-25):

- **Part A** reflects **Women-Specific Schemes**: 100% allocation for women.
- **Part B** reflects **Pro-Women Schemes**: At least 30% of the allocation is for women.
- **Part C** reflects **Pro-Women Schemes**: Below 30% of the allocation is for women (Added in 2024-25).

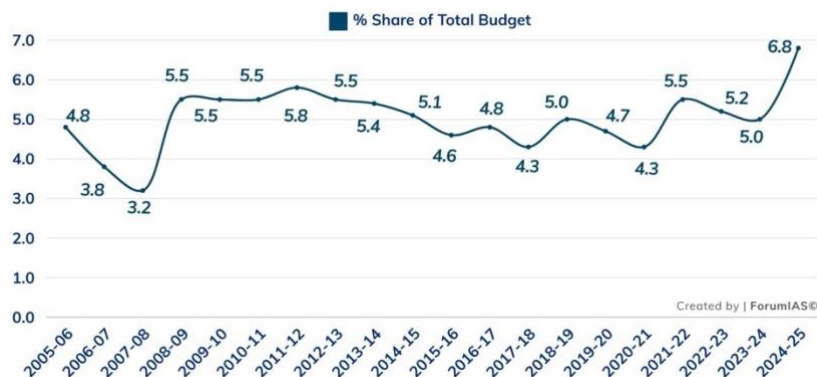
★ **Gender Budgeting Cells (GBCs)**: The Government has mandated the establishment of **GBCs in all Ministries** as an institutional mechanism. The GBCs **conduct gender-based impact analyses** to measure effectiveness and improve implementation.

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#### What are the reasons for increase in Gender Budget in the Union Budget 2024-25?

Since the inception of the Gender Budgeting Process in 2005, the average **Gender Budget allocation has averaged 5% of the total Union Budget**. However, this year (2024-25), the share of Gender Budget has jumped to **~6.8% of the total Budget**. The increase has been driven by two factors:

- Till last year (2023-24), Gender Budget included two parts: A and B. This year a new **Part C** has been included in the Gender Budget Statement (GBS) that covers pro-Women Schemes with less than 30% gender allocation.
  - For example, the **PM Kisan scheme** in the agriculture sector has been reported in part C with an outlay of INR 15,000 crore. This is 25% of the total outlay of the programme.
- Budget 2024-25 has **enhanced provisions under part A of the GBS**. Part A reports expenditures in schemes with 100% allocation for women. Part A had previously constituted ≈15-17% of overall allocations. Since Budget 2023-24, there was a sudden increase in the allocations in part A and the share has risen to ≈40%.
  - The increase has been due to shifting the entire allocation (INR 80,670 crore) of **Pradhan Mantri Awas Yojana (PMAY, rural and urban)** to Part A (from Part B, > 30% allocation to women). However, this may not entirely be true as **not all beneficiaries under the PMAY are women**.



#### What are some other cases of misreporting related to Gender Budgeting?

- **Over-Reporting:** Over-reporting has been witnessed in programs like the PM Employment Generation Programme (PMEGP), which helps entrepreneurs start non-farm micro businesses.

- The GBS lists INR 920 crore for PMEGP, showing 40% of its total budget, but does not clarify this allocation.
- **Under-Reporting:** The full budget for the **National Rural Livelihoods Mission (NRLM)** is now correctly listed in Part A of the GBS, showing that all its funds are for women and girls. Before, only half of the NRLM budget was reported in Part B (thus under-reported in the past Gender Budget Statements (GBS)).
  - The **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)** is currently reported under part B with 33.6% of its total outlay. However, women constituted 59.3% of all person days under MGNREGA as of December 2023, hence actual allocation should be 59.3% instead of 33.6%.
  - Gender Budget has missed out on reporting pro-women allocations in schemes for **women entrepreneurs** such as **PM Vishwakarma, SVANidhi, and Stand-Up India**.

### What should be the way forward?

- **Improving Gender Budget Statement:** To reduce inaccuracies, the GBS should include clear explanations for each entry. This will ensure accurate accounting, aid in gender audits, and enhance outcomes for women in government programs.
- **Effective Reporting and Spending:** Detailed reporting should not only show higher allocations for women's development but also ensure that funds are spent on well-designed programs that meet women's needs.

## 2. Creating Care Ecosystem to Improve Female Labour Force Participation

**News:** Economic experts contend that women's participation in the workforce can be enhanced by improving the care ecosystem.

### How Care responsibilities lower women's economic participation?

- The Female Labor Force Participation Rate (FLFPR) in India was 37% in 2022-23, which is below the global average of 47.8%.
- Despite an increase in FLFPR from 23.3% in 2017-18, a significant portion (37.5%) of this participation consists of women working as unpaid helpers in household enterprises.

#### THE CHALLENGE



Over 51% of work done by women in India is unpaid. 95% is informal and unprotected, and women are not well represented in business leadership



47% of India's women do not have a bank or savings accounts for their own use



Women farmers comprise 38.87% of agricultural labour and yet control only 9% of land in India



In India, 60% of women compared to 30% of men have no valuable assets in their name



At 17%, India has a lower share of women's contribution to GDP than the global average of 37%.



Rate of crimes against women stands at 53.9% in India. In Delhi, 92% women reported having experienced sexual or physical violence in public spaces

- Economic participation remains low because of various factors:
  - **High Burden of Care:** Women in India shoulder a disproportionately high burden of care within families, including childcare, and caring for the elderly, sick, and disabled.
  - **Time Spent on Unpaid Work:** Women aged 15-64 spend thrice more time on unpaid domestic work compared to men.
  - **Lack of Support Systems:** Insufficient childcare and care infrastructure further limit women's ability to engage in paid employment. (Refer EPIC March 2022 for Low Female Labour Force Participation Rate in India).

### What initiatives are being undertaken with respect to childcare responsibilities?

- State Governments are **enhancing childcare services** using the *Anganwadi* network.
- The Union Budget 2024-25 provisioned a 3% increase in allocation to the Ministry of Women and Child Development, focusing on **integrated childcare and nutrition programs**.

- **Community-based crèches** are operational in many States through partnerships between Government and non-government bodies.
  - These models are being evaluated for their replicability, financial sustainability, and scalability.
- Beyond childcare, women also provide care across the family's life span. The demand for hired caregivers is growing, especially in urban areas, but there is a lack of standardized employment practices and protections for these workers.

## Significance of Care Work

Care work, both paid and unpaid, is extremely important for any social system as well as the economy to survive.

- The indispensable aspect of care work was highlighted in the pandemic, when it became challenging to move ahead without the facilities of care staff.
- According to the ILO, doubling investment from 2015 levels would result in 117 million additional jobs opportunities by 2030.
- Because of the **relational nature of care**, such professions are **less probable to automation**.
- According to the ILO, countries which invest in a combination of childcare infrastructure and parental leave policies to offset the burden on women, have a **higher maternal employment to population ratio**.

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### How is the Care Economy viewed globally?

- The **World Economic Forum** highlights the care economy as an essential driver of **economic productivity** globally. (Refer EPIC April 2024 for *Improving Women's Labour Force Participation: Care Economy and Lessons from Japan*).
- It is also seen as a **business opportunity** for organizations to invest in and **employ skilled care workers**.
- From a **human rights perspective**, it is crucial for advancing **gender equality** and **disability inclusion**.
- In India, the care economy is underdeveloped, with significant gaps in **training, skilling, and certification** of care workers, despite increasing demand for caregiving services across families' life courses.

### What should be done?

- Creating an **ecosystem** that meets household care needs while protecting care workers' rights is essential.
  - This includes ensuring safe, quality, and affordable care from well-trained workers. A needs-based assessment of care services and a mapping of care providers can help develop this ecosystem.
- There is a need for a comprehensive policy that defines the care ecosystem and is supported by multiple Ministries. The Government should **enhance the spending on the care economy** for ensuring an enabling environment for both paid and unpaid caregivers
- An official **network of care workers** should be created to link them with care seekers. It will create better working conditions.
- **Attitudinal change** should be brought to ensure that unpaid care work is shared between both men and women. (Refer EPIC August 2022 for *Care Work and Care Economy*).

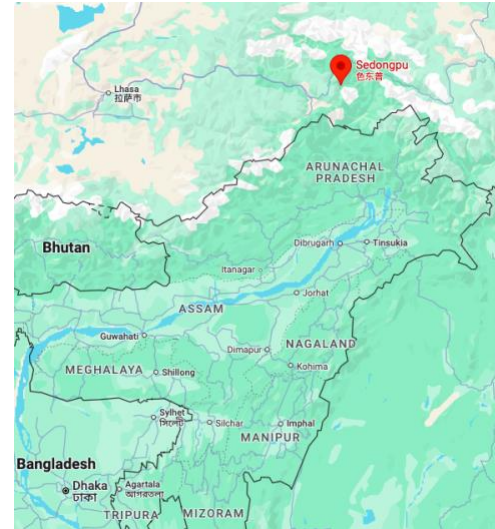
### 3. Rising Frequency of Mass Wasting in Sedongpu Gully (Tibet)

**News:** The rising frequency of landslides in Sedongpu Gully in Tibet has been linked to earthquakes and warming temperatures. This can cause severe flooding in India's North-east, around Brahmaputra river.

### What is happening in Sedongpu Gully?

- The Sedongpu Gully is in the Tibetan Plateau, near the border with India. It is 11 km long and drains into the Tsangpo River, which becomes the Siang River in Arunachal Pradesh (and Brahmaputra in Assam). The Tsangpo creates one of the world's deepest gorges, called the **Great Bend**.

- Between 1969 and 2023, there have been **19 major mass-wasting** events. Of these, 13 ( $\approx 70\%$ ) occurred after 2017.
  - Since 2017, more than **700 million cubic meters of debris** have been mobilized in the Sedongpu Gully. This area has seen a rapid increase in **mass-wasting events**, including **landslides**.
- The main causes are **warming temperatures** and **earthquakes**, with **13 major events happening after 2017**.
  - Before 2012, temperatures in the area rarely exceeded  $0^{\circ}\text{C}$ . From 1981 to 2018, annual temperatures have increased by  $0.34^{\circ}$ - $0.36^{\circ}\text{C}$ . This is higher than the global average. The warming is **contributing to more land-slides and instability in the region**.



### What are the potential impacts on India and Bangladesh?

The **increase in sediment load** from these landslides can cause significant problems downstream.

- The Brahmaputra River is one of the world's most sediment-laden rivers. Further rise in the sediment load can lead to more **severe flooding**, **riverbank erosion**, and **issues in navigation**. (*Read More on Floods in Assam*).
- The sedimentation can **elevate the river beds**, leading to flood hazards. The channels may get choked with sand and silt in the lean season, making navigation difficult and **affecting livelihoods** related to fishing.
- In 2000, a major landslide in Tibet had caused **flash floods** in Arunachal Pradesh and Assam.

### Why are there concerns over dams in the region?

- China plans to build a massive 60 GW hydropower project on the Tsangpo River. This project **could increase the risk of river choking and flash floods**, especially in a geologically unstable area.
- India's planned dams on the Siang could face similar risks. This can affect millions of people downstream.

### What should be the approach?

- **Monitor Geophysical Events:** Resources should be deployed to regularly observe landslides, rockfalls, and other erosional activities in the Sedongpu Gully and surrounding areas to anticipate future risks.
- **Focus on Sediment Management:** Steps should be taken to address the increasing sediment load in the Brahmaputra River to prevent severe flooding and erosion.
- **Evaluate Impact of Dams:** Plans for large dams should be reassessed considering the region's geophysical instability and past events like the 2000 Arunachal floods.

## 4. Challenges Faced by the Jute Industry

**News:** The Jute industry continues to face several challenges despite initiatives by the Government.

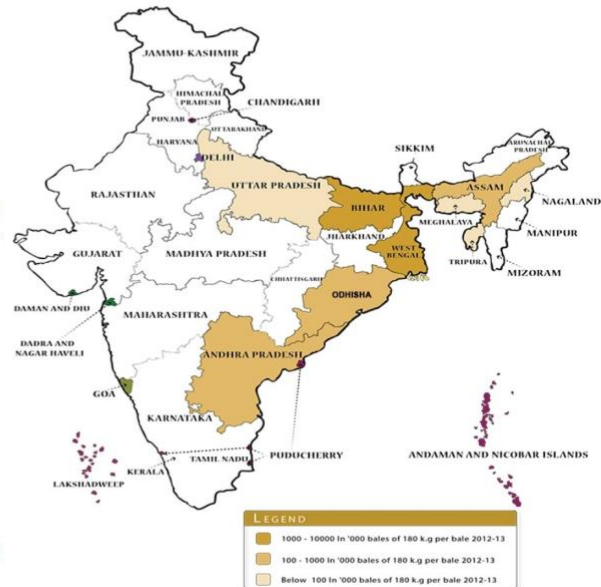
### What is the current status of the Jute Industry in India?

- The Jute Industry in India is  $\approx 150$  years old. According to the Indian Jute Mills Association (IJMA), there are about 93 jute mills in India, of which 70 are in West Bengal. Of the 70, 54 are located in the three districts of North 24 Parganas (25), Howrah (15) and Hooghly (14).
- The factors behind present localization of the jute industry in Eastern India especially West Bengal are:
  - **Raw material:** West Bengal is the largest producer of jute and most mill are located there.
  - **Water supply:** High rainfall and presence of rivers ensure abundant water for processing raw jute.
  - **Labour:** Cheap labour is available from West Bengal and nearby States of Bihar, Odisha, and Uttar Pradesh.

- **Easy Transportation:** The region is well connected by good networks of railways, waterways, and roadways to facilitate the movement of raw materials to the mills.
- **Other Facilities:** Kolkata as a port and large urban centre, provides **banking, insurance, and port facilities** for the export of jute goods.

## Some Facts About Jute

- Jute is the **2nd important fibre crop** in India, after cotton. Jute is in demand because of its softness, strength, lustre, uniformity of fibre and its cheap price.
- **Climate:** Jute requires hot and humid climate. It requires **24°C-35°C** temperature, **rainfall in the range 120-150 cm** with **80-90% humidity** in the period of growth. Large amount of water is required for growth and processing the crop after harvesting. **Light sandy and clayey soils** are the best for growth.
- **Jute Growing Regions:** They are largely concentrated in Eastern India. 5 States West Bengal, Bihar, Assam, Odisha and Andhra Pradesh account for 99% of Jute production.
- **Global Status:** India is the **largest producer of Jute** in the world with ~1.7 Million Tonnes production in 2019. **Bangladesh** closely follows India with ~1.6 MT production in 2019. China is distant 3rd.



### What is the significance of the Jute Sector?

- **Multiple Uses:** Jute is used in insulation, packaging, geo-textiles, wall coverings, flooring, garments, rugs, ropes, gunny bags, handicrafts, curtains, carpet backings, paper, sandals and furniture. ~80% of the finished product (B. Twill jute bag) is bought by the Government for packaging food grains and other agriculture-based produce like sugar.
- **Employment Generation:** Jute production is a labour-intensive industry. Jute sector provides direct employment to 3.7 lakh workers and supports livelihood of more than 40 lakh farm families.
- **Environment Friendly:** Jute provides a sustainable and environment-friendly alternative to single-use plastic. It is **biodegradable** and **recyclable**. Cultivation of jute improves **fertility of soil** if grown in crop rotations. It does not produce toxic gases when burnt.
- **Importance for Agriculture:** The sustenance of jute industry is crucial for jute cultivators. According to the IJMA, ~40 lakh farmers are associated with the production and trade of the golden fibre.

### What are the challenges faced by the Jute Industry?

- **Stiff Competition:** India lags behind Bangladesh in producing superior quality jute fibre. Bangladesh accounts for 75% of global jute exports while India's share is ~7%. Even India imports jute products like yarn, floor coverings and jute hessian from Bangladesh.
- **Climate Change:** Intensified cyclonic activity in the region as a result of climate change has impacted production of jute e.g., in May 2020, Cyclone Amphan caused considerable damage to the crop. A report by the Commission for Agricultural Costs and Prices (CACP) said that lower quality of jute fibre was produced in 2020-21 due to the cyclone. Farmers had to harvest the crop prematurely due to **water-logging**.
- **Availability of Cheap Alternatives:** Jute products costs higher than synthetic fibres and packing materials, particularly nylon and thus losing its market.

- **High Procurement Cost:** The mills procure raw jute at higher prices than the selling price of products post-processing. Mills acquire the raw material **indirectly through intermediaries** due to cumbersome procurement process (many farmers are far-off from location of mills). The middlemen charge mills for their services like procuring jute from farmers, grading, bailing and then bringing the bales to the mills. In 2022-23, the Government had fixed the Minimum Support Price (MSP) for raw jute procurement from farmers at INR 4,750 per quintal. However, jute reached mills at INR 7,200 per quintal.
- **Policy Issues:** A recent notification of Office of Jute Commissioner capped the price of raw jute at INR 6,500 per quintal. However, mills are procuring material at INR 7,200 (INR 700 more). A mill owner in West Bengal estimated loss of INR 12 Lakh per day forcing him to shut down his mill.
  - The **Tariff Commission's** Report for fair price of B. Twill jute bags (bought by the Government) has not been implemented. At present, the bags are priced on the basis of provisional rates of 2016. The price was meant to last for only 6 months till Tariff Commission recommended a new price. The Commission submitted report in March 2021 but it has not been implemented. This has led to a loss of INR 1,500 crore to the sector.
  - The losses have **hampered the ability of mill owners to invest** in new technology, machines, or undertake innovation to diversify products.
- **Raw material supply:** India is not self-sufficient in the supply of raw material. To meet growing needs, raw material is imported from Bangladesh, Brazil, and Philippines.

#### Initiatives for the Jute Industry

- ★ **Jute-ICARE:** It was launched by National Jute Board (NJB) in technical collaboration with ICAR-Central Research Institute for Jute and Allied Fibers (ICAR-CRIJAF). The objective of the scheme is to support the small and marginal jute growers with adequate pre- and post-harvesting operations so that they can grow good quality jute & receive higher prices for their produce.
- ★ **Jute Packaging Material (Compulsory use in Packing Commodities) Act, 1987:** It mandates that 100% production of foodgrains and 20% sugar production must be packaged in jute bags.

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#### How has Bangladesh improved its Jute Exports?

- Jute produced in Bangladesh is of **superior quality**. Bangladesh has **favourable conditions** that allow better **retting** of the crop. *(In retting, jute bundles are kept under water at a depth of ≈30 cm. This process gives the fibre its shine, colour, and strength. It should ideally be done in slow moving, clean waterbodies. But Indian farmers do not have access to such resources).*
- Bangladesh provides **3-4 different kinds of subsidies** to the jute industry. For instance, it gives 9-10% export subsidy for food-grade packing bags, which is much higher than India's subsidy of 1.5-3%.
- Bangladesh has been successful in capturing the **diversified jute products market**, for which there is a huge international demand. India's major jute exports, in contrast, are sacks and hessian bags.
- Jute production in Bangladesh is more **cost competitive** than India because of **lower wages, lower cost of procurement**, and **lower power tariffs** etc. compared to India.

These factors provide a **comparative advantage** to Bangladesh vis-a-vis India in the export of jute products.

#### What steps are required to support the jute industry?

- The recommendations of the Tariff Commission's report should be implemented in order to cut the losses of mill owners and prevent their closure.
- Focus can be placed on **innovative products** like the **Jute Geo-Textiles (JGT)**. It can be made through the special treatment and weaving processes. JGT can be applied to many fields including soil erosion control, civil engineering, protection of river banks and road pavement construction.
- **Diversification** is key if India wants to make the jute market successful. Demand for diversified products has to be created domestically. This can be a big boost for a plastic-free India as well. At present, 92% of the total domestic jute produced is used for packaging purposes and just 8% is for other products.

Bio-degradable, eco-friendly jute products have big international market. There is an urgent need for jute industry to diversify. New technology and manufacturing standards should be adopted. The Government must support the industry and enhance its competitiveness through appropriate policy measures.

## General Studies Paper II

### 1. Issues with the State Election Commissions

**News:** State Election Commissions face several challenges to fulfil their mandate.

#### What are the challenges faced by the State Election Commissions (SECs)?

- **Lack of Autonomy:** Despite the provisions for the independence of SECs, they are not functioning as autonomous institutions e.g., in March 2006, the State Election Commissioner of Maharashtra promulgated orders that henceforth all elections to civic bodies and Zilla parishads would be conducted by the SEC and not the State Government. However, in March 2008, the Government of Maharashtra had him arrested and jailed for 2 days for the breach of privilege of the State Assembly.
- **Lack of Constitutional Safeguards for SECs:** The manner of removal of SECs has been flouted by the State Governments by alternative methods such as restricting the terms and conditions etc. This is evident in the *Aparmita Prasad Singh vs. State of UP (2007)*.
- **Lack of Uniformity of Service Conditions:** Since the Constitution vests the power to determine the service conditions on State legislatures, the service conditions are not uniform across the country.

### Provisions Related to State Election Commissions

- ★ **Article 243K(1):** State Election Commission (SEC) to superintend, direct and control preparation of electoral rolls and **conduct all elections to the Panchayats**. State Election Commissioner will be appointed by the **Governor**.
- ★ **Article 243K(2):** Conditions of Service and tenure of Office of **State Election Commissioner** will be **determined by the Governor**, subject to a law made by the State Assembly in this regard.
  - State Election Commissioner can be removed from his office in same manner and grounds as a **Judge of a High Court**. Conditions of service of the State Election Commissioner shall not be varied to his disadvantage after appointment.
- ★ **Article 243K(3):** Governor to make available such staff as necessary for the SEC to discharge its functions.
- ★ **Article 243K(4):** Legislature of a State may, by law, make provision with respect to all matters relating to elections to the Panchayats.
- ★ **Article 243ZA:** The article has similar provisions like 243K for Municipalities.

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#### What are the impacts?

- **Functioning of Municipalities and Panchayats:** The Court in the *Kishan Singh Tomar (2006)* observed that due to various problems in the State Election Commissions, the SECs are facing challenges in preparing the electoral rolls and **conducting timely elections**. This impacts the regular functioning of Local Government institutions.
  - The CAG found that 70% of urban local governments across 18 States (1,560 out of 2,240, ≈70%) did not have elected councils at the time of the audit.
  - Janaagraha's 2023 survey found that only 11 of the 34 States and UTs have given SECs the power to handle ward delimitation. These areas represent just ≈35% of India's population.



- **Public Trust:** State Governments frequently delay delimitation and elections for panchayati raj institutions. The CAG's report on Karnataka found that these delays are often due to the weakened authority of SECs, which harms local governance and erodes public trust
- **Impact on Free and Fair Elections:** Free and fair elections form the bedrock of a democracy. Any restriction of the functions of State Election Commissions will directly affect the free and fair elections e.g., in the **State of Goa vs Fauzia Imtiyaz Sheikh (2021)**, the Supreme Court noted that the election notification violated the reservation for women, SC, and STs.

## Judicial View Regarding State Election Commissions



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- **Kishan Singh Tomar vs MC Ahmedabad (2006):** The Supreme Court held that during the conduct of the panchayat and municipal elections, the **State Governments should abide by the orders of the SECs**. The SECs will enjoy the same powers as the Election Commission of India with respect to elections to the Local Governments.
- **Aparmita Prasad Singh vs. State of UP (2007):** The UP Government had reduced the term of the State Election Commissioner from 7 to 5 years. The **Allahabad High Court** held that the Governor has the power to amend the rules related to tenure. However, the Court also observed that the **State can alter the terms and conditions of service before appointment**.
- **N. Ramesh Kumar vs State of Andhra Pradesh (2020):** The **Andhra Pradesh High Court** held that the State government cannot remove the State Election Commissioner by a promulgation of the ordinance.
- **State of Goa vs Fauzia Imtiyaz Sheikh (2021):** The Government of Goa had given the Law Secretary of the State an additional charge of managing the State Election Commission. The SC held that the **Law Secretary works under the State Government and giving her the charge an independent constitutional office is unconstitutional**. All States and UTs shall appoint an Independent State Election Commissioner and the **State Governments should not interfere with the functioning of the SECs**.

### What steps can be taken to empower the SECs?

- The State Governments **should follow the judicial directives**. Such as:
  - Appointing an independent person as the State Election Commissioner.
  - Instituting the autonomy of SECs.
  - Respect the SECs' functions during the elections of Panchayats and Municipalities.
- **Enhancing Transparency and Independence:** SECs should be as independent and transparent as the Election Commission of India, with the same level of authority over local elections. This has also been affirmed by the Supreme Court in **Kishan Singh Tomar (2006)**.
- **Collegium:** 2<sup>nd</sup> ARC had proposed a reform to establish a **3-member SEC** appointed by a Collegium consisting of the Chief Minister, the Leader of the Opposition, and the Chief Justice of the High Court. This change could be implemented through an appropriate amendment to the Constitution.
- **Fixed Intervals for Delimitation:** To avoid arbitrary delays by State Governments, **delimitation of ward boundaries** and seat reservations should happen **every ten years**. This will help ensure timely elections and reduce delays caused by decisions of States.
- **Delimitation and Reservation Powers:** SECs should be given the authority to handle ward delimitation and seat reservations for local governments. They should also manage the reservation of key positions like mayors or presidents.
- **Preventing Malpractices:** SECs should oversee elections for important local roles like mayors and presidents to prevent malpractice, as was seen in the 2024 mayoral election of Chandigarh Municipal Corporation.

- **Club with Election Commission:** Another reform proposed by 2<sup>nd</sup> ARC was to bring Election Commission and SECs under one roof. This will provide for better coordination, better utilization of resources, and experience sharing. The Central government can provide a separate independent and permanent Secretariat for the SECs and Election Commission.

## 2. Public Health Sector in India

**News:** The Union Budget 2024-25 has been criticized for inadequate focus on the public health sector.

### What constitutes Public Health? What is the structure of public health sector in India?

- According to WHO, “Public health refers to all organized measures to **prevent disease, promote health, and prolong life** among the **population as a whole**. Its activities aim to provide conditions in which people can be healthy and **focus on entire populations**, not on individual patients or diseases”.

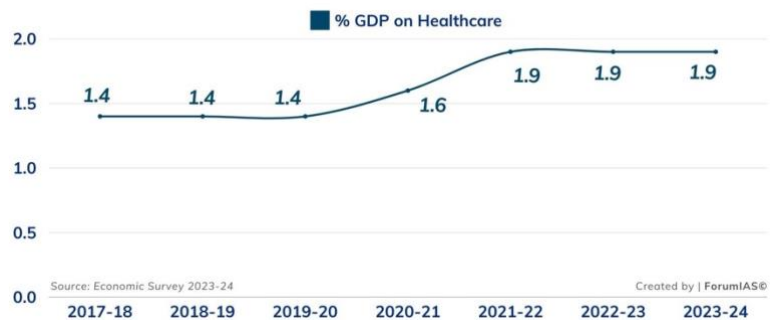
### Levels of Public Health Sector in India

Level	Description
Primary	<ul style="list-style-type: none"> <li>• It consists of Primary Health Centres (PHCs) and Sub-centers (SCs) which form the foundation of the public healthcare system.</li> <li>• <b>PHCs:</b> These are the 1<sup>st</sup> point of contact with a qualified doctor, serving populations of 20,000-30,000. Each PHC is expected to have 4-6 beds and provide preventive, curative, promotive and rehabilitative care.</li> <li>• <b>Sub-centers:</b> These are the most peripheral units, serving populations of 5,000 in plain areas and 3,000 in hilly/tribal areas.</li> <li>• The poor and the vulnerable rely on primary health-care institutions of the public sector for primary-level care. It is the most affordable public health service and is closer to their places of residence.</li> </ul>
Secondary	<ul style="list-style-type: none"> <li>• It consists of <b>Community Health Centres (CHCs)</b>, which serve as <b>referral units for PHCs</b>.</li> <li>• CHCs are 30-bed hospitals providing <b>specialist care</b> in medicine, surgery, obstetrics &amp; gynaecology, and paediatrics.</li> <li>• There is one CHC for every 80,000-120,000 population in plain areas and 40,000-60,000 population in hilly/tribal areas.</li> </ul>
Tertiary	<ul style="list-style-type: none"> <li>• The tertiary health sector consists of district hospitals, medical college hospitals, and other highly specialized facilities.</li> <li>• <b>District Hospitals</b> are 100-300 bed facilities providing specialist care, located at the district level.</li> <li>• <b>Medical College Hospitals</b> are tertiary care teaching institutions, located in State capitals and major cities.</li> <li>• <b>Specialized Tertiary Care Facilities:</b> These include regional cancer centres, mental health institutes, trauma centres, and other super-speciality hospitals.</li> <li>• The tertiary sector provides highly specialized care and acts as a <b>referral point for the secondary and primary levels of the health system</b>.</li> </ul>

### What are the challenges faced by the Public Health System in India?

- **Inadequate Access to Healthcare:** Access to basic healthcare services remains poor in many rural and remote parts of India. According to an estimate, there is a shortage of ≈600,000 doctors in India besides other healthcare professionals.

- The Government asserts that India has achieved the Doctor-patient ratio (1 doctor (allopathic + AYUSH) for 834 patients) as recommended by the WHO (1 doctor for 1,000 patients). However, in 2019 the urban to rural doctor ratio stood at 3.8:1 (3.8 doctors in urban areas for every 1 doctor in rural areas). This indicates severe lack of doctors in rural areas.
- **Myopic Focus on Short-term Results:** The general policy focus is on promotion of initiatives that promise immediate results, such as opening new hospitals, subsidised treatments, and populist health measures. The **neglect of the holistic development** of primary and secondary healthcare capabilities has led to general deterioration of public health sector.
- **Low Public Healthcare Expenditure:** The Government (Union + States) spent  $\approx 1.9\%$  of the GDP on healthcare in 2023-24. This is much lower in comparison to spending by other countries like China (3%), Thailand (2.7%) and Vietnam (2.7%).
- **Neglect in Critical Areas:** There has been **lack of adequate attention to critical areas** such as hygiene and sanitation, disease surveillance and public health education, which are important to maintain population health and prevent disease outbreaks e.g., there has been a **lack of long-term strategies** like understanding vector control or developing effective vaccines in case of dengue.
- **Profit-Driven Private Sector:** Pharmaceutical industry's profit-driven nature impacts **affordability**. There has been a loss of trust towards private health-care providers due to over-emphasis on commercial interests by the private sector.
- **Lack of Comprehensive Approach:** India's current public health approach is physician-centric, without adequate focus on expertise from various fields such as environmental science, sociology, urban planning, and economics.
- **Lack of Preventive Care:** Preventive healthcare is undervalued in India, despite its importance in reducing incidence of disease and healthcare costs. This is significant as India faces a **'triple burden' of disease**, comprising communicable diseases (like tuberculosis and malaria), non-communicable diseases (such as diabetes and heart disease), and emerging infectious diseases.



### What is the need for robust public health sector?

- **Improved Access to Healthcare:** The Lancet in its latest study ranked India 145<sup>th</sup> among 195 countries in terms of quality and accessibility of healthcare; behind its neighbours China, Bangladesh, Sri Lanka and Bhutan. Thus, there is a need to improve the public health sector by making it **more accessible** by improving the **quality of medical professionals and infrastructure**.
- **Improved Health Outcomes:** Robust public healthcare leads to early detection and treatment of diseases, resulting in improved health outcomes and a **decrease in the burden of illness**.
- **Reduction of Financial Burden:** Improved public healthcare services can alleviate the financial burden and improve household financial stability by **reducing the high out-of-pocket expenditure**. According to WHO, 55 million people fall into poverty every year due to high expenditures on health.
- **Social Justice:** Universal healthcare and publicly funded health system provide timely, effective and free care, irrespective of social class. This promotes social justice and help achieve mandate of the DPSPs.

## Government Initiatives for Public Healthcare

- ★ **National Rural Health Mission (NRHM)/National Health Mission (NHM):** NHM and NRHM focus on **making public sector healthcare robust through architectural correction**. Primary healthcare institutions have been strengthened with the development of 153,655 SCs; 25,308 PHCs and 5,396 CHCs (2015).
- ★ **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana:** Publicly-funded Health Insurance scheme (PFHI) that provides financial protection to over 100 million families for secondary and tertiary care hospitalization.
- ★ **Health and Wellness Centers (HWCs):** PHCs are being transformed into HWCs to provide comprehensive primary healthcare services, including preventive and promotive care.
- ★ **Pradhan Mantri Swasthya Suraksha Yojana:** Aims to enhance tertiary care capacities and strengthen medical education in the country by setting up new AIIMS and upgrading existing government medical colleges.
- ★ **Jan Aushadhi Scheme:** The **Pradhan Mantri Bhartiya Janaushadhi Pariyojana** aims to provide quality **generic medicines at affordable prices** through Jan Aushadhi Kendras.
- ★ **National Digital Health Mission (NDHM):** Aims to create a **digital health ecosystem**, including health IDs for citizens and the establishment of a national digital health infrastructure.

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### What should be the way forward?

- **NITI Aayog Action Plan for Health:** It has recommended to focus on public health through significantly increasing government expenditure (2.5% of GDP) and **prioritize preventive care** instead of putting too much focus on curative care.
- **National Commission for Healthcare Cost Management:** The Government should appoint a National Commission to make recommendations for spending on healthcare systems and monitor its performance.
- **Separating Health from Political Processes:** Public health decisions should be based on **scientific evidence and long-term goals** rather than short-term political interests.
- **Nutrition Support:** Investments in nutrition programmes will have positive long-term implications for health and productivity.
- **Comprehensive Approach:** Effective public health management should encompass preventive measures, policy formulation, community health, environmental health etc.
- **Universal Health Coverage:** Government should draw up blueprints for universal health coverage and begin experimenting and innovating with pilot programmes. (Refer EPIC May 2023 for Universal Health Coverage in India).

### 3. Health Cover for Senior Citizens: Benefits and Challenges

**News:** The Union Government has extended the *Ayushman Bharat Pradhan Mantri Jan Arogya Yojana* (ABPMJAY) to provide health cover to all senior citizens above the age of 70 years.

### What is the status of elderly population in India? What are the healthcare concerns of senior citizens?

- The number of elderly persons (above 60 years) in India is set to increase from 100 million in 2011 to 230 million in 2036. By 2050, the elderly population is expected to constitute ≈20% of the total population.
- **Rise in the Dependence Ratio:** The old age-dependence ratio denotes the number of persons aged 60+ per 100 persons in the age group of 15-59 years.
  - According to the Ministry of Statistics and Programme Implementation's (MOSPI) 'Elderly in India 2021' report, the old-age dependency ratio has increased from 10.9% in 1961 to 14.2% in 2011 and is projected to increase to 20.1% in 2031.

### • Concerns Regarding Healthcare of Senior Citizens

- **Rise in Age-related Chronic Illness:** According to the Longitudinal Ageing Study of India (LASI) in 2021, 1 in 5 ( $\approx 20\%$ ) elderly persons in India have **mental health issues** and  $\approx 75\%$  suffer from a chronic disease.
- **Increasing Need for Geriatric Care:** Increased health-related expenses for the treatment of diseases like non-communicable diseases, cataract, hearing loss etc. creates financial problem for the elderly.

### What are the specifications of the expanded Health Cover for Senior Citizens?

- The *Ayushman Bharat Pradhan Mantri Jan Arogya Yojana* is the world's **largest public health insurance scheme**. It provides free cover of up to INR 5 lakh annually to all members of eligible families, which are estimated to comprise the **bottom 40% of the population economically**, irrespective of age.
- The health cover for senior citizens has been expanded under the AB-PMJAY. The expanded scheme will cover  $\approx 6$  crore individuals (from 4.5 crore families), of whom 1.78 crore are already covered by the scheme.

Parameter	Description
<b>Beneficiaries</b>	<ul style="list-style-type: none"> <li>• Anyone who has turned 70 as per their Aadhaar can register for the new health cover.</li> <li>• Everyone of age 70 or more will be entitled to a cover of INR 5 lakh annually, shared within the family. This means if there are two elderly beneficiaries in the household, the cover will be split among them.</li> <li>• Elderly members of families that are already covered in accordance with their economic status will get a top-up cover of INR 5 lakh to be used only for the elderly. These elderly beneficiaries will have to re-register to receive the top-up cover.</li> </ul>
<b>Exclusions and Inclusions</b>	<ul style="list-style-type: none"> <li>• <b>Option for people already covered:</b> 80 lakh people are separately covered under various government health schemes like the Central Government Health Scheme (CGHS). Those covered under such Government health schemes will have the option of <b>choosing either Ayushman Bharat or continuing with their existing coverage</b>.</li> <li>• <b>People with ESIC Coverage to be included:</b> People who are covered under the Employees State Insurance Corporation (ESIC) will be <b>eligible to have both their existing cover and Ayushman Bharat</b>. This is because premiums for ESIC are paid by the insured and their employer, not the Government.</li> <li>• <b>People with private insurance:</b> People who have their own privately purchased insurance cover will also be eligible for the extended <i>Ayushman Bharat</i> cover.</li> </ul>

### What is the significance of the expanded health cover for senior citizens?

- **Expansion of Healthcare:** According to the India Ageing Report 2023, only 20% of India's population above the age of 60 is currently covered by any Government, employer-provided, or personal insurance scheme. Extension of the ambit of the publicly-funded health assurance scheme is a crucial step towards ensuring a more fulfilling life for the senior citizens in India.
- **Rising Elderly Population in India:** It will help address the healthcare needs of the rapidly rising elderly population in India.
- **Higher Hospitalisation Rates:** The rate of admission among the elderly already covered under the AB PM-JAY scheme has been more than 7%, which is double the 3-4% admission rate for the younger people covered under the scheme.
- **Gender Justice:** According to NITI Aayog, women constitute the larger share of the elderly population, with 58% of the elderly being women, and 54% among them being widows. The extension of health cover will provide immense help to women, and especially widowed women.

- **Reduction of the Out-of-pocket Expenditure:** This will help in reducing the out-of-pocket expenditure (OOPE) for senior citizens. The OOPE for health care in India is among the highest in the world.

#### What are the challenges that remain despite the expansion of health coverage?

- **Low Penetration of AB PM-JAY:** The penetration of PM-JAY in smaller cities and towns has been low. It will create a challenge in achieving universalisation of health care needs of the elderly.
- **Absence of Coverage of Outpatient Care:** Most of the health-care expenditure by the elderly is through outpatient care (40%-80%). The absence of coverage for outpatient care, diagnostics, and medicines for the elderly is particularly concerning as chronic diseases have increased sharply in India in the last few decades.
- **Limitation of the Primary Healthcare:** The expanded scheme remains limited to secondary and tertiary care hospitalisation. The primary and secondary health care in the public sector remains largely **inadequate and ill-equipped to meet the demands of the senior citizens**.
- **Functional challenges with AB PM-JAY:** There are serious functional challenges in the implementation:
  - **Misinformation:** There are multiple reports showing that doctors indulge in spreading misinformation to already stressed families of the grievously ill, that availing benefits under AB-PMJAY could take months.
  - **Overburdened Staff:** There are reports regarding the overburdened staff at Government institutions not wanting to take on the additional task of filling up documents related to the insurance scheme.
  - **Limited role of Arogyamitras:** The role of Arogyamitras is restricted only to registering claims under the scheme. They have a limited role in counselling relatives of patients.
  - **Failure of Insurance Model:** In countries like the US, the reliance on insurance-based schemes has led to surging costs of health care. On the other hand, countries like Thailand has focused on progressively strengthening their **primary health-care system** and attaining universal health coverage.

#### What should be the way forward?

- **Improvement in Functioning of AB PM-JAY:** The Arogyamitras should be empowered to handhold patients in cases of claim settlement and ironing out of glitches.
- **Expansion of Healthcare Infrastructure:** According to a NITI Aayog report, the increased nuclearisation of families is making the senior citizens **more vulnerable to healthcare issues**. Policymakers should aim to improve the number of health care centres and to **narrow down the doctor-patient asymmetry**.
- **Increasing the Robustness of Healthcare System:** Robust primary and secondary public health care will sharply cut the load on tertiary health care and the need for curative care. A reduced curative care load at tertiary hospitals will help in the success of PM-JAY scheme.
- **Address Concerns of Private Healthcare Providers:** The concerns of the private sector, like low treatment rates and delayed payments, must be addressed at the earliest for the success of the health coverage of senior citizens.

#### 4. Concerns with Supreme Court's Decision on Euthanasia

**News:** In a recent case, the Supreme Court has disallowed withdrawal of Ryles Tube from a terminally ill patient. This has complicated the interpretation of Supreme Court's earlier judgment on Euthanasia.

#### What was the recent case related to Euthanasia?

- Parents of a terminally-ill patient (who has been in a vegetative state for the past 11 years with no hope for recovery) had approached the Supreme Court for the removal of Ryles

#### Active vs Passive Euthanasia

In **Active Euthanasia**, a patient is killed by active means, for example, injecting a lethal dose of a drug.

**Passive Euthanasia** involves letting a patient die by **withholding artificial life support** such as a ventilator or a feeding tube.

Tube put on him. Ryles tube provides nutrition to such patients in a vegetative state through nose.

- The Supreme Court denied the request.
  - The SC opined that the patient is not on any kind of life support. The patient is being provided nutrition through a food pipe (Ryles Tube). Letting him go would not amount to passive euthanasia, as he was not dependent on any external device to stay alive.
  - The SC said that **Ryles tube is not considered life support** and its removal would be considered 'Active Euthanasia'. (Refer EPIC February 2023 for Supreme Court's Guidelines on Living Will).

### What are the concerns associated with the Judgment?

- **Conflicting Definitions:** In 2018, the Supreme Court had allowed 'passive euthanasia'. Passive Euthanasia allows for natural death with the removal of life support systems (like ventilators).
  - However, in the present case, the Supreme Court has stated that a Ryles tube is not considered life support, complicating decisions on its removal. (Refer EPIC April 2024 for Provisions Related to the Living Will).
- **Ethical Principles:** Supreme Court's view challenges principles of medical ethics:
  - **Beneficence:** Acting in the patient's benefit. In this case, the SC hasn't acted in patient's benefit as keeping the Ryles tube prolongs suffering of the patient (in vegetative state for 11 years) and his parents.
  - **Non-maleficence:** Obligatory not to harm patient's life. In this case the SC has forced the patient to suffer.
  - **Justice:** Rights of the patients should not be exploited. Doctors contend that living with a Ryles tube is painful. It is distressing to have it inserted, and it must be changed every 2-3 weeks. Forcing Ryles tube is prolonging the suffering of the patient.
  - **Autonomy:** Patient (or the next of kin) have the right to choose. In this case, the SC has denied the petition of the parents and their right to choose for their son's dignity in death.
- **Cultural Impression:** The verdict reflects cultural fears around death and dying. Death from passive euthanasia in cases like these is interpreted as murder rather than liberation from prolonged suffering.

### Judgments Related to Euthanasia



- **P. Rathinam v. Union of India (1994):** The SC ruled that Section 309 (Attempt to Suicide) of the IPC is **violative of Article 21**, and should be repealed.
- **Gian Kaur v. The State of Punjab (1996):** Article 21 was deemed to exclude the 'Right to Die.' The constitutionality of Sections 306 (Abetment to Suicide) and 309 of IPC was confirmed.
- **Aruna Ramchandra Shanbaug v. Union of India (2011):** The SC allowed Passive Euthanasia and laid down guidelines for the same.
- **Common Cause v. Union of India (2018):** The SC recognized the 'Right to die with dignity' as part of Right to Life and Personal Liberty. An adult of competent mental capacity has a right to refuse medical treatment and withdrawal from life-saving devices. Life-support systems for the terminally ill or those in incurable comas can be removed. The SC also recognised the importance of writing a **living will** (Advanced Medical Directive).
- **Chandrakant Narayanrao Tandale v. the State of Maharashtra (2020):** Active euthanasia is illegal. The petition of active euthanasia was not allowed.

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### What should be done?

- **Clarify Legal Definitions:** Experts have called for clear legal distinctions between euthanasia and withdrawing futile life-sustaining measures. This confusion is evident in the present case of denial of removal of

Ryles tube. The SC seems to have linked the removal of Ryles tube with death by starvation. Medical experts contend this is not the case. (Refer EPIC September 2022 for *The Debate on Euthanasia*).

○ Hence, the SC should seek the opinion of **medical and ethics experts to set the guidelines**.

- **Educate on Patient Rights:** There is a need to improve public awareness about rights of patients. People must be made aware about **Advance Care Planning** and **Advance Medical Directives** to empower individuals to make informed decisions about their care and **end-of-life options**.

## 5. Issues Associated with Demolitions by Government Authorities

**News:** The Supreme Court has said that it will issue pan-India guidelines on demolition of private property. Petitions have been filed in the Court over demolitions by Government authorities without following the due process, an action that has been called 'Bulldozer Justice'.

### What is the meaning of 'Bulldozer Justice'?

- It refers to a controversial practice where authorities in several States use bulldozers and heavy machinery, to **demolish illegally-constructed properties**. The targeted properties generally belong to individuals **accused of serious crimes** like communal riots, rapes, and murders.
- Several rights activists and organizations have raised concerns that often such action is undertaken without following **due legal process**, provided for the demolition of immovable properties.

### What are the arguments of the State in favour of such demolition drives?

- **Legal Compliance:** Officials of State Government assert that demolitions are carried out in accordance with the existing **municipal laws** and regulations laid down in cases of illegal constructions.
- **Effective Deterrence:** State Governments contend that 'bulldozer action' is part of a broader strategy to deter illegal criminal activities and **maintain public order**.
- **Restoration of Law and Order:** Officials say it helps in quick restoration of law and order.
- **Not Community Specific:** State Governments have also provided data that contrary to common media perception, the demolition drives are not targeted at any specific community. Properties of individuals belonging to all communities have been actioned.
- **Public Acceptance:** Supporters of the drive argue that such action enjoys popular public support. The demolition of illegal properties are viewed a **quick justice to persons accused of crimes**, instead of the long drawn legal process where the **accused are often acquitted or get bail**.

### What are the concerns associated with such demolition drives?

- **Rule of Law:** Demolitions without following the process laid out in the law **violate the rule of law** and the **principles of natural justice**, that govern State actions in a country. If a property has been illegally constructed on Government land, it must be demolished after **advance notice** and **right of representation**.
- **Violation of Fundamental Rights:** Such drives violate the **Right to Shelter** which has been recognized as a part of the right to life, guaranteed by **Article 21**. Further, there are ethical concerns of disproportionate punishments involving innocent family members of the accused.
- **Established Principle of Presumption of Innocence:** Demolition of properties based on alleged criminal charges violates the principle of presumption of innocence until proven guilty.
- **Authoritarianism:** Critics argue that bulldozer action reflects a troubling shift towards authoritarianism by making it a means of **political retribution** against **dissenters**.
- **Separation of Power:** Treating demolitions of property as a measure of justice violates the doctrine of separation of power. With 'Bulldozer Justice', the Executive is encroaching into the domain of the Judiciary.



- **Violation of International Covenants:** Demolitions without due process violate several international covenants:
  - **Universal Declaration of Human Rights (UDHR):** Article 12 (Prohibition on Arbitrary Interference on Individual's Right to Property), Article 25 (Right to Standard of Living including Housing).
  - **International Covenant on Civil and Political Rights (ICCPR):** Article 17 (Right to own Property).
  - **International Covenant on Economic, Social and Cultural Rights (ICESCR):** Article 11.1 (Right to Adequate Standard of Living), Article 4 (Restrictions on Rights only through a Law).
  - **Office of the High Commissioner of Human Rights:** An integral element of the right to adequate housing is '*protection against forced evictions*'.

## Judicial View on Demolition Drives



- **Olga Tellis vs Bombay Municipal Corporation (1985):** The Supreme Court ruled that eviction of pavement dwellers using **unreasonable force**, without giving them a **chance to explain** is **unconstitutional**.
- **Municipal Corporation of Ludhiana vs Inderjit Singh (2008):** The SC held that no authority can directly proceed with demolitions, even of illegal constructions, **without providing notice and an opportunity of being heard** to the occupant.
- **Sudama Singh vs Government of Delhi (2010):** The Delhi High Court mandated that the State should comply with **fair procedure** before undertaking any eviction.
- **Ajay Maken vs Union of India (2019):** The Delhi High Court had invoked the idea of the '**Right to the City**' and the '**Right to Adequate Housing**'. No authority shall carry out eviction without **conducting a survey** and consulting the population on eviction and rehabilitation for those eligible.

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### What should be the way forward?

- **Adequate Surveys before Demolition:** The Supreme Court has mandated the administration to undertake a survey before carrying out demolitions. Basic procedural protocols should be strictly enforced, like giving sufficient advance notices.
- **Pan-India Procedural Guidelines:** Pan India guidelines should be incorporated into relevant legislation and rules of the municipal authorities. Proper procedures must be followed during the pre-demolition, demolition and post-demolition phase.
- **Shifting the Burden of Proof:** The burden of proof should be shifted to the authorities to justify demolition and displacement. This will ensure protection of the basic human right of right to shelter.
- **Independent Review Mechanism:** An independent committee with judicial and civil society representatives should be constituted to review the legality of proposed demolitions.
- **Focus on Rehabilitation:** Even if Government properties are illegally encroached, those evicted should be properly rehabilitated elsewhere. International human rights standards, to which India is a signatory, also emphasise the right to adequate housing and compensation for forced evictions.
- **Urban Planning:** There is a need to rethink the urban planning process. According to the Delhi Economic Survey 2008-09, only about 24% of the city lived in planned colonies and the rest lived in unplanned areas. City Master Plans and other rules should be strictly implemented so that there are no encroachments.

## 6. Impacts of Swachh Bharat Mission

**News:** A study published in the journal Nature has reported that the Swachh Bharat Mission (SBM) has saved 60,000-70,000 children annually from death by reducing sanitation-related diseases.

### What are the key findings of the Study?

- The study was undertaken by the International Food Policy Research Institute (IFPRI), University of California and the Ohio State University. The team of researchers analysed data from 35 States and 640 districts.
- The study looked at the link between an **increase in access to toilet**, built under the SBM, and **drop in deaths among infants and children** aged under 5 from 2000 to 2020.
- **Fewer Deaths:** The districts with over 30% toilets constructed under SBM corresponded with 5.3 fewer infant deaths and 6.8 fewer child deaths per 1,000 births. In absolute numbers, this amounted to ≈60,000–70,000 infant lives annually.
- **Fall in IMR:** Every 10-percentage-point increase in district-level toilet access following SBM, corresponded with an average reduction in district-level IMR (Infant Mortality Rate) by 0.9 points and U5MR (Under-5 Mortality Rate) by 1.1 points. Mean IMR post 2015 was 10% lower compared to IMR between 2000 and 2015.
- **Rate of Decrease:** In the pre-SBM period (between 2000–2015), the IMR exhibited an annual decline of 3%. In the post-SBM period, the rate of reduction in IMR was 8–9% higher than the pre-SBM rate.
- **Increase in Availability of Toilets:** In the post-SBM period, there was a **two-fold increase in availability of toilets**. The period also corresponded with a decline in open defecation to 19% from 60% in the first 5 years of the campaign.
- **Asian Enigma:** Asian Enigma refers to the phenomenon that South Asian region has a **high proportion of stunted and underweight children**, higher than Sub-Saharan Africa, despite having better GNP per capita. This has been attributed to open defecation and the resulting infections it causes.

### Evolution of Initiatives for Improving Sanitation Coverage

- ✦ **Central Rural Sanitation Programme (CRSP):** Launched in 1986, it was India's initial step towards improving rural sanitation with substantial subsidies.
- ✦ **Total Sanitation Campaign:** Started in 1999, this marked a shift to a lower subsidy, demand-driven approach.
- ✦ **Swachh Bharat Mission-Grameen (SBM-G):** Launched in 2014, this mission aimed to make India **Open Defecation Free (ODF)** by October 2019. The government aims to transform India from ODF to **ODF Plus** by 2024-25.
- ✦ **Phase II of SBM-G:** Focuses on sustainability, promoting solid and liquid waste management, and covering households left out earlier.
- ✦ **National Annual Rural Sanitation Survey (NARSS):** Conducted to assess rural sanitation coverage, showing 95% of rural India having toilet access.

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### What are the other key achievements of SBM?

- **Open Defecation Free (ODF) India:** By October 2, 2019, all Indian States had declared themselves ODF, impacting 550 million people by changing their sanitation habits.
- **Dignity and Security for Women and Girls:** SBM has improved safety, privacy, and dignity for women by providing access to household toilets.
- **Economic Benefits:** A UNICEF study found that ODF status saved each household INR 50,000 annually due to reduced medical expenses and time savings.

- **SDG 6:** SBM's success in improving sanitation contributed to Sustainable Development Goal 6 (Clean water and Sanitation).
- **Global Influence:** It has inspired global initiatives like Nigeria's "**Clean Nigeria Campaign**" and has influenced global sanitation policies through the **4 Ps: Political leadership, Public Financing, Partnerships, and People's participation.** (Refer EPIC February 2024 for Improving Access to Sanitation in India).

### What should be the way ahead?

- **Behavioural Change:** There are still many instances of open defecation despite availability of toilets. A consistent and sustained effort is required to affect a behavioural change so that **toilet usage remains high and the ODF status is sustainable.**
- **Availability of Water:** One major reason for disuse of toilets is lack of availability of water. The Government has launched **Jal Jeevan Mission** which has delivered impressive performance in improving access to clean water. Full focus should now be on unserved areas/regions.

## 7. India-UAE Relationship

**News:** The crown prince of Abu Dhabi recently visited India.

### How has the India-UAE Relationship evolved?

- India and the United Arab Emirates (UAE) have enjoyed strong bonds of friendship based on age-old cultural, religious and economic ties.

Phase	Description
<b>Initial Phase of Engagement</b>	<ul style="list-style-type: none"> <li>• <b>1966:</b> The relationship began after the accession of H.H. Sheikh Zayed Bin Sultan Al Nahyan as the Ruler of Abu Dhabi in 1966.</li> <li>• <b>1971:</b> Federation of the UAE was created.</li> <li>• <b>1972:</b> India and the UAE established diplomatic relations in 1972.</li> <li>• <b>1981:</b> The Prime Minister of India visited UAE.</li> </ul>
<b>Phase of Active Involvement</b>	<ul style="list-style-type: none"> <li>• <b>Indian PM's visits to the UAE:</b> India's PM visited the UAE in 2015, first by an Indian PM since 1981. Since then the PM has visited UAE 6 times so far.</li> <li>• <b>UAE Leader's Visits to India:</b> UAE's President Mohamed bin Zayed Al Nahyan has visited India for 4 times since 2016, twice as crown prince and twice as President.</li> <li>• <b>2017:</b> India and UAE upgraded their bilateral relationship into Comprehensive Strategic Partnership.</li> </ul>

### What are the major achievements of the India-UAE Relationship?

#### Economic Relations

- **Trade:** In February 2022, India became the first country with which the UAE signed a **Comprehensive Economic Partnership Agreement (CEPA)**. India-UAE trade increased from US\$ 180 million in the 1970s to US\$ 85 billion in 2022-23, making **UAE India's 3<sup>rd</sup> largest trading partner.** UAE is India's 2<sup>nd</sup> largest export destination after the US. UAE is India's 4<sup>th</sup> largest source for crude oil and the 2<sup>nd</sup> largest for LNG and LPG.
- **Investments:** UAE's investment in India amount to ≈US\$ 20-21 billion, of which FDI accounts for US\$ 15.5 billion. ADIA, UAE's Sovereign Wealth Fund, has invested in several Indian projects, including NIIF Master Fund and renewable energy.
- **Connectivity:** There is a high level of connectivity between India and UAE, with more than 1,500 flights every single week.
- **Financial System:** India and UAE signed an MoU for a **Local Currency Settlement (LCS) System** in 2023 to facilitate cross-border transactions in INR and Dirham. It will enable use of their local currencies for **cross-**

**border transactions.** Furthermore, Indian tourists in the UAE and those living in the Emirates who have bank accounts in India can use the UPI network.

### Geo-Strategic relations

- The Middle-east region is a theatre of warfare like the Israel-Hamas war, conflicts in Syria, Iraq, Yemen etc. These conflicts have several security implications for India e.g., ISIS recruitments from Kerala. Hence, India-UAE relationship becomes significant to **bolster internal and external security** of both the nations.
- India's access to the UAE's **Al Dhafra air base** for refuelling has enhanced its strategic reach.
- India-UAE relations are necessary to strengthen the **security of the Indian ocean region**, especially in the Arabian Sea and the Gulf, that are prone to piracy.
- India and UAE have been collaborating in **joint exercises** to counter terrorism like Desert Cyclone (Army), Zayed Talwar (Naval) and Desert Eagle (Air force).
- **India-Middle East-Europe Economic Corridor (IMEC):** UAE is a vital cog in the India-Middle East-Europe Economic Corridor (IMEC) that would boost connectivity and act as a credible alternative to China's Belt and Road Initiative.

### Geo-political relations

- **Cooperation on Multilateral Forums:** India and UAE have strong cooperation at the UN. UAE supports India's bid for entry in the UNSC. Both countries participate in plurilateral platforms like BRICS, I2U2 (India-Israel-UAE-USA), and the UAE-France-India (UFI) trilateral.
- **Coordination with Regional Groupings:** UAE commands a significant respect in regional groupings like the OIC (Organization of Islamic Cooperation) and GCC (Gulf Cooperation Council). An improvement in relation will open India's door for an OIC membership and India-GCC FTA.

### People-to-People Relations

- **Indian Diaspora:** The Indian expatriate community is the largest ethnic group in the UAE and makes up ≈35% of the population. Over 3.5 million Indians live in the UAE, where Indian culture, cinema, and media are well-integrated. The Indian community in the UAE, contributes significantly to remittances, which account for 18% of total remittances to India.
- **Culture:** In 2021, an agreement was signed between NYU Abu Dhabi and the Indian Council for Cultural Relations to establish a visiting professorship, enhancing **academic exchange**.
  - A BAPS Mandir was inaugurated earlier in 2024 in Abu Dhabi, enhancing people-to-people ties.
- **Education:** A tripartite MoU was signed in July 2023 to establish an IIT Delhi campus in Abu Dhabi, with programs starting in 2024. Leading Indian institutions like Manipal, BITS Pilani, and Amity University also have campuses in the UAE.

## Advancing the India – UAE Comprehensive Strategic Partnership New Frontiers, New Milestones



### Economic Partnership

- India-UAE Comprehensive Economic Partnership Agreement (CEPA) signed
- Establish a dedicated India Mart in Jebel Ali Free Zone
- Establish specialized industrial advanced technology zones in the Emirate of Abu Dhabi for Indian investors



### Emerging Technologies

- Expand cooperation on critical technologies
- Promote e-businesses & e-payment solutions
- Collaborate to promote start-ups



### Energy Partnership

- Identify new collaboration opportunities to support India's energy requirements, including new energies



### Climate Action and Renewables

- Work together to create a just & equitable transition to a low-carbon future
- Establish a joint Hydrogen Task Force to help scale up technologies, with a special focus on Green Hydrogen



### Defence and Security

- Enhance maritime cooperation
- Fight against Extremism, Terrorism & Cross-border terrorism



### Cultural Cooperation

- Setup India-UAE Cultural Council



### Education Cooperation

- Establish an Indian Institute of Technology in UAE



### Health Cooperation

- Collaborate in Research, Production & Development of reliable supply chains for vaccines
- Enhance investments by UAE entities in India's health sector



### Skills Cooperation

- Develop a mutually agreed professional standards and skills framework



### Food Security

- Strengthening infrastructure & dedicated logistic services connecting farms to ports to final destinations in UAE

### What are the challenges to the India-UAE Relationship?

- **Non-Tariff Barriers (NTBs):** Non-Tariff Barriers like Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) adopted by the UAE, have dampened Indian exports related to poultry, meat and processed food.
- **China's Cheque Book Diplomacy:** China with its deep pockets has been offering low interest loans and crowding out Indian companies from the UAE and the Middle-east region.
- **Regional Conflict:** Conflicts in the Middle East which primarily involve Israel-Palestine-Lebanon and indirectly involve Iran, US and other regional countries, are threat to the connectivity projects like **IMEC and trade**. The **UAE's normalization of relations with Israel** (Abraham Accords, 2020) could potentially affect India's relations with Iran and some other Arab countries.
- **Kafala System:** The welfare and rights of Indian expatriates in the UAE, particularly blue-collar workers, remain a concern. The inhumane conditions imposed by the Kafala system on immigrants engaged in blue collar jobs in the UAE is a major challenge in India-UAE relations. It gives employers disproportionate control over migrant workers' immigration and employment status.
- **Extension of Loans to Pakistan:** UAE is a major lender to Pakistan. Some security experts are of the opinion that Pakistan diverts some funds into terrorist activities against India.
- **Trade Imbalance:** While trade has been growing, there's a trade imbalance. In FY 2022-23, India's trade deficit with the UAE stood at US\$ 16.78 billion. UAE's efforts to diversify its economy and reduce dependence on expatriate workers could affect Indian interests.

### What steps should be taken to further enhance the India-UAE relationship?

- **Transparency in the use of Non-Tariff Barriers (NTBs):** There should be regular sharing of information on labelling, licensing, permit requirements, import monitoring and surveillance requirements.
- **Establishment of 2+2 Dialogue:** India can establish more strategic dialogue platforms similar to the 2+2 dialogue with US, Russia.
- **Alignment with 'Vision 2021':** UAE, through its 'Vision 2021', seeks to diversify its economy and reduce its dependency on oil. India must use areas like renewable energy, start-ups, fintech to deepen its engagement.
- **Reformation of Kafala System:** India should actively engage with the UAE to reform the Kafala system.

## 8. India-ASEAN Relationship

**News:** The Prime Minister of India recently visited Singapore and Brunei. India also hosted PM's of Vietnam and Malaysia. All these countries are members of ASEAN, indicating the importance of the Group for India.

### What are the areas of cooperation between India and ASEAN Countries?

- India's engagement with the ASEAN has been driven by 3 goals: **Enhancing connectivity** between India and ASEAN (physical, digital, people-to-people, business etc.); **Strengthening the ASEAN** organization; and **Expanding practical cooperation** in the maritime domain.

#### Geopolitical

- India's engagement with ASEAN is a multi-level interaction process.
  - **Apex Interaction:** Annual summits between India and ASEAN; ASEAN-India (AI) Summit.
  - **Support Meetings:** Foreign Minister level meetings; ASEAN-India Foreign Ministers Meeting (AIFMM).
  - **Senior Level Meetings:** There is regular interaction between senior level officials like AISOM which is prior to the AIFMM and the AI summit.
- India engages in the 'ASEAN-led frameworks'; the multilateral platforms chaired by ASEAN. India regularly participates in the meetings of the East Asia Summit (EAS), ASEAN Regional Forum (ARF), ASEAN Defence

Ministers Meeting+ (ADMM+) and the Expanded ASEAN Maritime Forum (EAMF) meetings and its supporting processes.

### Geostrategic

- **Comprehensive Strategic Partnership:** The relationship has evolved into a Comprehensive Strategic Partnership, with special focus on maritime cooperation.
- **Joint Initiatives:** India and ASEAN have established mechanisms like the ASEAN-India Cooperation Fund and the ASEAN-India Science and Technology Development Fund to support various collaborative projects.

### Economic

- **Trade Relations:** ASEAN (as a block) is one of India's largest trading partner with bilateral trade reaching around US\$ 122.7 billion in 2023-24. India had signed a Free Trade Agreement (FTA) in goods in 2009 and expanded the agreement to include services and investments in 2014.
- **Commodities Trade:** Commodity trade between India and ASEAN reached US\$ 110.4 billion in 2021-22, with exports to ASEAN worth US\$ 42.33 billion and imports from ASEAN worth US\$ 68.07 billion.
- **Consultation Mechanisms:** The ASEAN Economic Ministers-India Consultations and the ASEAN-India Business Council (AIBC) promote Comprehensive Economic Cooperation between India and the ASEAN.
- **Investment Initiatives:** Between 2000-2019, cumulative FDIs from ASEAN to India were US\$ 117.88 billion. However, these are mainly accounted for by Singapore's investments in India (US\$ 115 billion).
- **Connectivity:** Key initiatives include **India-Myanmar-Thailand Trilateral Highway** and **Kaladan Multi-modal Project**. The projects aim to improve transport links between India and ASEAN countries, particularly enhancing access to Northeast India.

### Cultural and Social

- **Educational Exchanges:** Programmes such as scholarships for ASEAN students in Indian institutions and various cultural exchange programmes strengthen people-to-people ties.
- **Capacity Building:** Collaborative efforts between India and ASEAN includes capacity building in various sectors. This promotes youth and women's participation in social development programs.

### Historical Evolution of India-ASEAN Relationship

- India's ties with Southeast Asia stretch back more than two millennia. This relation is forged in peace and friendship, religion and culture, art and commerce, language and literature.

Phase	Description
<b>Initial Years of Engagement</b>	<ul style="list-style-type: none"> <li>• The formal engagement began in 1992 ('Sectoral Dialogue Partner', Secretary level).</li> <li>• The partnership was instituted as a 'Dialogue Partner' in 1995, which entailed interaction at the Foreign Minister's level. The partnership was elevated to the summit level in 2002.</li> </ul>
<b>Era of Strategic Partnership</b>	<ul style="list-style-type: none"> <li>• At the commemorative Summit meeting celebrating 20 year relationship between India and ASEAN, the partnership was elevated to a <b>Strategic Partnership</b>.</li> <li>• During the 25-year Commemorative Summit in New Delhi (January 2018), India and ASEAN agreed that the Strategic Partnership will be focused on building cooperation in the <b>maritime domain</b>.</li> </ul>
<b>Comprehensive Strategic Partnership</b>	<ul style="list-style-type: none"> <li>• 2022 marked 30 years of ASEAN-India relations. At the 19<sup>th</sup> ASEAN-India Summit to commemorate 30<sup>th</sup> anniversary, the Strategic Partnership was elevated to the level of <b>Comprehensive Strategic Partnership</b>.</li> <li>• On this occasion, 'Joint Statement on ASEAN-India Comprehensive Strategic Partnership' was released.</li> </ul>

### What are the challenges in India-ASEAN Relationship?

- **Geopolitical:** The complex regional environment with the sharpening of US-China conflict and India's own deepening troubles with China, is a major geopolitical concern for the relations. Further, India's membership of the newly revived Quad has also raised concerns in the region.
- **Geostrategic:** The embroilment of ASEAN members in territorial disputes in South China Sea, complicates India's engagement with ASEAN, as India seeks to navigate these disputes while promoting stability in the region.
- **Economic Concerns**
  - **RCEP:** India's decision to walk out of the regional negotiations on trade liberalisation under RCEP has created a sense of economic disappointment for ASEAN members.
  - **Growing Trade Imbalances:** India faces a growing trade deficit with ASEAN. There has been sluggish progress in India-ASEAN trade due to issues related to implementation, customs procedures, and non-tariff barriers.
  - **Slow Implementation of Connectivity Projects:** There has been slow progress in the connectivity projects, when contrasted with China's BRI, which has gained traction among some ASEAN nations.
  - **Trade and Investment Barriers:** Non-tariff barriers, such as complex custom procedures and inconsistent regulations, hinder smoother trade and investment flows between India and ASEAN countries.
- **Internal Divisions within ASEAN:** The military coup in Myanmar has led to varied reactions among ASEAN members, and has complicated collective action. This division makes it difficult for India to align its policies with ASEAN regarding the regional stability and democratic restoration in Myanmar.



Source: Wikimedia Commons. ASEAN Countries. Number of ASEAN Nations: 10. **GDP (PPP):** US\$ 10 trillion (2022, 6.5% of the Global GDP). **Population:** 680 million (2023, ~8% of the Global); **ASEAN's Share in Global Merchandise Exports** (7.2%, 2016); **ASEAN's Share in Global Merchandise Imports** (6.6%, 2016).

### What should be the way forward?

- **Redressal of Geopolitical Concerns:** India should reassert its stand squarely behind ASEAN in the regional security architecture. India's efforts at reassuring ASEAN have shown a measure of success, with the region opening up to more defence and security cooperation with India.
- **Focus on Emerging Areas:** India should also focus on enhancing cooperation in new areas like health, space technology, digitalisation and advanced manufacturing to strengthen regional ties.
- **Semiconductor Diplomacy:** India's '**semiconductor diplomacy**' with Malaysia and Singapore, both of which have significant capabilities in semiconductor production, should be extended with other ASEAN countries.
- **Accelerated Infrastructure Development:** Accelerating the key connectivity projects will further enhance trade and people-to-people connections.
- **Enhanced Trade Agreements:** Expansion of the scope and effectiveness of the ASEAN-India Free Trade Agreement (FTA) can help in addressing trade imbalances and reduction of non-tariff barriers.

## 9. Changing Political Dynamics in India's Neighbourhood

**News:** There have been major political changes in India's neighbouring countries posing new challenges for India's diplomacy.

### How has India promoted democratic transitions in the neighbourhood?

India has played a pivotal role in supporting democratic transitions in its neighbourhood.

- In Bangladesh, India supported the 2008 elections, which helped the country **transition from military rule to democracy** and brought Sheikh Hasina to power. It contributed to a stable partnership for 15 years.
- India's sustained engagement in Sri Lanka contributed to the defeat of the LTTE in 2009, strengthening ties with a unified Sri Lanka.
- In the **Maldives**, India backed the **first multi-party elections in 2008**, and closely cooperated with the new Government to stabilize the nascent democracy in Maldives.
- India had also supported the 2010 elections in Myanmar which paved the way for gradual emergence of democracy when Aung San Suu Kyi won landslide victories in 2015 and 2020.
- India has extended **significant development assistance**, including a US\$ 1 billion line of credit to Bangladesh and rebuilding efforts in Sri Lanka.

### What has changed in India's neighbourhood in the recent times?

- **Bangladesh:** In August 2024, Sheikh Hasina's Government collapsed due to democratic deficits, an economic downturn, and violent suppression of protests. This ended a 15-year partnership with India. (Refer EPIC August 2024 for Political Upheaval in Bangladesh and the Possible Impact on India).
- **Sri Lanka:** In 2022, President Gotabaya Rajapaksa fled amidst mass protests. Sri Lanka's economy and democracy were severely impacted, despite India's US\$ 4 billion bailout. Now a Marxist leader AK Dissanayake (considered Pro-China) has won the Presidential elections.
- **Maldives:** In 2024, President Mohamed Muizzu won, and has taken a very Pro-China stance, highlighting India's lack of engagement with his political party earlier. (Refer EPIC January 2024 for Deterioration of India-Maldives Relationship).
- **Myanmar:** In 2021, the military took over again, reversing democratic gains. The situation is worsening, with the internal conflict spilling over into India's northeast.
- **Afghanistan:** The Taliban captured power in 2021, turning the clock back after two decades.
- **Pakistan:** In 2022, the civilian government was replaced by a new Governments, closer to the military.

### How has India responded to these changes?

- In Sri Lanka, India provided a US\$ 4 billion bailout package during its economic crisis. The Government has shown **inclination to engage the new leadership in Sri Lanka**, with Dissanayake having visited India in February 2024.
- Despite initial hard stance, India is now engaging with the new Government in Maldives on multiple fronts.
- India has cautiously **initiated engagements with the Taliban** to protect its interests in Afghanistan. (Refer EPIC July 2022 for India's Engagement with Taliban).
- In Bangladesh, India has been cautious and will **have to rebuild ties with various political parties**.

### What are the concerns with India's Approach?

- Several foreign policy experts argue that India often **limits its engagement only with political parties** that it considers '**pro-India**'. This has happened in Bangladesh and Maldives where India failed to



constructively engage with the political parties in the opposition who were critical of India's stance on some issues.

- Such rigidity leads to souring of bilateral relationship when the opposition parties come to power. In addition, this has an impact on economic and business ties (e.g., cancellation of Airport contract to GMR in Maldives).
- Rival Political parties exploit India's partisan support to **whip up anti-India sentiment** in their countries, and accuse India of **interfering in their internal politics**. This impacts people-to-people ties and distorts India's image among the people.

### What should be India's strategy moving forward?

- India needs more **sustained engagement with its neighbours**. In Myanmar and Bangladesh, India must support forces that keep democratic spaces open.
  - In Myanmar, this includes **working with ethnic groups**.
  - In Bangladesh, India should build new understandings with different political parties.
- This should be the approach in all countries. India should **engage with all political parties**, irrespective of their ideology.
- India **should remain flexible**, as shown by its engagement with the new Maldivian government after the unexpected election results in 2024.
- **Developmental support** remains a key tool for fostering closer relations with these nations, as shown by past successes in Afghanistan, where even the Taliban avoided attacking Indian projects due to their benefits for the people.
- India should also take measures that **enhance people-to-people contact** e.g., experts have suggested that **offering seats** for students from the neighbouring countries in India's expanding **medical/engineering and other professional education colleges** can help **build goodwill for India** among the people.

## 10. India and the Global South

**News:** India has taken a lead in highlighting the issues faced by the Global South at platforms like G20, UN and UNFCCC climate change negotiations.

### What is Global South?

- The Global South refers to **countries characterized as developing or underdeveloped**; primarily located in Africa, Asia, and Latin America.
- These nations have **higher levels of poverty, income inequality, lower life expectancy, and challenging living conditions** compared to the wealthier nations of the Global North.
- The Global North are richer nations that are located mostly in **North America and Europe**, with some additions in Oceania (Australia, New Zealand) and elsewhere (Japan, South Korea etc.).

### Brandt Line

- It is an imaginary line that divides the world into richer countries (mainly in the Northern Hemisphere) and poorer countries (mostly in the Southern Hemisphere). It was proposed by Willy Brandt in the 1980s.
- The line shows the **socio-economic divide** between northern countries (rich) and southern (poor) countries.

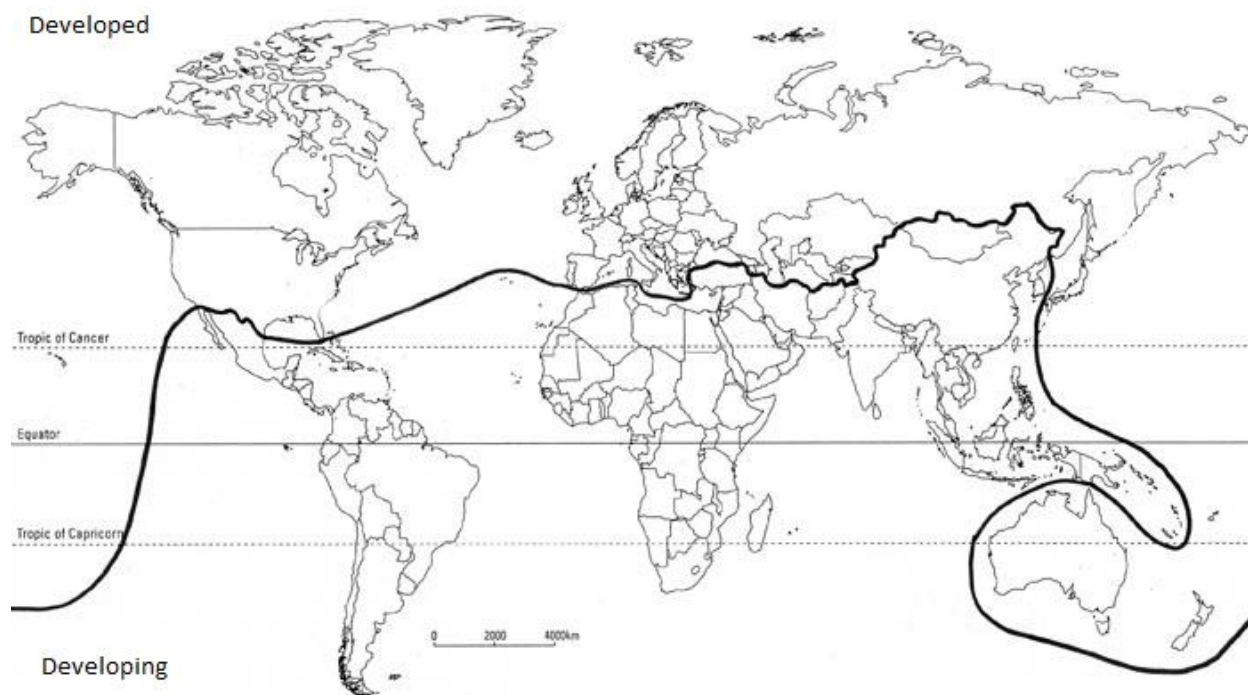
### What has been India's historical association with the Global South?

- India shared its roots of **colonial struggle** and underdevelopment with the countries of Global South. Hence, under the leadership of India's first Prime Minister Nehru, a newly Independent India took a leadership role in putting across the issues of the Global South.

- **Establishment of Non-Alignment Movement:** India was central to the establishment of NAM. It represented the **socio-economic** and **political priorities of the Global South**. India also played a leadership role in drafting the NAM's agenda of **New International Economic Order** to counter the dominance of **Bretton Woods organisations** (IMF and the World Bank).
- **Establishment of G77:** India also played a key leadership role in the establishment of G77, which has now become a coalition of 134 developing nations at the UN. The main aim of G77 was to present a single voice of the Global South at the UN General Assembly, and all UN committees.
- **Stockholm Conference of 1972:** India played a key role in voicing the concerns of Global South against Climate Change. India's key leadership role in the conference led to the evolution of the Principles of **Sustainable Development** (Brundtland Report), **Common But Differentiated Responsibilities** (CBDR) and the **Polluters Pay Principles**.

However, with the end of the Cold War and a domestic economic crisis, a new-found pragmatism began to emerge in the Indian foreign policy. India placed its own national economic and security interests above the ideals of justice and equity for Global South. This is indicated by:

- **Neglect of NAM after the Cold War:** India sent NAM into a state of abeyance. In recent years, India's engagement at NAM Summit has not been at the highest political level.
- **Deeper strategic relations with Global North:** India has started developing closer strategic ties with the countries of Global North like US (e.g., the India-US Civil Nuclear Deal), EU, Japan, Australia etc.
- **New Multilateral Forum:** India has deepened its engagement with new multilateral fora like BRICS, SCO, ASEAN at the cost of G77 and NAM.
- However, with the growing economic and geopolitical heft of India, it has emerged as the Voice of Global South once again.



Source: Wikimedia Commons. Brant Line in dark. Countries to the north of the line are largely developed while those on the south are developing (with few exceptions like Australia and New Zealand).

### How is India becoming the new Voice of the Global South?

- **New Delhi Declaration:** India used the G20 presidency to build consensus among the G20 members to include the issues of the Global South like **debt financing**, **climate justice** and **gender equality** in the New Delhi Declaration.
- **Expansion of G20 and other Forum:** India played a key role in the inclusion of African Union in to G20, giving Global South a greater say in the grouping. Similarly India helped expansion of BRICS to BRICS+.
- **Voice of Global South Summit:** India has been conducting the Voice of Global South Summit to build solidarity among the Global South countries.
- **Vaccine Maitri:** In the wake of COVID-19, India has played a key role in saving lives in the Global South by supplying free vaccines and medicines.
- **Climate Justice:** India has been playing a key leadership role in **climate negotiations** to protect the interests of Global South.

### What factors inhibit India from becoming a leader of the Global South?

- **UNSC Membership:** India's campaign for a permanent seat at UNSC as part of the G4 group is opposed by the Coffee Club members which consist of many Global south countries from Africa and Asia.
- **India's neglect of NAM and G77:** India has been neglecting the oldest grouping of Global South, which has often caused breakdown of effective communication with the countries of Global South.
- **Role of China:** China with its deep pockets has been splurging economic aid and developmental assistance to the countries of Global South. India is vying with China to emerge as the leader of Global South.
- **Lack of Consistent Engagement:** After launching summits with regions of Africa and Indo-Pacific, India has failed to engage with them on a constant basis e.g., no India-Africa Summit has taken place since the 3 summits from 2015-2018. India also failed to show up at the Pacific Island Summit in Papua New Guinea in 2023.
- **Accusations of 'Big Brother' Attitude:** India has been accused of meddling in domestic politics of the countries of Global South. This has attracted mistrust among these countries regarding India's leadership role (e.g., 'India-Out Campaign' in the Maldives).
- **Delays in Project Implementation:** India's aim to become the 'Voice of the Global South' is also challenged by India's lack of capacity to deliver on the development projects within the agreed time frame e.g., the delays in Kaladan Project, Asia Africa Growth Corridor, etc.

### What should be the way forward?

- **Development Assistance:** India must enhance development assistance to the Global South. While India can't match China, but by focusing on more impactful investments in sectors like green energy, health and education; India can edge out China.
- **Focus on Outcomes:** India must invest its energy and resources to **improve the quality and timely delivery** of its development and infrastructure projects.
- **Shed the Big Brother Image:** India must engage with all political actors in a country to check the perception of meddling in their internal politics. It will help shed the Big Brother Image that opposition parties often exploit to win domestic elections.
- **Continued Engagement:** India must engage with the African nations and the Indo-Pacific nations at the highest level by holding regular summits.

## General Studies Paper III

### 1. Addressing the Rising Income Inequalities

**News:** The income inequalities are rising globally, including due to technological changes in the economies. Innovative policy measures are required to check and reverse the trend of rising inequalities.

#### What are the reasons behind rise in income inequalities?

- **Technology:** AI and automation have boosted productivity but **reduced the share of income earned by workers**. From 2019 to 2022, the share of global labour income fell by 0.6 percentage points.
- Data from the ILO's World Employment and Social Outlook study indicates a 1.6% decline in the global labour income share from 2004 to 2024. This decrease translates to US\$ 2.4 trillion in lost wages.
- **Influence of the Pandemic:** The pandemic disrupted supply chains. Many firms redesigned and rearranged their operations post the pandemic, that impacted availability of jobs.
- **Structural Shift:** As technology is becoming more advanced, high skilled jobs in the fields of AI, data science etc. have witnessed a sharp rise in compensation. On the other hand, semi-skilled jobs like basic accounting and management are getting automated, resulting in job-cutting or lowering of wages. This has led to rising income inequalities.
  - Limited new employment opportunities mean that a large share of young workers entering the work force every year are unemployed or work in very low paying jobs.
- **Concentration of Wealth:** Concentration of wealth contributes to income inequality as wealth (especially financial assets) create more income for the rich (like interest or return from equities), making them richer.

#### What should be done to address rising income inequalities?

- **Progressive Taxation:** Progressive tax systems with higher tax rates for super-rich can generate additional resources for Governments. The funds can be used to provide essential services and income support for the poor.
- **Universal Basic Income:** Several economists have proposed UBI as a tool to provide **income security**. However, several other experts have questioned its effectiveness. The proposal of UBI can be debated among all stakeholders to address the concerns raised and arrive at a feasible way to implement it.
- **Education and Skill Development:** Increasing access to quality education and enhancing skilling opportunities for those in need can improve their employability and income prospects.
- **Fair Labor Laws:** Labor laws that guarantee minimum wages, safe working conditions, and rights to collective bargaining can protect workers from exploitation. They can negotiate higher wages and secure their incomes.
- **Investment in Infrastructure:** Building infrastructure that supports environmental **sustainability** and economic **inclusivity**, reducing regional **disparities** can help close the **development deficit** and enhance incomes.
- **Philanthropy of the Super-Rich:** Wealth owners can donate a portion of their wealth to public causes. Initiatives like the **Giving Pledge** have already seen over 235 billionaires pledge US\$ 600 billion. (Refer EPIC March 2024 for World Inequality Lab Report: Income and Wealth Inequality in India 1922-2023).

#### Decentralized Approach for Job Creation

Decentralisation promotes local employment by focusing on local needs, resources and talent.

India's 800 districts with their unique climate, resources, and capabilities, can develop into 800 production hubs.

These hubs can use digital platforms for supply chains, logistics, and markets, promoting growth across the country.

Banks should prioritize small loans to SMEs, encouraging local innovations and production.

Decentralisation aligns with the Gandhian model of development, emphasizing local production and self-sufficiency for a sustainable and inclusive economic future.

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## 2. 10 Years of PM Jan Dhan Yojana (PMJDY): Progress, Impacts and Challenges

**News:** The Pradhan Mantri Jan Dhan Yojana was launched in August 2014, to extend financial services to the unbanked sections. It has been instrumental in furthering financial inclusion in India.

### What are the salient features of the PMJDY?

- It is a national mission for financial inclusion to **ensure access to financial services**, such as a basic savings and deposit accounts, remittance, credit, insurance, pension in an **affordable manner**.
- The primary objective of this scheme is to provide accessible banking services to all citizens, particularly the **underprivileged sections of society**.
- It was launched in August 2014. On the day of the launch, banks organised 77,892 camps around India, and opened ≈1.8 crore accounts.

Feature	Details
<b>Account Accessibility</b>	<ul style="list-style-type: none"> <li>• PMJDY aims to ensure that every household has at least one bank account.</li> </ul>
<b>Zero Balance Accounts</b>	<ul style="list-style-type: none"> <li>• PMJDY accounts are not required to maintain a minimum balance. This makes it easier for <b>low-income individuals to access banking services</b>.</li> <li>• These accounts earn interest on deposits like a regular account.</li> </ul>
<b>Overdraft Facility</b>	<ul style="list-style-type: none"> <li>• The account holders are eligible for an overdraft facility of up to INR 10,000. It is specifically aimed at women account holders.</li> </ul>
<b>Accident Insurance Cover</b>	<ul style="list-style-type: none"> <li>• Accident Insurance Cover of INR 2 lakh is available with RuPay card issued to the PMJDY account holders.</li> </ul>
<b>Direct Benefit Transfers</b>	<ul style="list-style-type: none"> <li>• PMJDY accounts are also eligible for <b>Direct Benefit Transfers (DBT)</b>, Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Atal Pension Yojana (APY), and the Micro Units Development &amp; Refinance Agency Bank (MUDRA) scheme.</li> </ul>
<b>Financial Literacy</b>	<ul style="list-style-type: none"> <li>• The scheme focuses on promoting financial literacy among account holders.</li> </ul>
<b>Bank Mitras</b>	<ul style="list-style-type: none"> <li>• The scheme employs <b>Bank Mitras</b> (bank representatives) to enhance accessibility of the scheme. These Bank Mitras provide branchless banking services across India, especially in rural and remote areas.</li> </ul>

### What has been the progress of PMJDY?

- **New Bank Accounts:** According to the latest data, 53.1 crore accounts have been opened under the scheme. This includes **29.56 crore women beneficiaries account**. This is more than the population of the EU and the US.
- Of these, Public Sector Banks have 41.42 crore accounts (78%), RRBs 9.89 crore (18.6%), Private Sector Banks 1.64 crore (3.1%) and Rural Cooperative Banks 0.19 crore accounts (0.03%).
- Most accounts have been opened in Uttar Pradesh (9.45 crores) and the least has been opened Lakshadweep (9,256 accounts).
- 15 States, apart from UP, have more than 1 crore PMJDY bank accounts.

### What are the major achievements of PMJDY?

- **Banking the Unbanked:** 53.1 crore bank accounts have revolutionized financial inclusion. According to the World Bank's Findex database, 78% of Indian adults (population with 15 years or more of age) had a bank account in 2021 as compared to 53% in 2014.

- Narrowing of the Rural-Urban Gap:**

Out of the total bank accounts opened under the PMJDY, 67% have been opened in rural/semi-urban areas. This has helped in narrowing the gap in access to the formal banking system between rural and urban areas.

- Bridging the Gender Gap:**

≈56% of the new account holders are women. This has helped bridge the gender gap in access to financial services.

- Expansion of Bank Infrastructure:**

The opening of more than half a billion bank accounts has fuelled demand for banking services. This has encouraged commercial banks to expand their infrastructure in recent years. This includes 46% increase in branches of Scheduled Commercial Banks, 30% rise in number of ATMs and 82% increase in Point-of-Sale (PoS) machines.

- Promotion of Direct Benefit Transfer (DBT):**

PMJDY, as an integral component of the JAM trinity (Jan Dhan, Aadhaar and Mobile), has enabled the Government to shift to a more efficient system for transferring benefits directly to beneficiaries. According to the Government data, the JAM trinity has helped in total cumulative transfers of INR 38.5 lakh crore.

- Checking Financial Leakages:**

The DBT through the JDY accounts, has helped in checking financial leakages by weeding out ineligible or fake beneficiaries. According to an RBI report, the DBT through JDY accounts has resulted in a gain of INR 3.48 lakh crore in the implementation of Government schemes including MGNREGS and PM-Kisan.

- Distress Support:**

The JAM architecture has been used by the Government to provide support to citizens during times of distress e.g., the transfer of INR 500 to 20 crore women JDY account holders during the initial days of the pandemic.

- Digital Payments and Digital Economy:**

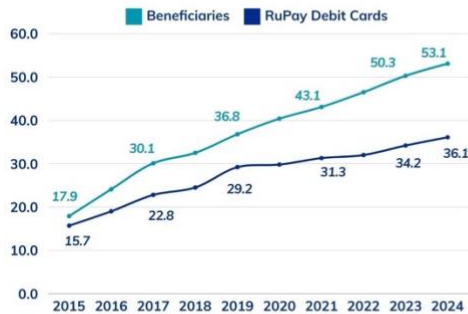
JAM framework forms an integral part of the UPI, which has transformed the payment systems in the country. This has **eased and increased banking transactions** in the economy, leading to significant economic gains.

- 

Large share of low value transactions through the UPI shows the **enhanced ability of low income households** to engage in **formal financial transactions** in their daily lives.

### Progress Trend of the PMJDY Scheme

Progress of PMJDY in terms of Beneficiaries and Deposits



Number of Beneficiaries and RuPay Debit Cards Issues (Crores)

Amount of Deposits in JDY Accounts ('000 Crores)

Source: RBI

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### What are the challenges faced by PMJDY?

- Account Dormancy and Inactivity:**

According to a report, ≈86.3% of PMJDY accounts are operational. This suggests that a significant portion of accounts opened remain dormant (≈14% or every 1 in 7 accounts).

- Use as Mule Accounts:**

There concerns regarding the use of PMJDY accounts as mule accounts in **fraudulent activities**, such as money laundering or storage of black money. (Refer EPIC July 2024 for Money Mule).

- Infrastructural Issues:**

According to a KPMG report, the inadequacy of physical and digital infrastructure, particularly in rural areas, has hindered the **ability of account holders to perform transactions**. Several areas of UP and Bihar suffer from severe lack of bank branches or functional ATM in villages.

- Technological Barriers:**

Poor internet connectivity and inadequate banking technology has affected the effective management of banking services for Jan Dhan account holders in remote areas.

- **Lack of Financial Literacy:** The lack of financial literacy among beneficiaries is a critical barrier in the effective implementation of PMJDY. Unawareness about overdraft facilities and insurance cover provided for beneficiaries under PMJDY limits the utility of such initiatives.
- **Duplication of Accounts:** The opening of multiple JDY accounts under different schemes complicates data management and skews the understanding of the actual number of beneficiaries.
- **Exclusion of Certain Populations:** Certain marginalised groups, including tribal populations and people living in extremely remote areas, remain excluded from the scheme due to social and geographical barriers. Banking penetration is still low in the tribal regions of Chhattisgarh and Jharkhand.
- **Gender Disparity:** Women in some rural areas are less likely to use PMJDY accounts independently due to social norms. This restricts their mobility and financial autonomy.

### What should be the way forward?

- **Improve Financial Literacy:** Implementation of widespread financial literacy campaigns, in partnership with local community leaders, NGOs, and educational institutions will promote financial literacy and better use of JDY Accounts.
- **Encouragement of Active Use of Accounts:** The active use of JDY accounts should be incentivized by linking them with various Government schemes, subsidies, and benefits e.g., schemes can be introduced for account holders to receive benefits like interest on savings, overdraft facilities, or cashback on digital transactions.
- **Greater Integration of Financial Services:** The integration of financial services like microcredit, pension, insurance products with the JDY accounts will help in encouraging the active use of Jan Dhan accounts.
- **Improvement of Banking Infrastructure:** Expansion of the banking network, particularly in underserved rural and remote areas, by setting up more branches, ATMs, and digital banking touchpoints will improve access.
  - Encouragement of the use of Business Correspondents (BCs) and mobile banking units to reach remote areas, will further deepen the process of financial inclusion.
- **Monitoring and Feedback Mechanism:** Establishment of a system for regular monitoring and evaluation of scheme's progress, and collection of feedback from beneficiaries to identify areas for improvement will ensure that the **scheme adapts to the ever-changing needs**.

### 3. Unified Pension Scheme: Features, Benefits and Challenges

**News:** The Union Government has approved the Unified Pension Scheme. It will be effective from April 01, 2025 and aims to provide Government employees with an assured pension after retirement.

#### What are the salient features of the Unified Pension Scheme (UPS)?

- **Assured Pension:** Pension will be equal to **50% of the average basic pay drawn over the last 12 months** prior to the superannuation for a **minimum qualifying service of 25 years**. This pay will be proportionate for lesser service period, up to a minimum of 10 years of service.
- **Assured Family Pension:** This will be 60% of pension of the employee immediately before her/his demise.
- **Assured Minimum Pension:** This will be INR 10,000 per month on superannuation after minimum 10 years of service.
- **Inflation Indexation:** Inflation indexation will be provided on assured pension, assured family pension and assured minimum pension. Dearness Relief will be based on All India Consumer Price Index for Industrial Workers (AICPI-IW) as in case of service employees.
- **Lump-sum Payment at Superannuation in Addition to Gratuity:** 1/10<sup>th</sup> of monthly emolument (pay + DA) as on the date of superannuation for every completed six months of service will be provided as lump-sum at the time of retirement. This payment will not reduce the quantum of assured pension.

### What is the comparative analysis of the three pension schemes?

Parameter	OPS	NPS	UPS
<b>Pension Amount</b>	<ul style="list-style-type: none"> <li>• 50% of last drawn salary.</li> </ul>	<ul style="list-style-type: none"> <li>• Market-linked pension.</li> <li>• There is no defined pension and the pension value depends upon the performance of the selected investment funds.</li> </ul>	<ul style="list-style-type: none"> <li>• Guaranteed pension, 50% of the average basic pay for the last 12 months before retirement.</li> </ul>
<b>Inflation Indexation</b>	<ul style="list-style-type: none"> <li>• Adjusted for inflation through Dearness Allowance (DA).</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable, the pension is market linked.</li> </ul>	<ul style="list-style-type: none"> <li>• Indexed for Inflation based on the All India Consumer Price Index for Industrial Workers (AICPI-IW).</li> </ul>
<b>Employee Contribution</b>	<ul style="list-style-type: none"> <li>• No contribution from employee.</li> </ul>	<ul style="list-style-type: none"> <li>• Defined contribution of 10% of basic pay and dearness allowance (DA).</li> </ul>	<ul style="list-style-type: none"> <li>• Defined contribution of 10% of basic pay and dearness allowance (DA).</li> </ul>
<b>Government Contribution</b>	<ul style="list-style-type: none"> <li>• Full Funding.</li> </ul>	<ul style="list-style-type: none"> <li>• Defined contribution of 14% of the employee's basic pay and dearness allowance.</li> </ul>	<ul style="list-style-type: none"> <li>• Defined contribution of 18.5% of employee's basic pay and dearness allowance.</li> </ul>
<b>Family Pension</b>	<ul style="list-style-type: none"> <li>• Yes. Continues after retiree's death.</li> </ul>	<ul style="list-style-type: none"> <li>• Corpus Dependent.</li> </ul>	<ul style="list-style-type: none"> <li>• Yes. It is 60% of employee's pension.</li> </ul>
<b>Risk</b>	<ul style="list-style-type: none"> <li>• No market risk.</li> </ul>	<ul style="list-style-type: none"> <li>• Market risk.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower risk than NPS.</li> </ul>
<b>Flexibility</b>	<ul style="list-style-type: none"> <li>• Low, fixed benefits.</li> </ul>	<ul style="list-style-type: none"> <li>• High, with investment choice flexibility.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited, with assured pension.</li> </ul>

### What were the reasons for the introduction of NPS?

- **Limited Coverage of Old Pension Scheme (OPS):** The OPS covered only Government employees (~12% of the total workforce of India). The aim of the NPS was to provide pension coverage to workers of the unorganised sector. Workers of the unorganised sector could also join the NPS voluntarily.
- **Huge Fiscal Burden:** With every Pay Commission award, the basic salaries of the Government servants were rising. This was increasing the burden on the Union and State Exchequers.
  - According to the India Pension Research Foundation, the expenditure on Union civil service pensions was around be 2.31% of the GDP in 2004-05 and the implicit pension debt of the Government of India was ~56% of the GDP.
- **Burden of OPS on Future Generations:** Under the OPS, contributions of the present generation of workers were explicitly used to pay the pensions of pensioners. Hence, the OPS involved direct transfer of resources from the current generation of taxpayers to fund the pensioners.
- **Disincentivised Early Retirement:** The OPS disincentivised early retirement. The pension was fixed at 50% of the last drawn salary. Hence, even the disinterested government employees used to linger around to reach till their retirement age to **avail maximum pension**. This resulted in massive under-utilisation of human resources.
- **Flexibility:** NPS allowed the subscriber to choose the fund manager and the preferred investment option, including a 100% government bond option. A guaranteed return option could also be considered to provide an assured annuity.



- **Portability:** Opening of account with NPS provides a Permanent Retirement Account Number (PRAN) which remains valid throughout the lifetime of the subscriber. The NPS is **portable across jobs**, as PRAN account remains the same.
- **Well Regulated Scheme:** An NPS Trust was constituted to oversee performance of fund managers, with a trustee bank to efficiently manage fund flows. A custodian was also appointed to hold the securities, with subscribers being beneficial owners of the assets.

## Concerns Associated with NPS

- **Market Volatility/Uncertainty:** Contributions under the NPS scheme are invested in the markets through the fund managers. The returns are prone to **market volatility**.
- **Increased Burden on Employees:** Under the OPS, all the burden of pension was borne by the Government and there was no requirement of monthly contribution from employees in the pension fund. NPS had decreased the disposable monthly income in the employees hands as **10% of their basic pay and DA is deducted every month for pension**.
- **No General Provident Fund (GPF) Benefits:** Under the OPS, fixed returns were guaranteed for employee contribution to the GPF. However, NPS has no GPF provisions.
- **No Assured Family Pension:** There were no provisions for assured family pension in the NPS, unlike the OPS. The pension was dependent on the pension corpus.
- **No Indexation for Inflation:** The NPS lacked any indexation to account for inflation. The pension was entirely market linked.

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### What is the significance of the UPS?

- **Assured Pension:** UPS provides a fixed, assured pension amount, unlike the market-linked returns of the NPS. Employees who have served for at least 25 years will receive 50% of their last drawn salary from the previous 12 months as pension.
- **Higher Government Contribution:** The Government's contribution rate in UPS is 18.5%, which is higher than the 14% in NPS. This increased contribution can significantly boost the pension corpus, providing greater financial security in retirement.
- **Inflation Indexation:** Employees who have served for over 25 years will be eligible for post-retirement inflation-linked increments to their pension. This protects the real value of the pension against rising prices.
- **Assured Family Pension:** UPS includes an assured family pension of 60% of the employee's pension (right before the death of the employee), payable to dependents upon the employee's death.
- **Combination of Defined Benefits and Contributions:** UPS blends the guaranteed pension features of OPS with the investment flexibility and portability of NPS. This balanced approach offers both stability and growth potential for retirement benefits.

### What are the concerns associated with the Unified Pension Scheme?

- **Increased Fiscal Burden:** The introduction of a defined pension could significantly increase the financial burden on the Government e.g., the expenditure on arrears will be INR 800 crore in the 1<sup>st</sup> year of implementation, with the overall expenditure amounting to ≈ INR 6,250 crore.
- **Potential for Unsustainable Liabilities:** There is a concern that UPS may lead to unsustainable liabilities for the Government. The defined benefits could **constrain spending on other essential services**, as a larger portion of the budget may go to pension covers.
- **Inequitable Benefits:** The scheme primarily benefits a small section of the workforce, the employees of the Union Government. While the NPS was voluntary for the workforce in the unorganized sector, there are no such provisions in the UPS.
- **Transition from NPS:** This transition raises questions about the management of the existing NPS corpus and the potential for reduced participation in the NPS.

### What should be the way forward?

- **Regular Assessments:** Periodic evaluations should be conducted to ensure that the scheme remains financially viable.

- The contributions by the Government should be adjusted based on the assessments to maintain a balance between employee benefits and fiscal responsibility.
- **Stakeholder Consultations:** There must be regular engagement with Government employees, unions, and other stakeholders to gather feedback and address concerns regarding the UPS. This can help in refining the scheme.
- **Performance Metrics:** The Government should aim to establish clear performance metrics to evaluate the effectiveness of the UPS in meeting its objectives. Regular monitoring can help in making informed decisions about necessary adjustments to the scheme. (Refer EPIC December 2022 for The Debate Regarding Pension Schemes).

#### 4. Uniform Lending Interface (ULI)

**News:** The RBI Governor has announced the Uniform Lending Interface (ULI, in pilot stage at present) project. It will build on the success of UPI to streamline credit lending process.

#### What are the constraints in Lending/Credit Availability?

- **High Risk:** Borrowers often have high-risk profiles.
- **Insufficient Data:** There is a lack of data on credit history for assessing risk. At present, the data are **spread across various entities** like Governments, banks, account aggregators, and credit information companies.
- **Lack of Collateral:** Many borrowers do not have adequate assets to pledge.
- **High Costs:** Service costs are particularly high for rural areas and small-value loans.

#### What is the Unified Lending Interface (ULI)?

- It is a platform developed by the **Reserve Bank Innovation Hub**.

##### Key Features of ULI

- Digital access to information from diverse sources.
- Accurate assessment of creditworthiness of potential borrowers.
- Reduced time for loan approval and disbursement.
- Seamless credit delivery without extensive documentation.

- **Consent-Based Digital Access:** It uses standardized Application Programming Interfaces (APIs) to **simplify technical integrations**,

allowing a **'plug and play'** approach for **digital access to diverse information sources** (i.e., it will make it easier to **share data** from various sources kept in **different formats** and reduce the technical complexity in **integrating different databases**. Plug-and-Play refers to **ready-to-use facilities**, without requiring the user to assemble or configure).

- ULI will provide lenders with digital access to both **financial and non-financial data** of customers, including **land records**, through a **consent-based system**.
- The combination of JAM (Jan Dhan-Aadhaar-Mobile), UPI, and ULI is described as a **"new trinity"** that will drive India's digital infrastructure forward.

#### What are the expected benefits of ULI?

- **Streamlined Digital Data Transfer:** This platform will allow for a smooth transfer of digital information from different data sources to lenders, with proper consent.
- **Enhanced Loan Processing:** The ULI will give lenders **accurate information** on **creditworthiness** by pulling data from various sources. It will **speed up loan approvals** and disbursements by **reducing paperwork**. It will make the process more efficient for both borrowers and lenders. This may benefit small borrowers especially in the Informal, Agriculture and MSME sectors.
- **Building on India's Digital Success:** India has successfully used its digital tools like JAM (Jan Dhan, Aadhaar, and mobile phones) and UPI. The ULI will build on this progress and further **strengthen India's digital infrastructure**.

- **Enhancing Credit Assessment:** The ULI will **bridge credit gaps** by providing lenders with a full view of customers' financial and non-financial data. This will enhance digital lending by using additional details like asset ownership, land records, geolocation, and digital footprints for **risk assessment**.

#### What are the differences between UPI and ULI?

- **Focus:** ULI focuses on lending and credit information sharing, while UPI focuses on digital payments.
- **Users:** ULI is primarily for **financial institutions and credit entities**; UPI is for the general public and businesses for money transfers and payments.
- **Integration:** ULI integrates multiple data sources for credit assessment; UPI integrates multiple bank accounts for seamless payments.

#### What should be done going ahead?

- **Need for Deposit Growth:** To fully utilize the ULI, banks must address the current issue where deposit growth is lagging behind lending growth (*i.e., people are investing less money in Bank deposits*).
- **Regulatory Considerations:** The RBI needs to carefully oversee lending practices by banks and NBFCs. Some NBFCs have indulged in practices like lending without due diligence and then resorting to coercive measures for recovery of loans.

### 5. Crop Diversification: Need and Challenges

**News:** Dominance of Rice-Wheat has distorted the agriculture crop cycle in India. This has a severe impact on the environment. There is an urgent need to diversify the crop cycle.

#### What factors drive farmers' preference for rice and wheat?

- **Subsidies on Power and Water:** Many State Governments offer large subsidies on power and water, which lower the cost of growing rice and wheat. This support makes producing these crops more affordable and attractive compared to other options.
- **Minimum Support Price (MSP):** The Food Corporation of India (FCI) operates an open-ended procurement scheme, where it purchases any quantity of rice and wheat at the MSP. This price, set using a cost-plus formula, guarantees farmers a **steady return on their crops**.
- **Guaranteed Returns:** The MSP system guarantees a stable income for rice and wheat farmers, even when market prices fluctuate. Other crops don't have this guaranteed procurement (and returns).
- **Economic Incentives:** Farmers aim to maximize income by comparing harvest prices with cultivation costs. In 2022-23, rice and wheat were most profitable due to high yields, despite lower net gains of INR 12-17/kg.

Crop	Yield (kg/hect.)	Cost/kg	Price/kg	Difference	Income/hect.
Rice	2,833	15.33	32.22	16.89	47,849
Wheat	3,520	11.28	23.92	12.64	44,493
Maize	3,544	14.47	20.35	5.88	20,839
Tur	814	47.61	87.46	39.85	32,438
Chana	1,171	34.00	57.65	23.65	27,694
Urad	675	48.83	79.54	30.71	20,729
Soyabean	1,145	32.61	46.46	13.85	15,858
Mustard	1,428	28.55	51.61	23.06	32,930
Groundnut	2,075	45.22	64.55	19.33	40,110

- **Government Export Policies:** The uncertainties in export policies (e.g., frequent bans on exports) reduce the incentive for farmers to try other crops and they stick to more reliable wheat-rice cycle, where **procurement by Government is assured** and **market price volatility is low**.

### What is the need for crop diversification?

The monoculture of wheat-rice has led to several negative outcomes:

- **Extraction of specific nutrients** from the soil has resulted in soil deficiency in those nutrients.
- **Declining Population of Microfauna in the Soil:** The microfaunal population is responsible for mobilisation and absorption of particular nutrients in the crops. Without microfaunal activities, the soil loses its ecology for crop production.
- **Reduced Resource-use Efficiency:** After the Green Revolution, Indian agriculture has been facing severe problems related to **increase in input costs** to increase productivity.
  - The increase in productivity in proportion to increase in input is limited to a certain extent and plateaus and then decreases with further increase in inputs. In India, productivity has plateaued in most regions.
- Mono-cropping patterns have **more chances to be attacked by the same types of insects and pests**. The pests are controlled by an increasing use of insecticides and pesticides. This accumulates the residue of these chemicals in soil which **pollutes the soil and environment**.
- The introduction of diverse crops and cropping patterns help in **reviving soil health, increasing the population of microfauna, increasing resource-use efficiency**, preventing change in soil's chemical and biological properties, reducing the application of weedicides or herbicides, etc.

## Benefits of Crop Diversification

- ★ **Increases Farmers' Income:** Crop diversification can act as an important **stress-relieving factor** for the economic growth of the farming community and provides **economic stability**.
- ★ **Increases Natural Biodiversity and Productivity:** Crop diversification can increase natural biodiversity, strengthening the ability of the **agroecosystem** to **respond to climatic and environmental stresses**.
- ★ **Environmental Conservation:** It helps in the conservation of natural resources like the introduction of legumes in the rice-wheat cropping system, which has the ability to fix atmospheric nitrogen to sustain soil fertility.
- ★ **Reduces the Risk of Crop Failure:** As different crops will respond to climate scenarios in different ways, crop diversification will significantly reduce the risk of total crop failure. Further, diversification will also help in **mitigating natural calamities**.
- ★ **Ensure Food and Nutritional Security:** Crop diversification enables farmers to grow surplus products for sale at the market. Thus facilitating both food and nutritional security.
- ★ **Access to National and International Markets:** It can enable farmers to gain access to national and international markets with new products, food and medicinal plants.

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### What are the challenges faced in crop diversification?

- **Inadequate Policy Measures:** The State Governments have put an inadequate focus on crop diversification measures. The policy measures are not properly designed e.g., the Union and Punjab Governments launched a new scheme which offered an incentive of **INR 17,500 per hectare** to farmers who **switch to less water-demanding crops** during the kharif season. However, this incentive is insufficient when compared to the **subsidy of INR 38,973 per hectare that paddy farmers receive**, making paddy far more profitable.

- **Dependence on Monsoon:** ~55% of India's cultivable land is in rain-fed regions with heavy dependence on monsoon. Hence, some crops may not be able to survive in the prevailing environmental conditions.
- **Fragmented Land holdings:** Fragmented land holdings make it difficult to use efficient modern technology on large scale, and raise the cost of land boundary management etc.
- **Dominance of Commercial Crops:** Dominance of commercial crops like cotton in the Deccan belt; and sugarcane in the Green revolution belt and Krishna-Godavari basin makes diversification difficult as commercial crops are more remunerative.
- **Reluctance among Farmers:** Lack of proper incentives makes the farmers reluctant to switch and they stick to the more reliable wheat-rice cycle that promises more assured returns.

#### What should be the way forward?

- To encourage crop diversification, there is a need to **create systems for procuring and distributing pulses and oilseeds** similar to those for rice and wheat. Currently, there is no policy for regularly stocking and distributing these crops through fair price shops.
- The existing **open-ended procurement approach** is outdated and should focus on small farmers instead of large producers.
- States should set clear **limits on power and water subsidies** to encourage farmers to grow different crops.

### 6. Ethanol Blending Programme: Benefits and Challenges

**News:** India is on course to achieve its E20 Blending target (blending petrol with 20% ethanol) as part of its Ethanol Blending Programme.

#### What is the Ethanol Blending Programme (EBP)? What is the status of the targets?

- The Ethanol Blended Petrol program was launched in January 2003. The program seeks to achieve **blending of Ethanol with petrol** with a view to **reduce pollution**, conserve **foreign exchange** and increase **value addition in the sugar industry** enabling them to clear cane price arrears of farmers.
- According to the programme targets, India has to achieve 20% blending rate (E20) by 2025-26. The average ethanol blending in petrol has risen from 1.6% to 11.8% between 2013-14 and 2022-23.

#### Sources of Bio-ethanol Production

Source	Details
<b>Sugarcane</b>	<ul style="list-style-type: none"> <li>• Sugarcane gives rise to 3 main related products, in the order of decreasing sugar content.                             <ul style="list-style-type: none"> <li>○ Sugarcane juice and syrup.</li> <li>○ B-heavy molasses.</li> <li>○ C-heavy molasses.</li> </ul> </li> </ul> <p>(Sugarcane juice and syrup, and B-heavy molasses typically go into making sugar, as they have higher sugar content).</p> <ul style="list-style-type: none"> <li>• In a bid to raise production of fuel ethanol, Government had permitted the diversion of Sugarcane juice and syrup, and B-heavy molasses.</li> <li>• However, in December 2023, the Government restricted the diversion of Sugarcane juice, syrup, and B-heavy molasses, over fears of falling sugar stocks.</li> </ul>
<b>Maize</b>	<ul style="list-style-type: none"> <li>• The use of maize for ethanol blending has been increasing to compensate for restrictions on using Sugarcane juice, syrup, and B-heavy molasses.</li> </ul>
<b>Surplus Rice &amp; Damaged Grains</b>	<ul style="list-style-type: none"> <li>• Surplus rice and damaged grains have been permitted by the Government for use as a feed in <b>grain-based distilleries</b>.</li> </ul>

### What is the significance of Ethanol Blending Programme?

- Energy Security:** India has a high dependence on imported fuel (86% fuel consumption through imports in 2021-22) to meet its energy needs. High import dependence makes India's **energy security vulnerable to geopolitical events** like Russia-Ukraine war or oil-cut decisions of OPEC countries. EBP reduces India's dependence on imported oil, and bolsters the energy security.
- Import Substitution:** Reduced dependence on imports can help conserve foreign exchange reserves. According to NITI Aayog, India's crude oil import bill will fall annually by ≈US\$ 4 billion by the achievement of E20 target.
- Reduction of Emissions:** Use of ethanol-blended petrol decreases emissions such as carbon monoxide (CO), hydrocarbons, and nitrogen oxides. According to NITI Aayog, petrol blended with 20% ethanol would reduce carbon monoxide emissions by 50% in two-wheelers and 30% in four-wheelers.
- Impact on Rural Economy and Farmers' Income:** EBP supports the rural economy by promoting the cultivation of various crops (like maize) through an assured market. Under Ethanol Blending Program, Oil Marketing Companies (OMCs) paid sugar mills ≈INR 81,796 crore for ethanol supplies between 2015-22, which has helped mills to clear farmers' dues.
- Job Opportunities:** According to the Asian Development Bank (ADB), the ethanol blending programme can help in generating about 18 million rural jobs in India.

#### About Biofuels

- ★ First Generation:** Produced from **edible items** like sugar, corn and starch. Have **high carbon content** and emit greenhouse gases.
  - ★ Second Generation:** Produced from **leftover food crops** like rice husk. Their Greenhouse gas emissions are **lower than the First Generation biofuels**.
  - ★ Third Generation:** Produced from **micro-organisms** like algae. They are **carbon neutral**.
  - ★ Fourth Generation:** Produced from **genetically-engineered crops**. They are **carbon negative** through carbon capture and storage.
  - ★ Bioethanol:** Produced from **sugarcane and corn** using the process of **fermentation**.
  - ★ Biodiesel:** Produced from **vegetables oils** like soyabean or palm oil, **vegetable waste oils**, and **animal fats** through **trans-esterification process**.
  - ★ Biogas:** Produced from **organic waste** like sewage by **anaerobic fermentation**.
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### What are the challenges in achieving 20% Ethanol Blending in India?

- Maize Imports:** Government restricted the diversion of sugarcane juice, syrup, and B-heavy molasses for ethanol production, over fears of falling sugar stocks. This reduction has increased the import of maize from US\$ 39 million in 2022-23 to US\$ 103 million in 2023-24.
  - According to NITI Aayog's estimates, ≈4.8 million hectares will have to be added to maize cultivation area to meet the 20% target. This additional area is almost half of the current maize cultivation area in India.
- Financial vulnerability of Sugar Mills:** The lack of financial stability of the sugar mills to invest in biofuel plants, and their heavy concentration in certain regions, poses a major challenge to the EBP.
- Barriers to Inter-State Movement of Ethanol:** The Union Government has amended the Industries Development and Regulations Act to ensure smooth implementation and transportation of ethanol across the country. But only 14 States have implemented the amended provisions. As a result, States that produce ethanol more than the requirement for blending cannot transport the Ethanol to other States.
- Focus on Production of Liquor:** The use of ethanol for fuel blending has failed to get traction in some States where the liquor sector remains a highly lucrative market for ethanol distilleries.
- Modification of Engines:** The estimated stock of petrol vehicles in India is 212.7 million as of March 31, 2023 (176.2 million 2-wheelers, 21.8 million 3-wheelers, and 14.7 million 4-wheelers). The modifications entail significant costs and skilled manpower. This can create considerable disruption in the economy.

### What are the concerns with higher Ethanol Blending in India?

- Food Security:** The diversion of food crops, such as rice for ethanol production, will hamper India's food and nutritional security.

- In 2022, close to 1 million metric tonnes of rice fit for human consumption from FCI's stocks was sold at subsidised prices to produce ethanol.
- **Diversion of Agricultural Land:** Excessive blending target can lead to the conversion of agricultural land used for growing food crops, to cultivating biofuel feedstocks like sugarcane, corn, or oilseeds.
- **Water Availability:** Incentives for higher ethanol blending might encourage increased sugarcane and rice cultivation, which are **water-guzzling crops**. According to TERI, additional 400 billion litres of water would be needed, which can exacerbate concerns about sustainability.
- **Soil Health:** The practices of monocropping for biofuel feedstock crops (such as rice, sugarcane) can deplete the nutrients in the soil and make it infertile.
- **Import of Agricultural Crops:** The use of crops like maize for ethanol blending increases the import bill and impacts related agricultural sectors such as poultry sector and livestock feed.

### What should be the way forward?

- **Higher Generation of Biofuels:** The Government should diversify and move to 2G and 3G biofuels, that are more benign in terms of impact on food security.
- **Grain-based Distilleries:** According to the roadmap for achieving ethanol blending targets prepared by the NITI Aayog, India must invest to increase the capacity of Grain-based distilleries from 258 to 740 crore litres.
- **Interest Subvention Programmes:** Interest subvention programmes should be provided for establishment of new distilleries and ramping up of ethanol generation capacity (*i.e., lower interest on loans*).
- **Streamlining Supply Chain:** The Oil Marketing Companies (OMCs) should sign more long-term contracts with distilleries. The inter-State movement of ethanol should be facilitated to streamline supply-chain.
- **Maize-Sugarcane Cultivation:** Maize is not water intensive. However, it degrades soil and cannot be the sole crop either. It should be cultivated in rotation with sugarcane to ensure that soil fertility is not degraded.
- **Pricing:** Increased price support for fuel ethanol can decrease its diversion towards liquor use.

## 7. BioE3 Policy Initiative

**News:** The Union Cabinet has approved the BioE3 or Biotechnology for Economy, Environment and Employment proposal, aimed at boosting biotechnology manufacturing in India.

### What is the need for the Initiative?

- Biotechnology has not had the same **transformative impact** on the Indian economy as the Information Technology (IT). While it encompasses high-value areas such as gene-modification, bio-plastics, bio-materials, and advanced medical devices, **India has not made significant progress in these fields**.
- India has considerable expertise and a skilled workforce, yet only a few biotechnology firms have gained global prominence due to their reliance on imported ingredients and devices for product development.
- The Biotechnology sector faces **several challenges** like lack of infrastructure, funding and manufacturing capacity; regulatory challenges leading to delay in or inability to launch new products etc.
  - The sector also suffers from **brain drain**. Top global biotech companies are able to poach the brightest Indian minds with attractive job profiles and good remuneration.
- The initiative seeks to harness biotechnology for economic growth and environmental benefits.

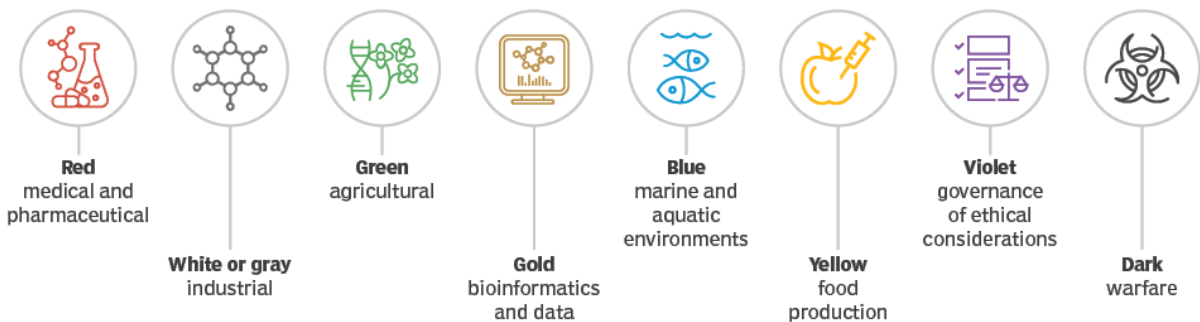
### What are the Strategic Focus Areas of BioE3?

The BioE3 initiative encompasses 6 strategic verticals:

- **Bio-Based Chemicals and Enzymes:** Development of sustainable chemicals and enzymes derived from biological sources.

- **Functional Foods and Smart Proteins:** Creation of foods with enhanced health benefits and proteins with advanced functionalities.
- **Carbon Capture:** It includes technologies aimed at capturing and reducing carbon emissions.
- **Futuristic Marine and Space Research:** Exploration of biotechnology applications in marine environments and outer space.
- **Precision Bio-therapeutics:** Innovations in targeted therapies for personalized medicine.
- **Climate-Resilient Agriculture:** Agricultural practices and technologies designed to withstand climate change.

## Types of biotechnology



Source: TechTarget. The Biotechnology sectors spans multiple fields with diverse applications.

### What is the significance of BioE3 Policy Initiative?

- **Transition to Sustainable Industries:** It will ensure transition from fossil-fuel-based industries to ones that use natural and sustainable resources. This is essential for tackling global issues like carbon emissions and non-biodegradable waste.
- **Implementation and Collaborative Efforts:** The BioE3 policy aims to create bio-foundries and bio-AI hubs to encourage collaboration among biotechnologists. However, the success of this initiative depends on addressing persistent manufacturing challenges.
- **Domestic Production and Global Competitiveness:** It will increase domestic production, reduce reliance on imports, and improve global competitiveness.

### What should be the way forward?

- The Government should help establish an **ecosystem for long-term investment in biotechnology**. This will foster entrepreneurship and innovation in the sector.
- The policy needs cooperation between the Union and State Governments and must receive financial and infrastructure support to succeed.

## 8. Urban Biodiversity in India: Significance and Challenges

**News:** Urban biodiversity in India is experiencing significant loss due to rapid urbanization and environmental degradation. It has several negative impacts on the urban living experience.

### What is Urban Biodiversity?

- Urban biodiversity refers to the **variety of living organisms**, including plants, animals, and microorganisms found in the Urban areas, and their interactions **within urban environments**.
- It encompasses the **genetic, species, and ecosystem diversity** found in cities and their surroundings.



- **Examples of Urban Biodiversity in India**

- Chennai's efforts to restore and maintain its wetlands, such as the **Pallikaranai Marsh**, have led to increased biodiversity. This has contributed to the **ecological balance in the urban landscape**.
- The **Delhi Ridge** acts as a green lung for the city, supporting diverse flora and fauna. Initiatives to protect and enhance this area have helped to maintain a variety of native species, including birds and mammals.
- Mumbai has a thriving biodiverse protected forest, the **Sanjay Gandhi National Park**, within its city limits. Its coastal areas, including **mangroves and salt marshes**, have been recognized for their biodiversity.
- Globally, **Singapore is considered a model for urban biodiversity**. It has extensive green infrastructure, vertical gardens, green roofs, and parks which support a rich diversity of plant and animal species.

#### What is the need for conservation of Urban Biodiversity?

- **Carbon Emissions:** According to a WEF report, cities contribute ≈80% to the global economy but also account for ≈75% of greenhouse gas emissions. Urban green spaces can absorb some of the emissions.
- **Economic Impact of Loss of Biodiversity:** According to a WEF report, ≈44% of global GDP in cities (US\$ 31 trillion) is estimated to be at risk of disruption from biodiversity losses.
- **Altered Micro-Climates and Urban Heat Islands (UHI):** The loss of green cover results in reduction of potential for **evaporative cooling** and **increases the net heat stored** in the urban environment. It results in the development of **Urban Heat Islands**, thus developing a peculiar '**micro-climate**' in urban landscape.
- **Decrease in Disaster Resilience:** Unplanned, explosive and brazen concretised development has resulted in loss of essential urban ecology, severely impacting the natural disaster management potential of cities in India e.g., Chennai Floods (2015) were exacerbated due to loss of natural wetlands of the city.

#### What are the benefits of well-maintained Urban Biodiversity?

##### Ecological Benefits

- **Improved Micro-climate:** Urban flora can help improve the air quality by cooling and cleaning the air, reducing smog, ground-level ozone and greenhouse effect. They help in mitigating the heat island effect by giving green lungs to cities. (Refer EPIC August 2024 for Heatwaves as Notified Disasters).
- **Carbon Sequestration:** Urban forests help in sequestering huge amounts of carbon by capturing carbon dioxide from atmosphere.
- **Increase in Biodiversity:** Trees and forests present in urban areas provide shelter and habitat to many important animals, especially avifauna.
- **Management of Urban Hydrological Cycle:** Urban forests play key roles in supporting water management in and around urban settlements through water provisioning, regulating, recharging and filtering.

##### Social Benefits

- **Checking Haphazard Urbanization:** Urban forests help in checking rapid and unplanned urbanization; and development of slums by demarcating city limits and industrial spaces.
- **Aesthetic Benefits:** Urban trees enhance the beauty and environmental quotient of the city by increasing the aesthetic quality of residential streets and community parks.
- **Reduces Stress:** Green areas reduce stress and **improve physical and mental health** for urban residents while providing spaces for people to interact. Green parks also provide a break from the busy, tiring, often repetitive and tedious routine jobs.
- **Education:** Urban forests in the form of parks, botanical gardens, zoological gardens, avenue trees and other urban green spaces are centres of education on flora and fauna.
- **Cultural Regeneration:** Urban green spaces help in the enhancement of cultural activities by providing venues for local festivals, civic celebrations, political gatherings and theatrical performances e.g., celebration of Vat-Savitri pooja in Bihar.

### Economic Benefits

- **Real Estate Prices:** Landscaping with trees in yards, parks and greenways, along streets, and shopping centres help in increasing value of property and providing commercial benefits.
- **Employment:** Tree planting and maintenance in urban forests provide multiple work opportunities.
- **Reduction of Energy Consumption:** Urban forests offer significant benefits in reducing demand for air-conditioning in buildings and reducing energy consumption.

### Initiatives for Increasing Green Cover in Urban Areas

Initiative	Details
<b>Nagar Van Udyan Program</b>	<ul style="list-style-type: none"> <li>• It aims to develop <b>200 Nagar Vans</b> (City Forests) across India.</li> <li>• It focuses on engaging local communities, educational institutions, and organizations to establish and maintain these urban forests.</li> </ul>
<b>Smart Cities Mission</b>	<ul style="list-style-type: none"> <li>• Under the Smart Cities Mission, many cities have incorporated <b>enhancement of green cover</b> as part of their urban planning.</li> </ul>
<b>National Mission for Green India</b>	<ul style="list-style-type: none"> <li>• It is part of <b>National Action Plan for Climate Change</b> (NAPCC) and aims to <b>enhance the quality of forest cover</b> and <b>increase tree cover</b> in urban areas.</li> </ul>
<b>Urban Afforestation Programs</b>	<ul style="list-style-type: none"> <li>• Various State and Local Governments have initiated <b>urban afforestation programs</b> aimed at increasing tree cover in cities e.g., Pune's <b>Urban Forest Garden Project</b> and the implementation of <b>Miyawaki method</b>.</li> </ul>
<b>Urban Greening Guidelines</b>	<ul style="list-style-type: none"> <li>• The Ministry of Housing and Urban Affairs has issued <b>Urban Greening Guidelines</b> that outline standards for green spaces in urban planning. (Minimum green cover of 12% to 18% in urban areas).</li> </ul>

### What should be the way forward?

- **Reintegration of Nature in the Planning Decisions:** Cities must reintegrate nature into their planning decisions e.g., preservation of natural habitats, renaturing degraded land through community-based tree planting etc. should be part of city plans.
- **Reintroduction of Native Plants:** Native species conducive to local ecology work the best and help in quick restoration of original ecosystems.
- **Systems Approach:** Cities must embrace a 'systems approach' to urban governance that considers the needs of all stakeholders and accounts for the value of natural ecosystems.
- **Development of Green Corridors:** Creation of green corridors through the Miyawaki method in Urban areas will help in reaping the benefits of climate change mitigation.
- **Attracting Investments:** Efforts must be made to make nature an attractive investment to financial markets and drive private funding into cities' natural capital.

## 9. Weather Prediction in India: Achievements and Challenges

**News:** The IMD has significantly enhanced its weather prediction capabilities with the development of advance weather models. However, climate change and the associated extreme events pose a new challenge for the IMD.

### What is the significance of weather forecasting system in India?

- **Agriculture and Food Security:** India's agriculture is heavily reliant on the monsoon. Monsoon provides ≈70-80% of India's annual rainfall. Accurate weather forecasting helps in planning the agricultural activities such as sowing, irrigation, harvesting, crop management and pest and disease control.

- **Disaster Management and Mitigation:** India is vulnerable to various disasters such as cyclones, floods, heatwaves, cold waves, and droughts. Accurate weather forecasting helps in mitigating the negative impact of these disasters e.g., accurate prediction of cyclones can allow evacuation of people and save their lives.
- **Reduction of Economic Losses:** The destruction of agricultural crops due to events like droughts, erratic monsoon rains etc. cause huge economic loss to farmers and leads to **rural distress**.
  - The energy sector (e.g., hydropower and solar) is sensitive to weather conditions. Accurate forecasting helps in efficient management of energy resources, ensuring consistent supply and reducing losses.
- **Construction and Urban Planning:** Weather forecasts are vital for planning construction activities, especially during the monsoon and winter seasons. Accurate weather forecast can help in avoiding delays, ensuring safety of workers, and avoiding cost overruns.
- **Transport and Logistics:** Accurate weather predictions are crucial for the safety and efficiency of road, rail, air and sea transportation e.g., Fog forecasts in winter help in management of flight schedules.
- **Public Health and Safety:** Weather predictions help in the improvement of public health and safety e.g., forecasts of extreme temperatures help in the prevention of heat-related illnesses.
- **Water Resource Management:** Weather forecasts are essential for managing water resources especially in reservoir management and irrigation planning.

### Evolution of Weather Forecasting in India

Period	Details
Ancient	<ul style="list-style-type: none"> <li>• Weather prediction was based on astrology, observation of natural phenomena, and folklore.</li> <li>• <b>Varahamihira's Brihatsamhita</b>, provides clear evidence of deep knowledge of atmospheric processes at the time. <b>Kautilya's Arthashastra</b> contains records of scientific measurement of rainfall and its application to revenue and relief operations.</li> </ul>
Colonial Era	<ul style="list-style-type: none"> <li>• Modern weather forecasting began when IMD was established in 1875. Its primary aim was <b>prediction of monsoons</b>, which were crucial for the agrarian economy.</li> <li>• IMD made significant progress in understanding monsoons with <b>Gilbert Walker's identification of large-scale oscillations in atmospheric circulations</b>, which laid the foundation for modern comprehension of the El Niño phenomenon.</li> </ul>
Post Independence	<ul style="list-style-type: none"> <li>• The IMD has expanded its network of weather stations across the country.</li> <li>• Introduction of <b>Numerical Weather Prediction (NWP)</b> models, based on complex mathematical equations, allowed for more accurate and timely forecasts.</li> <li>• <b>Satellites and Doppler Radars:</b> INSAT System was launched in 1982. It provided real-time data on weather patterns, helping to improve the accuracy of forecasts.</li> </ul>
21 <sup>st</sup> Century	<ul style="list-style-type: none"> <li>• <b>Monsoon Mission</b> (2012) aimed at improving the long-term monsoon forecasts that are crucial for the Government's economic planning.</li> <li>• New initiatives were launched by the IMD to improve the observation network, install high-performance computing systems, deploy sophisticated instruments like Doppler radars, and develop better computer simulation models.</li> </ul>

### What have been the successes of Weather Forecasting in India?

- **Improved Cyclone Forecast:** The timely and accurate forecasts of cyclones in India has led to establishment of a reliable response and evacuation mechanisms e.g., accurate predictions of Cyclone Phailin (2013) and Amphan (2020) helped avoid the loss of thousands of human lives.
- **Prediction of Monsoons:** The long-range monsoon forecasts have a ≈100% accuracy over the last decade.

- **Weather Forecasting for Transportation:** Winter Fog Experiment (WIFEX) developed by IMD has helped in the dissemination of fog information, which is used by airlines and passengers to plan their travel.
- **Air Quality Monitoring:** IMD's SAFAR system is being used to monitor air pollution level in cities like Delhi.
- **Enhanced India's Global Reputation:** IMD has been recognised as one of the 6 Regional Specialized Meteorological Centres of the World Meteorological Organization (WMO). IMD has contributed to the UN's 'Early Warning for All' programme regarding climate change.

#### What are the reasons for increased demands for more accurate weather predictions in India?

- **Extreme Weather Events:** The extreme weather events like cloudbursts, intense heatwaves, which usually occurred once in a few decades, now threaten people's lives and livelihoods almost every year.
  - Such events caused large loss of lives in **landslides in Wayanad (2024)** and **lake bursts in Uttarakhand and Sikkim (2023)**. **Kalyanapattinam** in Tamil Nadu's Thoothukudi district **experienced an entire season's rainfall in a day**. Hence there is a need for accurate weather prediction.
- **Need for Data at the Hyper-local Levels:** The need of weather predictions at the hyper-local has increased in recent times e.g., extreme rainfall events in urban areas (like Mumbai) can help municipal authorities to take precautionary measures and civilians to plan their activities ahead, minimizing sudden disruption.

#### What are the challenges with Weather Forecasting in India?

- **Greater Variability:** The forecasting of weather in the tropical countries like India, is more challenging than in areas that are farther from the equator, due to **greater variability in weather phenomena**.
- **Challenges of Hyper-locality:** IMD's current weather forecast ability is spread over a 12 km X 12 km area. This grid, which is larger than most Indian cities helps in forecasting of likelihood of rainfall over the city. However, the lack of 3 km X 3 km grid, **hinders the ability of monsoon prediction at the hyperlocal level**.
- **Inherent Uncertainties in Weather Forecasting:** The science of weather forecasting suffers from inherent uncertainties, making it difficult to make accurate predictions. In addition, more advanced (i.e., ahead in time) the prediction, greater the uncertainty.
- **Lack of Data Assimilation and Modelling:** Incorporation of diverse and accurate data into numerical weather prediction models is another major challenge. IMD faced challenge in assimilation of satellite data during the 2015 Chennai floods which impacted the accuracy of predictions.
- **Infrastructure:** There is insufficient observational infrastructure like doppler radars.
- **Collaboration with Neighbouring Countries:** IMD faces the challenge of lack of collaboration in sharing of data related to transboundary air pollution and shared water resources with China and Pakistan.

#### What should be the way forward?

- **Hyper-local Analysis:** IMD must should aim at developing 3 km x 3 km grids, and should eventually aim to develop hyper-local forecasts for 1 km x 1 km areas.
- **Tailoring to Local Specifics:** India's weather forecasting system should aim at developing computer simulated models tailored to local specifics. The data collectors should narrow their focus to district, block, panchayat, village and ward and street-levels.
- **Artificial Intelligence (AI) and Machine Learning (ML):** Incorporation of AI/ML algorithms to analyse vast amounts of meteorological data can improve prediction models and enhance the accuracy of forecasts.
- **Academic and Research Collaboration:** IMD should also tap into research conducted in other universities and institutions e.g., IMD can collaborate with IIT Bombay which has developed cutting-edge computing technologies to predict rainfall in the city with greater accuracy than the IMD.
- **Infrastructural Upgrades:** The focus must be on infrastructure upgradation like ocean observation systems, high-resolution earth observation satellites and doppler radars.

Polity

1. Productivity of the Parliament in the Monsoon/Budget Session 2024

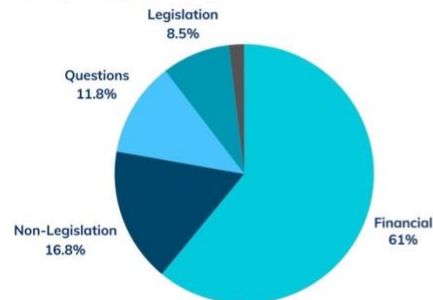
**News:** In the Monsoon/Budget Session 2024 of the newly constituted 18<sup>th</sup> Lok Sabha, the Lok Sabha and Rajya Sabha achieved 135% and 112% productivity respectively.

Key Highlights of the Session

- The 18<sup>th</sup> Lok Sabha held its first two sessions between June and August 2024. These two sessions lasted for a total of 22 days in Lok Sabha and 20 days in Rajya Sabha.
- Across both sessions, **Lok Sabha functioned for 123% of its scheduled time and Rajya Sabha for 110%.**

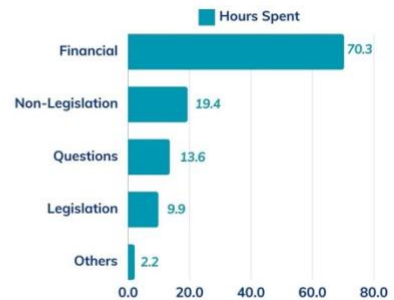
Productivity of the Lok Sabha, Budget Session 2024

Activity-wise productivity of the Lok Sabha



Proportion of time spent in the Lok Sabha on various activities.

Source: PRS



Number of hours spent by the Lok Sabha on various activities.

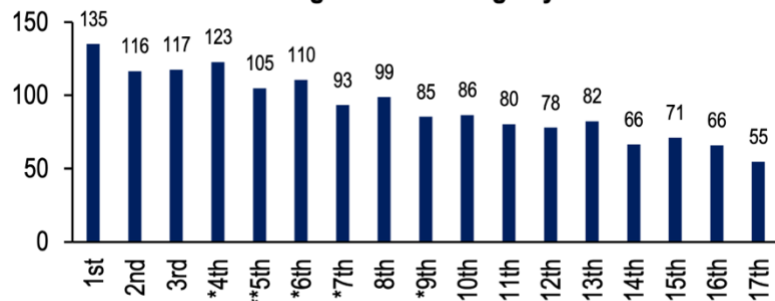
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- **11 Bills were introduced** in the Session. **Only 1 was referred to a Standing Committee.**
- The Ministers answered **86 questions** in the **Lok Sabha** and **68 questions** in the **Rajya Sabha.**
- The time spent on the **general discussion on the Budget** has declined over the years. (MPs discuss the Budget provisions and overall government finances). In this session, **more than 27 hours were spent on the general discussion in Lok Sabha.** This is significantly higher than in recent years.
- Over the last 10 years, more than two-thirds (67%) of the Budget has been **guillotined**, i.e., passed without discussion each year.

Poor Performance in the 17<sup>th</sup> Lok Sabha

- In the 17<sup>th</sup> Lok Sabha (2019-24), the Lok Sabha functioned for **88% of its scheduled time**, while Rajya Sabha worked for 73%.
- The **average annual sittings of the Lok Sabha fell to 55.** The previous low was 66 in the 14<sup>th</sup> (2004-09) and 16<sup>th</sup> (2014-19) Lok Sabhas.
- **Only 16% of Bills were referred to Committees** for detailed scrutiny. In contrast, 60% and 71% Bills were referred to the Committees in the 14<sup>th</sup> (2004-09) and 15<sup>th</sup> (2009-14) Lok Sabhas.

Average annual sitting days



Note: \* indicates a term less than five years; \*\* indicates a six year term.

- Between 2019 and 2023, on average, **~80% of the budget had been voted on without discussion.**
- 729 Private Members' Bills (PMBs) were introduced in the 17<sup>th</sup> Lok Sabha, which is the second-highest since the 1<sup>st</sup> Lok Sabha (highest 1,116 in the 16<sup>th</sup> Lok Sabha). However, **only 2 PMBs were discussed.** During the same period, 705 PMBs were introduced in Rajya Sabha, and 14 were discussed.

- Till date, only 14 PMBs have been passed and received assent. No Private Members' Bill has been passed in both Houses since 1970.
- It is expected that with a stronger opposition in the 18<sup>th</sup> Lok Sabha, the functioning of the Parliament will improve.

## 2. Bail is the norm even in Money Laundering Cases: Supreme Court

**News:** The Supreme Court has affirmed that the principle, "Bail is the rule and jail is the exception", is applicable even in cases related to money laundering.

### Key Observations by the SC

- **Liberty Over Incarceration:** The Court emphasized that individual liberty is the norm, and any deprivation of liberty should only occur through a **valid and reasonable legal procedure**.
- **Interpretation of Section 45 of PMLA:** The Court clarified that Section 45 of the Prevention of Money Laundering Act (PMLA) should not be interpreted in a manner that makes the grant of bail impossible. **Section 45 does not override the general principle that bail should be the default.**
- **Conditions for Bail:** The Court noted that bail must be granted if the two conditions of Section 45 are satisfied:
  - There are reasonable grounds to believe the accused is prima facie innocent.
  - The accused is unlikely to commit any crime while out on bail.

### Article 20 of the Constitution

- (1) No person shall be convicted of any offence except for **violation of a law in force at the time of the commission of the act charged as an offence**, nor be subjected to a penalty greater than that which might have been inflicted under the law in force at the time of the commission of the offence.
- (2) No person shall be **prosecuted and punished for the same offence more than once**.
- (3) No person accused of any offence shall be **compelled to be a witness against himself**.

### Right Against Self-Incrimination

- **Protection of Fundamental Rights:** The SC ruled that the ED cannot force an accused in judicial custody to make a self-incriminatory statement in another money laundering case.
  - This would violate the fundamental right to silence and protection against self-incrimination under Article 20(3) of the Constitution.
- **Section 50 of PMLA:** Section 50 allows the ED to summon individuals and request documents/statements. However, the Court ruled that these powers cannot violate an individual's right against self-incrimination.
- **Inadmissibility of Self-Incriminating Statements:** A person in custody cannot provide a statement with a "free mind". This makes any **self-incriminating statement** under ED pressure **inadmissible as evidence**. This ensures fairness and justice by preventing such statements from being used against the accused.

## 3. Low Use of Plea Bargaining in India

**News:** A report released by the Ministry of Law and Justice has stated that the provision of plea bargaining has remained underutilized in India.

### Key Findings of the Report

- The provision of Plea Bargaining was introduced in India through the **Criminal Law Amendment Act, 2005**. The purpose was to **reduce case backlogs** in Indian courts.

- **Underutilization of Plea Bargaining:** According to the National Crime Records Bureau (NCRB) 2022, out of 1,70,52,367 cases that went to trial in Indian courts, only 19,135 cases (or 0.11% cases) were disposed of through plea bargaining.
- **Concerns Raised in the Report:** Despite the provisions of plea bargaining, the actual application of plea bargaining has been “extremely low”.
  - The report also highlighted issues related to the clarity and consistency in the law’s application.

### About Plea Bargaining

- Plea bargaining is the **pre-trial negotiation** between the defendant and prosecution during which accused pleads guilty in exchange for **certain concessions** by the prosecutor.
  - This usually involves negotiations to either **reduce the sentence** or the **seriousness of the charge**.
  - In the US, more than 75% of criminal cases end in guilty pleas, almost all resulting from plea bargaining.
- **Legal Framework:** Plea bargaining was incorporated into the Code of Criminal Procedure (CrPC) in 2005, in Chapter XXIA. In section 290 of BNSS, plea bargaining has been made time bound and application can be made within 30 days from date of framing of charge.
  - It applies only to **offences punishable by up to 7 years of imprisonment**.
- **Exclusions:** It is not applicable in cases involving offences affecting the socio-economic condition of the country or **crimes against women** and **children below the age of 14 years**.
  - Plea bargaining is also **not available to repeat offenders** who have been previously convicted for the same offence.
- **Outcome of Plea Bargaining:** The court may reduce the sentence up to 1/4<sup>th</sup> (25%) of the original punishment prescribed for the offence.
  - The accused may be released on probation or may be sentenced to community service.
  - If no satisfactory agreement is reached, the case is proceeded with as if no plea-bargaining application was made.

### 4. Constitution of the 23<sup>rd</sup> Law Commission

**News:** The Union Government has notified the constitution of the 23<sup>rd</sup> Law Commission.

### About the 23<sup>rd</sup> Law Commission

- The 23<sup>rd</sup> Law Commission was notified on September 2, 2024 and will serve until August 31, 2027.
- It will consist of a Chairperson, 4 full-time members, and 5 part-time members. The Chairperson and the other members have not yet been named.

### Terms of Reference for the 23<sup>rd</sup> Law Commission

- **Identify Obsolete Laws:** Review and recommend laws that are no longer needed and should be repealed.
- **Standard Operating Procedures:** Develop a system for periodic review of existing laws for simplification of legal language and processes.
  - Revise the Central Acts of general importance so as to **remove anomalies, ambiguities and inequities**.
- **Laws and Economic Needs:** Identify laws that need amendment to align with the economic needs of the present times.
  - Examine the impact of globalization on food security, unemployment and recommend measures for the protection of the interests of the marginalized.
- **Directive Principles:** Suggest laws or amendments that might be necessary to implement the Directive Principles and realize the objectives set out in the Preamble of the Constitution.
- **Gender Equality:** Examine the existing laws with a view for promoting gender equality and suggesting amendments.

### About the Law Commission of India

- The Law Commission of India is a **non-statutory body** formed by the Union Ministry of Law and Justice.
- It is established through a **gazette notification** to help the government **review existing laws**, recommend the repeal of **outdated laws**, and **suggest reforms**.
- The Commission's recommendations often influence legal changes, though the **Government is not obligated to adopt them**.
- **Members of the Law Commission:** The Law Commission generally consists of:
  - A Chairperson, usually a retired Supreme Court or High Court judge.
  - 4 full-time members (including a member-secretary), who may be serving judges or legal experts.
  - Up to 5 part-time members.
  - The Secretaries of Legal Affairs and Legislative Departments as ex-officio members.
- **Appointment:** The Chairperson and members are appointed by the **Appointments Committee of the Cabinet**, chaired by the Prime Minister.
- **Role of the Law Commission**
  - The Commission reviews the current laws in India to ensure they remain relevant and effective.
  - It suggests the removal of laws that are no longer needed.
  - The Commission suggests reforms to align laws with modern economic and social needs.
  - The Commission can propose new laws to address evolving legal and societal issues, including the Directive Principles of State Policy.
  - It evaluates the impact of socio-economic legislation after they have been implemented.

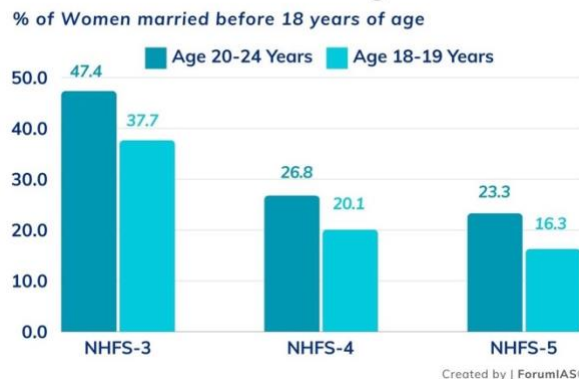
### 5. Himachal Pradesh Raises the Minimum Age of Marriage for Women

**News:** The Himachal Pradesh State Legislative Assembly has passed a Bill to raise the minimum marriageable age for women from 18 to 21 years.

#### Key Provisions the Bill

- The Prohibition of Child Marriage (Himachal Pradesh Amendment) Bill, 2024 amends the **Prohibition of Child Marriage Act, 2006**.
- **Section 2(a) of the 2006 Act** defines a 'child' as someone 'who, if male, has not completed 21 years of age, and if female, has not completed 18 years of age'. The Bill **removes gender-based distinction**, redefining a 'child' as **a male or female who has not completed 21 years of age**.
- The Bill extends the time period for filing a petition to annul a marriage. Under Section 3 of the 2006 Act, an individual who was a minor at the time of marriage can file for annulment within 2 years of attaining majority (i.e., before turning 20 for women and 23 for men).
  - The Bill extends this period to 5 years, allowing both women and men to file petitions before they turn 23, in accordance with the new minimum marriageable age of 21 years.
- **Section 18A** has been introduced to ensure that the Bill's provisions take precedence over all other existing laws. This means that the new minimum marriageable age for women will apply uniformly across Himachal Pradesh, **regardless of any conflicting laws or religious and cultural practices**. (Refer EPIC November 2022 for Issue of Child Marriage in India).

#### Prevalence of Child Marriage in India





### Need for President's Approval

- **Entry 5** of the **Concurrent List** in the **Seventh Schedule** deals with the subject of **marriage and divorce**. Both Union and State Governments can enact laws to regulate (child) marriage.
- The Bill passed by the Himachal Assembly is in conflict with the Parliament's 2006 Act with respect to marriageable age of women (21 years vs 18 years).
- According to **Article 254(1)**, if the law passed by a State Legislature on a subject listed in the Concurrent list is **repugnant to a law made by the Parliament**; then the **law made by the Parliament shall prevail** and the **repugnant provisions** of the law passed by the State shall be **deemed void**.
- However, under **Article 254(2)**, if the **Governor reserves the Bill for the President's consideration**, and the **President grants her assent**, the Bill becomes an Act and **shall prevail in the State**. The State law will take precedence within the State and override the provisions of the Parliament's law.
- Hence, for the Bill to become applicable, the assent of the President is necessary.

### 6. New Guidelines for Grievance Redressal

**News:** The Union Government has issued revised guidelines for timely redressal of grievances raised on the CPGRAMS portal.

#### About the New Guidelines

- The Guidelines are part of the Government's efforts to make the grievance redressal system more accessible and efficient.
- **Prompt Response:** All grievances should be **redressed within 21 days**. In cases where more time is required, the Government will provide an **interim reply** to the citizens.
- **Nodal Officers:** Nodal officers will be appointed for public grievances in all Ministries/Departments and shall be responsible for effectively dealing with grievances of citizens.
- **Appellate Process:** The Government has proposed to **establish an appellate officer** and **sub-nodal appellate officer** in case of prolonged grievance redressal. The appellate officers and sub-nodal appellate officers in Ministries/Departments will be responsible for the escalation process. The appeal shall be disposed-of in 30 days.
- **"Whole of Government Approach":** The "whole of the government approach" for redressing the grievances means that a grievance can't be closed by stating, "Does not pertain to this Ministry/Department". In such case, the grievance should be transferred to the right authority.
- **Feedback:** The Government has also proposed to conduct an analysis of the feedback received from citizens and use data analytics tools for the improvement of the grievance redressal system.
- **Use of Technology:** The Guidelines seek to improve quality of grievance redressal through use of technology like integration of grievance portals, root cause analysis using AI enabled dashboards and assessment matrix like the Grievance Redressal Assessment Index.
- **Capacity Building:** Capacity building of grievance redressal officers has been envisaged through the State Administrative Training Institutions.

#### CPGRAMS

(n.) Centralised Public Grievance Redress and Monitoring System

1. An **online portal** available to citizens 24\*7 to **lodge grievances** related to **service delivery**, to the Ministries/Departments of **Government of India and States**.

2. It also allows **tracking** the status of grievances, **appealing** and **rating** the resolution. If the rating is **'Poor'**, an option to file an appeal is enabled.

### 7. Bureau of Police Research and Development (BPRD)

**News:** The 54<sup>th</sup> Foundation Day of BPRD was celebrated recently.

#### About the Bureau of Police Research and Development (BPRD)

- It is an apex body under the **Ministry of Home Affairs** (MHA).

- It was established on August 28, 1970, by replacing the Police Research and Advisory Council.
- It focuses on **promoting excellence in policing** and **correctional administration**.
- It aims to provide a systematic study of police problems and to **apply science and technology in policing methods** and techniques. It is headquartered in New Delhi.

#### Mandate and Functions

- **R&D:** Conducting studies on crime trends, police operations, and administrative reforms to improve police efficiency and effectiveness.
- **Training:** Developing and implementing training programs for police personnel, emphasizing modern and scientific approaches to foster professionalism.
- **Modernization:** Advocating for the adoption of advanced tools, technologies, and methodologies in policing to meet contemporary challenges.
- **Policy Formulation:** Assisting in development of policies related to policing and public safety, collaborating closely with Central and State Governments.
- **Coordination and Liaison:** Facilitating cooperation among police organizations and government bodies to share best practices and collaborate on law enforcement issues.

#### Divisions

- **Research and Correctional Administration Division:** Focuses on crime studies and correctional services.
- **Training Division:** Identifies training needs and develops training modules for police personnel.
- **Modernization Division:** Promotes the use of new technologies and equipment in policing.
- **Forensic Science Division:** Enhances forensic capabilities through modern scientific methods.
- **National Police Mission Division:** Aims to transform the police force into a more efficient and people-friendly organization.

#### Initiatives

- **Model Police Stations:** Establishing stations that exemplify best practices in policing.
- **National Police University:** Proposed to provide specialized education in policing and criminal justice.
- **Police Reforms:** Developing recommendations for police reforms focused on accountability and community policing.
- **Crime Analysis and Research:** Publishing reports and studies on crime and policing to inform policy-making.
- **Workshops and Seminars:** Organizing events to share knowledge and best practices among policing experts.

#### Challenges

- **Resource Constraints:** Limited financial and human resources can hinder its ability to implement extensive research and training programs.
- **Coordination with States:** Ensuring effective coordination with State police forces, which have their own set of challenges and priorities.
- **Keeping Up with Technological Advancements:** Rapid technological advancements require continuous upgradation of skills and equipment.

## 8. Enemy Property Act

**News:** The Government of India has announced plans to auction a parcel of land in UP under the Enemy Property Act. The land was previously owned by the family of former Pakistan President Pervez Musharraf.

#### About the Provisions of the Enemy Property Act

- The word 'enemy' signifies any country that has committed an **act of aggression** or **declared war against the Union of India**.
- The Law defines enemy property as properties left behind by **people who migrated to Pakistan and China** and **acquired citizenship**, after the Partition or the subsequent wars (1962, 1965, 1971) with these countries.

- Initially, these properties were taken over by the Government of India under the **Defence of India Rules, 1962** and vested with **the Custodian of Enemy Property for India (CEPI)**.
- The **Enemy Property Act** was **enacted in 1968** to formalize the process. It allowed the Government to regulate and appropriate properties belonging to those who took the nationality of Pakistan or China.
- Besides real estate, enemy property may also include **bank accounts, shares, gold, and other assets**.
- In **Union of India vs. Raja Mohammad Amir Mohammad Khan (2005)**, the SC had ruled that a legal heir of an enemy can inherit the property (declared enemy property) if the legal heir is an Indian citizen. The Judgment led the legal heirs of those who had migrated to Pakistan to stake claim on enemy properties.
- To counter such claims, the **Act was amended in 2017** to expand the definition of enemy.
  - Post the Amendment, the definition **includes the legal heirs** (in India) of those who migrated and the **law of succession does not apply to enemy property**. It means their heirs in India cannot make any claim over the enemy property. The properties remain under the Custodian's control.
  - The Act also made it clear that once a property is declared 'enemy property', it remains so even if there is a subsequent change of nationality (to a non-enemy country).
- Sale of enemy properties is overseen by the Ministry of Home Affairs or the Custodian of Enemy Property for India (CEPI). The proceeds of sale are deposited into the Government account as disinvestment.

## 9. New Districts in Ladakh

**News:** The Union Government has announced the creation of 5 new districts in Ladakh: Zaskar, Drass, Sham, Nubra, and Changthang.

### Significance of New Districts

- The aim of creating the new districts is to **enhance governance** and ensure that the Government services reach every part of Ladakh.
  - Ladakh has two districts at present, Leh and Kargil, both having autonomous **Hill Development Councils**.
- Ladakh is one of the least populated and most challenging UTs in India due to its terrain. The Government machinery faces difficulties in reaching remote areas.
- The new districts are intended to make it easier for public welfare schemes to reach residents and promote all-round development in Ladakh.

### Procedure for Creation of New Districts in India

- The power to create new districts or alter or abolish existing districts rests with the **State Governments**. This can either be done through an **executive order** or by **passing a law in the State Assembly**.
- Many States prefer the executive route by simply **issuing a notification in the official gazette**.
- The **Union Government has no role** in the alteration of districts or creation of new ones. States are free to decide on this matter. (*Read more here*).

### Role of Union Government Renaming of Districts

- If a State Government wants to change the name of a district or a railway station, then the Home Ministry comes into the picture.
- The **State Government proposes a new name to a district and forward the proposal to the Home Ministry**. The Home Ministry forwards the proposal to other Ministries/Departments like Ministry of Earth Sciences, Intelligence Bureau, Department of Posts, Geographical Survey of India Sciences, and the Railway Ministry to provide their clearance.
- After examination of their replies, the State Government receives a no-objection certificate and the name of the district stand changed.

## Policy

### 1. Definition of Literacy Under NILP

**News:** The Ministry of Education has defined 'Literacy' and the status of achievement of 'full literacy'. This is part of a renewed push for adult literacy under the New India Literacy Programme (NILP).

#### About the Definition of Literacy and Full Literacy

- Literacy encompasses the ability to **read, write, and compute with comprehension**. It also includes **understanding, interpreting, creating, and critical life skills** such as **digital and financial literacy**.
- Achieving 'full literacy' is defined as **reaching a 95% literacy rate** in a State or UT.
- Under NILP, a non-literate person is considered literate if they pass the Foundational Literacy and Numeracy Assessment Test (FLNAT).
- **Foundational Literacy and Numeracy Assessment Test (FLNAT) Results**
  - In 2023, 39,94,563 adult learners took the FLNAT, with 36,17,303 (~90%) being certified as literate.
  - In 2024, 34,62,289 learners appeared for the test, but only 29,52,385 (85.27%) were certified as literate, indicating a decline in the pass percentage compared to 2023.

#### Status of Illiteracy in India

- **Non-Literate Population:** According to 2011 Census, India had 25.76 crore non-literate individuals aged 15 and above, including 9.08 crore males and 16.68 crore females.
- Despite the **Saakshar Bharat programme** certifying 7.64 crore individuals as literate from 2009 to 2018, ~18.12 crore adults in India are still non-literate.
- **Impact of Illiteracy:** Non-literate individuals face significant challenges, including difficulties with financial transactions, job applications, understanding rights, and participating effectively in higher productivity sectors. (Refer EPIC July 2024 for ULLAS).

**Statement 2: Literacy rate (in percent) among persons of age 7 years and above**

sector	all-India literacy rate (in percent)		
	male	female	person
rural	81.5	65.0	73.5
urban	92.2	82.8	87.7
rural+urban	84.7	70.3	77.7

*Note: Literacy rate among persons of age 7 years and above for NSS 75<sup>th</sup> round for different States is given in Table 2.1*

Source: MoSPI. Status of Literacy, NSS 75<sup>th</sup> Round (2018)

### 2. Lakhpati Didi Initiative

**News:** The Lakhpati Didi Sammelan was held recently in Maharashtra.

#### About the Lakhpati Didi Initiative

- It is an initiative of the Ministry of Rural Development that strives to **empower women** associated with **Self-Help Groups (SHGs)** to achieve an annual household income exceeding INR 1,00,000 through **adopting sustainable livelihood practices** and achieving a **decent standard of life**.
- The programme was launched in 2023. With an initial target for 2 crore Lakhpati Didis, the program target has been enhanced to 3 crore during 2024-25.
- SHGs support this journey with **collective action, financial literacy, and skill development**, empowering members for **entrepreneurial ventures**.
- Lakhpati Didi initiative facilitates **diversified livelihood activities**, by **ensuring convergence** across all Government departments, Panchayati Raj Institutions, Private sector and Market players. The strategy includes focused planning, implementation and monitoring at all levels.
- As of September 2024, the initiative has covered 742 districts; 7,132 blocks; 2,52,350 panchayats; and ~5,87,000 villages. There are ~6,600 Master Trainers and outreach has been made to ~92,50,000 SHGs. There are ~2.38 crore potential Lakhpati Didis.

### Strategy for Lakhpati Didi

- **Deepen, Strengthen and Expand Livelihood options:** The households will be facilitated and enabled to take up diversified income-generating activities. Trained **Community Resource Persons** will facilitate the Livelihood Planning.
- **Capacity Building:** A Cascade Training Strategy has been adopted to **enable training and handholding of potential Lakhpati Didis** from across all States and UTs. The Strategy involves **hierarchy of trainers** from Experts, Master Trainers, Community Resources Persons that will progressively train the resources down to the Lakhpati Didi level.
- **Financial Assistance:** The focus is on mobilizing support for SHG women and their federations. DAY-NRLM serves as a catalyst, facilitating financial assistance and providing a platform for these women to thrive.
- **Aajeevika Register:** SHG Members are involved with **multiple livelihood activities** such as Agriculture, Horticulture, Floriculture, Sericulture, Livestock Rearing, Dairy Farming, Fishery, Non-Timber Forest Produces, Handicrafts, Handlooms, Small Scale Manufacturing, Food Processing, Artisan work, Household level enterprises etc. It is a **key tool for enabling the SHG to keep record of their all livelihood activities** at the village level. It is designed to **track and facilitate enhancement of the incomes of the households**. This tool embodies a focused approach to diversify livelihood activities, aiming to elevate every SHG household to a Lakhpati status.



### 3. Justice Hema Committee Report

**News:** The Government of Kerala has released the Hema Committee Report after a delay of nearly 5 years.

#### About the Justice Hema Committee

- The Justice Hema Committee was formed by the Government of Kerala in July 2017.
- It was formed in response to the **abduction and sexual assault of a leading Malayalam actress**. The incident highlighted the broader issue of **discrimination against women** in the Malayalam film industry.
- The Committee was tasked with investigating issues of sexual harassment and gender inequality in the industry.

#### Key Findings of the Justice Hema Committee Report

- **Prevalence of Sexual Harassment:** The report reveals a pervasive culture of sexual harassment in the Malayalam film industry, including the existence of the **casting couch**, vulgar comments, and instances where male co-actors would force themselves into the rooms of female colleagues.
- **Fear of Retribution:** Many women in the industry **do not report incidents of sexual harassment** due to fear of retribution. The report notes that this fear is well-founded, with women also facing **cyber harassment from fan clubs as a form of intimidation**.
- **Male-Dominated 'Mafia':** The report highlights the existence of an all-male 'mafia' of influential actors and producers who control the industry, wielding their power with impunity and **suppressing any opposition**.
- **Lack of Basic Facilities for Women:** The report points out the inadequate facilities for women on film sets, such as the **lack of proper toilets and changing rooms**, which exposes women to **health risks** like urinary tract infections. (Refer EPIC May 2023 for Supreme Court's Observation on PoSH Act).

- **Gender Pay Disparity:** The report attributes the gender pay gap in the industry to the absence of written contracts, which disproportionately affects women.

### Key Recommendations of the Report

- The Report has proposed the mandatory establishment of **Internal Complaints Committee** under the PoSH Act, 2013. (Refer EPIC August 2023 for Gender Harassment at Workplace and the PoSH Act, 2013).
- An **independent tribunal** can also be considered to **handle cases of sexual harassment and discrimination**.
- Lack of written contracts leads to women facing discrimination like non-payment of remuneration. **Signing of written contracts should be mandatory** for all categories of employees including junior artists.

## 4. State of Healthcare in Rural India

**News:** The Report ‘State of Healthcare in Rural India, 2024’ has been released by the NGO Transform Rural India.

### Key Highlights of the Report

- The Report is based on a survey encompassing 5,389 rural households with an average size of 5.7 members and spanned 21 States. Of the surveyed households, major income sources for them are farming (43%) and daily wage labour (21%).
- **Insurance:** Only about half of rural households have Government health insurance, while **34% lack any health insurance coverage at all**, and 61% of those surveyed lack life insurance.
- **Affordable Medicines:** Only 12.2% households of the survey have access to subsidised medicines from **Pradhan Mantri Jan Aushadhi Kendras**, while 21% lack a commutable medical store.
  - Only 26% respondents had **access to a government medical store** located within the premises of a health facility that provides free medicines. ~21% do not have a medical store within commutable distance.
- **Diagnostic Facilities:** There is a **lack of diagnostic facilities** in the rural areas mostly because of **shortage of trained personnel**. Only 39% of the respondents confirmed that there was a diagnostic facility **within a commutable distance** from their village. These facilities provided only for blood tests or medical imaging.
- **Hygiene:** ~20% reported **no drainage system in their villages** and only **23% had a covered drainage network** system in their villages.
  - 43% of households did not have any **scientific system of waste disposal** and they ended up with dumping their waste everywhere.
  - ~11% **burn the dry waste** and convert their **wet waste into compost**, while 28% reported that the local panchayat has made plans to collect household waste.
- **Caregiving:** 73% of the households with elderly members need constant care. **95.7% prefer family caregivers, predominantly female (72.1%)**, highlighting disproportionate role of women in caregiving.
  - Only 3% rural households engaged an external caregiver as a paid service.
  - Key caregivers for pregnant women include husbands (62.7%), mothers-in-law (50%), and mothers (36.4%).

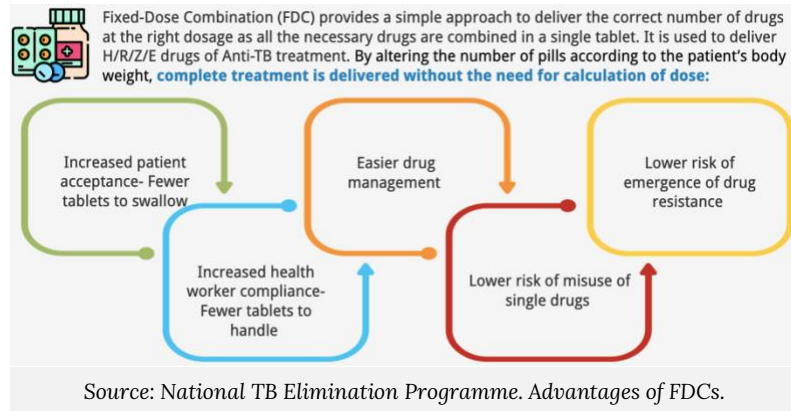
## 5. Fixed Dose Combination (FDC) Drugs

**News:** The Government has banned 156 Fixed-dose Combination (FDC) drugs.

### About Fixed-Dose Combination (FDC) Drugs

- Fixed-Dose Combination (FDC) medications **combine two or more active ingredients** into one form, such as a **pill, capsule, or injection**.
- FDCs help patients who **need multiple medications**, like those with tuberculosis or diabetes, by **reducing the number of pills they need** to take on a daily basis. This can **improve their adherence to treatment**.

- Banned FDCs:** The Government has recently banned FDCs related to Anti-Allergy Combinations (Levocetirizine with a nasal decongestant combined with paracetamol), Skin Treatment Combinations (Menthol with aloe vera), Medication for Migraine combined with another drug to prevent nausea, Pain Relief for Menstrual Cramps etc.



### Reasons for Ban on 156 FDCs

- Lack of Therapeutic Benefits:** Banned FDCs were considered 'irrational' because they offered **no significant health benefits**. The ingredients did not work well together or included unnecessary components.
- Increased Antibiotic Resistance:** Unnecessary combinations, especially involving antibiotics, contribute to resistance, making infections harder to treat. (Refer EPIC November 2023 for Combating Anti-Microbial Resistance).
- Regulatory Changes:** The new Drugs and Clinical Trial Rules, 2019 classified FDCs as **new drugs**. Hence, they require approval by the Central drug regulator. The banned drugs were initially **approved by various State licensing authorities without any trials for combinations** as the ingredients were individually approved. In 2012, a Parliamentary panel had highlighted the problem of irrational drug combinations. In 2014, the Government had set up a Committee to examine 3,450 FDCs approved for manufacture and sale in the country after 1988. Based on the Committee Report, 499 FDCs have been banned so far.

## 6. Rule 170 of the Drugs and Cosmetics Act

**News:** The Supreme Court has put on hold a notification by the Union Government asking State licensing authorities "not to initiate/take any action under" Rule 170 of the Drugs and Cosmetics Act.

### About Rule 170 of the Drugs and Cosmetics Act

- It was introduced in 2018 as part of the **Drugs and Cosmetics Act**.
- Its primary purpose is to **regulate and prevent misleading advertisements of AYUSH** (Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy) **products**.
- Key Provisions:** It prohibits advertisements without proper approval. Advertisements can be rejected if:
  - The manufacturer does not provide contact details.
  - The content is deemed obscene or vulgar.
  - It includes claims about enhancing sexual organs.
  - It features celebrities or Government officials, references to any Government organization, or makes false, misleading, or exaggerated claims.
- Requirements under Rule 170:** AYUSH product manufacturers must obtain approval and unique identification number from the State licensing authority before advertising their products.
  - Manufacturers are required to provide detailed information, including textual references, rationale for the medicine based on authoritative books, intended use, and evidence of safety, effectiveness, and quality.

### Challenges in Regulating AYUSH Drugs

- Clinical Trials:** Unlike allopathic drugs, AYUSH products generally **do not require phase I, II, or III trials** for approval. Most AYUSH drugs are approved based on the **rationale provided in authoritative texts** from their respective disciplines.

- **Safety Trials:** Safety trials are mandatory only for formulations that use about 60 specific ingredients listed in the Act, such as snake venom, heavy metals (e.g., arsenic, mercury), and compounds like copper sulphate.
- **Proof of Effectiveness:** For licensing drugs containing these ingredients or traditional drugs used for new indications, proof of effectiveness must be provided according to the Act.

### Rationale of AYUSH Ministry for Recommending the Ignoring Rule 170

- The **Ayurvedic, Siddha, and Unani Drugs Technical Advisory Board (ASUDTAB)** which is an expert body for regulating AYUSH drugs, suggested in May 2023 that **Rule 170 could be omitted**.
- The Ministries of Health and AYUSH were considering amendments to the **Drugs and Magic Remedies Act** aimed at preventing misleading advertisements. Board's recommendation was based on this consideration.
- In light of ASUDTAB's recommendation and ongoing legislative changes, the AYUSH Ministry advised State licensing authorities to disregard Rule 170.

### 7. Steps Taken by the Government for the LGBTQI+ Community

**News:** The Department of Social Justice and Empowerment (DoSJE) has invited inputs of stakeholders and public to ensure that policies and initiatives regarding LGBTQI+ community are inclusive and effective.

#### About the Steps Taken

- In *Supriyo vs Union of India (2023)*, the Supreme Court had asked the Union Government to constitute a committee chaired by the Cabinet Secretary to define and elucidate the **scope of entitlements of the queer community**. (Refer EPIC October 2023 for Supreme Court's Judgment on Same-sex Marriage).
- The Committee (and Sub-Committees created under it) has recommended several measures to ensure that rights of the queer community are not curtailed.
- **Ration Cards:** Department of Food and Public Distribution has issued an advisory to all the States/UTs, to **treat partners in a queer relationship as part of the same household** for the purposes of ration card.
  - States/UTs have been asked to take necessary measures to ensure that partners in queer relationship are not subject to any discrimination in the issuance of ration cards.
- **Bank Accounts:** Department of Financial Services (DFS) has issued an advisory that there are no restrictions for persons of the queer community to **open a joint bank account** and also to **nominate a person** in queer relationship **as a nominee** to receive the balance in the account, in the event of death of the account holder.
- **Health:** Ministry of Health and Family Welfare has issued letters to all stakeholders to take measures to **ensure the rights of LGBTQI+ community** with relation to **healthcare**, planning awareness activities, prohibition of **conversion therapy**, availability of **sex reassignment surgery**, changes in curricula, provision of Tele consultation, **sensitization and training** various levels of staff and making of provision to claim the body when near relative/next of kin/family is not available.
  - The Directorate General of Health Services, Ministry of Health and Family Welfare has also issued letter to the State Health Departments and other stakeholders on the subject of **ensuring access to healthcare** and **reducing discrimination** towards LGBTQI+ community.
  - The Ministry has framed guidelines in respect of medical intervention required in infants/children with **disorders of sexual differentiation** (intersex) to have medically normal life without complications.
  - The Ministry is working on guidelines to address the issues pertaining to **mental health/well-being** of queer community.
- **Security:** The Ministry of Home Affairs has issued advisory regarding prison visitation rights of the queer community and an advisory, on law & order measures to be taken to ensure that **queer community do not face any threat of violence**, harassment or coercion.



## 8. Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PM-JUGA)

**News:** The Union Cabinet has approved the scheme for improving the socio-economic condition of tribal communities.

### About PM-JUGA

- Its aim is to develop **enabling infrastructure**, **promote economic empowerment**, and **universalise access to education**. It intends to bridge critical gaps in infrastructure, health, education, and livelihood through the convergence of various government schemes.
- The mission focuses on ensuring **holistic and sustainable development in tribal areas**.
- The mission will cover over **63,000 tribal-majority villages**. The scheme will benefit more than 5 crore tribal people in 549 districts in 30 States and UTs.

### Pradhan Mantri Janjatiya Unnat Gram Abhiyan

- Mission Aims at Saturation coverage of **tribal majority villages and tribal villages** in Aspirational Districts
- It will cover more than **63,000 villages** benefiting more than **5 crore tribal people**
- Total outlay of the scheme is **Rs. 79,156 crore**
- Mission comprises of **25 interventions** to be implemented by **17-line ministries** to achieve following goals:
  - › **Goal-1:** Developing Enabling Infrastructure
  - › **Goal-2:** Promotion of Economic Empowerment
  - › **Goal-3:** Universalization of Access to Good Education
  - › **Goal-4:** Healthy lives and Dignified Ageing

### Components of the Scheme

- **Tourism:** The scheme will **promote tribal home-stays** to tap into the tourist potential of tribal areas. Tribal households will receive INR 5 lakh to build new 2-room homestays or INR 3 lakh to renovate existing homes. The target is to create 1,000 tribal homestays across villages with tourist potential.
- **Sustainable Farming on Forest Land:** It aims to promote sustainable agricultural practices for Forest Rights Act (FRA) patta holders to ensure the conservation of forest lands. It seeks to expedite pending FRA claims.
- **Infrastructure Development:** The scheme will build **20 lakh pucca homes for tribal families** and lay **25,000 km of roads** connecting ST-majority villages. 2.35 lakh households and public institutions will be **electrified**, and **25 lakh LPG connections** will be provided. 5,000 tribal villages will receive **broadband connectivity**.
- **Livelihood and Economic Empowerment:** The initiative includes fishing support for 10,000 communities and 100,000 individuals, and livestock rearing support for 8,500 beneficiaries. 100 tribal multi-purpose marketing centres will be established to promote economic activities in tribal areas.
- **Health, Education, and Social Welfare:** 1,000 mobile medical units and 2,000 new *Anganwadi* centres will be set up, with 6,000 centres being upgraded. 1,000 hostels and 1,000 **Poshan Vatikas** under National AYUSH Mission will be established. Ayushman cards will be provided to each household in tribal-majority villages.
- **Renewable Energy and Green Initiatives:** The package will provide off-grid solar power to every **un-electrified household and public institution**. It also focuses on promoting sustainable energy solutions for tribal areas, ensuring access to clean and renewable energy.

## Economy

### 1. Vertical Fiscal Imbalance

**News:** Experts have raised concerns about centralization of fiscal powers and the vertical fiscal imbalance.

### About Vertical Fiscal Imbalance (VFI)

- VFI happens when different levels of Government (National and State) do not have balanced financial powers.
- In India, the **Union Government collects most of the taxes**, but the **State Governments handle most of the spending**, like providing public services e.g., State governments are responsible for 61% of public spending but only collect 38% of the revenue.

- This makes **States rely heavily on money transfers from the Union Government.**
- Reducing VFI helps ensure States have enough funds to provide better services to the public.

**Calculation of VFI**

- **Own Revenue Receipts (ORR):** Revenue States generate themselves, excluding Central transfers.
- **Own Revenue Expenditure (ORE):** Spending responsibilities of States, not covered by Centre.
- **Tax Devolution (TD):** The money States receive from the Union Government.
- **Ratio (R):**  $R = (ORR + \text{Tax Devolution}) / (ORE)$ .
  - If Ratio < 1, it implies the revenue resources are inadequate to meet the expenditures.
  - Deficit = 1 – Ratio ((ORR + TD)/ORE).
  - **The deficit is seen as a proxy to the VFI.**
- If **VFI ≈ 0** (i.e.,  $R \approx 1$ ), it implies States’ revenue resources are enough to meet their own expenditures. If **VFI ≈ 1**, it implies the **fiscal imbalance is high** and States are unable to meet their expenditures.
- **Role of the Finance Commission:** The Finance Commission helps address VFI by deciding how Central taxes are shared with States. This is done through tax devolution and grants.
- **Eliminating VFI:** To fix VFI, the share of taxes given to States needs to be increased. The 14<sup>th</sup> and 15<sup>th</sup> Finance Commissions recommended shares of 42% and 41%, but experts suggest 49% is needed.

**Estimation of VFI after devolution of taxes**

The 15th Finance Commission had noted that India has had a larger, and rising, vertical fiscal imbalance (VFI) than most other federations

Year	VFI after tax devolution (as a ratio)	The desired share of tax devolution to eliminate VFI (%)
2015-16	0.12	47.82
2016-17	0.13	48.24
2017-18	0.12	47.59
2018-19	0.11	47.38
2019-20	0.18	51.17
2020-21	0.28	56.87
2021-22	0.14	47.90
2022-23 (RE)	0.20	51.42
Average (excluding 2020-21 and 2021-22)		48.94



Source: The Hindu. The VFI has shown a rising trend since 2015-16.

**Correcting Fiscal Imbalance**

- States have been demanding to **raise the share of tax devolution from the net proceeds at 50%**. This demand has been supported by various economists. (Refer EPIC June 2023 for Issues Before Next Finance Commission).
- **Higher share of Cesses and Surcharges** in total tax revenues **reduces the divisible pool for States**. This should be corrected. (Refer EPIC February 2023 for Fiscal Imbalance Between Union and State Governments).
- An increase in devolution would place **more untied resources in the hands of the States** to spend on their citizens. It would also ensure that States’ expenditures better respond to jurisdictional needs and priorities, and that the efficiency of expenditures is enhanced. (Refer EPIC September 2022 for Fiscal Centralization in India).

**2. Navratna Status to SECI and NHPC**

**News:** The Government has granted Navratna status to Solar Energy Corporation of India Ltd. and National Hydroelectric Power Corporation Ltd.

**About Solar Energy Corporation of India Ltd.**

- It was established in 2011 under the Ministry of New and Renewable Energy (MNRE). It is responsible for implementing the **National Solar Mission (NSM)** and other renewable energy initiatives.
- **Key Roles and Responsibilities**
  - Facilitating the development and execution of solar energy projects across India.
  - Promoting the use and development of green hydrogen technology and initiatives.
  - Implementing a range of renewable energy schemes and projects to enhance the renewable energy capacity in the country.
- It holds a cumulative awarded capacity of 69.25 GW and manages an annual power trading volume exceeding 42 billion units.

### Benefits of Navratna Status

- **Enhanced Autonomy:** SECI will benefit from greater operational and financial autonomy, enabling quicker decision-making processes and increased efficiency.
- **Empowerment and Growth:** SECI can undertake significant capital expenditures (CAPEX) and investment plans, driving growth and expanding its market reach.
- **Innovation and Expansion:** SECI can now establish joint ventures, set up overseas offices, and explore new markets, fostering innovation and technological alliances.

### About Miniratna, Navratna, Maharatna Status

Status	Criteria	Description
<b>Miniratna</b>	<p><b>Category-I</b></p> <ul style="list-style-type: none"> <li>• Reported profits for 3 consecutive years.</li> <li>• Pre-tax profit of INR 30 crore or more in at least 1 of the 3 years.</li> <li>• Positive net worth.</li> <li>• No default on loan or interest repayments to the Government.</li> <li>• No dependency on budgetary support or Government guarantees.</li> </ul> <p><b>Category-II</b></p> <ul style="list-style-type: none"> <li>• Profitable for the last 3 successive years.</li> <li>• Positive net worth.</li> <li>• No default on loan or interest repayments to the Government.</li> </ul>	<ul style="list-style-type: none"> <li>• This is the initial level of recognition given to CPSEs that have demonstrated consistent profit-making and positive net worth over a certain period.</li> <li>• They are divided into 2 Categories I and II, based on their financial and operational performance.</li> <li>• <b>Miniratna I companies have greater autonomy than Miniratna II companies</b>, allowing them to make investments and enter into joint ventures within certain financial limits without Government approval.</li> </ul>
<b>Navratna</b>	<ul style="list-style-type: none"> <li>• Must have <b>Miniratna-I</b> status.</li> <li>• Achieved an “Excellent” or “Very Good” MoU rating in 3 out of the last 5 years.</li> <li>• Composite score of 60 or more in <b>6 selected performance indicators</b> like Net Profit to Net Worth, Manpower Cost to Total Cost of Production etc.</li> </ul>	<ul style="list-style-type: none"> <li>• They enjoy greater independence in decision-making compared to the Miniratna companies.</li> <li>• They have the authority to invest up to <b>30% of their net worth in a year</b> (with a cap of INR 1,000 crore) <b>without needing Government approval</b> and can make more strategic and financial decisions to enhance their growth.</li> </ul>
<b>Maharatna</b>	<ul style="list-style-type: none"> <li>• Must have <b>Navratna</b> status.</li> <li>• Listed on Indian stock exchanges.</li> <li>• Compliance with minimum shareholding norms.</li> <li>• Average <b>annual turnover</b> exceeding <b>INR 25,000 crore</b> over the last 3 years.</li> <li>• Average <b>annual net worth</b> over <b>INR 15,000 crore</b> in the last 3 years.</li> <li>• Average <b>annual net profit</b> over <b>INR 5,000 crore</b> in the last 3 years.</li> <li>• Significant global presence.</li> </ul>	<ul style="list-style-type: none"> <li>• It is the highest level of recognition given to the largest and most profitable CPSEs in India.</li> <li>• They are <b>major players in their respective sectors</b>, with substantial financial and operational freedom.</li> <li>• They have the authority to make investments up to INR 5,000 crore in a project without the need for Government approval.</li> </ul>

### 3. New Railway Projects

**News:** The Cabinet Committee on Economic Affairs (CCEA) has sanctioned 3 railway projects under the Ministry of Railways. These projects are set for completion by 2028-29.

#### About New Railway Projects

- **Aim:** These projects aim to **streamline supply chains** and foster economic growth by **increasing the capacity of existing lines** and enhancing the transportation network.
- **Scope:** The 3 projects span across 7 districts in 4 States: Odisha, Jharkhand, West Bengal, and Chhattisgarh, extending the Indian Railways network by ~300 km.
- **Alignment with National Vision:** These projects are aligned with the **PM-Gati Shakti National Master Plan for multi-modal connectivity**, which promotes integrated planning and provides seamless connectivity for the movement of people, goods, and services. (Refer EPIC October 2022 for Logistics Sector and National Logistics Policy).
- The projects also support the vision of a ‘New India’, fostering comprehensive regional development and enhancing employment and self-employment opportunities.

#### Impacts of the Projects

##### • Socio-Economic Impacts

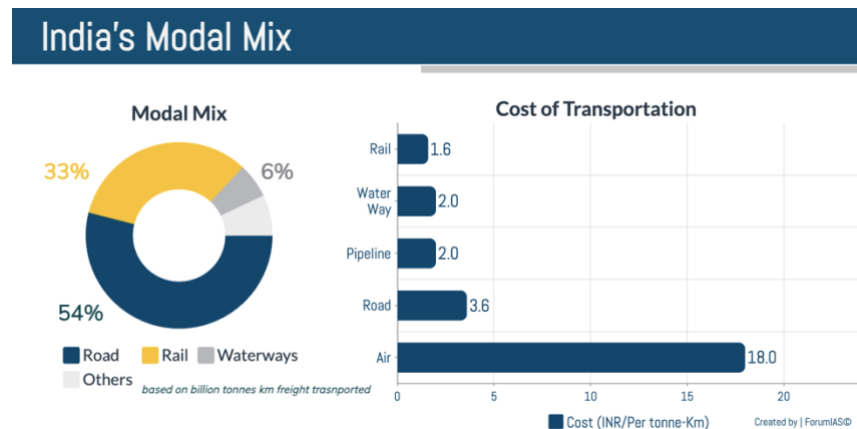
- **Infrastructure:** Construction of 14 new stations will improve connectivity in 2 aspirational districts (Nuapada and East Singhbhum), improving accessibility for ~11 lakh people across 1,300 villages.
- **Connectivity and Mobility:** The multi-tracking projects will enhance connectivity for ~19 lakh people across 1,300 villages. (Refer EPIC December 2023 for Performance of the Railways).

##### • Economic Impacts

- **Reduced Oil Imports:** The initiatives are expected to decrease oil imports by ~10 crore litres.
- **Employment Generation:** The construction phase is projected to generate ~114 lakh man-days of direct employment, providing substantial employment opportunities in the region.
- **Freight Capacity:** The projects will increase freight traffic capacity by 45 million tonnes per annum (MTPA), crucial for transporting commodities such as agricultural products, coal, iron ore, and cement.

##### • Environmental Impacts

- The projects, being environment-friendly and energy-efficient, will help India meet its climate goals by reducing CO<sub>2</sub> emissions by 240 crore kg. This is equivalent to planting ~9.7 crore trees.



### 4. New Projects Approved Under National Industrial Corridor Development Project

**News:** The Cabinet Committee on Economic Affairs has approved 12 new project proposals under the National Industrial Corridor Development Programme (NICDP).

#### About the New Industrial Projects

- New industrial projects will be set up in 10 States, including locations like **Khurpia** (Uttarakhand), **Rajpura-Patiala** (Punjab), **Dighi** (Maharashtra), **Palakkad** (Kerala), **Agra** and **Prayagraj** (Uttar Pradesh), **Gaya** (Bihar), **Zaheerabad** (Telangana), **Orvakal** and **Kopparthi** (Andhra Pradesh), and **Jodhpur-Pali** (Rajasthan).

- The projects are part of **6 major industrial corridors** to boost India's manufacturing and economic growth.
- The initiative aligns with the vision of 'Viksit Bharat' and 'Atmanirbhar Bharat'. It aims to position India as a key player in **Global Value Chains (GVC)**.
- **Smart Cities and Modern Infrastructure:** The industrial cities will be developed as greenfield smart cities, based on 'plug-n-play' and 'walk-to-work' concepts, featuring sustainable, world-class infrastructure.
- **Alignment with PM GatiShakti:** This programme is integrated with the **PM GatiShakti National Master Plan**. These projects will have multi-modal connectivity to enhance the movement of people, goods, and services.
- **Employment Generation:** The NICDP is expected to generate **~1 million direct jobs** and up to **3 million indirect jobs**, contributing to regional socio-economic development.
- **Commitment to Sustainable Development:** The projects will emphasize sustainable development, using ICT-enabled utilities and green technologies, making these cities both economic hubs and models of environmental stewardship.



**About National Industrial Corridor Development Programme (NICDP)**

- **About:** It is a key initiative of the Government designed to establish **new industrial cities** as “Smart Cities” while incorporating advanced technologies across various infrastructure sectors.
- **Objective:** It aims to create a **vibrant industrial ecosystem** by attracting investments from large industries and MSMEs.
- **Scope:** It encompasses the development of **11 industrial corridors**, with 32 projects planned for completion in four phases by 2026-27.
- **Implementation:** It is being managed by the National Industrial Corridor Development and Implementation Trust (NICDIT) and the National Industrial Corridor Development Corporation Limited (NICDC).



## 5. The US Federal Reserve Bank Cuts Interest Rate

**News:** The US Fed has cut interest rates by 50 basis points.

### Reasons for Reduction in Interest Rate by the US Fed

- The US Fed has **cut interest rates by 50 basis points** to support economic growth as **inflation** in the US has moderated while **unemployment** has shown a rising trend.
- The Federal Reserve had raised interest rates to 5.33% in September 2023 to **control inflation**.
  - The inflation was caused by **surge in demand** due to economic recovery post the COVID-19 pandemic.
  - The **disruptions in the supply chains** due to the Russia-Ukraine war had also contributed to inflation.
  - The inflation had peaked at ~9% in August 2023 and has been declining towards the Fed's 2% target.
- The unemployment has been rising, reaching 4.4%, which indicated that the **restrictive monetary policy was affecting jobs** (high interest rates lower investments by corporates impacting creation of new jobs).
- The Fed plans to gradually cut interest rates over the next few years to stabilize the US economy. It will cut interest rates by another 50 basis points in 2024, 100 basis points in 2025, and 50 basis points in 2026.
- The goal is to achieve a '**soft-landing**'; reducing inflation without triggering a recession.
- As inflation has moderated, the Fed aims to **balance growth and unemployment**.

### Impact on India

- India may **attract more foreign investment** as lower interest rates in the US encourage global investors to **borrow in the US** and **invest in countries like India**, boosting stocks, debt markets, and FDI.
- A weaker US dollar could **strengthen the Rupee** (i.e., Rupee will appreciate).
- This will help importers by reducing costs but harm exporters by reducing their competitiveness.

## 6. Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA)

**News:** The Government has approved the extension of the PM-AASHA scheme, allocating INR 35,000 crore to ensure farmers receive better prices for their produce and to manage price fluctuations of essential commodities for consumers.

### About Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA)

- It is an umbrella scheme launched as part of the Government's efforts to double farmers' income and **protect them from market fluctuations**. It seeks to **address price volatility** in the agricultural sector and ensure **farmers are fairly compensated** for their crops.
- Its objective is to ensure that farmers are safeguarded against any sharp fall in farm prices. By providing a secure Minimum Support Price (MSP) system, it enhances the confidence of farmers to invest in quality inputs and maintain productivity, which is crucial for national food security.

### Components

- **Price Support Scheme (PSS):** It involves the procurement of pulses, oilseeds, and copra by Government at the MSP to ensure that farmers receive fair compensation for their produce.
- **Price Deficiency Payment Scheme (PDPS):** Farmers are compensated for the difference between the MSP and the actual market price when the latter falls below the MSP, ensuring they don't incur losses.
- **Market Intervention Scheme (MIS):** It aims to protect farmers from distress sales during times of surplus production and declining market prices.
- **Price Stabilization Fund (PSF):** The fund is used to **maintain buffer stocks** of essential commodities like pulses and onions, helping stabilize prices and ensuring their availability at affordable rates.
- **Pilot of Private Procurement and Stockist Scheme (PPSS):** This is an experimental scheme rolled out on a pilot basis for **oilseeds**. It involves the participation of private players in procuring the crops at MSP.

## 7. New Programmes for Agriculture Sector

**News:** The Government has launched 7 major programmes to drive the holistic growth of the agriculture and allied sectors. The initiatives aim to enhance farmers' income and promote sustainable agricultural practices.

### Key Programmes Approved by the Union Government

Aspect	Description
<b>Digital Agriculture Mission</b>	<ul style="list-style-type: none"> <li>• <b>Aim:</b> To enhance the efficiency, transparency, and effectiveness of agricultural processes and services by leveraging DPI (Digital Public Infrastructure) and modern digital technologies.</li> </ul>
<b>Crop Science Programme for Food and Nutritional Security</b>	<ul style="list-style-type: none"> <li>• <b>Aim:</b> To focus on enhancing agricultural productivity and ensuring access to nutritious food.</li> <li>• <b>Goal:</b> To prepare farmers for climate-resilient crop sciences and ensure food security by 2047.</li> </ul>
<b>Strengthening Agricultural Education and Research</b>	<ul style="list-style-type: none"> <li>• This programme is under Indian Council of Agricultural Research (ICAR).</li> <li>• <b>Aim:</b> To modernise agricultural research and education in alignment with the New Education Policy 2020, incorporating advanced technologies like AI, big data, and remote sensing, and promoting natural farming and climate resilience.</li> </ul>
<b>Sustainable Livestock Health and Production</b>	<ul style="list-style-type: none"> <li>• <b>Aim:</b> Improve the health and productivity of livestock through sustainable practices.</li> </ul>
<b>Sustainable Development for Horticulture</b>	<ul style="list-style-type: none"> <li>• <b>Aim:</b> To enhance the growth and development of the horticulture sector.</li> </ul>
<b>Strengthening Krishi Vigyan Kendra</b>	<ul style="list-style-type: none"> <li>• <b>Aim:</b> To bolster the network of Krishi Vigyan Kendras to provide agricultural extension services and support to farmers.</li> </ul>
<b>Natural Resource Management</b>	<ul style="list-style-type: none"> <li>• <b>Aim:</b> To promote sustainable management and conservation of natural resources in agriculture.</li> </ul>

### Benefits of Digital Agriculture Mission

- Farmers can **access services and schemes digitally**, reducing the need for physical visits to Government offices and **minimizing paperwork**. (Refer EPIC August 2024 for Digital Public Infrastructure in Agriculture).
- The digital infrastructure will **facilitate efficient service delivery mechanisms**, such as paperless MSP-based procurement, crop insurance, credit-linked crop loans, and balanced fertilizer use.
- The Digital Agriculture Mission will enable the **development of efficient value chains** for agricultural inputs and post-harvest processes. (Read more on Digital Agriculture Mission and Krishi DSS).
- The mission is expected to generate both **direct and indirect employment** in the agriculture sector.

## 8. White Revolution 2.0

**News:** The Government has introduced 'White Revolution 2.0' as part of action plan to form and strengthen 2 lakh Multipurpose Primary Agriculture Cooperative Societies, along with dairy and fishery cooperatives.

### About White Revolution 2.0

- The initiative is aimed at **enhancing milk production** and **empowering women through cooperative dairies**. It also aims to **combat malnutrition** by increasing the **availability of milk**.
- The focus of the scheme is on Women Empowerment. It would empower women engaged in procurement of milk by **formalizing their work** and ensuring **payments directly to their bank accounts**.
- **Objectives of White Revolution 2.0**

- **Increase in Milk Procurement:** The scheme targets increasing milk procurement by cooperatives from the current 660 lakh litres per day to 1,000 lakh litres.
- **Financial Inclusion of Women:** The inclusion of women in formal employment within the dairy sector will be facilitated by depositing earnings from milk procurement directly into their bank accounts.
- **Four Pillars of the Programme**
  - **Empowering Women Farmers:** Ensuring greater participation and self-reliance for women in agricultural and dairy sectors.
  - **Enhancing Local Milk Production:** Boosting domestic milk production to meet local demand.
  - **Strengthening Dairy Infrastructure:** Improving the infrastructure needed to support dairy farming and milk processing.
  - **Boosting Dairy Exports:** Focusing on increasing India's dairy exports to international markets.

## International Relations

### 1. India-US Defence Agreement

**News:** India and the US have signed the Security of Supply Arrangement (SOSA).

#### About the Security of Supply Arrangement

- India and the US have signed a Security of Supply Arrangement (SOSA) to **address disruptions in the defence supply chain**.
- With this agreement, India has become the **18<sup>th</sup> country to partner with the US under SOSA**. Other nations include Australia, Canada, Japan, the UK, and several European nations.
- It allows both countries to **access each other's resources** (reciprocal basis) if there are **interruptions in the supply chain** (like the delays India is facing in receiving jet engines from the US for Tejas fighter jets).
- In addition, the US DoD (Department of Defense) is working on a **legally binding RDP** (Reciprocal Defence Procurement) Agreement with India to enhance **defence cooperation** and **equipment standardization**.

#### Key Features

- The pact includes clauses that enable India and the US to **access industrial resources from one another** to handle unexpected supply chain problems ensuring they can **meet their national security needs**.
- Both nations have agreed to **give each other priority** for goods and services that **support national defence**.
- The US and India pledged to support each other's requests for the **delivery of critical defence resources** on a priority basis.
- It is **legally non-binding**.

#### Benefits of Agreement

- **Strengthening Defence Ties:** The agreement strengthens the relationship between India and the US in defence trade and cooperation, in times of peace, emergencies, and conflicts.
- **Support for Indian Vendors:** The arrangement could make it easier for US companies to source supplies from Indian vendors, **boosting India's defence manufacturing sector**.
- **US Defense Assurance:** The US has assured India support under its 'Defense Priorities and Allocations System' focusing on bilateral defence supplies.

#### About Memorandum of Agreement on the Assignment of Liaison Officers

- It involves the **deployment of Officers of Indian Armed Forces to key US Strategic Commands**.
- The 1<sup>st</sup> Indian Liaison Officer will be stationed at US Special Operations Command headquarters in Florida.



- The placement **aims to foster closer cooperation**, enhance mutual understanding, and improve **integrated operational capabilities** between the two forces.
- The initiative bolsters strategic ties and operational synergy to address common security challenges.

### Other Initiatives of Defence and Security Cooperation between India and US

- The **US-India Roadmap for Defence Industrial Cooperation (2023)** focuses on **co-production of defense technologies**, integrating Indian industries into global supply chains, and developing infrastructure to serve as a regional hub in Indo-Pacific. (Refer EPIC June 2023 for PM's State Visit to the US and the Evolving India-US Relationship).
- **Foundational Agreements** enhancing military cooperation between India and the US include **General Security of Military Information Agreement (GSOMIA, 2002)**, **Logistics Exchange Memorandum of Agreement (LEMOA, 2016)**, **Communications Compatibility and Security Agreement (COMCASA, 2018)**, and **Basic Exchange and Cooperation Agreement for Geospatial Intelligence (BECA, 2020)**.

### 2. "Development Compact" For Global South

**News:** The Prime Minister of India has proposed a "Development Compact" for the Global South, focusing on cooperation in areas like technology, finance, health, and sustainability.

#### About the Development Compact Proposed by India

- The Prime Minister has introduced a "Development Compact" during the 3<sup>rd</sup> **Voice of Global South Summit (VoGSS) to improve cooperation among Global South countries.**
- This compact focuses on 5 key areas: **Capacity Building, Technology Sharing, Trade Development, Grants, and Concessional Finance.**
- If implemented effectively, it could redefine how the nations of Global South engage with each other and address common challenges.

#### Need and Significance of "Development Compact"

- Developing countries are struggling with **severe debt burden**, with a public debt of US\$ 29 trillion in 2023 (UNCTAD).
  - Net interest payments on public debt for developing countries has reached US\$ 847 billion.
  - 54 developing countries spend over 10% of their revenues on interest payments alone.
  - The OECD countries have failed to meet their commitment of 0.7% of GNP as Overseas Development Assistance (ODA), impacting aid to poor countries.
- **Climate finance** commitments of US\$ 100 billion have not been fulfilled, increasing vulnerability.
- The **Global South requires alternative paths to sustainable growth**, addressing debt, aid gaps, and policy space squeezed by **global finance.**

## Current Status of India-US Relationship

### 1 Trade and Investment

- Bilateral Trade stood at **US\$ 129 billion** in 2022-23.
- The **US is India's largest trade partner**. India has trade surplus with the US.
- US Investments (FDI) worth **US\$ 60 billion** between April 2000-March 2023 (3rd largest).

### 2 Bilateral Mechanisms

- **Annual 2+2 Dialogue** between **Defence and External Affairs Ministers** on key bilateral, regional and global issues.

### 3 Defence

- Defence Technology and Trade Initiative (DTII).
- 3 Foundational Agreements: **Logistics Support Agreement (LSA)**, **Communications Interoperability and Security Memorandum of Agreement (CISMOA)** and **Basic Exchange and Cooperation Agreement for Geo-spatial Cooperation (BECA)**
- Regular exercises between Armed Forces like *Yudh Abhyas, Malabar, Vajra Prahar* etc.

### 4 Multilateral Cooperation

- Cooperation through multilateral groupings like Quad, IPEF and I2U2 among others.

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- The VoGSS platform, under the theme “Empowering Global South for Sustainable Future” focuses on exchanging **development insights** and **crafting policies** that reflect the **unique needs and experiences of the Global South**.
- India has urged the Global South to address global uncertainty, vulnerability, terrorism, and secessionist movements affecting their democracies, **using this platform for collective action**.

### Development Initiatives By India

India has shared several initiatives that could be adapted by other Global South nations:

- **Sustainability:** Promoting Lifestyle for Environment (LiFE), advancing SDGs, and increasing the use of renewable energy.
- **Health Security:** Launching concepts like “One World One Health”, and aiding other nations by building healthcare facilities.
- **Disaster Response:** Acting as a first responder in crises, showcasing efforts in places like Papua New Guinea and Ukraine.
- **Financial Inclusion:** Enhancing connectivity through UPI and Digital Public Infrastructure, with agreements already in place with 12 countries.
- **Education and Skills:** Strengthening educational links and capacity building, highlighted by the launch of the Global South Centre of Excellence, DAKSHIN.
- **Announcement Made in the 3<sup>rd</sup> Summit:** India announced funding for capacity building and trade policy training amounting to US\$ 3.5 million. A **Social Impact Fund** was also established with an initial funding of US\$ 25 million to support various initiatives.

### 3. India-Malaysia Comprehensive Strategic Partnership

**News:** India and Malaysia have decided to upgrade ties to ‘Comprehensive Strategic Partnership’.

#### Key Takeaways of Malaysia PM’s Visit to India

- **Comprehensive Strategic Partnership:** The Enhanced Strategic Partnership (2015) has been upgraded to a Comprehensive Strategic Partnership.
- **Key Agreements:** Multiple agreements have been signed covering critical areas such as mobility of workers, digital technology, culture, tourism, sports, and education.
  - MoU has been signed to streamline the processes related to the movement and management of workers between the two countries.
  - MoU has been signed for co-operation in the field of Ayurveda and other traditional systems of medicine. India will establish an Ayurveda Chair at the Universiti Tunku Abdul Rahman in Malaysia, for promotion of traditional medicine education and research.
- **BRICS Membership:** India has agreed to support Malaysia’s interest in joining BRICS.
- **ASEAN-India Trade in Goods Agreement (AITIGA):** India and Malaysia have agreed to support and expedite the review process of AITIGA, and make it more effective and business-friendly. The aim is to conclude the review by 2025 and enhance supply chain connections between India and ASEAN countries.
- **Strategic Rice Export Agreement:** India has agreed to a one-time export of 2,00,000 metric tonnes of white rice.
- **Counter-Extremism:** India and Malaysia have emphasized the need to tackle extremism and radicalism.
- **Cooperation in Digital Technologies:** India and Malaysia have agreed to work on connecting India’s UPI with Malaysia’s PayNet for digital transactions. (*Read More on India-Malaysia Relationship*).

## Difference between Normal and Comprehensive Strategic Partnership

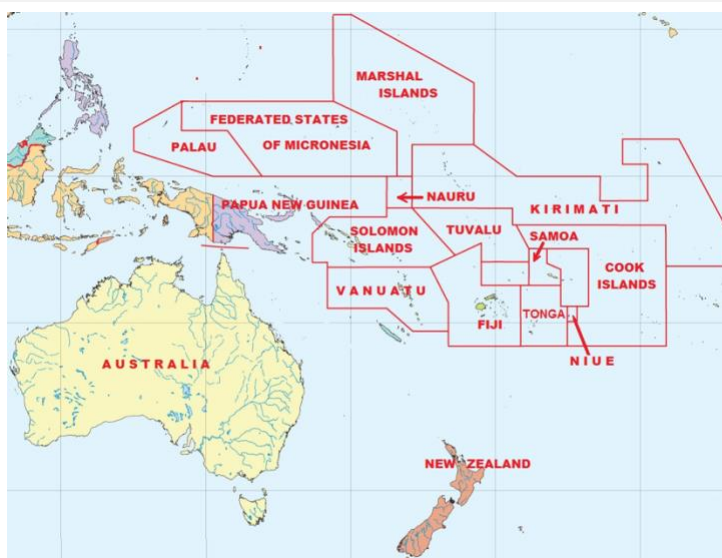
Parameter	Normal Partnership	Comprehensive Partnership
<b>Scope</b>	<ul style="list-style-type: none"> <li>It involves two countries working together on <b>specific goals</b> or challenges.</li> <li>It usually focused on particular projects, joint ventures, or sharing resources.</li> </ul>	<ul style="list-style-type: none"> <li>It involves two or more countries working across <b>broad domain and objectives</b>.</li> <li>It usually focuses on economic, technological, cultural, and political cooperation.</li> <li>It often includes both bilateral and multilateral cooperation.</li> </ul>
<b>Level of Commitment</b>	<ul style="list-style-type: none"> <li>Moderate.</li> </ul>	<ul style="list-style-type: none"> <li>High.</li> </ul>
<b>Duration</b>	<ul style="list-style-type: none"> <li>Might be short-term or long-term, depending on the agreement.</li> </ul>	<ul style="list-style-type: none"> <li><b>Usually long-term</b> along with regular high-level dialogues and joint planning.</li> </ul>
<b>Formalities</b>	<ul style="list-style-type: none"> <li>Formalized through agreements or memorandums of understanding (MoUs).</li> </ul>	<ul style="list-style-type: none"> <li>Formalized through detailed treaties or agreements, often involving State visits, high-level meetings, and joint statements.</li> <li>They may include defense pacts, economic agreements, and cultural exchanges.</li> </ul>

### 4. Pacific Islands Forum

**News:** The annual meeting of the Pacific Islands Forum was held in Nuku'alofa, the capital of Tonga.

#### About the Pacific Islands Forum (PIF)

- It is an **intergovernmental organization**, established in 1971.
- It comprises **18 member States** located in the **Pacific region**, including Australia, New Zealand, Papua New Guinea, Fiji, Tonga, and Cook Islands, among others.
- The PIF aims to **promote economic growth**, enhance **political governance and security**, and strengthen **regional cooperation**.
- The vision of PIF is to **create a resilient Pacific region** characterized by peace, harmony, security, social inclusion, and prosperity, ensuring all Pacific peoples can lead-free, healthy, and productive lives.
- The PIF holds an annual meeting where member States **discuss priority issues** and reach decisions by consensus. Decisions made during the meetings are implemented by the **Pacific Islands Forum Secretariat**, located in **Suva, Fiji**.



## 5. The Court of Arbitration for Sport (CAS)

**News:** The Court of Arbitration for Sport (CAS) has upheld the decision to disqualify Vinesh Phogat from the Paris Olympics for exceeding the weight limit of her participating category by 100 grams.

### About Court of Arbitration for Sport (CAS)

- The Court of Arbitration for Sport (CAS) is an independent body. It handles disputes related to sports through **arbitration and mediation**.
- CAS has **~300 arbitrators** from **87 countries**, all experts in arbitration and sports law. Every year, ~300 cases are handled by CAS.
- CAS procedures are conducted in French or English; another language may be used under certain conditions.
- It was **established in 1984** and operates under the administrative and financial control of the **International Council of Arbitration for Sport (ICAS)**.
- CAS is based in **Lausanne, Switzerland**, with additional offices in Sydney (Australia) and (New York) USA.
- **Functions**
  - **Legal Dispute Resolution:** The main function of CAS is to resolve sports-related legal disputes through arbitration. The decisions made by CAS have the **same enforceability as court judgments**.
  - **Mediation Services:** CAS can also help parties resolve their disputes amicably through mediation, provided this option is permitted.
  - **Special Tribunals for Major Events:** CAS sets up temporary tribunals for major events like the Olympic Games and Commonwealth Games, using special procedural rules tailored to each event.
- CAS can handle any disputes related to sports, whether they are of a **commercial nature** (like sponsorship agreements) or **disciplinary issues** (such as doping cases).
- Any individual or organization involved in sports, such as athletes, clubs, sports federations, event organizers, sponsors, or TV companies, can bring a case to CAS.
- **Parties can choose the applicable law.** If they don't, Swiss law applies. Decisions are based on the **regulations of the relevant sports body**, with the law of the body's home country as a fallback.

## Science and Technology

### 1. Recent Achievements of India's Space Programme

**News:** India's Space Programme has achieved remarkable feats in the last 1 year.

#### Key Achievements of ISRO

- **Aditya-L1 Mission:** It was launched with the Polar Satellite Launch Vehicle (PSLV). The Aditya-L1 spacecraft is studying solar radiation from the **Earth-Sun Lagrange point (L1)**. In May 2024, it tracked a solar storm in collaboration with ground observatories and lunar spacecraft.
- **Gaganyaan TV-D1 Test Flight:** It used a modified **L-40 Vikas engine** to test the **Crew Escape System (CES)**. The test successfully separated the crew module from the Test Vehicle (TV), ensuring it safely descended and was recovered by an Indian Navy vessel. This test is a key part of **ISRO's human spaceflight program**.
- **XPoSat:** It studies the **polarization of radiation** from celestial objects and follows NASA's IPEX mission.
- **INSAT-3DS Satellite:** The INSAT-3DS meteorological satellite was launched in February 2024, using a **Geosynchronous Satellite Launch Vehicle (GSLV)**. This mission tested the GSLV's performance before the upcoming NISAR mission in early 2025.
- **RLV-TD Tests:** ISRO tested its **Reusable Launch Vehicle (RLV)**, Pushpak, with landing experiments that mimicked conditions from space. The successful tests provided key data and set the stage for the upcoming **Orbital Return Flight Experiment**.

- **Development of SSLV:** ISRO successfully completed the final test flight of the Small Satellite Launch Vehicle, deploying the EOS-08 satellite. This milestone confirms the **SSLV's readiness for commercial use**. The payloads included earth observation tools and an ultraviolet dosimeter for the **Gaganyaan mission**.
- **NSIL Missions:** NewSpace India Ltd. now manages commercial activities like Indian Remote Sensing satellite data. In May 2024, NSIL signed a launch deal with SpaceX for the GSAT-20/GSAT-N2 satellite. It also sought qualifications for LVM-3 production and signed a launch agreement with an Australian company for SSLV.
- **Private Sector Contributions:** Private space companies are progressing with their missions: **Agnikul Cosmos** launched its SoRTeD-01 vehicle in March 2024, **Skyroot Aerospace** is developing the Vikram 1 rocket.
- **Regulatory Developments:** The Government has amended its FDI policy to allow 100% FDI in most space sectors, with some limits on satellite manufacturing (74%) and launch infrastructure (49%).

### Future Roadmaps and Initiatives

- **Gaganyaan Program:** ISRO is progressing with its Gaganyaan human spaceflight program, training astronaut-candidates for a crewed ISS mission in 2025 using SpaceX's launch vehicle. By 2035, ISRO aims to establish India's own space station, the 'Bharatiya Antariksh Station' (BAS).
- **Next-Generation Launch Vehicle:** ISRO is working on a **Next Generation Launch Vehicle** (NGLV), a 3-stage rocket using semi-cryogenic, liquid, and cryogenic engines. The NGLV will replace the GSLV. ISRO is also upgrading the LVM-3 rocket with a new semi-cryogenic engine.

### Key Findings of Chandrayaan-3 Mission

Scientists have released the findings of studies carried out by the **Alpha Particle X-ray Spectrometer** (APXS) payload, which was part of the **Chandrayaan-3 mission**.

- The terrain around Chandrayaan 3's landing site is fairly uniform.
- The Moon's crust was formed **layer by layer**. *(This finding adds further credence to the lunar magma ocean (LMO) hypothesis. The hypothesis states that lunar surface in the immediate aftermath of the Moon's formation was covered by a sea of molten material).*
- The topsoil around the lunar south pole has a greater-than-expected sprinkling of minerals, as compared to the lower layers of the lunar crust. The researchers have proposed that this "mixing" could have been caused by an asteroid impact. The researchers theorise that this asteroid impact resulted in the excavation of magnesium-rich material from deeper layers of the Moon, out to the surface of the surrounding areas.

## 2. Upcoming Big Missions of ISRO

**News:** The Union Cabinet approved 4 big space projects, including the next mission to the moon and the setting up of an Indian Space Station.

### About Chandrayaan-4 Mission

- It is a planned **lunar sample return mission**. Its objectives include to demonstrate:
  - Safe and soft landing on lunar surface.
  - Lunar sample collection.
  - Ascend from the Moon's surface and docking and undocking in lunar orbit.
  - Transfer of samples from one module to other, return and re-entry to Earth for sample delivery.
- The components of the Mission include development of the spacecraft (lunar lander and rover with enhanced capabilities), dedicated communication system for effective data transmission and LVM3 launches for transporting the spacecraft into lunar orbit among others.
- The mission is expected to be launched in 2027.

### About Venus Orbiter Mission

- It will be India's 2<sup>nd</sup> planetary mission after the successful Mars Orbiter Mission in 2014. It is part of ISRO's **Vision 2047**, which aims to place India at the forefront of space exploration.
- The Mission aims to explore Venus to study various aspects of its surface and atmosphere including dust and clouds, volcanism, and ionosphere of Venus. The orbiter will also investigate the **interaction between Venus and the Sun**, providing insights into the planet's dynamics and how it is influenced by solar radiation.
- The mission has been set for **March 2028**, when **Venus and Earth will be at their closest approach**. This will **minimize the energy required** for the spacecraft to travel to Venus and will also make the mission more efficient in terms of both cost and technical challenges.
- The data could help answer important questions about the **history of water on Venus**, the presence of **active volcanoes**, and the mysterious **super-rotating atmosphere** that moves much faster than the planet's surface.
- Some of the major challenges include the **extreme temperature variations** and the **thick clouds of sulfuric acid** that envelop the planet, which make surface observation difficult.

### About Bharatiya Antariksh Station (BAS)

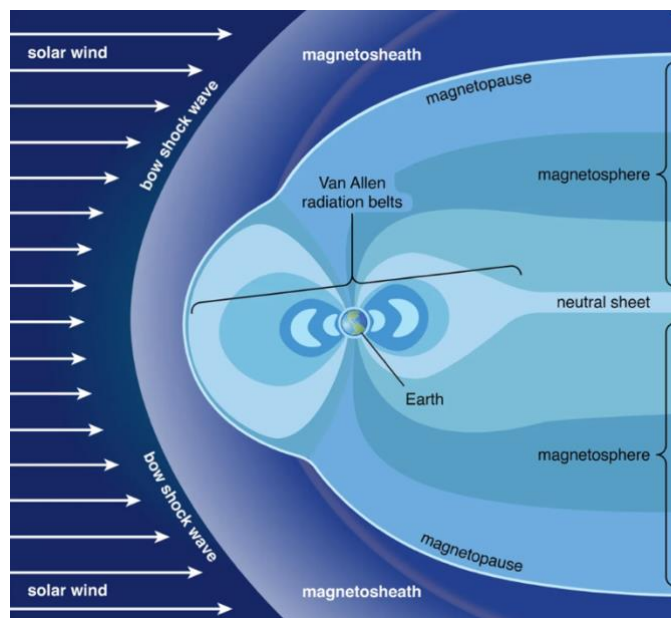
- BAS will be India's **first own space station**. BAS is envisaged as a **national space-based facility** that will **support advanced microgravity research** and **technology development**.
- The station's creation is part of India's broader vision for space during the *Amrit Kaal*, which includes launching an **operational space station by 2035** and **pursuing a crewed lunar mission by 2040**.
- The effort led by ISRO with collaboration from industry, academia, and other national agencies will advance India's space capabilities and **foster innovation, industrial participation, and economic growth**, particularly in high-tech sectors.

### 3. Van Allen Radiation Belt

**News:** Polaris Dawn, a private crewed spaceflight, reached an orbit of 1,400 kms above the Earth and crossed the Van Allen Radiation Belt.

#### About Van Allen Radiation Belt

- The Van Allen radiation belt is a **two-layered region of charged particles** (mainly electrons and protons) trapped by **Earth's magnetic field**. The Belt was discovered in 1958 by James Van Allen.
- These belt is a critical part of **Magnetosphere**, the region around the Earth controlled by its magnetic field.
- **Structure**
  - **Inner Radiation Belt:** It is located about 600 to 6,000 kilometers above Earth's surface. This belt is composed primarily of **high-energy protons**. It is **relatively stable** and is formed by **cosmic rays interacting with the Earth's atmosphere**.
  - **Outer Radiation Belt:** It is situated between 13,500 to 58,000 kilometers above Earth. It



Source: Britannica. Van Allen Belt protects the Earth from harmful radiation.

primarily contains **energetic electrons**. It is more dynamic than the inner belt and can be **influenced by solar activity** such as geo-magnetic storms.

#### • Formation

- The Van Allen belt is shaped and sustained by the interaction between **Earth's magnetic field** and **solar wind** (a stream of charged particles emitted by the Sun).
- These particles get trapped in the Earth's magnetic field, forming the radiation belt.
- The **intensity and size of the belt can fluctuate**, particularly in response to **solar storms** and **cosmic events**. This can cause the belts to expand and even pose a threat to satellites and astronauts.
- The Van Allen belt plays a **crucial role in protecting Earth from harmful solar and cosmic radiation** by **trapping the high-energy particles**.
- However, it **also poses risks to spacecraft and satellites** that travel through or near them, as the intense radiation can **damage electronic systems** and increase the risk of **radiation exposure to astronauts**.

## 4. Solar Paraboloid Technology

**News:** Solar paraboloid technology offers a promising transformative solution as the world transitions towards renewable energy.

### About Solar Paraboloid Technology

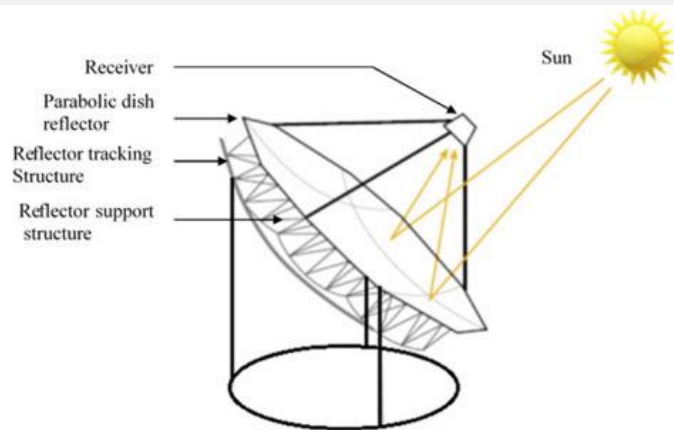
- It is a type of **concentrating solar power (CSP)** that uses a **parabolic-shaped reflector** to **focus sunlight** onto a **single focal point**.
- It leverages the geometric properties of a parabola to **maximize concentration of solar energy into heat**, making it highly efficient for solar applications.

#### Components

- **Reflector:** It is the primary component. It is a parabolic dish made from materials like aluminium or silver-coated glass, designed to reflect and concentrate sunlight.
- **Receiver:** It is positioned at the **focal point of the parabola**, receiver **absorbs concentrated solar energy** and converts it into **thermal energy**.
- **Working Fluid:** Thermal energy is transferred to a working fluid (e.g., water) that drives a thermodynamic cycle, like a **steam turbine**, to **generate electricity**.

#### Advantages

- It is capable of **achieving temperatures up to 1,000°C**, allowing for **higher conversion efficiency** from thermal to electrical energy compared to other CSP technologies.
- It can **generate significant energy** from a **small reflective surface area**, making it suitable for both large-scale power plants and smaller, **decentralized applications**.
- The systems are **modular** and can be **scaled** to meet specific energy needs, **providing flexibility in deployment** across different settings.



Source: ConstructionWorld. Upper Image shows a simple schematic of the technology, lower images shows a solar project based on Solar Paraboloid Technology.

- The high efficiency of solar paraboloids could **lower the cost per unit of electricity**. This makes solar energy more competitive with fossil fuels.

### Challenges

- It requires **accurate sun-tracking mechanisms** to ensure **optimal alignment** and **maximum energy capture**, adding to the **system's complexity and cost**.
- Its efficiency can be **affected by weather conditions** such as cloud cover and dust as this reduces the amount of solar radiation that reaches the receiver.
- **Regular maintenance is necessary** to keep the reflective surfaces and moving parts in optimal condition to ensure maximum performance.

### Future Outlook

- The technology has potential to significantly contribute to renewable energy solutions due to its **high efficiency and adaptability**.
- As technological advancements reduce costs and improve reliability, this technology could become a vital component in **global renewable energy strategies**, particularly in sun-rich regions.

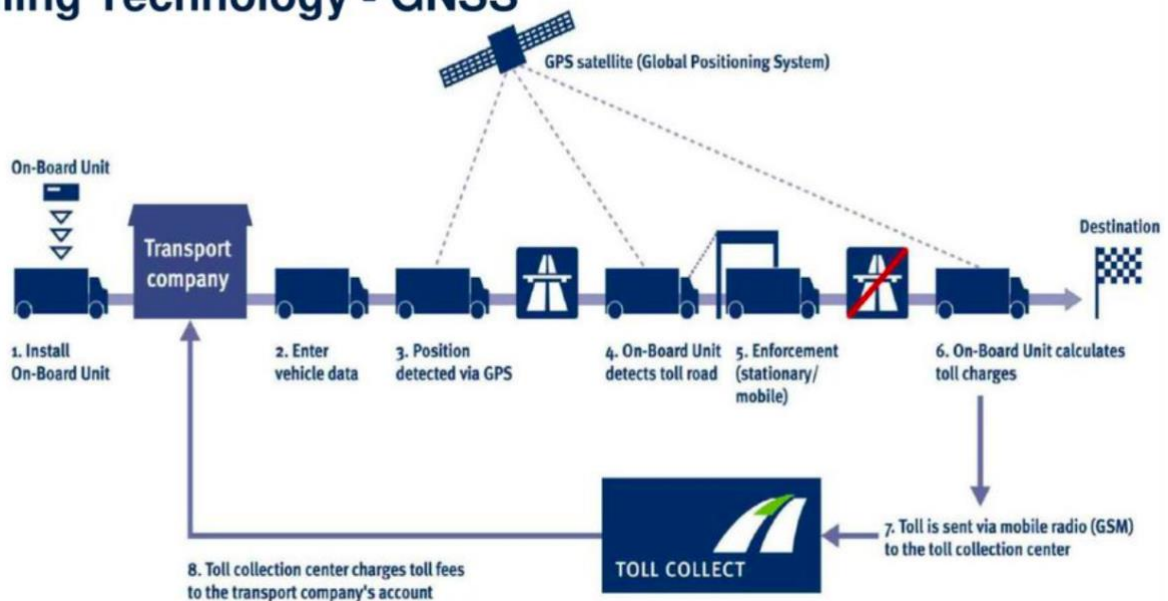
## 5. GNSS-based Electronic Toll Collection (ETC)

**News:** The Ministry of Road Transport & Highways has announced the implementation of a Global Navigation Satellite System (GNSS)-based Electronic Toll Collection (ETC) system in India.

### About GNSS-based Electronic Toll Collection

- Initially, the GNSS-based Electronic Toll Collection (ETC) system will be implemented with the **existing FASTag ecosystem**.
  - It will be launched as a **hybrid model** where both FASTag and GNSS will operate simultaneously.
- **Dedicated GNSS lanes** will be available at toll plazas to allow vehicles using GNSS-based ETC to pass through freely. After GNSS-based ETC become widespread, **all lanes will be converted to GNSS lanes**.
  - The GNSS-based system will have advance reading/identification/enforcement equipment for vehicles so that **valid vehicles gets a free flow pass**.

## Tolling Technology - GNSS



- When a vehicle passes through the toll, the **toll charger will receive pings** (distance and time stamp) of GNSS vehicles through **On Board Unit (OBUs) fitted in the GNSS vehicles**. Money will be debited on this basis.



- The OBUs of GNSS vehicles will be **on-boarded** with the toll charger **through Fintechs**; similar to the issuer bank model under the current FASTag System.
- The payment mechanism will be similar to the existing FASTag ecosystem. However, it will be **automatic debit** (based on distance travelled). This will obviate the need for the **boom barriers at toll plazas**.
- The introduction of the GNSS-ETC system will remove **all kinds of time lags** existing in the present system. Under the FASTag system, there are still considerable delays in **reading the bar code** and **opening of the boom barrier**. This causes **vehicle pile ups**. GNSS-ETC system will remove this (as there are no barriers).

### About Current Toll Collection System

- The current Electronic Toll Collection (ETC) uses **Radio Frequency Identification (RFID)** technology known as **FASTag**, mandatory since February 2021.
- FASTag has been widely adopted, with over **98% of user fees** paid through this method in March 2024.

## 6. Framework Convention on Artificial Intelligence

**News:** The US, EU, and UK are set to sign the Council of Europe's convention on Artificial Intelligence.

### About the Framework Convention on AI

- It is the first international **legally binding treaty** on the regulation and use of AI.
- The treaty was drafted over 2 years by representatives from over 50 countries. It is seen as a global response to the need for a **unified approach to AI regulation**, complementing other regional initiatives like the G7 AI pact and Europe's AI Act.
- It opens opportunity for **global regulation**, with a **risk-based approach** to AI systems' design, development, use, and decommissioning.
- Its aim is to **create uniform standards across nations**, ensuring AI is developed and **used responsibly** while preserving the rule of law and democracy. It also seeks to address the growing concerns about the **risks and ethical challenges** posed by AI technologies.
- **Scope**
  - The treaty applies to AI systems in the **public and private sectors**, with certain exemptions, such as national security and Research & Development.
  - It mandates that AI tools and processes remain **consistent with human rights obligations**. It emphasizes the protection of human rights in AI applications across public and private sectors.
- **Responsibilities of Signatories**
  - Signatory nations are **accountable for AI systems** producing harmful or discriminatory outcomes.
  - Nations must ensure that AI systems respect **equality and privacy rights**, and victims of AI-related rights violations must have **legal recourse**.
  - Nations must ensure that AI systems **do not interfere** with the **integrity of democratic institutions**.
  - There are obligations to safeguard public debate, ensure **fair access to information**, and allow individuals to freely form opinions without AI manipulation.
- **Compliance**
  - While the treaty is **legally binding**, it **does not include punitive measures** for lack of compliance.
  - Compliance will be ensured primarily through **monitoring**. This has raised concerns about effectiveness of its enforcement. Monitoring alone may not provide a **strong deterrent against misuse of AI technologies**.

## 7. Anusandhan National Research Foundation (ANRF)

**News:** The Prime Minister chaired the 1<sup>st</sup> meeting of the Governing Board of the Anusandhan National Research Foundation (ANRF) in New Delhi.

### About ANRF

- It has been established under the **Anusandhan National Research Foundation (ANRF) Act, 2023**.
- The Science and Engineering Research Board (SERB) established by an act of Parliament in 2008, has been subsumed into ANRF with its establishment.
- The mission of ANRF is to:
  - Seed, grow, and promote research and development (R&D).
  - Foster a culture of research and innovation across universities, research institutions, and R&D laboratories.
- It aims to **provide increased support to State universities** and **foster private sector participation** in funding research and development (R&D). (Refer EPIC July 2023 for Status of R&D in India).
- **Functions**
  - ANRF will serve as an **apex body**, providing high-level strategic direction for scientific research in India, in line with the recommendations of the **National Education Policy (NEP)**.
  - ANRF will focus on forging collaborations among industry, academia, government departments, and research institutions.
  - It creates an interface mechanism for the participation and contribution of industries, State governments, and scientific and line Ministries.
- **Funding Structure:** ANRF seeks to establish an INR 50,000 crore corpus, with INR 36,000 crore expected to come from non-government sources. For the current financial year, INR 2,000 crore has been allocated to ANRF in the Union Budget. (Refer EPIC March 2024 for R&D Funding in India).

### Key Highlights of the First Meeting

- The PM highlighted the need for **identifying and eliminating obstacles** in **India's research ecosystem**. He emphasized the importance of **setting ambitious goals** and **conducting path-breaking research** to solve existing problems.
- The Board discussed launching a mentorship programme using a “hub and spoke” model wherein universities with nascent research capabilities will be paired with top-tier institutions to receive guidance.
- **Strategic Focus Areas:** The Governing Board deliberated on key strategic interventions, including: Aligning R&D with national priorities, Enhancing India's global positioning in key sectors, Promoting inclusive growth and capacity building, Bridging the gap between academic research and industry through translational research etc.

## 8. Genome Editing and Transposons

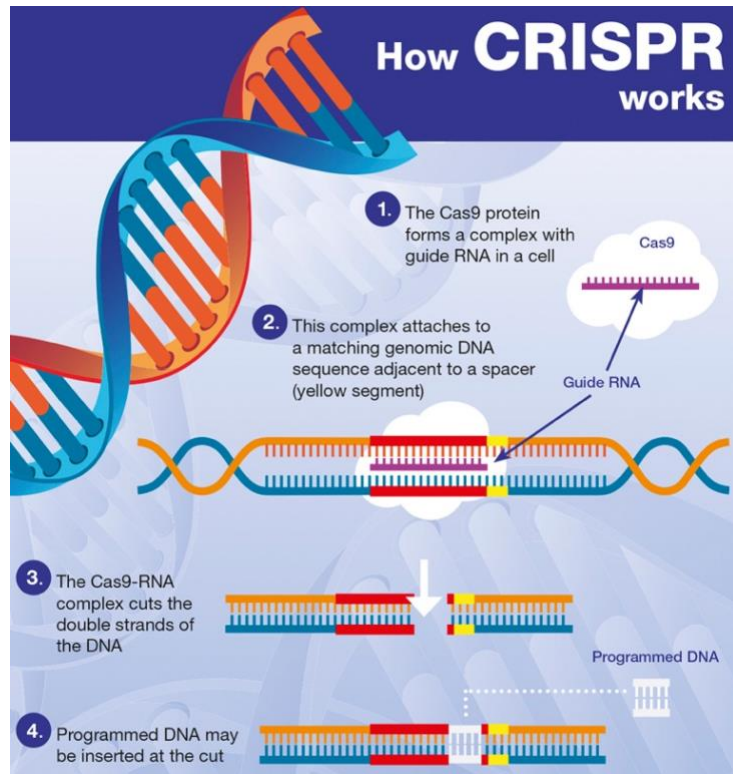
**News:** Researchers have developed a plant genome editor using a protein derived from bacteria *Deinococcus radiodurans*, known for surviving extreme conditions.

### About Genome Editing

- It is a technology that allows scientists to **make precise changes to DNA** which can lead to **alterations in physical traits** (e.g., eye colour) and **influence the risk of diseases**.
- These technologies work like scissors, cutting the DNA at a specific location. After the cut, scientists can **remove, add, or replace segments of DNA** to achieve the desired changes.
- **CRISPR:** Clustered Regularly Inter-spaced Short Palindromic Repeats is a gene editing technology, that replicates natural defence mechanism in bacteria to fight virus attacks, using a **special protein called Cas9**. This technology has made DNA editing **simpler, faster, cheaper, and more accurate**.
- **Challenges with CRISPR in Plants:** CRISPR is often too big to work effectively in plant cells. The main proteins it uses that are **Cas9** and **Cas12** are **too bulky** which make it challenging to use in plant genome editing.

About TnpB

- It is a small transposons protein from the bacterium “Deinococcus radiodurans” that is used for **precise genome editing**. Transposons are a **group of genes** that can **move within the genome**.
- It is made of around 400 amino acids. It is less than half the size of Cas9 and Cas12.
- **Working of TnpB**
  - TnpB works by **binding to specific DNA sequences** and using RNA to guide the removal or modification of unwanted genetic material.
  - This **precise editing capability** allows for **targeted changes in plant genes**, leading to improvements in desirable traits such as **yield, disease resistance, or nutritional content**.
  - It has achieved an **editing success rate of 33.58% in plant genomes**, which is higher than traditional CRISPR methods for some targets.
  - To enhance TnpB’s efficiency in plants, researchers have **modified its genetic code** to better align with plant biology and optimized the elements that control its expression. This makes TnpB a promising tool for **advanced plant genome editing**.
- This new genome editing tool could help **develop crops that are more resistant to pests**, less prone to damage from weather like cyclones, and free of harmful anti-nutrient factors.



Differences between TnpB and CRISPR

Parameter	TnpB	CRISPR
<b>Size and Delivery</b>	• Smaller and easier to deliver into cells, especially useful in plants.	• Larger, making delivery more complex, but widely adaptable.
<b>Targeting Mechanism</b>	• Uses a specific sequence (TAM) for precise DNA targeting, with high specificity. (TAM: Transposon-Associated Motif).	• Targets DNA using a PAM sequence with guide RNA, effective but sometimes limited by PAM availability.
<b>Efficiency</b>	• 33.58% success rate in plant genomes, more effective for certain targets.	• Generally efficient but can vary depending on the target site.
<b>Versatility</b>	• Newer and mainly focused on plants, with potential for growth in other areas.	• Highly versatile, used across many fields, from agriculture to medicine.

9. Synthetic Biology

**News:** The emerging field of synthetic biology has potentially wide applications in multiple fields.

About Synthetic Biology

- It is a new field that combines **genetic engineering** and **bio-computing** to create biological systems designed for specific purposes.

- It is projected to affect sectors that will contribute  $\approx 1/3^{\text{rd}}$  of Global output (US\$ 30 trillion) by 2030.

### Applications of Synthetic Biology

- **Food Production:** Techniques are being developed to **produce artificial meat** and reduce the reliance on traditional animal farming.
- **Agriculture:** Engineered microbes can convert nitrogen from air, reducing the need for **fertilizers**.
- **Mining:** Genetically engineered microorganisms are used to **extract metals** like copper and gold more cleanly and efficiently than traditional methods.
- **Fashion:** Brands like Hermes use mycelium to make **materials that can replace leather**. Companies engineer yeast to produce stronger, more durable fabrics.

### Challenges and Ethical Considerations

- Data access is critical for developing new biological systems. Most of the data come from 'mega-diverse' countries, which have unique biodiversity but **have experienced exploitation**.
- There is a concern that **advanced nations and corporations might disproportionately benefit** from synthetic biology, potentially harming vulnerable populations. (*The Convention on Biological Diversity and Nagoya Protocol emphasize equitable sharing of benefits from genetic resources*).

### Addressing the Challenges

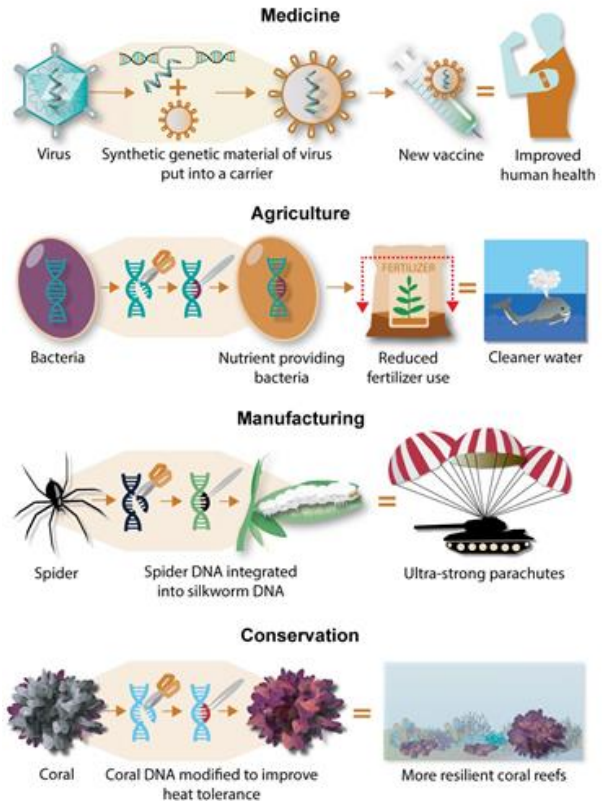
- **Legal Frameworks:** The Convention on Biological Diversity and the Nagoya Protocol emphasize equitable sharing of benefits from genetic resources and provide guidelines for benefit-sharing.
- **Public Engagement:** It's important to keep the public informed and involved in discussions about synthetic biology to ensure transparency and accountability.
- **Investment in R&D:** Countries like India, rich in biodiversity, need to invest in research and development to harness their biological resources effectively. (*Refer EPIC March 2022 for Synthetic Biology*).

## 10. Vaccine-Derived Polio Virus (VDPV)

**News:** A 2-year-old child in Meghalaya has been confirmed to be suffering from vaccine-derived polio.

### About Vaccine-Derived Polio Virus

- It is a **rare form of poliovirus**, which generally originates from the **Oral Polio Vaccine (OPV)**. It mostly emerges in communities with **low sanitation** and **immunity levels**.
- **Occurrence and Transmission**
  - The OPV contains an **attenuated** (weakened) **virus**. This virus replicates in the intestines and **triggers the body's immune response** without causing the disease.
  - After vaccination, the weakened virus is excreted in the stool.



Source: University of Cambridge. Applications of Synthetic Biology in various fields.

- In areas with poor sanitation and low immunization coverage, the **virus can spread to others**.
- If the excreted virus continues to circulate in an **under-immunized population**, it can undergo genetic changes over time. These changes may lead the virus to revert to a form capable of causing paralysis, similar to the **wild poliovirus**.
- **Types of Vaccine-Derived Poliovirus:** There are 3 types of VDPVs:
  - **Circulating Vaccine-Derived Poliovirus (cVDPV):** This type can spread in communities and cause outbreaks, especially in areas where vaccination rates are low.
  - **Immunodeficiency-Related Vaccine-Derived Poliovirus (iVDPV):** Occurs in individuals with primary immunodeficiencies, where the weakened immune system cannot clear vaccine virus, allowing it to mutate.
  - **Ambiguous Vaccine-Derived Poliovirus (aVDPV):** Cases where the source of the virus is unclear and does not fit into the other two categories.
- **Characteristics**
  - VDPV is extremely rare. Since 2000, **billions of OPV doses** have been administered globally, with **only a few hundred cases of VDPV have been reported**.
  - The risk of VDPV outbreaks is highest in communities with **low polio vaccination coverage**. Low sanitation coverage and immunity levels, allow the excreted virus to spread and mutate.

### Prevention and Control

- **High Immunization Coverage:** The key to prevent VDPV is maintaining high vaccination coverage to ensure the virus cannot circulate and mutate.
- **Switch to Inactivated Polio Vaccine (IPV):** Some countries have switched from OPV to Inactivated Polio Vaccine (IPV), which uses a killed virus and does not carry a risk of VDPV. (*Refer EPIC July 2024 for Polio Vaccine*).

## 11. Pagers

**News:** A series of pager explosions across Lebanon killed at least eight people and injured 2,750 others.

### About Pagers

- A pager is a small, **portable electronic device** used for **receiving short messages or alerts**. Pagers were popular before the widespread use of mobile phones and are still in use in certain professional settings.
- Pagers receive messages via **dedicated radio frequencies** from a **base station** or a central dispatch. These messages can either be **numeric** (e.g., a phone number) or **alphanumeric** (both numeric and text-based).
- Numeric Pagers can only display numbers. Alphanumeric Pagers can display both numbers and letters, allowing for more detailed messages, including short text communications.
- Some advanced pagers, known as **two-way pagers**, allow users to **send and receive messages**, similar to basic text messaging.

### Advantages and Disadvantages of Pagers

- **Reliable Communication:** Pagers have a large coverage area making them reliable in remote or poor signal areas.
- **Simple Design:** They are easy to use, with minimal features, and are less prone to technical issues.
- **Untraceable:** 1-way pagers are often untraceable because they don't transmit signals back to the base station.
- **Battery Life:** Pagers typically have longer battery life compared to mobile phones, can last several days.
- **Disadvantages:** Lithium batteries are common in consumer electronics like cell-phones and laptops. They can overheat, melt, or catch fire upon reaching temperatures up to 1,100°F (590°C) which can potentially cause explosions.

## Environment

### 1. Access to Loss and Damage Fund

**News:** The widespread damage caused by the devastating landslides in Wayanad, Kerala has sparked a debate whether sub-national entities can access compensation from the Loss and Damage (L&D) Fund.

#### About Loss and Damage Fund and Issues in Access

- The Loss and Damage Fund (LDF) was established at the 2022 UNFCCC Conference (COP27) in Egypt.
- It has been created to **provide financial support** to regions suffering **both economic and non-economic losses caused by climate change**. These include **extreme weather events** and **slow-onset processes**, such as rising sea levels. (Refer EPIC December 2023 for Loss and Damage Fund).
- All **developing countries are eligible to apply for the fund**. A certain percentage of the fund has been set apart for Least Developed Countries (LDCs) and Small Island Developing States (SIDS).
- The LDF is overseen by a **Governing Board** that determines **how the Fund's resources are disbursed**. The World Bank serving as the interim trustee.
  - At present, the Board is **developing mechanisms to facilitate access to the Fund's resources**, including **direct access, small grants, and rapid disbursement options**.
- **Concerns**
  - **Delay in Accessing Funds:** There are concerns that **climate funds** are often **too slow to be accessible immediately after a disaster**, particularly for local communities at the sub-national level.
  - **Damage Assessment:** There is a **lack of standardised method** for conducting comprehensive **assessments of disaster-related damages**, particularly those from **slow-onset events**. It implies that significant loss and damage needs may go unassessed, that could otherwise qualify for assistance from the LDF.

#### India's Approach

- **More Focus on Mitigation:** India has suffered over **US\$ 56 billion in damages** from **weather-related disasters** between **2019 and 2023**. Despite this, **India has prioritised mitigation activities over adaptation** in its National Climate Action Policy and budgets.
  - This focus has led to a **subdued participation in Loss and Damage dialogues at COP meetings**. Certain regions in India are highly vulnerable to climate change. Hence, India must actively engage in the discussions related to LDF.
- **Burden on States:** State Governments have to bear a significant burden of the losses caused by extreme weather events e.g. the Government of Kerala had to seek loans from the World Bank for the Rebuild Kerala Development Programme, launched in the aftermath of the August 2018 floods. It shows States are also stakeholders in designing the international climate finance framework.
- **Need for Policy Framework:** There is an urgent need for a clear legal and policy framework to streamline climate finance, particularly for **adaptation and loss and damage**.
  - It should be in line with principles of locally led-adaptation, which are **crucial for vulnerable communities**.

#### Change in Approach

- In international climate change negotiations, India should advocate for more **decentralised methods of fund disbursement** from the LDF, as opposed to the centralised systems used for other climate funds.
- The situation in Wayanad underscores the broader challenges India faces in accessing and managing climate finance, particularly for loss and damage. By establishing a domestic policy framework that focuses on **locally-led adaptation** and **clearer guidelines for accessing loss and damage funds**, India can better protect itself from the impacts of climate change.

## 2. Food Recovery to Avoid Methane Emissions (FRAME) Methodology

**News:** According to estimates, each food bank can cut Greenhouse gas emissions equivalent to those of 900 gasoline-powered cars in a year by following the FRAME methodology.

### About Food Recovery to Avoid Methane Emissions (FRAME) Methodology

- The FRAME methodology is a tool designed to **quantify and mitigate** the **environmental impact of food loss and waste (FLW)** through **food recovery** and **redistribution**.
- It has been developed by the **Global Food Banking Network** in collaboration with the **Global Methane Hub** and the **Carbon Trust**.
- It provides a measurable way to calculate the greenhouse gas (GHG) emissions that can be avoided by **redirecting food destined for landfills to human consumption**.
- It helps organizations involved in food recovery such as food banks demonstrate their environmental benefits, specifically in **reducing methane emissions**.
- It allows them to **track emissions reductions, optimize food distribution efforts**, and demonstrate the **positive impacts of preventing food waste**, which otherwise **contributes heavily to global warming**.
- The methodology aligns with several UN **Sustainable Development Goals (SDGs)**, most notably **SDG 13** (Climate Action), **SDG 12** (Responsible Consumption and Production) by reducing food waste, and **SDG 2** (Zero Hunger) by redirecting edible surplus to those in need.
- **Implications:** In 2019, the global network of food banks helped prevent over **12 million tonnes of CO<sub>2</sub> equivalent from being emitted**, while **saving 75 million tonnes of surplus food, serving 66 million people**.

## 3. Emissions by Transport Sector

**News:** A study by the World Resources Institute has found that road transport accounts for 90% of the transport sector's emissions.

### Key Findings of the Study

- India's transport sector could reduce carbon dioxide (CO<sub>2</sub>) emissions by up to 71% by 2050 if ambitious strategies are implemented across 3 key areas: **electrification, enhancing fuel economy standards**, and transitioning to **cleaner transportation modes and mobility solutions**.
- **Current CO<sub>2</sub> Emissions:** The transport sector accounted for **14% of India's total energy-related CO<sub>2</sub> emissions** in 2020. Road transport was responsible for 90% of these emissions.
- Two-wheelers contributed 16%, cars 25%, buses 9%, light-duty freight vehicles (LDVs) 8%, and heavy-duty freight vehicles (HDVs) 45% (the highest share).
- **Impact of Electrification:** Expanding electric vehicle (EV) sales offer significant potential, with an annual reduction of 121 MtCO<sub>2</sub>e. Complementing transport electrification with **decarbonised electricity generation** (75% from renewables) could lead to a 75% emissions reduction by 2050.
- **Consequences of Business as Usual (BAU):** In the absence of ambitious interventions, fossil fuel reliance is expected to continue until 2050. Passenger travel demand is expected to triple and freight travel demand to increase sevenfold from 2020 to 2050.
- **Fuel Consumption Projections:** Fossil fuel consumption (LPG, diesel, petrol) could quadruple by 2050 if current trends persist. Railways, aviation, and waterways contribute relatively smaller shares of energy consumption at 6%, 3%, and 1%, respectively.

## 4. Threats Faced by Salt-pans of Mumbai

**News:** The Union Government has approved the transfer of 256 acres of Mumbai's salt pan land for Dharavi Slum Redevelopment. This has drawn criticism from various environment groups and activists.

**About Salt Pans in Mumbai**

- Salt pans are naturally forming expanses of ground which are covered with salt and other minerals.
  - Such land is formed **where the large water bodies have dried up** over thousands of years, **leaving behind salt and other minerals** as remnants.
- In Mumbai, the salt pans are spread across Ghatkopar, Wadala, Chembur, Virar, Bhandup, Trombay and Bhayandar.
- The 2011 notification of **Coastal Regulation Zone (CRZ)** categorizes salt pans under the category **CRZ-1B**, where economic activities are prohibited except for **salt extraction** and **exploration of natural gas**.

**SALT PANS IN MUMBAI**

**5,400 acres**  
Area of all salt pans in Mumbai


**East** | Largely spread over Ghatkopar, Chembur, Trombay, Mandale, Turbhe, Anik, Wadala, Kanjurmarg, Bhandup, Nahur and Mulund

**West** | Malvani, Dahisar, Mira-Bhayander and Virar

► Salt production stopped at most places decades ago


**3rd** India's salt-production rank after China and the US

**GOVT HAS BEEN EYEING LAND FOR 'AFFORDABLE HOUSING'**



**IMPORTANCE OF SALT PANS**

- They are rainwater sinks and are thus safeguards against flooding
- Some of the last remaining open spaces in the city
- They harbour migratory birds and other animal life



**Ecological Importance of Salt Pans**

- **Flood Protection:** Salt pans, together with mangroves, serve as natural flood barriers, absorbing excess water during heavy rainfall and high tides, reducing the risk of severe waterlogging in Mumbai.
- **Biodiversity:** These areas support a diverse range of bird species and marine life, playing a vital role in maintaining the local ecosystem.

**Threats and Challenges**

- **Developmental Challenges:** Mumbai is facing severe housing crisis. Salt pans are one of the last undeveloped lands, and the Government has proposed using them for slum redevelopment projects and low-cost housing.
- **Regulatory Challenges:** Salt pans fall under the **CRZ-1B category**, which restricts economic activities to protect ecologically sensitive areas. Despite these protections, there have been continuous efforts to relax these norms to facilitate development.

**5. India as the Top Plastic Waste Generator in the World**

**News:** A study published in the journal Nature has revealed that India is responsible for 20% of the global plastic pollution.

**Difference Between Managed and Unmanaged Waste**

- Managed waste refers to the plastic collected by municipalities and **re-cycled or sent to landfills**.
- Unmanaged waste refers to plastic **left in the environment as debris** or **burnt in uncontrolled fires**. The open burning of plastic releases harmful gases like carbon monoxide, linked to **heart diseases, respiratory disorders, and neurological issues**.

**Key Findings of the Study**

- **Worldwide Pollution:** ~251 million tonnes (MT) of plastic waste is produced every year, globally. ~52.1 MT, which is a **fifth of this waste** (~20%), is “emitted” into the environment, unmanaged.
- **India’s Plastic Contribution:** India annually contributes 9.3 MT to global plastic pollution. This includes 5.8 MT of plastics being burned and 3.5 MT released into the environment.
- **Comparison:** India’s contribution to plastic pollution significantly exceeds other countries.



- India is followed by Nigeria (3.5 MT), Indonesia (3.4 MT), China (2.8 MT) and Pakistan (2.6 MT).
- **North-South Divide:** There is a distinct divide between Global North (high-income countries) and Global South (low-income countries) in plastic waste generation and management.
- Southern Asia, Sub-Saharan Africa, and South-eastern Asia contribute to **≈69% of global plastic pollution**.
- **Waste Management in High-Income Countries (HICs):** Most HICs have **~100% waste collection** and management systems, resulting in **controlled plastic disposal**.



**6. Bio-decomposer Solution to Prevent Stubble Burning**

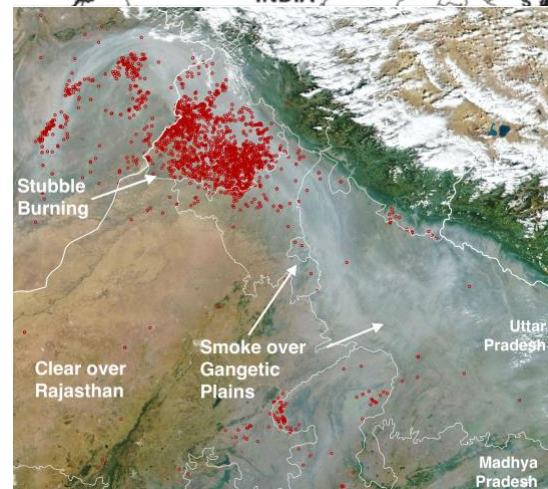
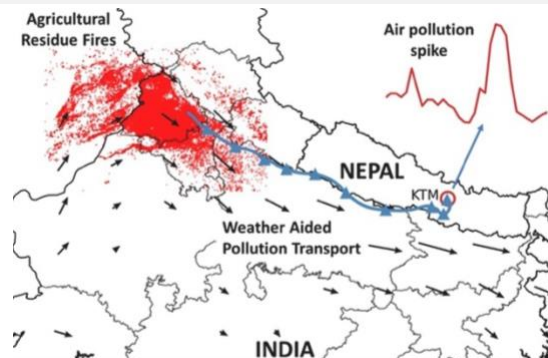
**News:** The Government of Delhi has taken steps to spray bio-decomposer solution over city’s farmlands. The solution will decompose the agricultural residue and eliminate the need for burning stubble.

**About the Initiative**

- The bio-decomposer is a **microbial liquid** developed by the Indian Agricultural Research Institute (IARI).
- It works by **breaking down stubble**, allowing it to be **absorbed into the soil** and **improving soil fertility**.
- The spray is intended to **decompose paddy stubble**, preventing the need for stubble burning, which significantly contributes to air pollution.
- The solution will be sprayed free of cost over **5,000 acres of farmland across Delhi**, starting in the last week of September. The decomposer can help mitigate the crisis of air pollution in the Delhi NCR.

**About the Bio-decomposer**

- It is a biological solution made of **microbial cultures** designed to **decompose agricultural crop residues**, especially stubble.
- It offers an environmentally safe alternative to burning crop residues. It can be sprayed directly onto the crop residue for effective decomposition.
- **Benefits**
  - **Soil Health:** It enhances soil organic carbon and overall fertility.
  - **Nutrient Recycling:** It converts crop residues into simpler compounds improving nutrient availability.



Source: Science Direct and NASA. Upper image depicts movement of air and spreading of smoke. Lower image shows satellite image of smoke over Gangetic Plains.

- **Reduces Pollution:** It helps to prevent harmful practices like stubble burning, which contributes to air pollution.
- **Cost-effective:** It minimizes the need for chemical fertilizers by enriching the soil naturally.
- **Zero-waste Agriculture:** It supports the practice of zero-waste farming by managing agricultural waste efficiently.
- **Enhances Sustainability:** It promotes sustainable practices by enriching soil naturally without harmful chemicals. (Refer EPIC November 2023 for Air Pollution in Delhi and EPIC November 2022 for Issue of Stubble Burning).

## 7. AQLI Report 2024

**News:** The Energy Policy Institute at the University of Chicago (EPIC) has released the Air Quality Life Index (AQLI) annual report for 2024.

### Key Findings of the Report (India)

- **Life Expectancy:** Cleaner air that meets WHO guidelines ( $5 \mu\text{g}/\text{m}^3$ ) can increase the life expectancy of Delhi's 18.7 million residents by **7.8 years**.
  - Even if the air quality in Delhi improves to meet the national standards ( $40 \mu\text{g}/\text{m}^3$ ), the life expectancy can improve by **4.3 years**.
- **Improvement in Air Quality in Delhi:** Delhi is the most polluted city in India, with an average PM<sub>2.5</sub> level of  **$84.3 \mu\text{g}/\text{m}^3$**  in 2022. However, the PM<sub>2.5</sub> concentration has shown an improving trend. It stood at  $124.4 \mu\text{g}/\text{m}^3$  in 2019,  $111.6 \mu\text{g}/\text{m}^3$  in 2020 and  $126.5 \mu\text{g}/\text{m}^3$  in 2021.
- **Improvement in Air Quality (Pan-India):** India as whole experienced average pollution level of  **$49 \mu\text{g}/\text{m}^3$**  ( $\approx 10$  times WHO norms) over the decade. In 2022, this had improved to  $41.4 \mu\text{g}/\text{m}^3$ .
  - If this reduction is sustained, it could add 9 months to the life of an average Indian. And if the WHO standards are met, the life span can improve by 3.6 years.
  - However, the Report noted that this is a single year trend. Hence, it is difficult to ascertain if this **reduction is temporary** due to factors like weather or a **permanent fall due to effective policy implementation**.
- **Health Risks:** Particulate pollution takes away 3.6 years off the life of an Indian resident, malnutrition takes off 1.6 years, tobacco 1.5 years, and unsafe water and sanitation conditions 8.4 months.

### LIFE EXPECTANCY TO GAIN

**+7.8 years** if air quality met WHO standards  
**+4.3 years** if air quality met national standards

Based on data from previous Epic report, Delhi has seen improvement

#### Average PM<sub>2.5</sub> Levels in Delhi



**National PM<sub>2.5</sub> dropped** from  **$51.3 \mu\text{g}/\text{m}^3$**  (2021) to  **$41.4 \mu\text{g}/\text{m}^3$**  (2022) – adding 1 year to India's average life expectancy

> Delhi remains most polluted state in India

## History, Art and Culture

### 1. Sanchi Stupa

**News:** The External Affairs Minister S. Jaishankar visited the replica of the East Gate of Sanchi's Great Stupa, located in front of the Humboldt Forum Museum in Berlin.

### About the Great Stupa of Sanchi

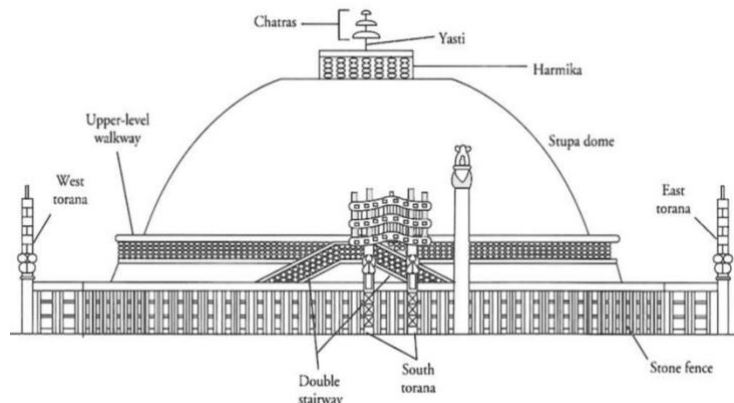
- The Great Stupa of Sanchi was constructed in the 3<sup>rd</sup>-century BCE under the reign of **Emperor Ashoka**.
- It is located at **Sanchi**, near Vidisha, **Madhya Pradesh**.
- It is **one of the oldest stone structures** in India and was built to **house the relics of Buddha**.
- The stupa was **later expanded and embellished** during the **Shunga dynasty** in the 2<sup>nd</sup>-century BCE, showcasing its long-standing religious and historical significance.

### Discovery and Restoration

- The site was discovered by British officer Henry Taylor in 1818.
- The first formal survey and excavation were carried out by **Alexander Cunningham** in 1851.
- The major restoration work was undertaken in the early 20<sup>th</sup> century under John Marshall, with financial support from the Begum of Bhopal.

### Features

- The central feature of the stupa is the dome or **anda**, which symbolizes the **cosmic body of the Buddha**.
- At the top of the dome is the **harmika**, a square railing representing **heaven**, and a **chhatra**, or umbrella-like structure, which symbolizes **high rank and spiritual protection**.
- The stupa is surrounded by a **pradakshina path**, a circular walkway used by devotees for circumambulation.
- The structure is further enclosed by **stone railings**, which mark the boundaries of the sacred space.
- The stupa is accessed through **4 elaborately carved gateways**, known as **toranas**, oriented towards cardinal directions: North, South, East, and West.
- The **toranas** are adorned with **intricate carvings** that depict scenes from the life of the Buddha and Buddhist symbols such as the **lotus, wheel of dharma, and Bodhi tree**.



### Cultural Significance

- The sculptures and carvings on the Great Stupa reflect the rich narrative tradition of early Indian art.
- The scenes use **symbols and metaphors** to depict his teachings and various **Jataka tales**.
- The stupa represents a transitional phase in Indian sculpture, bridging the gap between the Mauryan and Gupta periods, and showcases early examples of Buddhist art and architecture.
- Its circular stupa design became a model for similar structures in Sri Lanka, Southeast Asia, and beyond.
- The Great Stupa of Sanchi was declared a **UNESCO World Heritage Site in 1989**, acknowledging its global cultural significance.

### Religious Significance

- It is a key site for pilgrimage, symbolizing the enlightenment and teachings of the Buddha.
- It was built to spread Buddhist teachings and house sacred relics.
- The stupa continues to be an important spiritual site for devotees seeking peace and enlightenment.

## 2. Guru Padmasambhav

**News:** A two-day International Conference on the Life and Living Legacy of Guru Padmasambhav was organised in Nalanda, Bihar.

### About the Conference

- The conference was organized by the **International Buddhist Confederation (IBC)** in collaboration with **Nava Nalanda Mahavihara**.
- The objective of the conference was to celebrate the diverse **Dhamma legacy** of Guru Padmasambhav through manuscripts, relics, paintings, and monuments. It also aimed to gain insights into his approach of **integrating local customs and rituals** to effectively **transmit the teachings of Buddha**.
- The themes of the conference included teachings of **Vajrayana buddha dhamma** and **tantra**, biographical insights and mythology of Guru Padmasambhav, his cultural and artistic contributions, his travels, legacy and contemporary relevance in today's world.



### About Guru Padmasambhav

- Padmasambhav is a highly revered figure in **Tibetan Buddhism** and is often regarded as the “**Second Buddha**” due to his significant role in spreading Buddhism throughout Tibet and the Himalayan regions.
- The name Padmasambhav (Lotus-Born) reflects his miraculous birth from a lotus flower in a lake within the kingdom of **Oddiyana**, believed to be in the **Swat Valley**.
- Padmasambhav introduced **Vajrayana Buddhism**, which focuses on **esoteric practices** such as **mantras, mudras, and visualizations**, as **pathways to enlightenment**.
- He taught numerous forms of meditation and passed down secret **tantric teachings** that are **foundational to Tibetan Buddhism**, particularly within the **Nyingma school**, which considers him as its founding master.
- Padmasambhav is also known for concealing numerous spiritual treasures, or **termas**, across Tibet and surrounding areas. These teachings were intended for future generations and were to be discovered by enlightened beings known as **tertöns**.
- His life and accomplishments are celebrated in numerous texts, and he is frequently depicted in **thangka paintings**, sculptures, and religious artwork throughout the Himalayan region.
- **Guru Rinpoche's Day**, observed on the 10<sup>th</sup> day of the lunar month, serves as a tribute to his enduring influence. Devotees across the Himalayan region participate in prayers, meditation, and rituals to honour his teachings and seek his blessings for spiritual growth.

### 3. Dr. S. Radhakrishnan and Teachers' Day

**News:** Teachers' Day is celebrated on September 05 every year in India, in the honour of birth anniversary of Dr. Radhakrishnan.

### About Dr. Radhakrishnan

- Dr. S. Radhakrishnan was **India's first Vice-President** (1952-1962) and the **second President** (1962-67).
- He was born on **September 05, 1888**, in a Telugu family in Tiruttani, in North Arcot District in Madras Presidency (now in **Tiruvallur District in Tamil Nadu**).
- He graduated from Madras Christian College in philosophy.
- Throughout his life, he **held many important academic positions** like the vice-chancellor of Banaras Hindu University and Andhra University.

- He also taught at Manchester College, Oxford University. He was Professor of Eastern Religion and Ethics at **University of Oxford** from 1936 to 1952.
- He is regarded as **India’s most recognised and influential thinkers** of the 20<sup>th</sup> century.
  - His life and work was dedicated to defining, disseminating, and defending the Hindu religion. He is seen in philosophy circles as a **bridge-builder between India and the West**, and credited for his role in shaping the **West’s understanding of Hinduism**.
  - He was among the foremost proponents of the **non-dualist Advaita Vedanta** tradition in the 20<sup>th</sup> century, and **re-interpreted Adi Shankara’s philosophy for modern times**. In doing so, he defended Hinduism against what he said was “uninformed Western criticism”.
- He was a brilliant teacher, who developed **deep personal bonds with students**. He thought highly of the profession of teaching, and is recorded as having said several times that “**teachers should be the best minds in the country**”.
- For his services to education he was **knighted by George V** in the June 1931. However, he ceased to use the title (Sir) after India’s independence.
- He was awarded India’s highest civilian award, **Bharat Ratna** in 1954.
- After he became President (1962), some old students expressed their wish to celebrate his birthday. He refused a personal celebration, and instead requested his students to **honour teachers across the country on his birth anniversary**. It led to the tradition of celebrating Teachers’ Day on September 5.



#### 4. Renaming of Port Blair to Sri Vijaya Puram

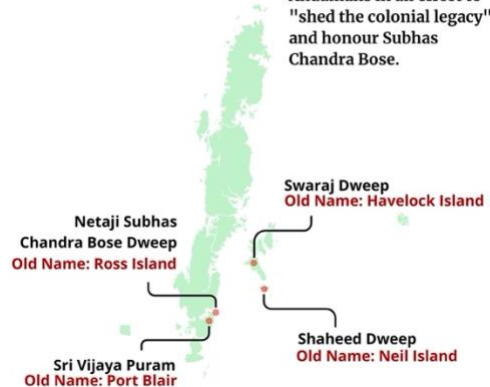
**News:** The Government has announced that Port Blair, the capital city of Andaman and Nicobar Islands, will be renamed as Sri Vijaya Puram.

#### Origin of the Name Port Blair

- Port Blair was named after **Archibald Blair**, a naval surveyor and lieutenant in the Bombay Marine. Blair had led a thorough **survey of the Andaman Islands**, making him the first officer to do so.
- After joining the Bombay Marine in 1771, Blair participated in various survey missions along the coasts of India, Iran, and Arabia.
- In 1778, Blair embarked on his first survey of the Andaman Islands from Calcutta, along with two ships, **Elizabeth** and **Viper**. Initially, Blair named the natural harbor as Port Cornwallis, after Commodore William Cornwallis, but it was later renamed Port Blair in his honour.
- **Colonial Importance of the Andaman Islands:** The East India Company decided to colonize the Island in the late 18<sup>th</sup> century, mainly to check the activities of Malay pirates. However, it was abandoned in 1796.
  - The Revolt of 1857 resulted in a large number of prisoners for the British, prompting the immediate renovation and resettlement of Port Blair as a **penal colony**.
  - It also marked the place where Subhash Chandra **Bose first unfurled the Tiranga**.

#### Renaming Islands in Andaman

In recent years, the government has renamed several islands in the Andamans in an effort to "shed the colonial legacy" and honour Subhas Chandra Bose.



- The Cellular Jail, also known as **Kala Pani** is located here. It was built by 1906, housing several prominent freedom fighters like Veer Savarkar.

### Connection to the Imperial Cholas and Srivijaya

- **Chola Naval Expedition:** Historical records suggest that the 11<sup>th</sup>-century Chola emperor, Rajendra I used the Andaman Islands as a **strategic naval base** during his campaign against the **Srivijaya Empire** (modern-day Indonesia). An inscription from **Thanjavur** (1050 CE) refers to the Andaman Islands as “**Ma-Nakkavaram land**” (great open land), which may have influenced the later British name, **Nicobar**.
- Historian Nilakanta Sastri proposed that the Cholas attacked Srivijaya to **secure trade routes** or expand their empire. American historian G W Spencer interpreted the expedition as part of Chola **expansionism**, which involved conflicts with other empires in South India and Sri Lanka.
- **Aftermath of the Attack:** Rajendra I captured King Sangrama Vijayottunggavarman of Srivijaya and looted treasures, including the jewelled war gate, Vidhyadara Torana, from the Buddhist empire.

## 5. Sindhudurg Fort

**News:** Sindhudurg Fort was one of the first fort constructed by Chhatrapati Shivaji.

### About the Sindhudurg Fort

- It was one of the first sea fort constructed by Chhatrapati Shivaji Maharaj between 1664-1667.
- The fort lies off the shore on the **island of Kurte** in **Malvan taluka of Sindhudurg District in Konkan region of Maharashtra**. It is a protected monument under the Archaeological Survey of India.
- The Fort's main objective was to counter the rising influence of the English, Dutch, French and Portuguese merchants in the Konkan coast, and to curb the rise of Siddhis of Janjira. Shivaji's vision was to establish **maritime control** and **enhance economic stability** through a powerful navy.
- The sea fort is spread over 48 acres, with a 3 km long rampart, and walls that are 30 feet (9.1 m) high and 12 feet (3.7 m) thick. The massive walls were designed to serve as a deterrent to approaching enemies and to the waves and tides of the Arabian Sea.
- The cost of construction of the fort was ≈1 crore hons. Hon was a **gold coin** used as currency during the reign of Shivaji Maharaj in the 17<sup>th</sup> century. The money was contributed by people from all walks of life, including fishermen and naval workers.
- To ensure Sindhudurg remained unconquerable, smaller forts like Padmagad, Sarjekot, and Rajkot were built in close proximity.



## Miscellaneous

### 1. Impact of Level of Arctic Sea Ice on Rainfall in India

**News:** Recent research has shown that fluctuations in Arctic sea ice levels are affecting the Indian summer monsoon rainfall, making it more erratic and unpredictable.

### Key Findings of the Study

- The study was published in the journal Remote Sensing of Environment. It was undertaken by researchers from India's **National Centre for Polar and Ocean Research** (NCPOR), and Korea Polar Research Institute of South Korea.

- **Atmospheric Circulations:** Changes in Arctic Sea ice impact **large-scale atmospheric patterns** such as the **Rosby waves** and **Asian jet streams**, which affect the **distribution and intensity of monsoon rains**.
- **Influence of Arctic Sea Ice:** Reduced central Arctic Sea ice leads to **lower rainfall** in western and peninsular India but **higher rainfall** in central and northern India. Meanwhile, reduced sea ice in the upper latitudes like Barents-Kara Sea region **delays the onset of the monsoon**, making it more **unpredictable**.
- **Droughts and Floods:** The reduction of Arctic Sea ice due to climate change exacerbates the fluctuations, leading to **severe droughts** in some areas while causing excessive **rainfall and flooding** in others.

### About Rossby Waves

- Rossby waves are **large-scale atmospheric waves** that primarily occur in the mid-latitudes of the Earth's atmosphere. These are also known as **planetary waves**.
  - They are created by the **earth's rotation** and **differences in temperature**.
- These waves form in the **jet streams**. Jet Streams are the high-altitude air currents that flow around the planet. Their meandering patterns influence the weather across regions in both northern and southern hemispheres.
- Rossby waves **help transfer heat** from the tropics toward the poles and cold air toward the tropics and hence **balance the distribution of heat across the planet**.
- They play a role shaping weather patterns, influencing temperature extremes and precipitation levels globally.

## 2. District Agro-Meteorology Units (DAMU)

**News:** The India Meteorological Department (IMD) has announced plans to revive District Agro-Meteorology Units (DAMUs) under the Gramin Krishi Mausam Sewa (GKMS) scheme.

### About Agro-Meteorological Advisories

- The IMD had established 199 DAMUs in 2018 in collaboration with the **Indian Council of Agricultural Research** under the **Gramin Krishi Mausam Sewa (GKMS)** scheme.
- Their aim was to use weather data to prepare and **disseminate sub-district level agricultural advisories**.
- Agro-meteorological advisories provided farmers with **weather-based guidance** to help them **make better decisions for farming**.
- DAMUs used weather data from the IMD, such as rainfall, temperature, and wind speeds. They helped farmers decide when to sow, harvest, apply fertilizers and pesticides, and plan irrigation. They also provided **early warnings about extreme weather events** like droughts or heavy rainfall.
- Advisories were sent to millions of farmers **in local languages**. These were distributed **free-of-cost twice a week**. The advisories were shared via text messages, WhatsApp groups, newspapers, and in-person communication by DAMU staff and KVK officers.
- **Impact:** DAMUs helped improve the **adaptability of farmers to climatic variations**, resulting in **higher yields and better incomes**.
  - By providing localized and easily accessible advisories, the agro-met offices played a critical role in ensuring farmers were better prepared for impacts of climate change.

### Challenges associated with DAMU

- **Shutdown:** In March 2024, DAMUs were shut down by IMD. NITI Aayog suggested using **automated systems and privatizing the service**, raising concerns as private services are often too expensive for small farmers.
- **Concerns with Private Services:** Private companies provide similar services but at high costs (up to INR 80,000 per year). This makes them **unaffordable for many farmers**. There's also concern about possible bias in **promoting certain brands of fertilizers and pesticides**.

### 3. Mission Mausam

**News:** The Union Cabinet has approved the Mission Mausam with an outlay of INR 2,000 crore for 2 years.

#### About Mission Mausam

- The Ministry of Earth Sciences will be the nodal agency for the Mission. It will be implemented by 3 key institutes under the Ministry of Earth Sciences: the **India Meteorological Department**, the **Indian Institute of Tropical Meteorology**, and the **National Centre for Medium-Range Weather Forecasting**.
- Its aim is to **enhance India's capacity in weather and climate science**, research, and services.
- The Mission will focus on **advancing atmospheric sciences, weather surveillance, forecasting, and climate management**. It will strengthen the ability of communities, sectors, and ecosystems to **respond to extreme weather events** and climate change.

#### Features

- The Mission will **integrate next-generation radars, satellite systems with advanced sensors, and high-performance computing** for more precise weather predictions.
  - By 2026, it plans to install **60 weather radars**, 15 wind profilers, and **15 radiosondes**.
- **Artificial intelligence**, machine learning, and improved Earth system models will be used for accurate weather prediction.
- It will use a **GIS-based automated system** for real-time data dissemination and data-driven decision-making.
- A key innovation is the proposed **cloud-simulation chamber** to **model clouds** and test weather interventions.

#### Focus Areas of the Mission

- It will focus on providing **accurate and timely weather and climate information**, including monsoon forecasts, air quality alerts, extreme weather event warnings, and cyclone tracking.
- It will also focus on solutions for **managing lightning strikes**, fog, hail, rain, and other weather conditions to mitigate their impacts. Lightning strikes are the leading cause of natural deaths in India, surpassing floods and landslides.
- While the **National Monsoon Mission**, started in 2012, developed models for better monsoon forecasting using intensive computing, Mission Mausam aims to **extend capabilities beyond just monsoons**.
- It plans to **enhance daily and seasonal forecasts** and develop specific models for heatwaves and cold waves.

#### Significance/Benefits

- **Agriculture:** Timely weather forecasts and interventions will aid farming practices and crop management.
- **Disaster Management:** Improved predictive capabilities will help mitigate the effects of extreme weather events.
- **Other Sectors:** Other beneficiaries include defence, aviation, water resources, power, tourism, shipping, transport, energy, and health sectors.

### 4. Study on Impact of Radiation from Mobile Phones on the Human Body

**News:** A study commissioned by the WHO and based on comprehensive review of 28 years of research has shown that there is no link between mobile phones or wireless technology and risk of cancer.

#### About the Study

- The study reviewed over 5,000 researches, including 63 key researches from 22 countries. No research had found evidence of increased brain cancer risk, even after 10+ years of mobile phone use/extensive call time.
- Cancers studied included brain, pituitary gland, salivary glands, and leukemia. None showed increased risk from mobile phone usage.

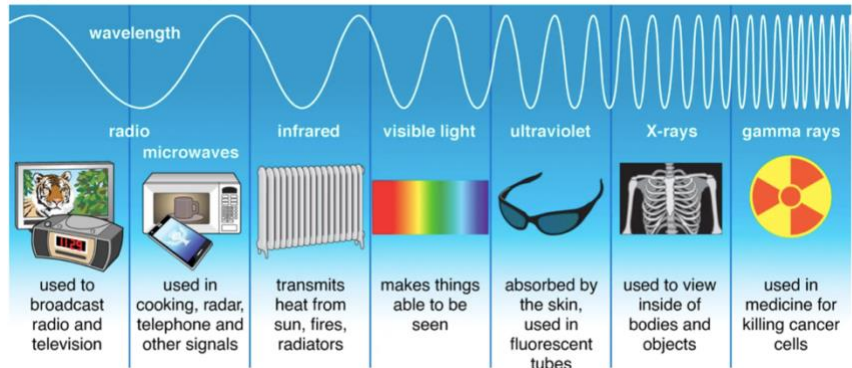


### About Radiofrequency (RF) waves

- Radio waves are a type of **electro-magnetic radiation** that span the **frequency range from about 3 kHz to 300 GHz**.
- RF waves are **non-ionizing**, i.e., they do not carry enough energy to **ionize molecules or atoms**, making them **generally safe for human exposure** in **regulated amounts**.

- RF waves have **long wavelengths** compared to other forms of electromagnetic radiation, such as visible light or X-rays. RF waves can propagate through various mediums, including air, vacuum, and certain solid objects.
- Depending on the frequency, RF waves can **travel directly** (line-of-sight), **reflect off the ionosphere** (sky-wave propagation), or **bounce off the ground** (groundwave propagation), making them versatile for different communication needs.
- RF waves are the **backbone of wireless communication**, enabling technologies like **mobile phones, satellite communication, and Bluetooth**.
- RF waves are used in **medical treatments**, including **MRI machines** and RF ablation.
- RF waves are also crucial in **radar systems**, used for detecting objects like aircraft, ships, and **weather patterns**. In navigation systems like GPS, RF waves transmit data between satellites and receivers.

Types of Electromagnetic Radiation



### 5. Governance of Commons

**News:** A first-of-its-kind dialogue was held on the governance of commons in Delhi. It was attended by 500+ grassroots representatives. The aim of the dialogue was to promote the development of more inclusive, community-led frameworks for managing the Commons.

#### About Commons

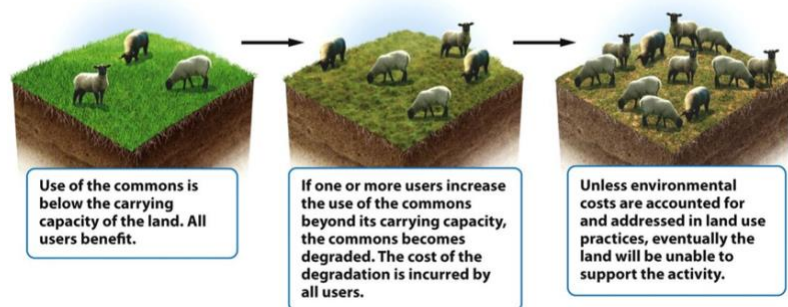
- The term “Commons” refers to **resources that are not owned by individuals, groups, or Governments** but are **shared collectively** by the community.
- **Types**
  - **Natural Commons:** These include forests, rivers, and sacred lands that serve the community.
  - **Intangible Commons:** These include shared resources like language, folk art, dance, local customs, and the traditional knowledge.
  - **Global Commons:** These include polar regions (Arctic and Antarctica), outer space, high seas etc. They are not owned by any one nation and are available for specific uses by all.
  - **Digital Commons:** These include resources such as the Internet, open-source software, digital resources licensed under creative commons which can be freely used by everyone.

#### Governance Mechanism of Global Commons

- Governance mechanisms for Commons vary from international agreements to local structures.
- **Government or Market Intervention:** Garrett Hardin’s ‘Tragedy of the Commons’ theory suggests that government or market intervention is necessary to **prevent overexploitation**.
- **Community-led Governance:** Elinor Ostrom’s Nobel-winning research demonstrated that **community-led governance** often led to more **sustainable management of commons**.

- India's Commons, are estimated to cover ≈205 million acres, support nearly 350 million rural people and generate ≈INR 6.6 lakh crore annually in goods and ecological services.
- **Forest Rights Act:** Forest Rights Act (FRA, 2006) is considered a good model for managing forest Commons, granting ownership rights to forest-dwellers.
- **Demand for a Bill for Commons:** NGOs and other stakeholders advocate for a model commons Bill to improve governance of these shared resources. At the rural level, Commons governance is often undefined or lacks resources and legal backing. The event in Delhi has highlighted the need for better governance structures for rural Commons.

## The Tragedy of the Commons



Source: sustainable-enviro.org. For commons, each user tries to maximize his own benefit. Lack of proper governance leads to over-exploitation (beyond the carrying capacity) and eventual degradation. Environment costs must be accounted for preservation of commons.

### 6. Mutual Assessment Report by FATF

**News:** The Financial Action Task Force (FATF) has published the Mutual Assessment Report of India.

#### About FATF Recommendations for India

- **Need for Increased Court Capacity:** FATF has recommended that India must significantly **increase the capacity of its court system** to **reduce the backlog of pending trials**, particularly in money laundering cases. Strengthening the Enforcement Directorate's (ED) capabilities was also suggested as a crucial step in improving the handling of such cases.
- **Addressing Delays in Terror Financing Prosecutions:** FATF has highlighted the importance of addressing delays in terror financing prosecutions by improving the speed and efficiency of trials. Changes to streamline the prosecution process for terror financing cases has been deemed necessary.
- **Constitutional Challenges Slowing Prosecutions:** A key reason for the low number of prosecutions in recent years was attributed to the constitutional challenge posed by 121 petitions against the provisions of the **Prevention of Money Laundering Act (PMLA)**. The Supreme Court's ruling in the **Vijay Madanlal Chowdhary vs. Union of India (2022)** resolved some of these challenges, allowing trials to proceed.
- **Investigation and Conviction Statistics:** During the assessment period, the ED initiated 4,163 investigations, dropping 132 of them. Prosecution complaints were filed in 864 cases, leading to 28 convictions. Despite facing only one acquittal, the ED's ability to prosecute was hampered by systemic issues.
- **Limited Resources Leading to Saturation:** FATF noted that the limited number of specialised prosecutors and special court judges has contributed to a saturation of the judicial system, hindering its ability to prosecute cases effectively.
- **High Technical Compliance:** Despite the challenges, FATF recognised that India achieved a **high level of technical compliance** with FATF's recommendations, demonstrating a **robust legal framework**.
- **Terrorism and Financing Threats:** India faces serious terrorism and terror financing threats, including those linked to groups like Islamic State and al Qaeda, necessitating an effective legal and enforcement system to combat these risks.

Pointly

1. Shiveluch Volcano

The Shiveluch volcano erupted recently. It is a **strato-volcano** characterized by composition of alternating layers of solidified ash, hardened lava, and volcanic rocks. It is the northernmost active volcano in **Kamchatka Krai, Russia**. It is **Kamchatka's one of the most active volcanic structures**. Eruptions from Shiveluch often produce volcanic ash emissions that can disrupt air traffic, particularly on routes connecting Asia and North America.



2. Kamchatka Peninsula

It is situated in the **far eastern part of Russia**. It is bounded by the **Sea of Okhotsk** to the west and the **Pacific Ocean** to the east. The peninsula stretches about 1,250 kilometers in length.

It has over 160 volcanoes, 29 of which are active. Notable volcanoes include Klyuchevskaya Sopka (the tallest) and Kronotsky (famous for its cone shape). It is home to the **Valley of Geysers** which is one of the largest **geothermal fields** in the world. It is also an **UNESCO World heritage site**. It is characterized by long, cold winters and short, cool summers. It is rich in biodiversity. It is dominated by **Coniferous forests** with tundra landscapes in the northern areas. The area has been inhabited by **indigenous peoples** like the **Itelmen, Koryaks, and Evens** for thousands of years.



3. Rapa Nui Island (Easter Island)

Rapa Nui is one of the **world's most isolated inhabited islands** with population of about 7,000. It is located in the southeastern Pacific Ocean. It has an area of about 163.6 kms<sup>2</sup>. It is of **volcanic origin**. The island has a sub-tropical climate, with mean temperatures ranging from 18°C to 26°C in winters and summers respectively.

Polynesians settled Rapa Nui ≈1200 AD, developing a complex society and rapidly growing population, which led to the creation of the famous **moai statues**. In 1722, Dutch navigator Jacob Roggeveen renamed it Easter Island after arriving on Easter Sunday.

Rapa Nui civilization declined due to **deforestation, overpopulation, and resource depletion**. European contact **introduced diseases** and **the slave trade**, further reducing the population. In 1995, Rapa Nui National Park, covering much of the island and its archaeological sites, **became a UNESCO World Heritage Site**.



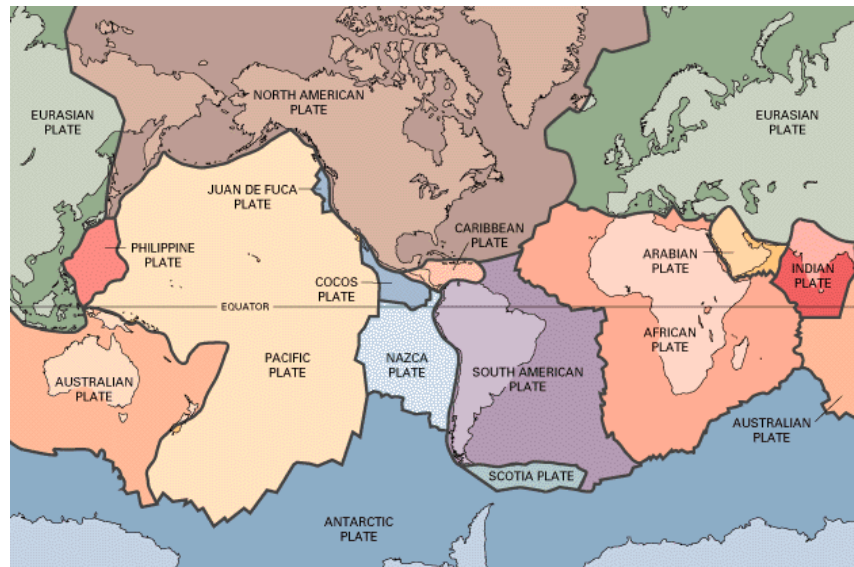
4. Nazca Ridge

It is a prominent **submarine geological feature** located in the **southeastern Pacific Ocean**. It extends over 1,100 kilometers from the coast of Peru towards the west. It is part of the **Nazca Plate**, which is an **oceanic tectonic plate** that underlies much of the southeastern Pacific Ocean. The Ridge is **formed over a hotspot** (region of rising magma beneath crust). Its unique underwater topography creates a range of unique habitats for marine life.



5. Nazca Plate

It is located in eastern Pacific Ocean, near the western coast of South America. Geologically, it interacts with the **South American Plate**. As the Nazca Plate moves eastward, it **subducts** beneath the South American Plate along the **Peru-Chile Trench**. This subduction influences **regional earthquakes, volcanic activity, and the upliftment of the Andes**.



6. Philadelphi Corridor

The ceasefire deal between Israel has been stuck due to Israel's insistence on controlling the Philadelphi corridor. Both Egypt and Hamas reject Israeli military presence there. The 14-km long and ≈100 m wide Corridor forms the **border between Gaza and Egypt** and extends from the **Mediterranean Sea to the Kerem Shalom crossing with Israel**. It is the only land link for Gaza with the outside world not controlled by Israel. The **Philadelphi Accord** between Israel and Egypt authorizes Egypt to deploy 750 border guards along the route to patrol the border on Egypt's side. The Rafah Crossing falls in this Corridor.



7. Rail Force One

Recently, the Prime Minister of India travelled by **train from Poland to Kyiv**, Ukraine. The train is nicknamed **Rail Force One**. It is a special train used by world leaders to visit Ukraine, since **air travel**

has been deemed unsafe due to the Russian invasion in February 2022. It is operated by **Ukrainian Railways (Ukrzaliznytsia)**. Rail Force One provides a vital and secure means for international leaders to reach Kyiv during the conflict. The train's name is inspired by **Air Force One**, the official aircraft of the US President. It has also marked a unique form of diplomatic engagement known as **Iron Diplomacy**.

#### 8. Iron Diplomacy

Iron Diplomacy refers to the **strategic use of rail travel to maintain diplomatic relations** and engage with Ukraine during the ongoing conflict. The term was coined by **Alexander Kamyshin**, Ukraine's Strategic Industries Minister, who oversees **Ukrzaliznytsia**. It highlights how rail travel has become a crucial tool for international engagement despite the war. By traveling to Kyiv by train, world leaders such as the US President Joe Biden, French President Emmanuel Macron etc. have **demonstrated their support for Ukraine**, making a strong statement of solidarity.

#### 9. Orangutan Diplomacy

Malaysia has withdrawn its proposal to **gift Orangutans** to countries that import Malaysian palm oil. The proposal was inspired by **China's Panda Diplomacy**. Panda diplomacy is the practice of sending giant pandas from China to other countries as a **tool of diplomacy** and **wildlife conservation**. Malaysia's new plan proposes invitations to importers to "sponsor" orangutans. The funds will go towards their conservation. Malaysia is the **2<sup>nd</sup>-largest producer of palm oil** after Indonesia. The palm oil industry in Malaysia has led to deforestation, threatening the habitat of orangutans.

#### 10. Delhi Declaration on Civil Aviation

The Delhi Declaration on Civil Aviation was adopted at the **2<sup>nd</sup> Asia Pacific Ministerial Conference on Civil Aviation**. The declaration emphasizes **regional cooperation** and **sustainable growth** in the civil aviation sector. The declaration aims **to strengthen collaboration between Asia-Pacific countries** and international organizations like the ICAO to tackle aviation challenges in the region. The major commitments include a **focus on inclusivity** (especially for women, 15% pilots in India are women, which exceeds the global average of 5%), **technological and infrastructural advancements, safety and security**, among others.

#### 11. INDUS-X Summit

It was held in California, US. It was organized by the **US-India Strategic Partnership Forum (USISPF)** and Stanford University. Its aim is to advance the **joint defence innovation ecosystem between India and the US**. Participants included representatives from defence industries, investment firms, startups, academia, think tanks, accelerators, and policymakers from both nations. The discussion points included **future technology trends** in defence, **strengthening defence supply chains** between India and the US and **capacity building** for startups and MSMEs.

A Memorandum of Understanding (MoU) was signed between **India's Innovations for Defence Excellence (iDEX)** and **US Department of Defence's Defence Innovation Unit (DIU)**. The MoU aims to enhance cooperation in defence innovation. It focuses on deepening collaboration among industry, research, and investment stakeholders.

#### 12. INDUS-X

India-US Defense Acceleration Ecosystem (INDUS-X) was launched in June 2023. Its aim is to expand strategic technology partnership and defense industrial cooperation between Governments, businesses and academic institutions of India and the US. It is led by India's **Innovations for Defense**

**Excellence** (iDEX) and the **Office of the Secretary of Defense** (OSD), US. The initiative builds on a commitment by the US and Indian National Security Advisors in January 2023. They committed to launch an “**Innovation Bridge**” to **connect US and Indian defence start-ups** as part of the U.S.-India initiative on Critical and Emerging Technology (iCET).

### 13. Samudra Pratap

It is the **1<sup>st</sup> indigenously developed Pollution Control Vessel** of the **Indian Coast Guard** (ICG). The vessel is built by **Goa Shipyard Limited** (GSL). The vessel is designed to **control and manage pollution**, specifically targeting **oil spillage** along the country’s sea coast. It is equipped with **specialized equipment for the containment, recovery, separation, and dispersal of oil and other pollutants**. Its length is 114.5 meters and the breadth stands at 16.5 meters. It



has an **oil recovery rate of 300 tonnes per hour**, and a storage capacity of 300 tonnes in onboard tanks, which can be extended to 1,000 tonnes using inflatable barges. The development of ‘Samudra Pratap’ underlines India’s progress towards becoming a self-reliant defense manufacturer and a potential net exporter of defense technology.

### 14. Navika Sagar Parikrama II

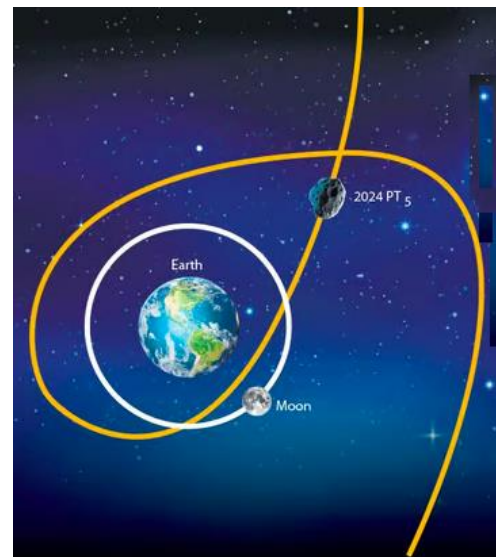
The Indian Navy has announced a **women circumnavigation expedition**. It will be undertaken by women Indian Navy officers Lt Cdr Roopa A and Lt Cdr Dilna K. onboard **INSV Tarini**.

### 15. Exercise AL NAJAH

It is a **biennial military exercise**, alternating between **India and Oman** since 2015. The 5<sup>th</sup> edition of the exercise was held in Oman. The primary aim is to enhance the joint military capabilities of both nations to conduct counter-terrorism operations under Chapter VII of the United Nations Charter.

### 16. Asteroid 2024 PT5

Asteroid 2024 PT5 recently passed close to Earth without causing any harm. It measures 33 feet in length. The asteroid will be temporarily caught by Earth’s gravitational pull and will remain in orbit for ≈56 days. It will start its journey around Earth on September 29, 2024, and will break free by November 25, 2024, continuing its cosmic trajectory. It offers a unique opportunity to study objects that frequently pass near Earth. It was first detected on August 7, 2024, by the **Asteroid Terrestrial-impact Last Alert System**. (Refer EPIC October 2022 for Double Asteroid Redirection Test (DART): NASA’s Spacecraft-Asteroid Collision).



Source: New Indian Express. The projected trajectory of the Asteroid. (Sizes exaggerated).

### 17. Mini Moon

A Mini Moon refers to a small object that temporarily orbits a planet.

These mini moons are typically small asteroids that get captured by a planet's gravity and **orbit it for a period before either being flung back into space or burning up in the atmosphere**. They are significantly smaller than typical moons, often just a few meters in diameter. Mini moons are rare and typically short-lived in Earth's orbit due to the influence of gravitational forces from the Sun, Earth, and the Moon.

#### 18. Blue Moon

The term Blue Moon is used for multiple phenomena. The most common usage is in context of occurrence of two Full Moons in a calendar month. The **second Full Moon in a calendar month is called Blue Moon**.

A Seasonal Blue Moon refers to the **3<sup>rd</sup> Full Moon in a season that has 4 Full Moon**. A typical season (Spring, Summer, Autumn, Winter) has 3 Full Moons (but on rare occasions can have 4).

Sometimes Moon can appear Blue due to **atmospheric conditions**. There have been several recorded instances of bluer hue of Moon, post some **big volcanic eruptions** (Tambora, 1815 and Krakatoa, 1883) that suspended large amount of dust in the sky.

#### 19. Next Generation Launch Vehicle (NGLV)

The Union Cabinet has approved the development of the Next Generation Launch Vehicle (NGLV). It will be developed by ISRO. The project is expected to be completed in 96 months (eight years). The NGLV will be designed to provide **three times more payload capacity** than the existing LVM3. The cost of the NGLV will only be 1.5 times more than the current vehicles. It will incorporate **reusability features**, making access to space more **affordable and efficient**.

NGLV will be **capable of launching 30 tonnes to Low Earth Orbit (LEO)**. India's current launch systems, such as the **PSLV, GSLV, LVM3, and SSLV**, can handle up to 10 tonnes to LEO and 4 tonnes to Geo-Synchronous Transfer Orbit (GTO). The NGLV will play a crucial role in supporting India's commercial and national missions, including the **Bharatiya Antariksh Station** and **lunar or interplanetary exploration**.

#### 20. Polaris Dawn Mission

It is the 1<sup>st</sup> non-government effort to perform a **spacewalk ≈700 kilometres above Earth**. The mission involved orbiting through the **Van Allen Belts**. The Mission tested new **SpaceX-designed spacesuits** for their effectiveness in **protecting astronauts from Van Allen Belt radiation**. The Mission also tested **laser communications** provided by SpaceX's Starlink satellite network potentially enhancing future communication capabilities for space missions.

The data from the mission will support NASA's future plans, especially the 2025 mission to send astronauts beyond the Van Allen Belts to the Moon's South Pole, and eventually to Mars. The Polaris Dawn mission will focus on **researching the effects of space radiation on human biology**. This includes studying its impact on **eyesight** and **brain structure** and addressing risks like **Spaceflight Associated Neuro-ocular Syndrome (SANS)**.

#### 21. Helium Gas

Helium is an **inert gas**. It does not react with other substances or combust. It has an atomic number of 2, making it the **2<sup>nd</sup> lightest element after hydrogen**. It is the **2<sup>nd</sup> most abundant element in the universe**, making up about 24% of its elemental mass. Helium is a colourless, odourless, and tasteless gas under standard conditions. It is extensively used in **cryogenics**, especially in cooling superconducting magnets (like in MRI scanners). Helium is used in balloons and airships because it is **lighter**

**than air and non-flammable**, unlike hydrogen. Helium is produced in large quantities through **nuclear fusion reactions** in stars, including the Sun.

## 22. Use of Helium in Rockets

Helium is used in Rockets due to **low weight** (reduces weight of rocket), better **energy efficiency** (reducing fuel consumption) and **extremely low boiling point** ( $-268.9^{\circ}\text{C}$ , allowing it to remain in a gaseous state even in super-cold environments, where rocket fuels are often stored). Helium is used to pressurize rocket fuel tanks, in cooling systems and maintaining pressure in fuel tanks as the fuel gets consumed. Since helium is non-reactive, it can safely interact with the residual contents of the fuel tanks.

Helium's small atomic size and low molecular weight make it **prone to escaping through tiny gaps or seals in fuel systems**. As helium is rare in Earth's atmosphere, **leaks are easily detectable**, making it useful for **spotting faults in spacecraft or rocket fuel systems**.

## 23. Gravity Assist Technique

It is a method to **change a spacecraft's speed and direction** by **flying close to a planet or moon**. This allows the spacecraft to use the gravitational pull to **speed up, slow down, or change its course without using much fuel**. It reduces the fuel required to undertake long journeys in inter-planetary missions.

Gravity Assist Manoeuvre	Double Gravity Assist Manoeuvre
<ul style="list-style-type: none"> <li>The spacecraft flies close to a <b>single planet or moon</b>.</li> <li>The gravity of that body pulls on the spacecraft, altering its speed and direction.</li> <li>This can either speed up or slow down the spacecraft without using additional fuel.</li> </ul>	<ul style="list-style-type: none"> <li>The spacecraft performs gravity assists with <b>two different celestial bodies</b>.</li> <li>The first gravity assist changes the spacecraft's trajectory and speed, preparing it for the second assist, which further refines its path.</li> </ul>

## 24. Tanager-1 Satellite

NASA has launched the Tanager-1 satellite to **track methane and carbon dioxide emissions**. It uses **imaging spectrometer technology** to measure light wavelengths reflected by Earth's surface. This technology identifies the **unique spectral fingerprints of gases** like methane and carbon dioxide.

Tanager-1 scans 130,000 kms<sup>2</sup> of Earth's surface daily, **pinpointing emission sources**, including individual facilities. The data will be crucial for accelerating efforts to mitigate harmful emissions.

Methane is responsible for **30% of global warming since the Industrial Revolution**. It also contributes to ground-level ozone, which causes about one million premature deaths yearly.

## 25. RHUMI

It is India's 1<sup>st</sup> reusable hybrid rocket. It has been developed by startup Space Zone India. The rocket was launched from a mobile platform in **Thiruvidandhai, Chennai**. It has **adjustable launch angle**, which can be set between **0°-120°**. This allows **precise control** over the **rocket's trajectory**. It can be launched using a mobile launcher, allowing it to be deployed from various locations. It uses a **CO<sub>2</sub>-triggered parachute system** to **safely recover its components**. This method is an eco-





**friendly and cost-effective recovery method.** It utilizes a **hybrid propulsion system**, combining the advantages of both liquid and solid fuels. This technology promises **improved efficiency** and **reduces operational costs**. The rocket is powered by a generic-fuel-based hybrid motor, which enhances its efficiency and safety. It is capable of carrying 3 **Cube Satellites** and 50 **Pico Satellites** to **sub-orbital altitudes**.

#### 26. Project Strawberry

It is a secret project of OpenAI. It aims to **enhance AI's reasoning capabilities** and is seen as a step towards developing **Artificial General Intelligence (AGI)** with **human-like capabilities**. Its key roles are to **generate high-quality training data** for future AI models, such as the upcoming Project Orion.

#### 27. Project Orion

It is designed to surpass the capabilities of GPT-4 by using a combination of **high-quality synthetic data** and the innovations from Project Strawberry. This approach aims to **reduce errors and hallucinations in AI outputs**, improving the overall accuracy and reliability of the model. OpenAI is exploring the use of synthetic data generated by AI models, to **improve AI training processes**. The synthetic data are designed to test and **enhance Orion's reasoning, logic, and problem-solving skills**. The use of synthetic data can help **mitigate biases, correct errors**, and ensure more complete and accurate information in training datasets. It also promises to **make future AI models more neutral, fair, and efficient**, enhancing both the **training process** and the **accuracy of AI predictions**.

#### 28. Neuromorphic Computing

It is an innovative field of computing that aims to **mimic the architecture and functioning of the human brain**. Traditional computers operate using binary logic (0s and 1s) in **sequential processing**, while neuromorphic systems are designed to replicate the **way neurons and synapses communicate in the brain**. These systems rely on analog signals and **multiple conductance states**, enabling them to process information in a manner that closely resembles **biological neural networks**. Neuromorphic computing is particularly beneficial for AI tasks. By replicating **neural networks** and integrating processing and memory, these systems are able to **perform computations with higher accuracy and efficiency**.

Scientists at IISc recently developed a 'Brain-on-Chip' design based on neuromorphic computing. (Refer EPIC February 2024 for Brain-Computer Interface (BCI)).

#### 29. National Blockchain Framework

The Ministry of Electronics and Information Technology (MeitY) has launched the **Vishvasya-Blockchain Technology Stack** to offer **Blockchain-as-a-Service** with geographically distributed infrastructure designed to support various permissioned **Blockchain-based applications**.

NBF has been launched with a vision to create trusted digital platforms, promoting research and application development; facilitating state-of-the-art, transparent, secure and trusted digital service delivery to citizens. It would play an important role in **enabling security, trust and transparency** for various **citizen-centric applications**.

#### 30. Commission for Scientific and Technical Terminology (CSTT)

The Government is enhancing technical education in Indian languages, including engineering and medicine. This in line with the National Education Policy 2020. The Commission for Scientific and Technical Terminology (CSTT) has launched a new website providing technical terms in all 22 official Indian languages to support this initiative. It is an **autonomous organization** under the **Ministry of**

**Education.** It was established in 1961. Its primary objective is to standardize and **evolve scientific and technical terminology in Indian languages** to ensure **clarity and uniformity** in usage across academic and professional spheres. It aims to encourage the **use of Hindi and other Indian languages as mediums of instruction in higher education**, particularly in technical and scientific disciplines, where English has traditionally been dominant.

### 31. Vishanu Yuddh Abhyas

It was conducted under the **National One Health Mission (NOHM)** in Ajmer, Rajasthan. The drill **simulated a mock zoonotic disease outbreak to test real-world response scenarios**. Its aim was to **evaluate pandemic preparedness** by assessing the **readiness and response capabilities of the National Joint Outbreak Response Team (NJORT)**.

The drill emphasized the importance of **identifying the virus responsible** for the outbreak. This involved a **thorough investigation** to determine the **nature and source of the virus**, as well as its **potential impact on public health**. The drill included a series of **response actions** aimed at **controlling the spread of the disease** across both **human and animal populations**. These actions have been designed to **contain the outbreak and prevent further transmission**, ensuring the safety and well-being of all affected groups.

### 32. New Treatment Regimen for Drug-Resistant Tuberculosis

The Union Health Ministry has introduced a new treatment regimen for drug-resistant tuberculosis (TB). It consists of 4 drugs: Bedaquiline (B), Pretomanid (Pa), Linezolid (L), and Moxifloxacin (M). The BPaLM regimen has been proven to be a **safer, quicker, and more effective** treatment option compared to the older procedures used for treating multidrug-resistant tuberculosis (MDR-TB). This regimen significantly **reduces treatment time** while maintaining a **high success rate**. It allows for the treatment of drug-resistant TB to be completed in just 6 months (up to 20 months in other regimen). It will reduce overall healthcare costs.

India has the world's largest TB laboratory network, with 7,767 rapid molecular testing facilities and 87 culture and drug susceptibility testing laboratories. (Refer EPIC September for TB-Mukt Bharat).

### 33. Siddha Drugs

A study was conducted recently under the Public Health Initiative that aimed to **mainstream the use of Siddha drugs for combating anaemia in adolescent girls**. The combination of Siddha drugs, referred to as ABMN (Annapeticenturam, Bavana katukkay, Matulai manappaku, and Nellikkay lekiyam), was found to significantly improve haemoglobin levels and packed cell volume in anaemic adolescent girls. Siddha drugs are part of the traditional Siddha medicine system, primarily using **natural ingredients** like herbs, minerals, and animal products. Siddha is an **ancient Indian traditional treatment system** which evolved in **South India**, chiefly in **Tamil Nadu**. These drugs come in forms like powders, pills, decoctions, and oils. The drugs are aimed at balancing the body's **3 Doshas: Vaadham** (airy), **Pittham** (fiery) and **Kapam** (watery). Siddha drugs are used to treat various ailments such as arthritis, skin diseases, and respiratory issues.

### 34. Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H)

It is a subordinate office under the **Ministry of AYUSH**. Its vision is to serve as the primary authority in **setting quality standards for drugs** used in **Indian Systems of Medicine and Homeopathy**. Its mission is to develop quality standards for drugs and function as the **Central Drug Testing and Appellate Laboratory** for these systems.

### 35. E-DRIVE Scheme

PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) has been launched to promote adoption of EVs. The scheme will replace the Faster Adoption and Manufacturing of Electric Vehicles in India-II (FAME-II). It prioritizes **public transportation through incentives for electric buses and trucks**. It will be implemented by **Ministry of Heavy Industries (MHI)**. Its aim is to **accelerate the transition to EVs** by offering upfront incentives and building a **robust charging ecosystem**. INR 500 crore will be allocated for e-ambulances, with safety standards set in consultation with the Ministry of Health and stakeholders and another INR 4,391 crore allocated for the procurement of 14,028 e-buses by State transport units.









The scheme will help **cut carbon emissions, reduce air pollution, and reduce dependence on fuel imports**. It will create **employment in EV manufacturing, supply chains, and installation of charging infrastructure**.

### 36. Teal Carbon

It refers to **carbon stored in non-tidal freshwater wetlands**. It includes **carbon sequestered in vegetation**, microbial biomass, and dissolved and particulate organic matter.

The wetlands **play a crucial role in regulating greenhouse gases**, they are vulnerable to **degradation** from pollution, land use changes, water extraction, and landscape modifications. The wetlands, when degraded, could release the captured methane and carbon dioxide into the atmosphere.

### COLORS OF THE CARBON RAINBOW

-  Black carbon is produced through the incomplete combustion of organic matter with some being natural (such as during wildfires) but fossil-fuel-burning and industrial activities being major sources. [69, basalt]
-  Brown carbon is a catch-all term for soil organic C stored belowground as living and formerly living organisms containing C. [81, Dakota]
-  Red carbon encompasses snow- & ice-dwelling microorganisms (think, watermelon snow) that produce red (and yellow to purple) pigments that absorb green and blue wavelengths of light. [64, hematite]
-  Yellow signifies the sun which is critical for ecosystem function & C dynamics. The sun → photosynthesis → where green plants & some organisms use sunlight to synthesize nutrition from CO<sub>2</sub> & H<sub>2</sub>O. [63, #7]
-  White carbon is a new one that we're coining. It symbolizes inorganic carbon stored in minerals - carbonates, carbon dioxide, carbonic acid... [101, ginger]
-  Green carbon signifies living C-containing organisms in terrestrial ecosystems - plants, animals, life... [61, sprout]
-  Teal carbon is stored in inland freshwater wetlands - swamps, fens, bogs, sloughs, mires, potholes... [75, teal]
-  Blue carbon is sequestered in the ocean - including on mangroves, salt-marshes, seagrass, seaweed, coral, sediment. [52, deep blue sea]

Source: artofsoil. Types of Carbon.

### 37. Last-Chance Tourism

Recently, a frozen arch collapsed in an ice cave within one of Europe's largest national parks, killing one person. It shows the risk associated with last-chance tourism.

Last-chance tourism is a type of travel where people visit places that are **believed to be at risk of disappearing or changing forever**.

This trend is growing because many destinations (e.g., glaciers and coral reefs) around the world are **facing threats from climate change, environmental damage, or human activities**. Travelers want to see these places before they are gone or **altered beyond recognition** (e.g., Venice is sinking and faces threat of submergence into the sea).

**Concern:** More tourists to such places can cause **further damage to already fragile environments**. Also, traveling to such destinations increases carbon emissions, which contribute to climate change.

### 38. Amur Falcon

The Amur Falcon (*Falco amurensis*) is a small **migratory bird of prey** belonging to the family Falconidae. It is known for its **long-distance migration**. The species is named after the **Amur River**, which runs through its **breeding grounds** in southeastern Siberia, northern China, and Mongolia. In India, Amur Falcons are primarily found **during their migration** in the northeastern States, especially in **Nagaland, Manipur, and parts of Assam and Arunachal Pradesh**. (Locally, the bird is known as 'Kahuaipuina'). The

**Doyang Reservoir in Nagaland** is famous as a significant roosting site for tens of thousands of Amur Falcons during their annual migration.

After the breeding season, these birds undertake a migration of  $\approx 22,000$  kilometers to southern Africa. Their route includes a **non-stop flight over the Arabian Sea**, where they travel more than 3,000 kilometers without resting.

The Amur Falcon is listed as **Least Concern** on the IUCN Red List.



### 39. New Megalithic Site in Kerala

A rainwater harvesting project, undertaken by the **Koduvayur** gram panchayat in **Palakkad, Kerala** has led to the discovery of an unusually large number of **megalithic urn burials** on top of a hill in the **Kollengode range**. Archaeologists estimate that the burials may be more than **2,500 years** old though the exact age could be estimate only after further examination. Many pot sherds were found at the site indicate the presence of black ware, red ware, and black and red ware pottery. The urn found in one of the pits had fingertip impressions on it. Marks on rocks at many locations on the site indicate the **use of chisels**.

### 40. Florence Nightingale Awards

The President of India presented the **National Florence Nightingale Awards (2024)** to the **nursing professionals** in a function held at the Rashtrapati Bhavan. 15 nurses were conferred the award in recognition of their **outstanding commitment to duty and service to the community**.

The National Florence Nightingale Award was instituted by the **Ministry of Health and Family Welfare**, in 1973 as a mark of recognition for the **meritorious services rendered by the nurses** to the society.

The award is given in the category of Registered Auxiliary Nurses & Midwife, Registered Nurses and Midwife and Registered Lady Visitor. The award is open to nurses working in Central, State/UTs and Voluntary Organizations.

### 41. Dhangar Community

The Dhangars community is known for **herding sheep and goats**. They follow a **nomadic lifestyle**, moving along **specific routes** to graze their animals. They are part of **Maharashtra's Vimukta Jati and Nomadic Tribes (VJNT)** list. They are primarily found in Maharashtra though they also live in Gujarat, Karnataka, and Andhra Pradesh where they are known by different names like Golla and Kuruba. They make up  $\approx 9\%$  of Maharashtra's population.  $\approx 40\%$  of the community relies solely on herding for their livelihood underscoring the importance of their traditional grazing routes.

The community is demanding for "grazing corridors" to be allowed to graze their animals on traditional routes without being seen as **illegal encroachers**. They also want to be classified as STs to receive reserved benefits in education and jobs which they currently do not get under their existing VJNT category.

### 42. Building and Other Construction Workers Act, 1996

The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act was enacted to address the **unique challenges faced by workers in the construction sector**, who often work under **hazardous conditions** with **limited job security** and **social protection**. The primary

objectives of the BOCW Act includes regulation of employment, implementation of health and safety measures, establishment of welfare boards in each State etc.

- The Act requires establishment of State-level Welfare Boards (to be funded by cess on construction projects) to manage and implement the schemes and benefits provided by the Act.
- All construction workers are required to register with welfare boards to access the benefits offered under the Act.
- Cess (1-2%) shall be levied to fund welfare schemes for construction workers.
- Employers must **ensure safety at construction sites** by providing workers with safety equipment, proper scaffolding, and accident prevention measures. They are also required to provide clean water for drinking, latrines, and creches for workers' children.
- Employers who do not comply with the Act's requirements may face penalties, including fines and imprisonment for serious violations.

#### 43. Rashtriya Poshan Maah, 2024

It was launched on August 31, 2024. Mission Poshan 2.0 focuses on **combating malnutrition among children, adolescent girls, pregnant women, and lactating mothers**. Key themes for this year's Poshan Maah includes **Anaemia, Growth Monitoring, Complementary Feeding, Poshan Bhi Padhai Bhi** (Nutrition Alongside Education) and **Technology for Better Governance**.

Anaemia is a major focus area, particularly affecting young children, adolescent girls, pregnant and postpartum women, and women of reproductive age. Adolescence is highlighted as a **crucial period for addressing nutritional deficiencies** to prevent **anaemia's intergenerational effects**.

Engaging adolescent girls is a key strategy to **promote a malnutrition-free India**, aligning with the **Anaemia Mukht Bharat program**. The program impacts over 10 crore beneficiaries nationwide through biannual nutrition-centric campaigns (Jan Andolans). (Refer EPIC July 2023 for National Sickle Cell Anaemia Elimination Mission and EPIC February 2023 for Eliminating Sickle Cell Anaemia).

#### 44. Agriculture Infrastructure Fund

The Union Cabinet has expanded the scope of the Agricultural Infrastructure Fund (AIF). The scheme, worth INR 1 lakh crore, has been redesigned to **include financial support for Farmers' Producers Organisations (FPOs)** to enhance their **financial security and creditworthiness**.

Under the Fund, financing facility is being provided for **funding Agriculture Infrastructure Projects** at farm-gate and aggregation points to agri-entrepreneurs, farmers, Primary Agricultural Cooperative Societies (PACS), Farmers Producer Organizations (FPOs), Start-ups, State agencies, State-sponsored Public Private partnerships etc. (Refer EPIC July 2024 for Draft National Policy on FPOs).

All scheduled commercial banks, scheduled cooperative banks, Regional Rural Banks (RRBs), Small Finance Banks, Non-Banking Financial Companies (NBFCs) and National Cooperative Development Corporation (NCDC) can participate to provide this financing facility.

Its key objective is to mobilize a **medium to long term debt financing facility** for investment in viable projects for creating **infrastructure for post-harvest management** and **community farming assets** through financial support in order to **improve agriculture infrastructure** in the country.

#### 45. Agrisure Fund

It is a new initiative by the Government of India aimed at **supporting agricultural start-ups and rural enterprises**. Its objective is to provide **comprehensive support to agripreneurs** by establishing a **financing ecosystem** that offers both **equity and debt options**, enhancement of the **farm produce value chain**, creating **rural infrastructure**, generating employment, and supporting FPOs. The initial corpus

of INR 750 crore, funded by the Ministry of Agriculture, NABARD, and other financial institutions, is managed by NABVENTURES, a wholly owned subsidiary of NABARD.

Using information technology in agriculture will **boost labour productivity** and **increase income** and profits for small and marginal farmers. As food prices have been a major factor in inflation, boosting agricultural productivity will **enhance food availability at affordable prices** and ease pressure in macroeconomic management.

**46. Digital General Crop Estimation Survey (DGCES)**

It is a nationwide effort to **accurately measure crop yields** for various crops in India. It is a component of the **Digital Agriculture Mission** which seeks to establish a strong **Digital Public Infrastructure (DPI)** for the agriculture sector. It aims to make **reliable agricultural production estimates**, supporting policy formulation and resource allocation. The DGCES will provide **accurate yield estimates** using scientifically designed **crop-cutting experiments**. (Read more about Krishi DSS).

**47. RESET Programme**

This initiative has been launched to support retired athletes in their post-sport careers. It aims to provide **retired athletes** with the knowledge and skills necessary for **career development**. This initiative is designed to **enhance their employability** and help them transition smoothly into new roles after their sports careers. The programme seeks to connect retired athletes with aspiring young athletes. The experience and skills of retired sportspersons will help **mentor and guide the next generation**, contributing to the **growth of sports in India**.

**48. White Topping**

The Government of India is working on a policy to enable the **strengthening of aging national highways** through ‘white-topping’. White-topping involves construction of **concrete overlay** with a thickness of **100-200 mm** on top of existing in-service bituminous pavement. This method can **extend the life-span by 20-25 years**.

Vehicles travelling on concrete roads **consume less fuel** than those on bituminous roads.

The white colour of concrete results in less heat absorption by roads **mitigating the urban heat island effect**. The improved reflection of vehicle lights **enhances safety** and **reduces energy** required for external lighting.



**Strengthening National Highways**

Road ministry to use white-topping technology to strengthen NHs

Aim is to increase the lifespan of highways by 20-25 years

Govt to spend ₹1.44 lakh cr in 2024-25 on repair and maintenance

Firming up a policy for large-scale rehabilitation of national highways

NHAI will undertake upgrade of existing highways

**49. Gopalpur Port**

It is a **deep-sea port** located on the **east coast of India in Odisha**. It is positioned **between Paradip and Visakhapatnam ports**. It is close to bauxite-rich regions like Sundargarh, Balangir, Sambalpur, Kalahandi, and central **Odisha’s steel clusters**. The port’s hinterland



includes the **Ib** (Jharsuguda) and **Talcher coal fields**, which together hold about 25% of India's coal reserves and 100% of Odisha's reserves.

#### 50. ANIIDCO

The **Andaman and Nicobar Islands Integrated Development Corporation** (ANIIDCO) is leading the mega infrastructure project in Great Nicobar. It is a **quasi-government agency** based in **Port Blair**. ANIIDCO was established in 1988, under the **Companies Act 1956**. Its key objective is **holistic and sustainable development of the territory**. The activities include the trading of petroleum products, IMFL (Indian Made Foreign Liquor), and milk, along with the management of Megapode Resort, Dolphin Resort, and Hornbill Resort. It also focuses on **infrastructure development** in the sectors of tourism and fisheries. (Refer EPIC May 2023 for Great Nicobar Development Project).

#### 51. Rollout of Private FM Radio Channels in 234 Cities

The Union Cabinet has approved the rollout of private FM radio channels in **234 cities and towns that were previously not covered**. This has been done under the Private **FM Radio Phase III Policy**. This decision aims to fulfil the existing demand for FM radio in these areas. The rollout will lead to creation of **local content**, promotion of **local culture** and enhanced **employment and economic opportunities**. New FM channels will now be rolled out in many **aspirational districts** and areas affected by **Left Wing Extremism** (LWE). This will strengthen **public outreach** and **communication**, and foster community development in such areas.

#### 52. National Test House (NTH)

The National Test House (NTH) was founded in 1912 under the Railway Board in Alipore, Kolkata. It has been a premier institution under the **Ministry of Consumer Affairs, Food & Public Distribution**. NTH plays a key role in promoting the **development of indigenous industries** by providing **testing and quality assurance services**. It bridges the gap between industrial research and the production of finished products, ensuring strict **quality control**. NTH aids industries in **developing indigenous products**, supporting both export promotion and import substitution. NTH also assists the **Bureau of Indian Standards** (BIS) in the **formulation of national standards**. NTH offers training programs for scientists, technologists, and technicians across various fields such as chemical, civil engineering, electrical engineering, and more.

#### 53. Bhaskar Digital Platform

The Department for Promotion of Industry and Internal Trade (DPIIT) under the Ministry of Commerce and Industry has launched the **Bharat Startup Knowledge Access Registry** (BHASKAR). It is a digital platform aimed at **boosting India's startup ecosystem**.

It seeks to **centralize and streamline collaboration** among stakeholders such as **startups, investors, mentors, service providers, and Government bodies** and help in **networking**.

India has over 1,46,000 DPIIT-recognized startups. BHASKAR aims to leverage this potential by providing a **one-stop digital platform** that **addresses the challenges faced by entrepreneurs and investors**.

#### 54. Subhadra Yojana

It has been launched by Government of Odisha. Its purpose is to **provide financial assistance** aimed at **empowering women in Odisha**, ensuring their economic independence and overall well-being. Support will be provided to women between 21-60 years of age. Certain women are excluded e.g., women from

wealthy families, government workers, income tax payers and recipients of other government support above Rs 1,500 per month (or Rs 18,000 per year). The scheme will **provide INR 10,000 per year to over one crore women** in Odisha from 2024 to 2029. Funds will be distributed in two instalments of INR 5,000 each; on Rakhi Purnima (August) and International Women's Day (March 8).

#### 55. BIO-RIDE Scheme

The scheme is the **consolidation of two existing schemes** under the Department of Biotechnology (DBT). It aims to promote a **robust ecosystem for startups** by **offering support** through grants, incubation, and mentorship to bio-entrepreneurs. The Bio-RIDE scheme is part of DBT's vision to make India a global leader in biotechnology research, innovation, and industrial growth.

- It will provide **funding and incentives for R&D in key biotechnology areas** such as **synthetic biology, biopharmaceuticals, bioenergy, and bioplastics** etc.
- It will **encourage partnerships** between academic institutions, research organizations, and industries to commercialize bio-based products and technologies.
- It will emphasize **environmentally sustainable practices** in **biomanufacturing**, aligned with India's green goals and climate change mitigation.
- It will focus on **integration of Biomanufacturing and Bio-foundry** to support **Circular-Bioeconomy**, aligned with the **Lifestyle for the Environment (LiFE)** initiative.

#### 56. DRIPS Portal

It is a comprehensive **Disaster Response Platform** for **swiftly identifying and deploying essential resources** during **disaster situations**. It has been launched by the **Ministry of Power** and **Ministry for Housing and Urban Affairs**. Its purpose is to **enhance disaster preparedness and response** in **India's power sector** by providing a centralized platform for **rapid identification and deployment of resources** during emergencies. It aims to **address the vulnerabilities** exposed by recent natural disasters, such as cyclones and floods, particularly in coastal States and UTs.

The portal will help in **enhanced coordination and effectiveness**, rapid service restoration, inventory management etc.

It will promote **transparency and coordination in the power sector during emergencies**, reducing human error. It will benefit not only power generators and distributors but also consumers by ensuring faster restoration of services.

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.