Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

# CURRENT AFFAIRS
# MAGAZINE

## OCTOBER, 2024

▶ **Exception to the Marital Rape**

▶ **A green transformation of warming Antarctica Peninsula**

▶ **Prison Reform in India**

▶ **Navigating India's Economic Growth Challenges**

▶ **Union Government Announces MSP Hike for Rabi Crops**

## Mains Daily Analysis

# Mains Daily Analysis

## General Studies I

### 1. Weather Forecasting at the Gram Panchayat Level

**Why in News?**

The Government of India has taken a significant step in **localising weather forecasting** by introducing hourly five-day weather forecasts at the Gram Panchayat level.

This initiative **aims to equip rural communities** with crucial weather data to enhance agricultural activities and disaster preparedness.

**Importance of and Challenges in Localised Forecasting:**

- **Importance:**
  - Localised weather forecasting plays a critical role in managing the unpredictability of weather systems, which is especially vital as **climate change increases the frequency and intensity of adverse weather events.**
  - It offers precise data at the local level, benefitting even small communities.
- **Challenges:**
  - While IMD has advanced forecasting at broader levels, predicting localised events like cloudbursts remains challenging.
  - Currently, weather forecasting is available at district and block levels, but IMD aims to provide hyper-local forecasts down to 1 km x 1 km grids, with 3 km x 3 km grids already being tested.

**Launch of the Weather Forecasting at the Gram Panchayat Level:**

- **About the initiative:**
  - The initiative, formally launched by the **Ministry of Panchayati Raj**, is **a collaborative effort** between -
    - The Ministry of Panchayati Raj,
    - India Meteorological Department (IMD), and
    - The Ministry of Earth Sciences.
- **Objective:**
  - The primary goal is to **empower rural communitie**s, helping them become more resilient to climate challenges and better prepared for natural disasters.
  - The initiative **promotes sustainable agricultural practices** at the grassroots level.

**Key Features of the Weather Forecasting at the Gram Panchayat Level Initiative:**

- **What will be forecasted?**
  - The localised weather forecasts will provide real-time hourly updates on:
    - Temperature
    - Wind speed and direction
    - Cloud cover
    - Rainfall
    - Relative humidity
  - In addition, five-day forecasts will give minimum and maximum temperatures, rainfall, cloud cover, and wind data.
- **Platforms for forecasts:**
  - The forecasts will be accessible via the **e-GramSwaraj and Gram Manchitra portals**, as well as the **Meri Panchayat app**.
  - These platforms provide vital weather data to support rural decision-making.
- **Training for panchayat representatives:**
  - The Panchayati Raj Ministry is organising a workshop for more than 200 representatives from Panchayati Raj institutions.
  - The workshop will **equip them with the skills to use weather forecasting tools effectively,** enabling them to make **informed decisions** that enhance climate resilience in their communities.

**Significance of the Weather Forecasting at the Gram Panchayat Level Initiative:**

- **Benefits to farmers and rural communities:**
  - The forecasts **directly aid farmers by allowing them to plan agricultural activities** like sowing, irrigation, and harvesting more effectively.
  - Micro forecasts are particularly important in rural areas due to the growing unpredictability of weather patterns caused by climate change.
- **Disaster preparedness:** The Panchayati Raj Ministry emphasised the role of these forecasts in safeguarding agricultural livelihoods, helping rural communities **prepare for natural disasters, and boosting climate resilience.**

**Conclusion:**

- The launch of localised weather forecasting at the Gram Panchayat level marks **a transformative step in empowering rural communities**, improving agricultural outcomes, and enhancing disaster preparedness.
- As IMD continues to refine its capabilities, this initiative is set to play **a critical role in adapting to climate-induced changes.**

## 2. Spraying diamond dust to cool Earth

**Why in news?**

The recent study in Geophysical Research Letters explores **geo-engineering**, specifically solar radiation management, to mitigate global warming.

It suggests spraying millions of tonnes of diamond dust into Earth's upper atmosphere to reflect solar radiation away from the planet, potentially cooling it.

**Geo-engineering**

- **What is geo-engineering?**
  - It involves large-scale interventions in the Earth's climate system to combat the negative effects of global warming.
  - It includes two main approaches: Solar Radiation Management (SRM) and Carbon Dioxide Removal (CDR).
- **Need for geo-engineering**
  - Efforts to curb global warming have fallen short, as global temperatures continue to rise and greenhouse gas emissions have not been significantly reduced.
  - Global temperatures are currently about 1.2°C above pre-industrial levels, with 2023 seeing a 1.45°C increase.
  - The 1.5°C limit, outlined in the 2015 Paris Agreement, is unlikely to be met, though some theoretical scenarios suggest it remains possible.
    - To meet the 1.5°C target, <u>global emissions must be reduced by at least 43% from 2019 levels by 2030</u>.
    - However, current and planned actions are expected to achieve only a 2% reduction by that deadline.
- **Main approaches of geo-engineering**
  - **Solar Radiation Management (SRM)**
    - SRM strategies focus on reflecting incoming solar rays to reduce Earth's temperature.
    - This involves deploying reflective materials in space to block solar radiation, preventing it from reaching the planet's surface.
  - **Carbon Dioxide Removal (CDR) Technologies**
    - CDR aims to remove excess carbon dioxide from the atmosphere.
    - This includes technologies like:
      - **Carbon Capture and Sequestration** (CCS), which capture $CO_2$ at the source and store it underground, and
      - **Carbon Capture, Utilisation, and Storage** (CCUS), where captured carbon is partially reused in industrial processes while the rest is stored.
  - **Direct Air Capture (DAC)**
    - DAC methods involve extracting carbon dioxide directly from the ambient air using large-scale "artificial trees."

- The captured $CO_2$ is either stored or used, potentially addressing accumulated carbon emissions over the years.
- Although promising, DAC faces significant technological and economic challenges.
- **Current State of Geoengineering Efforts**
  - Among the geoengineering options, CCS is the only method currently in practical use, capturing emissions from industrial sources for underground storage.
  - Experimental projects are exploring DAC and other advanced technologies, but none are widely implemented yet due to their complexities and high costs

**Challenges**
- **Challenges of Implementing Solar Radiation Management (SRM)**
  - SRM, while theoretically possible, faces significant technological and financial obstacles.
  - Large-scale manipulation of natural processes carries risks, including unpredictable impacts on global and regional weather patterns.
  - Ethical concerns arise, as altering sunlight could affect agriculture, ecosystems, and biodiversity, potentially harming some species.
- **Limitations of Carbon Capture and Sequestration (CCS)**
  - Although CCS is technically viable in some situations, various studies suggest that heavy dependence on CCS to meet climate goals is not practical.
  - It highlights that focusing on CCS instead of renewable energy could add at least $30 trillion to global costs by 2050.
  - Additionally, there may not be enough suitable underground sites to safely store large quantities of carbon dioxide.
- **Conclusion: The Inevitable Role of CCS and CDR Technologies**
  - Despite their limitations, CCS and CDR remain crucial components in any strategy to combat climate change.
  - Achieving the 1.5°C or 2°C targets is considered impossible without incorporating these technologies, given the current levels of global warming.

**Use of diamonds to cool down the Earth**
- **About the news**
  - A research study has argued that diamonds can really be the answer to the global climate crisis.
  - They were testing out various aerosols to cool Earth, when they found that more than anybody, diamonds can prove to be more effective.
- **The proposal**
  - As per their analysis, shooting five million tonnes of diamond dust into the stratosphere each year, over the course of 45 years, could cool our planet by an impressive 1.6°C.
- **Why diamond**
  - Researchers had shortlisted calcite, diamond, aluminum, silicon carbide, anatase, and rutile, and created a 3D model.
  - They found out that diamond particles were highly effective in reflecting sunlight and heat, while simultaneously staying in the atmosphere for long enough.
  - Further since diamonds are chemically inert, they won't react with other elements in the atmosphere.
- **Not the first time such a solution has been proposed**
  - Several other compounds, such as sulphur, calcium, aluminium, and silicon, have been suggested previously for doing the same job.
    - Sulfur dioxide has been a leading candidate for solar radiation management due to its natural cooling effects observed during volcanic eruptions, where it reflects sunlight away from Earth.
    - However, artificial injection poses significant risks, including the potential for acid rain, damage to the ozone layer, and disruption of weather patterns, making it a controversial geo-engineering option.
  - The central idea here is to scatter material that can reflect solar radiation into Space and prevent it from reaching Earth, thereby cooling down the planet.
  - The installation of space-based mirrors has also been proposed.
- **Associated challenge**

- o While the study looks promising on paper, the biggest obstacle in making it practical is the price of diamonds, one of the most expensive elements in the world.
- o The cost of producing and distributing the required quantity of synthetic diamonds would be staggering, with estimates reaching as high as $200 trillion—which is double the global economy in 2023.

## 3. How South India Deals with its Aging Population?

**Background:**
- In an unexpected move, **Andhra Pradesh Chief Minister N. Chandrababu Naidu** announced that his government is working on a law to incentivize families to have more children.
- His concerns arise from the state's **declining young population**, with fertility rates below the **replacement level**.
- According to the CM, having fewer than two children is leading to a rapid decline in the younger population, and this could have long-term implications for the state.

**Context & Concerns of Southern States:**
- CM's remarks are part of a broader discussion regarding population trends in **Southern India**.
- Southern states, like **Tamil Nadu**, **Kerala**, and **Andhra Pradesh**, have successfully brought down their **fertility rates** over the years.
- This success has contributed to an **aging population**, creating concerns about the future representation of these states in the **Indian Parliament**.
- Tamil Nadu Chief Minister **M.K. Stalin** even raised concerns about the potential reduction of South India's share in parliamentary seats due to low population growth.

**India's Aging Population and Fertility Trends:**
- With the **2021 Census** delayed, the most recent data on population projections come from a **2020 report** by the Union Ministry of Health and Family Welfare.
- The report highlights several key findings:
- **Aging Population**:
- o Across India, the percentage of people aged **60+** is expected to increase significantly.
- o However, this trend is more pronounced in Southern states, which achieved **low fertility rates** earlier than their Northern counterparts.
- o For example, **Uttar Pradesh** is projected to reach the replacement level of fertility (2.1 children per woman) only by 2025, more than two decades after Andhra Pradesh.
- **Population Growth**:
- o Between **2011 and 2036**, India's population is expected to grow by **31.1 crore** people.
- o Half of this growth will come from just five states: **Bihar**, **Uttar Pradesh**, **Maharashtra**, **West Bengal**, and **Madhya Pradesh**.
- o On the other hand, the five Southern states (**AP**, **Karnataka**, **Kerala**, **Telangana**, and **Tamil Nadu**) will contribute only **2.9 crore** to the total population increase during the same period.
- **Older Population Doubling**:
- o The number of elderly persons (aged 60+) is expected to more than double, from **10 crore in 2011** to **23 crore in 2036**.
- o In **Kerala**, for example, nearly **1 in 4 people** will be over 60 by 2036. In contrast, **Uttar Pradesh** is projected to have a younger population, with only **12%** of its people in the 60+ bracket by 2036.

**Why is an Aging Population a Concern?**
- An aging population and smaller overall population are two distinct issues.
- An aging population raises concerns about the **dependency ratio**—the percentage of the population that is not working (those below 15 and above 60).
- A high dependency ratio means that a larger portion of the population relies on the working-age group for economic support.
- As a result, the state may have to invest more in **healthcare** and **social security** for the elderly.

- On the other hand, a **smaller population** compared to other states could impact political representation in the **Lok Sabha** (House of the People).
- Southern states, which achieved demographic transitions earlier, fear they could be penalized during **electoral delimitation**, losing seats in Parliament to Northern states like **Bihar**, **Uttar Pradesh**, and **Madhya Pradesh**, where population growth continues to be higher.

**Do Pro-Natalist Policies Work?**
- CM cited examples from countries like **Japan**, **China**, and **Europe**, where governments have attempted to boost fertility rates to counter aging populations.
- However, **experts** argue that **pro-natalist policies**—policies encouraging families to have more children—have had limited success.
- According to these experts, these policies generally fail, particularly in societies that have achieved a certain level of prosperity and education.
- While **Scandinavian countries** have managed to stabilize fertility rates to some extent through **family support systems**, **childcare services**, and **gender equality measures**, countries like **Japan** and **China** have not seen significant success.
- Even offering financial incentives is not enough to encourage families to have more children, as shown in the case of countries like **France** and **South Korea**.

**Why CM Naidu's Comments Matter?**
- CM's remarks mark a **significant shift** in the political discourse surrounding population. Several decades ago, India faced concerns about **overpopulation**, with high fertility rates leading to rapid population growth.
- Back then, politicians and policymakers were focused on controlling population growth to avoid potential crises.
- Southern states, like **Andhra Pradesh**, played a crucial role in achieving **Replacement Level of Fertility**
- Andhra Pradesh, for instance, reached the fertility rate of 2.1 children per woman in 2004.
- In fact, Andhra Pradesh once had a law that barred individuals with more than two children from contesting local elections—a law that the CM repealed.
- However, with declining fertility rates and India now being the **world's most populous country**, the political conversation is evolving.
- The challenge now is **balancing population control** with ensuring there are enough young people to support economic growth.

**What is the Way Forward?**
- While **pro-natalist policies** have proven largely ineffective, experts suggest that **migration** could help address demographic imbalances. <u>**Internal migration** from Northern to Southern states could alleviate the issue of a shrinking workforce in the South</u>.
- Southern states can benefit from this by absorbing migrants who are already of working age, thus bypassing the costs associated with raising and educating a young population.
- This is similar to the model employed by the **United States**, where immigration has helped sustain the country's **economic dominance** by providing a steady flow of working-age individuals.
- Economists also argue that India's focus should be on **improving the productivity** of its labor force, rather than simply increasing the population.
- By ensuring that India capitalizes on its ongoing **demographic dividend**—a large share of the population being of working age—the country can maximize economic growth.

**Conclusion:**
- As **Andhra Pradesh** considers incentivizing larger families, the broader debate around **fertility rates**, **aging populations**, and **political representation** comes to the fore.
- While the state faces real challenges related to its declining young population, global evidence suggests that **pro-natalist policies** may not be the answer.
- Instead, a combination of **migration**, **labor productivity improvements**, and a focus on the **demographic dividend** could help balance India's population and economic needs.

# 4. India's SDG Focus and Its Human Development Issues

**Context**

- **Last year India hosted the G-20 Summit, focusing on accelerating the implementation of the UN Agenda 2030 for Sustainable Development** and soon after, an SDG Summit at the United Nations headquarters reviewed progress toward the 17 Sustainable Development Goals (SDGs).
- In this global context, **examining India's progress in human development since 1990, particularly through the lens of the UNDP's Human Development Report (HDR), is both timely and relevant.**
- Moreover, **it is important to explore India's human development trajectory, the intertwined nature of development and SDGs**, and the country's **pressing challenges in gender equality and income inequality.**

**India's Progress in Human Development**

- **Historical Perspective**
  - o **From 1990 to 2022, India's Human Development Index (HDI) value increased from 0.434 to 0.644,** reflecting an overall improvement of 48.4%.
  - o **Life expectancy in India has increased significantly over the decades**, indicating better healthcare access and improvements in living conditions.
  - o Similarly, **educational indicators have shown progress,** with increased school enrolment rates and expanded access to higher education.
  - o These advancements are **partly due to policy initiatives like the Sarva Shiksha Abhiyan (Universal Education Campaign)** and schemes aimed at enhancing **healthcare access, such as Ayushman Bharat.**
- **Recent Trends**
  - o **Recent trends show a more complex picture as the HDI value was stagnant** at 0.638 in 2019-20, dipped slightly to 0.633 in 2021, and then rose again to 0.644 in 2022.
  - o This **fluctuation reflects the impacts of external shocks,** notably the COVID-19 pandemic, which disrupted India's progress across various dimensions of human development.
  - o The **pandemic led to widespread job losses, economic slowdown, and a significant setback in educational access** due to school closures and a digital divide, especially in rural areas.
  - o These **challenges caused temporary regressions in HDI values**, underscoring the fragility of developmental gains when confronted with global crises.

**Comparative Analysis with Neighbouring Countries**

- While India has made strides in improving its HDI over the decades, **its progress has been slower when compared to some neighbouring countries.**
- India **currently ranks 134 out of 193 countries in the HDR 2023-24,** placing it within the medium human development category.
- This ranking, though an improvement, is modest **compared to the rapid advancements made by several countries in the region.**
- For instance, **Malaysia (63), Thailand (66), and China (75) have achieved significantly higher HDI ranks.**
- Even countries facing similar socio-economic challenges, **such as Sri Lanka (78), Indonesia (112), Bhutan (125), and Bangladesh (129), have performed better in recent years.**
- The **faster progress of these countries is partly attributed to targeted investments in health and education** and more inclusive growth policies.
- This **comparative lag highlights areas where India needs to focus on structural reforms and policy interventions** to boost human development indicators further.

**Factors Contributing to India's Progress in Human Development**

- **Economic Liberalisation**
  - o **Several key factors have driven India's progress** in human development since the 1990s.
  - o These **include economic liberalisation, government welfare programs, and increased investment in human capital.**
  - o The **liberalisation reforms of the early 1990s opened up the Indian economy,** leading to rapid economic growth, job creation, and a substantial rise in income levels for many segments of society.

- o This **economic growth has been critical in elevating millions of people out of poverty** and providing them with better access to healthcare, education, and other essential services.
- **Government Initiatives in Key Sectors**
  - o Programs like the **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) have provided a safety net** for rural populations, ensuring a minimum standard of living through guaranteed employment.
  - o Additionally, **the Pradhan Mantri Awas Yojana (PMAY) and other housing schemes have contributed to improving living standards** by providing affordable housing to low-income families.
  - o In the education sector, **initiatives like the Right to Education (RTE) Act have made primary education a fundamental right,** thereby increasing enrolment rates and reducing dropout rates among children, especially from marginalised communities.
  - o The **National Health Mission (NHM) has similarly focused on improving maternal and child health services, contributing to a decline in child mortality** rates and an overall increase in life expectancy.

**Challenges to Further Progress**
- **Uneven Distribution of Development Benefits**
  - o One **significant barrier is the uneven distribution of development benefits** across different regions and social groups.
  - o **While metropolitan areas and some southern states like Kerala and Tamil Nadu have witnessed remarkable improvements** in health, education, and living standards, **other regions, particularly in the northern and eastern parts of the country, lag behind.**
  - o This **disparity is evident in state-level HDI rankings, with states like Bihar and Uttar Pradesh consistently showing lower human development outcomes** compared to their southern counterparts.
- **Rising Income Inequality**
  - o According to the HDR, **India's income distribution is skewed, with the top 1% holding 21.7% of the country's total income.**
  - o This is **notably higher than in neighbouring countries like Bangladesh (11.6%), China (15.7%), and Bhutan (18.1%), as well as the world average of 17.5%** and the South Asia average of 19.6%.
  - o Comparatively, **income inequality in India exceeds that of regional groups like East Asia and the Pacific (16.5%) and Europe and Central Asia (15.7%).**
- **Quality of Education and Healthcare**
  - o Although access has increased, **there remain concerns about the quality of services provided.**
  - o For example, **a significant portion of rural schools face shortages of teachers and infrastructure, which hampers educational outcomes.**
  - o Similarly, **healthcare access, while improved, is still inadequate in remote areas where facilities are often understaffed** and under-resourced.
- **Gender Inequality: Low Female Labour Force Participation**
  - o There is a 47.8 percentage point difference **between the participation rates of women (28.3%) and men (76.1%).**
  - o This **gap is strikingly large compared to neighbouring countries like China (53.6%), Bhutan (53.5%), and Bangladesh (39.2%).**
  - o Although the **Periodic Labour Force Survey (PLFS) for 2022-23 shows some improvement in female participation, from 23.3% in 2017-18 to 37% in 2022-23**, there remains a stark urban-rural divide.
  - o **Female participation in rural areas rose from 24.6% to 41.5% during this period,** while urban areas saw only a marginal increase from 20.4% to 25.4%.
  - o This **disparity calls for targeted policies to bridge the rural-urban divide** and boost female participation in the workforce.

**Way Forward**
- **Targeted measures to reduce income concentration at the top**, alongside policies that promote equitable access to resources, **are essential for achieving sustainable development.**
- For India, **the path to sustainable development involves addressing critical issues in human development, including gender inequality, income disparity,** and the long-term impacts of the COVID-19 pandemic.

**Conclusion**

- **Sustainable development is not just about economic growth but also about expanding the freedoms and capabilities of every individual**, ensuring that no one is left behind in the journey of progress.
- The **recent international summits on sustainable development underscore the importance of a collective global effort to achieve the SDGs by 2030.**
- **By aligning its development strategies** with the objectives of the SDGs, **India can work towards creating a more equitable and prosperous future for its population.**

## 5. On the Exception to Marital Rape

**Background:**

- The issue of **marital rape** in India has become a significant topic of legal and social debate.
- The Indian Penal Code (IPC), specifically **Exception 2 of Section 375**, exempts husbands from being prosecuted for **non-consensual sexual acts** with their wives, provided the wife is not under 18 years of age.
- This exception is now being challenged in court as a violation of women's **fundamental rights**.

**History & Genesis of Marital Rape Exception:**

- The **Marital Rape Exception** has its roots in **English common law**, particularly in the **doctrine of coverture**, which regarded a married couple as a single legal entity.
  - This effectively meant that a wife did not have the legal right to refuse her husband's sexual advances.
- The British jurist **Matthew Hale** argued in the 1700s that a husband could not be guilty of raping his wife, reasoning that by marriage, a woman gave irrevocable consent to sex.
- Though England abolished this exception in 1991, India continues to uphold this provision.
- In 2017, India raised the age of consent for marital intercourse from 15 to 18 years following the Supreme Court's ruling in **Independent Thought vs. Union of India**.
- However, the overall exception still persists in Indian law.

**Current Legal Framework:**

- **Section 375** of the IPC defines rape and includes provisions for when sexual intercourse qualifies as non-consensual.
- However, Exception 2 of this section provides immunity to husbands for non-consensual acts with their wives, provided they are over 18 years of age.
- Other legal provisions such as **Section 85 of the Bharatiya Nyaya Sanhita (BNS)** and the **Protection of Women from Domestic Violence Act (2005)** offer some protection for married women but are limited in scope and primarily address cruelty, not sexual violence.

**Arguments Against the Marital Rape Exception:**

- **Violation of Fundamental Rights**:
  - **Article 14**: The MRE creates two classes of victims—married and unmarried women.
  - Unmarried women receive full legal protection against sexual assault, while married women do not, violating the principle of equality before the law.
  - **Article 21**: The MRE infringes on a woman's right to bodily autonomy and decisional privacy.
  - The Supreme Court's rulings in **Puttaswamy vs. Union of India** and **Joseph Shine vs. Union of India** emphasized that privacy includes the right to control one's body, irrespective of marital status.
- **Gender Equality**:
  - Critics argue that the MRE reflects **patriarchal values** and reinforces the idea that marriage gives husbands **unconditional sexual access** to their wives, which undermines women's rights.
- **International Perspective**:
  - Several countries, including the UK, USA, and Australia, have abolished the marital rape exception.
  - Retaining it in India places the country out of step with modern legal standards concerning women's rights and sexual autonomy.

**Judicial Precedents:**

- **Karnataka High Court (2022)**:
  - In **Hrishikesh Sahoo vs. State of Karnataka**, the court ruled that a husband could be prosecuted for raping his wife, marking a significant shift in addressing sexual violence within marriage.
- **Delhi High Court Split Verdict (2022)**:
  - **Justice Rajiv Shakdher** declared the MRE unconstitutional, arguing it violates women's rights to bodily autonomy.
  - **Justice C. Hari Shankar**, however, upheld the MRE, stating that within marriage, sexual relations constitute a "legitimate expectation."
    - This split decision prompted the petitioners to take the case to the Supreme Court.

## Government's Stand:
- In a recent affidavit, the **Union Government** opposed striking down the MRE, arguing that **marriage creates a "continuing expectation of reasonable sexual access"**.
- The government has expressed concerns that criminalizing marital rape could disrupt the **sanctity of marriage** and lead to **false accusations**.

## Conclusion:
- The debate over the **Marital Rape Exception** raises critical questions about **gender equality**, **bodily autonomy**, and the evolving role of marriage in Indian society.
- As the Supreme Court deliberates, the outcome will not only affect the legal status of marital rape in India but also set a significant precedent for **women's rights** and **gender justice** in the country.

## 6. Ensuring a Proper Social Safety Net for the Gig Worker

### Context
- The **growth of the gig economy has transformed labour dynamics across the globe,** offering flexibility but raising questions about worker rights and protections.
- **In India, the Union Ministry of Labour and Employment is drafting a national law to bring gig workers under the umbrella of social security schemes**, addressing their needs for health insurance, retirement savings, and other benefits.
- So, **it is crucial to critically examine the existing legal framework for gig workers in India, the limitations of the Social Security Code 2020**, and the path forward for ensuring fair treatment and protection of gig workers.

### Proposed New Legislation for Gig Workers and Existing Mechanism
- **Proposed New Legislation: Expanding Social Security for Gig Workers**
  - The new legislation proposed by the Union Ministry **aims to incorporate gig workers into social security schemes through a welfare board model.**
  - It **mandates the creation of a social security fund, requiring aggregators to contribute 1%-2% of their revenue.**
  - This **fund would offer health insurance and other benefits**, potentially alleviating the precarious nature of gig work.
  - **Additionally, the legislation proposes the registration of gig workers and demands transparency in their treatment by aggregators**, such as providing a 14-day notice before termination and introducing dispute resolution mechanisms.
- **Existing Mechanism: Gig Workers Under the Social Security Code 2020**
  - **The Social Security Code 2020 is a key element of India's approach to integrating gig workers** into the formal economy.
  - This **code is one of four labour codes introduced in 2019 and 2020,** aiming to simplify and rationalise existing labour laws **by merging 29 central labour laws into four broad categories: wage, social security, industrial relations, and occupational safety** and working conditions.
  - **Gig workers, however, are only explicitly mentioned in the Social Security Code 2020,** which treats them as a subset of informal workers.
  - **As a result, gig workers are encouraged to register on the e-Shram portal,** much like informal workers, but this categorization falls short of recognizing their unique employment situation.

**Limitations of the Existing Legal Framework for Gig Workers (Social Security Code 2020)**

- **Ambiguous Definition of Gig Workers**
    - The **Social Security Code 2020 is the only one of India's four labour codes** that explicitly mentions gig and platform workers.
    - However, **it classifies them as a subset of the informal workforce** rather than as part of the formal economy.
    - **This categorisation fails to reflect the realities of gig work**, which often straddles the line between traditional employment and independent contracting.
    - **Because they are categorised as informal, gig workers do not enjoy the same legal entitlements as those in traditional, formal employment**, such as access to comprehensive social benefits and job security.
    - This **ambiguity prevents a nuanced understanding of the employment dynamics in the gig economy** and results in a framework that is ill-suited to the unique nature of gig work.
- **Exclusion from Traditional Employer-Employee Relationship**
    - One of the critical challenges in the Social Security Code 2020 is its **failure to establish gig workers within the traditional employer-employee paradigm.**
    - In many cases, **companies that utilise gig workers, such as ride-sharing and delivery services, operate as formal businesses** within the formal economy.
    - However, **these companies often classify their workers as independent contractors** rather than employees.
    - This **allows them to avoid obligations under labour laws**, such as providing minimum wages, paid leave, or job security.
- **Avoidance of Employer Responsibilities by Aggregators**
    - The **classification of gig workers as independent contractors rather than employees is not a mere oversight but a strategic move by aggregators** to minimise their responsibilities.
    - **Many aggregators intentionally blur the lines of employment relationships**, labelling their workforce as independent contractors to sidestep legal obligations.
    - This **classification allows companies to avoid providing benefits like health insurance, paid leave,** or contributions to retirement funds.
    - **By doing so, they leverage the flexibility of the gig economy** while avoiding the costs associated with formal employment.
    - This **ambiguity not only disadvantages gig workers but also challenges the enforcement of labour laws**, as the existing framework does not account for this strategic obfuscation.
- **Limited Coverage Under Social Security Schemes**
    - **Although the Social Security Code 2020 recognises the need for social security schemes** for gig workers, **it only offers a limited scope of benefits**, which fall short of the protections available to formal employees.
    - For example, **while the code allows for the provision of social security schemes like health insurance, it does not extend to other essential benefits** such as unemployment insurance or robust pension schemes.
    - **These limitations mean that gig workers are often unable to secure their long-term well-being** or protect themselves against income disruptions.
- **Lack of Dispute Resolution Mechanisms**
    - Another significant challenge is the **absence of effective dispute resolution mechanisms for gig workers.**
    - **While the Industrial Relations Code 2020 includes provisions for addressing workplace disputes, these are not extended to gig workers**, who remain outside the scope of the code.
    - This means that **when gig workers face issues like unfair dismissal, wage disputes, or discrimination, they lack a formal avenue for seeking redress.**

**Impact of the Informal Classification on Worker Rights**

- The classification of gig workers as part of the informal sector not only **limits their access to benefits but also reinforces the precarious nature of their work.**
- Informal workers in India, including gig workers, are **typically subject to greater economic instability** due to the lack of job security and weaker legal protections.
- The **informal classification means that gig workers are often unable to access minimum wage protections or occupational safety regulations** that would be standard in formal employment.

- For example, **gig workers may face unsafe working conditions or unreasonable workloads without recourse to regulations** that ensure their safety and well-being.
- The **informal classification thus perpetuates a cycle where gig workers remain vulnerable to exploitation,** lacking the rights and protections afforded to their formally employed counterparts.

**Ways Ahead to Address the Challenges Associated with Social Security Code 2020**
- **Addressing the Core Issue: The Need for Redefining Employment Relationships**
  - The **absence of a clear definition of employment relationships** within the gig economy is at the **heart of the issue.**
  - To genuinely protect gig workers, **the government must redefine gig work to acknowledge the role of aggregators as employers.**
  - This **shift would align with international precedents, such as the 2021 ruling by the U.K. Supreme Court, which recognised Uber as an employer and its drivers as workers** entitled to labour protections.
  - **Establishing a similar recognition in India would enable the inclusion of gig workers under the existing labour codes**, rendering separate legislation unnecessary and promoting greater formalization of gig work.
- **Evaluating the Welfare Board Model**
  - While the **proposed welfare board model represents a step towards providing gig workers with social security, it has its limitations.**
  - **Past experiences with similar models**, such as those created for construction workers, reveal that **they have been insufficient in providing adequate protection.**
  - Despite working for formal employers, **construction workers often remain classified as informal, resulting in subpar coverage.**
  - **Thus, merely establishing a welfare board for gig workers may not fully address the systemic issues unless the employment relationship is made explicit** and aggregators are held accountable as employers.

**Conclusion**
- **The proposed legislation by the Union Ministry of Labour and Employment aims to address the long-standing need for social security** among gig workers in India.
- However, **its success depends on redefining the employment relationship within the gig economy** and ensuring that gig workers are recognised as part of the formal labour force.
- The **ambiguity surrounding the status of gig workers must be resolved** to bring them under the protections of the existing labour codes.

## 7. Issues in the treatment of rare diseases

**Why in news?**

The Delhi High Court recently issued directions to improve the availability of **orphan drugs**, which are used to treat rare diseases.

The Centre provides financial assistance to Centres of Excellence (CoE) for treatment, but stakeholders have approached the courts, citing difficulties in accessing these funds.

**Rare diseases**
- **Definition**
  - According to the World Health Organization (WHO), a **rare disease** is a debilitating, lifelong condition affecting 1 or fewer people in 1,000.
  - In India, around 55 medical conditions, including **Gaucher's disease**, **Lysosomal Storage Disorders (LSDs)**, and certain forms of muscular dystrophy, are classified as rare diseases.
  - While a majority of rare diseases are believed to be genetic, many — such as some rare cancers and some autoimmune diseases — are not inherited.
- **Prevalence in India**
  - The **National Registry for Rare and Other Inherited Disorders (NRROID)**, initiated by the Indian Council of Medical Research (ICMR), has recorded **14,472 rare disease patients** in the country.
  - However, therapies exist for less than 5% of rare diseases, with only 1 in 10 patients receiving disease-specific care.

- o The treatments available are often prohibitively expensive.
- **Categories of rare diseases**
  - o In India, rare diseases are categorised into three groups based on the nature and complexity of available treatment options.
  - o **Group 1** includes diseases that can be treated with a one-time curative procedure.
  - o **Group 2** diseases require long-term or lifelong treatment which are relatively less costly and have shown documented benefits, but patients need regular check-ups.
  - o **Group 3** diseases are those for which effective treatments are available, but they are expensive and must often continue lifelong.

**Associated challenges**
- o **Early diagnosis**
  - ▪ **Early diagnosis** is a major challenge owing to a variety of factors that include lack of awareness among primary care physicians, lack of adequate screening and diagnostic facilities etc.
- o **Less knowledge of pathophysiology in Indian context**
  - ▪ Relatively little is known about the pathophysiology or the <u>natural history of majority of rare diseases, particularly in the Indian context</u>.
- o **Challenges in R&D**
  - ▪ Rare diseases are also difficult to research upon as the **patients pool is very small** and it often results in inadequate clinical experience.
- o **High cost**
  - ▪ The cost of treatment of rare diseases is prohibitively expensive. For example, treatment for Spinal Muscular Atrophy (SMA) costs approximately Rs. 16 crore.
  - ▪ Many **orphan drugs** are patented, making them highly expensive due to limited market size and high development costs.
  - ▪ Pharmaceutical companies often avoid producing these drugs, leading to inflated prices.
  - ▪ **Manufacturing orphan drugs domestically** could lower costs, but government incentives such as **tax breaks** would be needed to encourage production.

**Steps taken by the govt**
- **National Policy for Rare Diseases (NPRD) 2021**
  - o In 2021, NPRD was launched, offering financial aid up to **₹50 lakh** for patients undergoing treatment at designated Centres of Excellence (CoEs) such as AIIMS Delhi, PGIMER Chandigarh, and SSKM Hospital in Kolkata.
- **Digital Portal for Crowdfunding & Voluntary Donations**
  - o In 2022, the Health Ministry introduced a Digital Portal for Crowdfunding & Voluntary Donations, providing details about patients, treatment costs, and CoE bank accounts for potential donors.
- **Financial aid released by the govt**
  - o Between 2021 and August 2024, the government released financial aid of ₹3.15 crore (2021-22), ₹34.99 crore (2022-23), ₹74 crore (2023-24), and ₹24 crore (2024-25).
  - o Additionally, ₹35 crore was allocated to improve patient care services by purchasing equipment.
- **Import Duties and GST Exemptions**
  - o Currently, patients importing rare disease medicines are exempt from customs duty, but companies still pay 11% customs duty and 12% GST on these imports.
  - o The Delhi High Court has set a 30-day deadline to process these exemptions for medicines under customs, GST, and income tax laws.
- **Provision for third-party manufacturing**
  - o If treatments for rare diseases are unavailable, the government can invoke provisions of the **Patents Act of 1970** to allow third-party manufacturing or acquire patents to ensure drug availability.

**Criticism**
- **Concerns Over Price Control Exemption**
  - o In 2019, the Department of Pharmaceuticals exempted orphan drugs from price controls.

- o The Delhi High Court raised concerns over this exemption, stating that this practice "cannot continue in this manner."
- **Delays in Drug Approvals**
  - o Delays in approvals, such as for medicines from US-based Sarepta Therapeutics, have impacted patient treatment in India.
  - o The National Rare Diseases Committee highlighted that a delay in approval from the Drug Controller General of India (DCGI) forced CoEs like AIIMS to import drugs through distributors, affecting timely patient care.

## 8. Addressing Hunger and Malnutrition in India

**Why in News?**

India's struggle with hunger and malnutrition has been underscored by its ranking in the **2024 Global Hunger Index (GHI),** where it stands **105th out of 127 countries** with a score of 27.3, categorising it in the **'serious' range**.

Despite being one of the fastest-growing economies globally, India continues to lag behind several of

**What is the GHI?**

**How the GHI Is Calculated**

Each country's GHI score is calculated based on a formula that combines four indicators that together capture the multidimensional nature of hunger:

**Undernourishment:** the share of the population whose caloric intake is insufficient;

**Child stunting:** the share of children under the age of five who have low height for their age, reflecting chronic undernutrition;

**Child wasting:** the share of children under the age of five who have low weight for their height, reflecting acute undernutrition; and

**Child mortality:** the share of children who die before their fifth birthday, reflecting in part the fatal mix of inadequate nutrition and unhealthy environments.

- The GHI is **a peer-reviewed annual publication designed to comprehensively measure and track hunger at global, regional, and national levels,** reflecting multiple dimensions of hunger over time.
- **Created in 2006**, the GHI was initially published by the US-based International Food Policy Research Institute (IFPRI) and Germany-based Welthungerhilfe. In 2007, the Irish NGO Concern Worldwide also became a co-publisher.
- **In 2018**, IFPRI withdrew from the project and the GHI became a joint project of **Welthungerhilfe and Concern Worldwide.**
- The GHI is intended to -
  - o **Raise awareness** and understanding of the struggle against hunger,
  - o **Provide a way to compare** levels of hunger between countries and regions, and
  - o **Call attention** to those areas of the world where hunger levels are highest and where the need for additional efforts to eliminate hunger is greatest.

**Highlights of the 19th GHI 2024:**

- **Theme:** The theme for the 2024 Global Hunger Index (GHI) is "How gender justice can advance climate resilience and zero hunger".

- **Global hunger statistics:**
  - **Current GHI score:** 8.3 shows a slight improvement from 2016's score of 18.8.
  - **Vulnerable populations:** 2.8 billion people cannot afford a healthy diet.

- **Regional disparities in hunger:**
  - **Sub-Saharan Africa:** Highest rates of malnutrition and child mortality globally and ongoing conflicts in Somalia and Sudan exacerbate hunger crises.
  - **South Asia:** Countries like Afghanistan, India, and Pakistan are facing substantial hunger challenges.

**GLOBAL HUNGER INDEX SCORES BY 2024 GHI RANK**

| Rank[1] | Country | 2000 | 2008 | 2016 | 2024 |
|---|---|---|---|---|---|
| | Belarus | < 5 | < 5 | < 5 | < 5 |
| | Bosnia & Herzegovina | 9.4 | 6.4 | <5 | < 5 |
| | Chile | < 5 | < 5 | < 5 | < 5 |
| | China | 13.4 | 7.2 | < 5 | < 5 |
| | Costa Rica | 6.6 | < 5 | < 5 | < 5 |
| | Croatia | 5.5 | < 5 | < 5 | < 5 |
| | Estonia | < 5 | < 5 | < 5 | < 5 |
| | Georgia | 12.0 | 6.6 | 5.4 | < 5 |
| | Hungary | < 5 | < 5 | < 5 | < 5 |
| | Kuwait | < 5 | < 5 | < 5 | < 5 |
| | Latvia | < 5 | < 5 | < 5 | < 5 |
| | Lithuania | < 5 | < 5 | < 5 | < 5 |
| | Montenegro | — | 5.7 | < 5 | < 5 |
| | North Macedonia | 7.6 | 5.3 | 5.1 | < 5 |
| | Romania | 7.9 | 5.7 | 5.0 | < 5 |
| | Russian Federation | 10.4 | 5.9 | 5.4 | < 5 |
| | Serbia | — | 5.9 | < 5 | < 5 |
| | Slovakia | 6.0 | < 5 | < 5 | < 5 |
| | Türkiye | 11.4 | 6.5 | 5.4 | < 5 |
| | United Arab Emirates | 5.1 | 6.3 | < 5 | < 5 |
| | Uruguay | 7.6 | 5.3 | < 5 | < 5 |
| | Uzbekistan | 24.3 | 13.2 | 5.9 | < 5 |

*2024 GHI scores less than 5, collectively ranked 1-22.[2]*

- **Issues:**
  - **Difficulties in achieving SDG 2 (Zero Hunger by 2030):** The GHI 2024 reveals that 42 countries face alarming or serious hunger levels, marking a stagnation in the fight against hunger despite decades of progress.
  - **Gender disparity:** Women are particularly vulnerable to food insecurity due to discriminatory norms and violence, limiting their access to resources.

- **Underlying causes of hunger:**
  - **Climate change and environmental degradation** impacts food production and threatens the natural foundations of economies and agriculture.
  - **Armed conflicts** lead to significant displacement and disruption in food systems and affect cultivation.
  - **Lower-income countries struggle with debt**, diverting funds away from critical development needs.

- **Success stories amidst the crisis:** Countries like **Mozambique and Nepal** have achieved significant improvements in their GHI scores since 2016, showcasing that progress is possible.

- **A call to action:**
  - The GHI 2024 underscores the urgent need for coordinated efforts to address the intersecting crises of climate change, armed conflict, gender inequality and economic instability.
  - It emphasises the importance of supporting vulnerable populations, particularly women, in the fight against hunger.

**India Specific Findings in the GHI 2024:**

- **Alarming child malnutrition rates:**
  - Approximately 35.5% of children under five are stunted, indicating chronic undernutrition, while 18.7% are wasted, a sign of acute malnutrition.
  - These figures reflect **a significant lack of adequate nutrition during crucial developmental periods**, severely impacting children's physical and cognitive growth.
  - Furthermore, around 13.7% of the overall population suffers from undernourishment, which remains a persistent issue.

- **Child mortality rates:**
  - While there has been some progress in reducing child mortality, with 2.9% of children dying before their fifth birthday, the overall hunger situation remains dire.
  - **The interplay between malnutrition and child mortality underscores the need for immediate action.**

**India's Performance Trends in the GHI:**

- **Minimal improvement over the decade:**
  - There is a stagnation in India's performance as it moved from a score of **29.3 in 2016 to 27.3 in 2024**.
  - Although there have been gains in certain areas, such as child mortality rates, the overarching issue of hunger persists.

- **India vs. neighbours:**



**2024 GHI Scores in South, East, and Southeast Asia**

(GHI Score by country)
DPR Korea 31.4, Afghanistan 30.8, Papua New Guinea 28.8, Pakistan 27.9, India 27.3, Timor-Leste 27.0, Lao PDR 19.8, Bangladesh 19.4, Solomon Islands 19.4, Indonesia 16.9, Myanmar 15.7, Cambodia 14.7, Nepal 14.7, Philippines 14.4, Malaysia 12.7, Viet Nam 11.3, Sri Lanka 11.3, Fiji 10.2, Thailand 10.1, Mongolia 5.6, China <5

South Asia – 26.2
World – 18.3
East and Southeast Asia – 8.3

- o When compared to neighbouring countries like **Sri Lanka, Nepal, and Bangladesh** - **each of which has fewer economic resources** - India's performance on the GHI is particularly alarming.
- o This indicates that economic growth alone does not necessarily lead to improved nutritional outcomes.

**Addressing Hunger and Malnutrition in India:**
- **The need for comprehensive solutions:**
  - o India's GHI score serves as a stark reminder that economic advancement is insufficient for eradicating hunger.
  - o A more holistic approach is required to tackle the underlying causes of malnutrition.
- **Effective policy interventions including key focus areas such as:**
  - o **Food security:** Ensuring access to nutritious food for all segments of the population is essential.
  - o **Healthcare access:** Improving healthcare infrastructure can significantly impact maternal and child health outcomes.
  - o **Maternal and child nutrition programs:** Investing in targeted nutritional programs for mothers and children is vital for breaking the cycle of malnutrition.
- **Some initiatives in India:** National Food Security Act (NFSA), PM POSHAN Scheme, etc.

## 9. A Green Transformation of Warming Antarctic Peninsula

**Why in News?**
The Antarctic Peninsula, a mountainous region pointing toward South America, is **experiencing significant changes due to climate change**. A recent study has shown that **plant cover in this area has increased dramatically** over the past few decades, raising concerns about the future of this unique ecosystem.

**About the Antarctic Peninsula:**
- The Antarctic Peninsula is the **northernmost and most accessible part** of the Antarctica continent.
- The peninsula's Antarctic **tundra** features mountainous landscapes, glaciers and ice shelfs.
- The west coast of the peninsula, the area most commonly explored, has the mildest weather in all of Antarctica, where the warmest month is January with an average temperature of 1 to 2 °C.
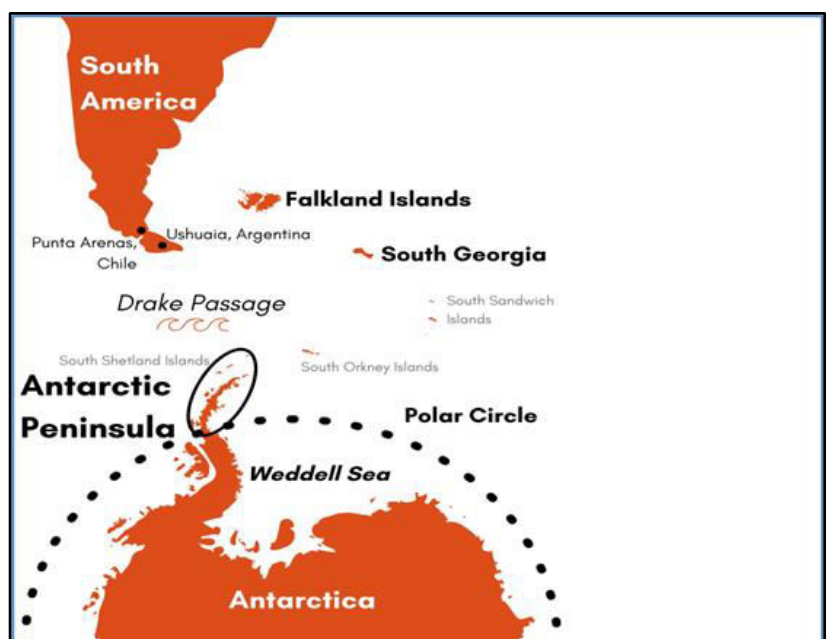
**Key Findings of the Study on Antarctic Peninsula:**

- **Rapid increase in vegetation:**
  o Research published in Nature Geoscience reveals that vegetation, **mainly consisting of mosses and lichen**, has expanded significantly.
  o In 1986, plant life covered less than 1 square kilometer, but by 2021, it had **grown to nearly 12 square kilometers**.
  o This is a remarkable **fourteen-fold increase over just 35 years**, with **more than 30% of this growth occurring between 2016 and 2021.**
- **Climate change:**
  o The Antarctic Peninsula is **warming at an alarming rate** - five times faster than the global average. The average temperature has **risen nearly 3 degrees Celsius since 1950**.
  o This rapid warming is **linked to extreme weather events**, including record-breaking heatwaves.
  o **For example**, in July 2023, some areas experienced temperatures around 10 degrees Celsius higher than usual.

**What are the Impacts of Increased Vegetation?**

- **Soil and ecosystem changes:**
  o Mosses can help create soil in an otherwise barren landscape.
  o This soil formation could make the region **more hospitable for invasive species**, which may threaten local flora and fauna.
  o The changing landscape is a clear sign of human-induced climate change, even in such a remote area.
- **Alteration in Albedo effect:**
  o More vegetation could also alter the Antarctic Peninsula's albedo effect, which refers to the ability of surfaces to reflect sunlight.
  o **This change can create a feedback loop**, further accelerating warming and impacting global climate patterns.

**What are the Implications of Rising Temperatures?**

- **Ice loss:**
  o A study from 2019 indicated that **the continent has lost 280% more ice mass** in the 2000s and 2010s compared to the previous decades.
  o The 2024 sea ice extent was reported to be the second smallest on record, only slightly more than the record low set in 2023.
  o As greenhouse gas emissions continue to rise, **the situation is expected to worsen**, leading to more vegetation growth and additional ice loss.
- **Rising global sea levels:** The loss of ice in Antarctica contributes to rising global sea levels, which poses risks for coastal communities worldwide.

**Recommendations to Preserve the Integrity of the Antarctica:**

- The changes occurring in the Antarctic Peninsula serve as **a stark reminder of the impacts of climate change.**
- As temperatures rise and vegetation increases, **the delicate balance of this unique ecosystem is at risk.**
- The consequences of these transformations could have far-reaching effects, not only for Antarctica but for the entire planet.
- **Addressing climate change** is crucial to mitigate these impacts and preserve the integrity of this remote wilderness.

## 10. Bihar under water- Why the state sees floods every year

**Why in news?**

Bihar is once again facing severe floods, affecting 11.84 lakh people who have been displaced, relying on air-dropped food packets and shelters, and at risk of water-borne diseases.

North Bihar experiences annual flooding, with lakhs of people seeing their crops and livestock destroyed each time. Despite efforts to rebuild, the cycle of devastation repeats every year.

**Bihar's vulnerability**

**FLOODS WITH THE HIGHEST DEATH TOLL**

| Year | Death Toll |
|---|---|
| 1977 | 11,316 |
| 1988 | 4,252 |
| 1979 | 3,637 |
| 1968 | 3,497 |
| 1978 | 3,396 |
| 2007 | 3,389 |
| 1998 | 2,889 |
| 2008 | 2,876 |
| 1993 | 2,864 |
| 2000 | 2,606 |

*Source: Flood Hazard Atlas, Bihar, prepared by ISRO in association with NDMA, Govt of Bihar*
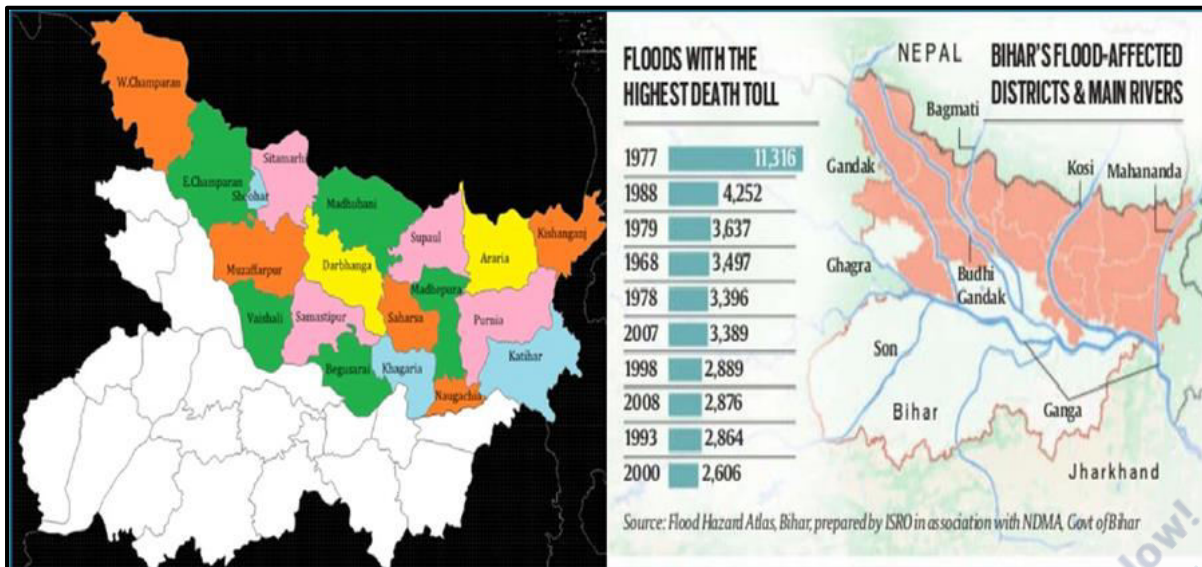
- **Vulnerability**
  - Bihar is India's most flood-prone state, with <u>76 per cent of the population in north Bihar living under the recurring threat of flood devastation</u>.
  - Bihar is crisscrossed by both snow-fed and rain-fed rivers, putting it at the risk of various kinds of floods.
- **Four distinct types of floods**
  - **Flash floods** – It occurs due to rainfall in Nepal, lead time [time between forecast and flood] is short (8 hours), receding of flood waters is fast.
  - **River floods** – It is typically caused by overflowing rivers. In this, the lead time is 24 hours and receding of flood waters takes one week or more.
  - **Drainage congestion floods**: Occur in river confluences, taking more than 24 hours to develop and often lasting the entire monsoon season (about three months for water to recede).
  - **Permanent waterlogging**: Affected areas remain waterlogged throughout the year.

**Why is Bihar prone to annual flooding?**
- **Reason for first three kinds of floods**
  - A major reason for the first three kinds of flooding is that **Bihar is located below Nepal**, with its Himalayan rivers flowing down to the state.
  - Because the Himalayas are a young mountain range with a lot of loose soil, these rivers — <u>Kosi, Gandak, Burhi Gandak, Bagmati, Kamla Balan, Mahananda, Adhwara — are full of sediments</u>.
  - Thus, when the volume of water increases due to rains, the rivers quickly overflow their banks.
- **Reasons behind the fourth category of permanent waterlogging**
  - The reasons of water-logging are spilling of silted small rivers, encroachment of drainage channels, embankment-induced waterlogging, and presence of <u>saucer type depression locally called Chaurs</u>.
    - Chaurs are created due to a river changing course and deposition of its sediments.
- **Kosi challenge**
  - Bihar's geography makes annual floods inevitable, with the Kosi River, known as the "**sorrow of Bihar**," being one of the most destructive.
  - In the 1950s, embankments were constructed along the Kosi to control its flow, initially seen as a permanent solution.
  - However, these embankments have frequently been breached and have introduced a new issue.
  - By narrowing the river's course, the embankments have trapped sediments, causing the riverbed to rise by about 5 inches annually.
  - This rising riverbed has made the Kosi more prone to overflowing, worsening the flood situation in the region.
- **Flood in 2024**
  - This year, the flood has been caused by <u>heavy rainfall and flooding in Nepal</u> and release of water from its barrage on the Kosi river.

- This year's flooding in Bihar is worse due to the <u>release of 6.6 lakh cusec of water from the Birpur barrage on the Kosi River in Nepal</u>, the highest discharge in nearly six decades.
- In India, embankments breached in seven locations across four districts, despite being designed to handle 9.5 lakh cusec.
- <u>The breaches are occurring because the river has become shallower</u>.
- Around 380 villages, home to 15 lakh people, are trapped within the embankments, with no escape from the recurring floods.

**Economic impact of Bihar's floods**
- While the floods in Bihar don't always result in significant loss of life, the economic toll is substantial.
- Damage to crops, livestock, and infrastructure is considerable, and the resulting distress migration exacerbates the state's economic challenges.
- The government spends around Rs 1,000 crore annually on flood relief and management.

**Possible solutions**
- For decades, building a dam on the Kosi River has been proposed as a flood solution, but it requires cooperation from Nepal, delaying progress.
- Recently, Bihar govt requested the construction of an additional barrage on the Kosi and barrages on other rivers like the Gandak and Bagmati.
- However, the frequent breaches of embankments suggest that **engineering solutions alone may not suffice**.
- Experts have emphasized the need for both <u>structural and non-structural solutions</u>.
- Non-structural approaches include laws, risk reduction, early warnings, and flood preparedness.
- The Flood Atlas of Bihar also advocates <u>focusing on minimizing risk and damage rather than relying solely on structural measures along dynamic rivers like the Kosi</u>.
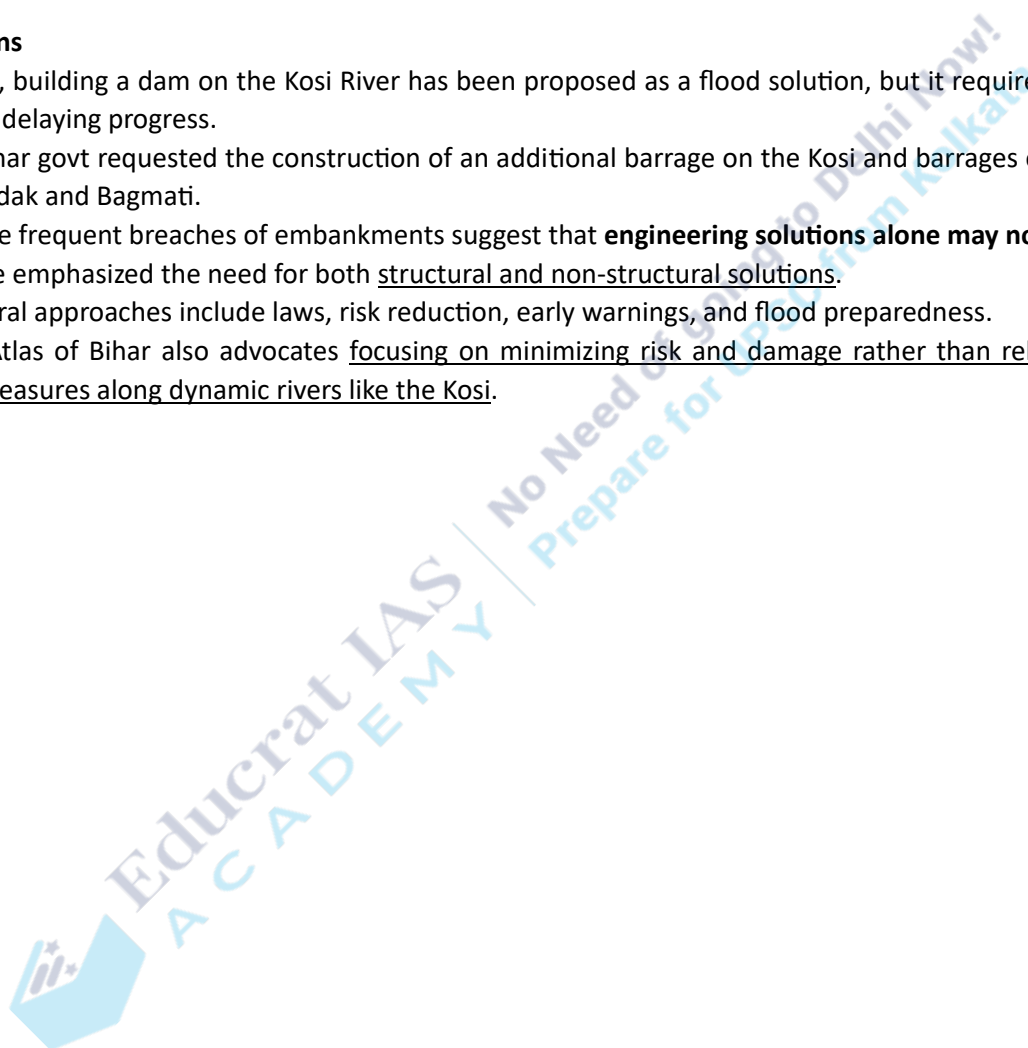
# General Studies II

## 1. The Under-Representation of Women in the Judiciary

**Context**

- **The lack of gender diversity within India's judiciary is a persistent issue** that has significant implications on the fairness and inclusivity of the justice delivery system.
- **Despite initiatives to increase women's participation** at entry levels, their **representation at higher levels of the judiciary remains disappointingly low.**
- Therefore, **it is important to analyse the multifaceted nature of the gender gap in India's judiciary, including issues of entry, retention,** structural inadequacies, and policy gaps.

**An Analysis of Gender Disparity in Judicial Representation**

- The **gender imbalance within India's judiciary begins at entry-level positions**, although some improvements are evident.
- According to the Supreme Court of India's **State of the Judiciary report in 2023, women account for 36.3% of the district judiciary,** and in 14 states, more than half of the new civil judges (junior division) are women.
- However, **this progress fades at higher judicial levels**, where, as of January 2024, only 13.4% of High Court judges and a mere 9.3% of Supreme Court judges are women.
- Moreover, **this disparity is accentuated in certain states, such as Bihar, Chhattisgarh, and Tripura**, where women's representation is **minimal or non-existent.**
- Such skewed representation **creates a funnel effect, restricting the pool of women qualified for elevation to higher courts** and exacerbating the gender imbalance.

**Reasons Behind Gender Imbalance in Judiciary**

- **Entry Level Barriers**
  - **Requirement for Continuous Practice**
  - One significant regulatory obstacle is the **requirement for continuous practice** in some states for eligibility for judicial service positions.
  - **Many states' Judicial Service Rules mandate that advocates must have a specific period of continuous, uninterrupted practice** before being considered for elevation to the Bench.
  - **This rule disproportionately impacts women,** particularly those who may need to take career breaks due to family obligations, maternity, or childcare.
  - **Unlike their male counterparts, women often struggle to meet this threshold** due to a lack of systemic support for their family responsibilities.
- **Absence of Maternity Benefits and Minimum Stipends**
  - **Maternity Benefits and Minimum Stipends**; vital support systems for women in demanding professions are **often absent or inadequate in the legal field.**
  - **Without paid maternity leave or financial support**, many women are **forced to choose between career advancement and family responsibilities.**
  - This **causes a significant drop-off in female representation** before they even reach judicial roles.
  - For example, **female advocates balancing family duties may struggle to maintain the continuity required by Judicial Service Rules**, making the entry point into judicial positions **a significant barrier in their career trajectory.**
- **Work Culture and Social Expectations**
  - Apart from structural barriers, **workplace culture and social expectations play a crucial role in shaping the experience of women** in the judiciary.
  - The **legal profession has historically been male-dominated**, with deeply ingrained biases and cultural norms that are often unfavourable to women.
  - **This is evident in everyday interactions within courts**, where women frequently encounter subtle biases and, at times, overt discrimination.
  - For instance, **in courtroom settings and professional gatherings, women judges, advocates, and staff may face challenges to their authority, unequal treatment**, and stereotyping.

- o These **issues make it harder for women to establish themselves as equals** and earn the respect of their male peers.

**Another Major Reason for Women's Low Representation in Judiciary: Retention Challenges**
- **Unsupportive Policies**
  - o A key issue here is the **unsupportive work environment, which fails to accommodate the needs of women,** especially those with caregiving responsibilities.
  - o Policies such as **harsh transfer requirements illustrate how judiciary regulations often overlook the personal circumstances of female judges**, making it difficult for them to maintain long-term stability in their roles.
  - o **Transfer policies are typically rigid**, lacking any flexibility or consideration of family obligations.
  - o Since women are still primarily responsible for family care in many cases, **these policies add a heavy burden and deter many from continuing in the judiciary.**
- **Lack of Supportive Infrastructure**
  - o Another factor that complicates retention is the **lack of supportive infrastructure** within court premises, which negatively impacts women at all levels of the judiciary.
  - o **Court complexes across the country often lack basic amenities** specifically designed for women.
  - o For instance, **according to a 2019 survey by the Vidhi Centre for Legal Policy, nearly 100 district courts had no dedicated washrooms for women.**
  - o In **higher courts as well, even women judge often face difficulties accessing adequate washroom facilities, let alone other female staff**, lawyers, or litigants.
  - o The **absence of essentials like sanitary facilities and hygienic waste disposal systems not only affects physical comfort but also communicates a lack of consideration for women's needs**, reinforcing their sense of marginalization in the profession.
- **Lack of Family-Friendly Amenities**
  - o Moreover, **the lack of family-friendly amenities, such as feeding rooms and crèches, exacerbates the struggle for women** balancing work and family life.
  - o While some courts, such as the **Delhi HC, have taken initial steps in providing a crèche facility, such resources are severely limited** and often come with restrictive age limits, like catering only to children under six years.
  - o This **renders such amenities ineffective for many women with older children**, who still require dependable childcare.

**Ways Ahead to Address the Underrepresentation of Women in Judiciary**
- **Adoption of 'Female Gaze' in Policies**
  - o Adopting a female gaze in policymaking **could bridge this gap, ensuring that women's unique needs are prioritized.**
  - o **Implementing a female gaze involves examining the judiciary's policies and infrastructure** through a feminist lens that recognises how ostensibly neutral regulations can inadvertently disadvantage women.
  - o **This approach challenges the male-centric perspective** often inherent in judiciary committees and Bar Councils, which may lack female representation.
  - o **By using this lens, the judiciary can better address the gendered impact of policies** and create a more inclusive environment for women.
- **Prioritising Women's Needs through Inclusive Policy**
  - o For effective inclusion of women in the judiciary, **policies must be crafted with women's specific challenges in mind.**
  - o Greater participation **requires a shift towards women-centric perspectives that identify barriers to career growth.**
  - o For example, **former Supreme Court Judge Justice Hima Kohli noted that unconscious gender biases in courts often sideline women** in administrative duties.
  - o Analysing High Court Building Committees reveals that **only three HCs (Delhi, Allahabad, and Himachal Pradesh) have female members, highlighting the lack of representation** in infrastructure-related decision-making.
- **Increase Female Recruitment in Judicial Administration**

- o Beyond infrastructure, **a lack of representation in HC Registries and judicial academies worsens the neglect of gender-sensitive policies.**
- o As a result, w**omen's experiences and needs are insufficiently reflected in policies or training programs** designed to counter gender bias.
- o **Implementing policies that are informed by women's lived experiences**; such as gender-sensitive recruitment, transfer protocols, and support for familial responsibilities, **could prevent the marginalization of women in the judiciary.**

**Conclusion**
- **The underrepresentation of women in India's judiciary reflects deeper systemic issues** that extend beyond entry-level recruitment.
- **Bridging this gap requires a comprehensive overhaul of the judiciary's policies**, infrastructure, and culture to be more inclusive and gender-sensitive.
- **Recognising and addressing women's unique needs through the female gaze would mitigate the unintended impacts of neutral policies** and foster an equitable work environment.

## 2. Centre to begin census from 2025
**Why in news?**
The Centre is reportedly preparing to conduct the Census, which was delayed in 2021 due to Covid-19. Although official confirmation is pending, **the Census is expected to begin next year**.
This exercise is crucial as it ties into **two major issues**: delimitation of Parliamentary constituencies, stalled for five decades, and the implementation of women's reservation in Parliament.
India's Census, which has followed a decadal schedule since 1881, missed its 2021 mark for the first time. While the pandemic was largely over by 2022, allowing a Census in 2023 or 2024, the government appears to have postponed it to align with planned constituency reorganisation.

**Census in India**
- **About**
  - o Population Census provides basic statistics on state of human resources, demography, culture and economic structure at local, regional and national level.
  - o Beginning in the year 1872, when the first census was conducted non-synchronously, the census enumeration exercise in India is carried out in every 10 years.
    - ▪ The first synchronous census was taken under British rule in 1881, by W.C. Plowden, Census Commissioner of India.
  - o The responsibility of conducting the decadal census rests with the Office of the Registrar General and Census Commissioner of India, Ministry of Home Affairs.
- **Legal/Constitutional basis of Census**
  - o Population census is listed in **Union List (entry 69)** of Seventh Schedule in Indian Constitution.
  - o Census is conducted under the provisions of the **Census Act, 1948**.
- **Process of census enumeration**
  - o The Census Operations in India have been carried out in two phases:
    - ▪ Houselisting and Housing Census and
    - ▪ Population Enumeration.
  - o The Population Enumeration follows the Housing Census within a gap of six to eight months.
  - o In Population Enumeration phase each person is enumerated and her/his individual particulars like Age, Marital status, Religion, mother tongue etc.

**Census and delimitation**
- **Delimitation and Its Suspension**
  - o Delimitation, mandated by the Constitution, adjusts the number of Parliamentary and Assembly constituencies based on population, ensuring equal representation.

- It ensures a fair division of geographical areas so that all political parties or candidates contesting elections have a level playing field in terms of a number of voters.
- **Article 82 and Article 170** of the Constitution empowers the Parliament to readjust the allocation of seats in the Lok Sabha and the Legislative Assemblies of States respectively, after every census.
  - However, this process has been suspended since 1976 due to political disagreements.
    - Following a 2001 Census, the 2002 delimitation exercise only redrew constituency boundaries without changing their number.
    - Southern states oppose delimitation, fearing that changes would reduce their representation despite their success in population control.
  - As of the **84th Constitutional Amendment (2001)**, delimitation is postponed until at least 2026, thus making 2031 the earliest opportunity for it if based on the Census.
- **Immediate delimitation might not be possible**
  - The 84th Constitutional Amendment restricts delimitation based on Census data from the first Census "taken after the year 2026."
  - Thus, even if the Census begins in 2025 and completes in 2026, immediate delimitation might not be possible unless the amendment is revised.
  - An amendment to the existing provision may be required if delimitation is to proceed in time for the 2029 Lok Sabha elections.
- **Challenges of Political Consensus and Southern States' Concerns**
  - The suspension of delimitation since 1976 stems from political disagreements, especially with Southern states.
  - These states argue that accounting for current population figures would unfairly reduce their Parliamentary representation, penalizing them for successful population control.
  - Their support for delimitation may hinge on receiving compensations or other reassurances.
  - Additionally, **the 128th Constitutional Amendment**, passed to reserve 33% of seats in Parliament and State Assemblies for women, requires a delimitation exercise before implementation, further tying delimitation to upcoming political reforms.
- **Role of the 16th Finance Commission**
  - The 16th Finance Commission, due to submit its report next year, will address the distribution of financial resources between the Centre and states, which could impact state-level negotiations regarding delimitation.

**Demand for Caste Data in Upcoming Census**
- **The demand**
  - There is a growing expectation that the next Census may include caste data, addressing demands from some political parties for a caste census.
    - Caste census means inclusion of caste-wise tabulation of India's population in the Census exercise.
- **Background**
  - Caste was enumerated in British India Censuses (1881-1931).
  - Post-Independence, the 1951 Census excluded caste enumeration except for SCs and STs, who continue to be counted.
    - Caste data were collected for the 2011 census but the data was never made public.
  - In 1961, the GOI recommended states conduct their own surveys for state-specific OBC lists, as there were no central reservations for OBCs at that time.
  - Though Census is a Union subject, **the Collection of Statistics Act, 2008** allows States and local bodies to gather necessary data, as seen in Karnataka (2015) and Bihar (2023).

## 3. Government issues advisory to curb hoax bomb threats on social media
**Why in news?**
The **Ministry of Electronics and Information Technology (MeitY)** issued an advisory urging social media platforms to take responsibility in controlling threats against flights operating from India.
The Ministry highlighted the unrestricted spread of hoax bomb threats due to features like forwarding, resharing, and reposting, which are readily available on social media platforms.

**Recent bomb threats**

- **Widespread threats disrupted Airlines**
  - Over the past two weeks, Indian carriers, including Tata group airlines (Air India, Vistara, and Air India Express), Indigo, Alliance Air, and Star Air, have faced a series of hoax threats.
  - These incidents have led to emergency measures, flight rerouting, and military fighter jet intercepts, particularly in international airspace when emergency transponder codes were activated.
  - Although the threats were hoaxes, they resulted in significant delays and financial losses estimated at ₹13-₹17 lakh per hour for airlines.

- **Nature and Source of Threats**
  - According to the govt, most threats originated on social media. Intelligence agencies are investigating and focusing on tracking IP addresses and VPN usage.
  - Despite initial suspicions of hoaxes, no potential threat has been overlooked given the scale of India's daily 4,000 flight operations.
  - Since the start of these incidents, approximately 275 threats have affected around 48,000 flights.

**Aviation security architecture**

- **ICAO's Aviation Security Guidelines and Directives**
  - Most aviation security guidelines are derived from the **International Civil Aviation Organization's (ICAO) Annex 17** on Aviation Security.
  - These guidelines and **Standards and Recommended Practices (SARPs)** are part of the **Chicago Convention**.
    - These guidelines mandate global measures against unlawful interference in civil aviation.
  - The **ICAO Aviation Security Manual (Doc 8973)** provides member states with detailed security procedures.
  - Annex 17 and Doc 8973 are continually updated to address new threats and advancements in technology, though detailed discussions and specific guidance are restricted.

- **Security Agencies and Measures in India**
  - In India, the **Bureau of Civil Aviation Security** is responsible for establishing security standards for civilian flights, while the **Directorate General of Civil Aviation (DGCA)** oversees flight safety.
  - Other involved agencies include the Airports Authority of India, Central Industrial Security Force (CISF), National Security Guard (NSG), Intelligence Bureau (IB), Research and Analysis Wing (RAW), Ministry of Home Affairs, and the judiciary.

- **Proposed Amendments to Strengthen Aviation Security Laws**
  - In response to recent security threats, amendments are being considered for the **Aircraft Act 1934, Aircraft Rules 1937**, and other relevant laws.
  - Planned updates include stricter penalties, no-fly list provisions, and expanding legal recourse to address security violations even on the ground.
  - Updates to the **Suppression of Unlawful Acts against Safety of Civil Aviation Act**, **1982** would further empower authorities to handle in-flight and on-ground security threats.

**Handling security threats - Challenges and way forward**

- **Systemic Issues**
  - Although details about recent Indian cases aren't fully disclosed, these incidents have revealed systemic issues, including gaps in **standardized procedures, guidelines, training, technology limitations, communication,** and **regulatory enforcement** within the aviation security system.

- **Recommended Technological Investments and Innovations**
  - Addressing hoax calls effectively, according to the expert, requires investment in **advanced call tracking, AI-powered call analysis, voice stress analysis,** and **comprehensive threat assessment systems**.
  - Emerging technologies, such as **quantum computing** and **aviation cybersecurity frameworks**, could enhance security further.
  - The expert also recommended implementing **AI-powered chatbots** for preliminary threat assessments and **psychological profiling** of callers to better understand motivations and threat levels.

- **Proposed Strategies for Deterrence and Awareness**

- o To deter offenders, experts suggested publicly sharing **photos of offenders** on social media and displaying them at airports as a warning.
- o Additionally, the expert recommended establishing a **global hoax call database** and providing **rewards for informers** to encourage reporting of hoax threats.

**Advisory to curb hoax bomb threats on social media**
- **About the news**
  - o MeitY has advised all social media platforms to follow the rules under the Information Technology (IT) Rules and Bharatiya Nyay Sanhita (BNS).
  - o They are asked to make a serious effort to quickly remove any bomb threat posts. If they don't comply, they could be held legally responsible.
- **Legal Framework Under IT Act, 2000 and IT Rules, 2021**
  - o The advisory underscores the Ministry's reliance on existing legal provisions to compel platforms to act against misinformation that threatens public order.
  - o The **Information Technology Act, 2000**, along with the **IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**, require intermediaries to promptly remove harmful misinformation.
    - ▪ Previously, the Ministry applied similar provisions to tackle the spread of deepfake videos, citing Rule 3(1)(b) of the IT Rules.
    - ▪ Rule 3(1)(b)(v) prohibits misinformation and patently false information.
- **Potential Consequences for Non-Compliance**
  - o The advisory warned that non-compliant platforms risk losing intermediary liability protections, exposing them to potential legal action as publishers of harmful posts.
  - o The Ministry noted that legal actions could be pursued under both the IT Act and the Bharatiya Nyaya Sanhita, 2023, if platforms fail to exercise due diligence.

## 4. The right to die with dignity — SC rulings and what the law says in India
**Why in news?**
The Ministry of Health and Family Welfare has released draft guidelines to implement the Supreme Court's 2018 and 2023 orders on the right to die with dignity. These guidelines provide a framework for state governments and hospitals to withdraw life support for terminally ill patients.
Though India lacks specific legislation on life-sustaining treatment withdrawal, the guidelines affirm its legality within this regulated structure.

**Understanding Withholding or Withdrawing Life-Sustaining Treatment**
- **About**
  - o Withholding or withdrawing life-sustaining treatment involves ending medical interventions, such as ventilators and feeding tubes, when they no longer improve the patient's condition or merely extend suffering.
  - o These treatments temporarily replace essential bodily functions but are discontinued to allow natural progression of the illness, providing comfort care and symptomatic relief instead.
- **Right to Refuse Medical Treatment**
  - o The right to refuse medical treatment has long been upheld in common law and is recognized as a fundamental right under Article 21 (Right to life and personal liberty) of the Indian Constitution following the 2018 Supreme Court decision in **Common Cause vs Union of India**.
  - o This right allows patients to refuse life-sustaining treatments, even if refusal may lead to death.
- **Process for Withholding or Withdrawing Life Support**



**2011:** *Aruna Shanbaug v. Union of India* recognised that life-sustaining treatment could legally be withheld/withdrawn even from persons without decision-making capacity.

**2018:** *Common Cause v. Union of India* recognised the right to die with dignity as a fundamental right under Article 21 of the Constitution

of India, and legalised the use of advance medical directives or 'living wills'.

**2023:** *Common Cause v. Union of India* simplified the process for making living wills and withholding/withdrawing life-sustaining treatment by removing bureaucratic hurdles.

- o **Through Patient Consent**: If a patient has decision-making capacity, they can refuse treatment.
- o **Through Advance Directives or 'Living Wills'**: A patient may outline their wishes in a 'living will' to guide future medical care if they lose the ability to decide.
- o **For Patients Without Capacity or Living Will**: In cases where a patient cannot make decisions and lacks a living will, the treating physician can recommend withholding or withdrawing treatment if there is no reasonable chance of recovery, and further intervention would only prolong dying.

**Euthanasia or the so called 'mercy killing' of a patient**
- **Understanding Euthanasia and Misconceptions Around "Passive Euthanasia" in India**
  - o Euthanasia involves the intentional ending of a terminally ill patient's life by a doctor to relieve suffering.
  - o In India, "passive euthanasia" often refers to withholding or withdrawing life-sustaining treatment, but this term has led to misconceptions and public apprehension regarding the right to die with dignity.
  - o A 2018 glossary by the Indian Council of Medical Research highlighted that this term is widely misunderstood and lacks social acceptability.
- **Withholding or Withdrawal of Life Support and Do-Not-Attempt-Resuscitation (DNAR) Orders**
  - o The withdrawal of life-sustaining treatments can include "do-not-attempt-resuscitation" (DNAR) orders, where a physician decides, in consultation with the patient or family, not to attempt resuscitation.
  - o Importantly, DNAR does not mean stopping other medical treatment; it only limits resuscitation efforts.
- **Does Withholding or Withdrawing Treatment Mean Giving Up on the Patient?**
  - o Choosing not to continue life-sustaining treatment is not about abandoning the patient but about recognizing when interventions are futile and only prolong suffering.
  - o In such cases, the focus shifts to palliative care, ensuring the patient's comfort.
  - o In contrast, discharging patients against medical advice often results in inadequate care, increasing suffering for patients and their families.

**Living Will**
- To support the right to die with dignity, the Supreme Court established guidelines in 2018 for creating living wills, later simplified in 2023.
- A living will allows individuals aged 18 or older to outline their medical care preferences should they lose decision-making capacity.
- The document must name at least two trusted surrogate decision-makers.
- To be legally binding, it must be signed before an executor, two witnesses, and attested by a notary or gazetted officer.

**Medical Procedure for Withholding or Withdrawing Life-Sustaining Treatment**
- **Guidelines by SC**
  - o The Supreme Court's guidelines outlined a structured procedure for withholding or withdrawing life-sustaining treatment.
  - o It emphasized the rights and duties of both doctors and patients and ensuring independent expert assessment and consent from family or surrogate decision-makers.
- **Primary Medical Board Assessment**
  - o A Primary Medical Board, consisting of the treating doctor and two subject-matter experts with a minimum of five years' experience, is constituted by the hospital.
  - o This board assesses the patient's condition and determine the appropriateness of stopping life-sustaining treatment.
- **Secondary Medical Board Review**
  - o For additional oversight, a Secondary Medical Board is set up to review the Primary Board's decision.
  - o It includes a registered medical practitioner appointed by the district Chief Medical Officer and two experienced subject-matter experts, all different from those on the Primary Board.
- **Consent from Family or Surrogate Decision-Makers**
  - o Consent from the patient's nominated representatives in an advance directive or, where unavailable, surrogate decision-makers is required before withholding or withdrawing treatment.
- **Judicial Notification**

- o The hospital must notify the local judicial magistrate about the decision to withhold or withdraw life-sustaining treatment.
- **Shared Decision-Making and Ethical Responsibility of Doctors**
  - o The procedure promotes "**shared decision-making,"** involving the medical team and the patient's family or surrogates to jointly agree on treatment decisions.
  - o This protects doctors legally, respects patient autonomy, includes family wishes, and maintains ethical standards without placing sole responsibility on the physician.

## 5. The Manipur Crisis, the Issue of Managing Diversity

**Context**
- The **recent surge in violence in Manipur has spotlighted constitutional challenges in managing internal conflicts,** especially regarding the state's governance and security.
- Reports indicate that **the Chief Minister of Manipur has been sidelined from critical security operations** and **the invocation of Article 355, a constitutional provision that mandates the Union to protect states** from internal disturbances and external threats, **further emphasises the gravity of the situation.**
- These **developments bring into focus the failure of constitutional mechanisms in addressing the underlying identitarian tensions**, thus questioning the document's capacity to manage diversity effectively.

**The Role of Constitution's Special Provisions in Managing Diversity**
- **Unique Provisions for Various States**
  - o India's Constitution is **designed with unique provisions to manage its vast diversity**.
  - o **Various states,** such as Jammu and Kashmir, Nagaland, and Sikkim, **have been accorded special provisions under the Constitution.**
  - o These **provisions aim to balance equitable development and safeguard cultural identities,** particularly in regions with significant tribal populations or socio-political complexities.
  - o In a country as diverse as India, **federalism is not merely a governance model but a necessity to ensure unity** while respecting differences.
- **Institutionalisation of Power Sharing Mechanism**
  - o The **Constitution has evolved over time to accommodate the distinct needs of India's northeastern states,** characterised by complex ethnic compositions and competing identities.
  - o These **special provisions often institutionalise power-sharing mechanisms, representation in governance, and cultural autonomy,** helping to promote political stability.
  - o However, **the rising tensions and discontent in Manipur suggest that these measures are either insufficient or inadequately implemented** in the state.

**Case Studies of Constitutional Accommodation and Peace Building Through Special Provisions**
- **The Case of Constitutional Accommodation in Sikkim**
  - o **Inclusion of Article 371F**
    - ▪ **Sikkim's accession to India in 1975 brought about the inclusion of Article 371F**, which provided special constitutional safeguards to the state.
    - ▪ One of the key features of this article was **the empowerment of Parliament to protect the rights and interests of different sections of Sikkim's population.**
    - ▪ By recognising the unique socio-political history of Sikkim, **this provision allowed for power-sharing arrangements that catered to the distinct cultural identities** of communities like the Bhutia-Lepcha.
    - ▪ For example, **the Representation of Peoples Act of 1951 was amended to reserve seats for different communities in the state legislature,** ensuring their voices were adequately represented.
  - o **SC Judgement on Constitutionality of Article 371F**
    - ▪ **In the landmark R.C. Poudyal case (1993), the constitutionality of Article 371F was challenged**, with arguments that the increased representation of certain communities went against the principle of proportional reservation.

- The **Supreme Court, however, upheld the provision, reasoning that historical and cultural considerations** justified the arrangement.
- This **judgment was significant because it recognised that reconciling diversity sometimes requires deviations** from strict proportionality, allowing for greater flexibility in governance structures to maintain stability.
- **The Case of Constitution Peace Building in Tripura**
  - **Extension of Sixth Schedule to Tripura and Introduction of Tripura Accord**
    - The **state of Tripura offers another instructive example of how constitutional frameworks can be used to broker peace** in conflict-ridden areas.
    - The **Sixth Schedule of the Constitution, which provides for tribal autonomy, was extended to Tripura through the 49th Constitutional Amendment in 1984.**
    - The **implementation of this schedule allowed the tribal population greater legislative autonomy,** particularly concerning education, social customs, and land rights.
    - This **power-sharing arrangement, cemented by the Tripura Accord of 1988, helped to bring an end to the insurgency movement** led by the Tripura National Volunteers (TNV).
  - **SC Judgement on Disproportionate Reservation Through Tripura Accord**
    - The **disproportionate reservation of seats for Scheduled Tribes in Tripura's State Assembly, enacted under Article 332(3B), was challenged** in the Subrata Acharjee case (2002).
    - The **SC upheld the reservation scheme**, emphasising that the political stability achieved through the Tripura Accord justified the deviation from strict proportional representation.
    - This **case reinforced the idea that constitutional accommodations**, tailored to the specific historical and socio-political contexts of states, **can play a vital role in conflict resolution.**

**An Analysis of Manipur's Constitutional Dilemmas**
- **Lack of Sixth Schedule Autonomy**
  - Manipur is **governed under Article 371C, which provides for the creation of a Hill Area Committee (HAC) to** represent the interests of the tribal areas.
  - However, **the powers granted to this committee are significantly weaker than those provided under the Sixth Schedule.**
    - The **Sixth Schedule offers tribal regions a degree of legislative and administrative autonomy.**
    - It **establishes Autonomous District Councils (ADCs) with powers to make laws on land use, management of forests, regulation of social customs,** and even village administration.
  - The **HAC can provide recommendations on matters related to tribal areas, but its approval is not required for decisions** affecting these regions.
  - This **limited autonomy creates a feeling of disenfranchisement among the tribal population in Manipur,** who view the lack of robust constitutional safeguards as evidence of neglect.
- **The Manipur Hill Areas Autonomous District Council Act, 2000: Inadequate Representation**
  - Unlike the Sixth Schedule provisions in other northeastern states, **this act does not grant the councils significant legislative or executive authority.**
  - Although membership in the district councils is based on tribal classification, **these councils lack the power to make substantial decisions** concerning governance, resource allocation, and development in their areas.
  - This **limitation is in stark contrast to states like Nagaland and Mizoram, where tribal councils have more comprehensive control** over local governance and development.
- **Inefficiencies in the Current Governing Framework: Power Imbalance**
  - The **underlying issue is that the current framework fails to adequately address the complex ethnic divisions in Manipur.**
  - The **state's population is divided primarily between the Meitei, who live in the Imphal valley, and various Naga and Kuki tribes**, who inhabit the surrounding hill areas.
  - The **valley comprises about 10% of the state's land area but holds a majority of the population**, while **the hill areas, which make up 90% of the state's territory, are predominantly inhabited by the tribal communities.**
  - This **geographical and demographic divide has significant political implications, as it exacerbates existing tensions** over land ownership, resource distribution, and political representation.

**Possible Solutions to Address Manipur's Constitution Dilemmas**

- In the context of Manipur, **constitutional mechanisms need to be revisited and strengthened** to address the state's complex identity-based conflicts.
- One possible solution for Manipur lies in **extending the provisions of the Sixth Schedule,** which has successfully facilitated peace in Tripura and other northeastern states.
- Additionally, **greater political autonomy for tribal communities, including enhanced powers for the Hill Area Committee and District Councils, could help address long-standing grievances** over governance and representation.
- **Ensuring equitable resource allocation and developing a more inclusive political framework are essential** steps toward building lasting peace.

**Conclusion**

- **The recent unrest in Manipur highlights the limitations of the current constitutional framework** in managing the state's deep-rooted identity conflicts.
- While the Indian Constitution has successfully reconciled diversity in states like Sikkim and Tripura through special provisions, **Manipur's experience shows that these accommodations must be continuously reassessed and adapted.**
- The **ultimate challenge for India is to ensure that its federal structure, strengthened by constitutional safeguards, is flexible enough to address the specific needs** of its most diverse regions.

# 6. SC Verdict on Child Marriage Must be Followed by Guardrails Against Undue Criminalisation

**Context**

- **Recently, the Supreme Court of India delivered a significant judgment on the persistence of child marriages** in the country, despite the passage of the **Prohibition of Child Marriage Act (PCMA) nearly two decades earlier.**
- A **bench led by Chief Justice D Y Chandrachud, Justices J B Pardiwala and Manoj Misra highlighted the alarming scale of child marriages in India and introduced extensive guidelines** for the effective enforcement of PCMA.
- This **judgment represents not only a legal stance but also a broader social commentary** on a practice that continues to plague the nation, despite legislative efforts aimed at its eradication.

**Historical Context of Child Marriage in India, Legislative Framework, and the Current Situation**

- **Historical Context**
  - To give an example of the continuing struggle against child marriage, **the Court cited the plea of Rukhmabai, a young woman who, in 1884, resisted the custom of early marriage.**
  - Her case exemplifies the deep-rooted challenges faced by child brides, even in colonial India.
  - **Rukhmabai's refusal to live with her husband**, despite societal and legal pressures, **led to a significant settlement, and she eventually became one of the first practicing female doctors** in India.
  - This **anecdote sets the stage for understanding the systemic nature of child marriage in the country,** which persists despite legislative attempts over centuries, from the **Age of Consent Act of 1891 to the current PCMA of 2006.**
- **Legislative Framework: The Prohibition of Child Marriage Act**
  - The **Prohibition of Child Marriage Act (PCMA) of 2006 was enacted to replace the Child Marriage Restraint Act of 1929.**
  - Under this Act, **child marriage is a punishable offense,** with penalties ranging from two years of rigorous imprisonment to a fine of up to Rs 1 lakh.
  - The **Act treats child marriage as cognizable and non-bailable, making the marriage voidable** unless certain specific exceptions apply.
  - **Despite the severity of the law, child marriage remains a widespread issue,** as demonstrated by the staggering figures shared in the judgment.
- **Current Situation**
  - Almost 150 years after the Age of Consent Act, **India continues to have one in three of the world's child brides, with 223 million child brides recorded,** 102 million of whom were married before the age of 15.

o While the prevalence of child marriages has halved since the enactment of PCMA, **certain states still report rates exceeding 40 percent,** particularly West Bengal, Bihar, and Tripura.

o This r**egional variation highlights the complex interplay of poverty, cultural norms, and rural-urban divides** that perpetuate child marriage.

**Socio-Economic Causes of Child Marriage**

- **Poverty and Economic Hardship**
  o **Families in economically disadvantaged communities** view marriage to **reduce financial burdens.**
  o For many poor households, **marrying off a daughter at a young age is perceived to relieve themselves of the cost of raising and supporting her.**
  o In rural and impoverished areas, **parents may struggle to afford necessities such as food, education, and healthcare for their children.**
  o In such cases, **marrying off daughters early is seen as a practical solution** to reduce household expenses.

- **Emphasis on Sexual Purity and Virginity**
  o The strong emphasis on the sexual purity and virginity of brides ensures parents marry their daughters early.
  o **The fear that young girls may be sexually abused, or worse still, engage in consensual sexual** activity, is daunting.
  o **There is also the deep-rooted belief that a daughter's marriage is a religious obligation** that needs to be fulfilled above all else.

- **Displacement and Vulnerability**
  o **Displacement due to natural disasters, conflicts,** or economic migration **exacerbates the problem of child marriage.**
  o **Displaced families often lose their social networks**, financial stability, and access to community support systems, leaving their daughters particularly vulnerable to child marriage.
  o **In such circumstances, parents may view marriage to secure their daughters' future** and protect them from the uncertainties of displacement.

- **Cultural Norms and Gender Inequality**
  o **Cultural beliefs about gender roles** and the value of women **significantly contribute to the prevalence of child marriage in India.**
  o In many traditional communities, **a girl's worth is often linked to her role as a wife and mother,** and her primary duty is seen as fulfilling family and societal obligations through marriage.
  o **Child marriage is thus regarded as a cultural norm**, with early marriage seen as an essential rite of passage for young girls.
  o **Sons are often seen as the bearers of family lineage and the ones who will support parents** in old age, while daughters are expected to leave the family upon marriage.
  o **This perception leads to girls being treated as economic liabilities,** and early marriage becomes a way to transfer this perceived burden to their husbands' families.

**The Complexity of Marriage by Choice Among Minors and Void vs. Voidable Marriages**

- **The Complexity of Marriage by Choice Among Minors**
  o Child marriage is not limited to those forced into it by parental or societal pressure; **it also includes minors who marry of their own volition,** often against their parents' wishes.
  o This **raises the question of whether such marriages should be treated the same as those where minors are coerced.**
  o In cases such as **Jitender Kumar Sharma v State (2010), courts have grappled with this issue,** often issuing contradictory rulings.
  o In **Yunus Khan v State of Haryana (2014), a 16-year-old girl married of her own free will against her parents' wishes**, and the **court upheld the marriage as valid.**
  o Conversely, **in Amrinder Kaur v State of Punjab (2015), the Punjab and Haryana High Court invalidated the marriage of a minor girl** who married a boy from a different caste.
  o These **contradictory rulings highlight the legal and social complexities** surrounding child marriage in India.

- **Void vs. Voidable Marriages: Legal Implications**

- o A **void marriage is one in which a child is married off without the consent of their lawful guardian**, effectively rendering the marriage non-existent in legal terms.
- o A **voidable marriage, on the other hand, remains valid unless challenged by the child**, who has the right to nullify it up to two years after reaching adulthood.
- o **States like Karnataka and Haryana have amended their laws to make all child marriages void from the outset**, but this has led to unintended consequences.
- o A **study by the National Coalition for Advocating Adolescent Concerns found that such changes create legal uncertainties for child brides**, particularly regarding their rights to matrimonial property and the status of their children.
- o The **issue of abandonment also looms large, as husbands can easily remarry, taking advantage of the void status** of their previous marriage.

**Way Forward: Strict Implementation of the SC's Guidelines**
- The **SC's recent guidelines for implementing PCMA** prioritise prevention over punitive measures, **recognising the damaging effects that criminalisation can have on young girls and their families.**
- This **emphasis on prevention before protection and protection before penalisation is a progressive step** toward addressing child marriage in a more sensitive and practical manner.
- However, **while the guidelines are commendable, their success will ultimately depend on how effectively they are implemented** at the grassroots level.
- **Social attitudes and economic realities continue to pose significant barriers** to ending child marriage in India, and **the law alone cannot address these deeply ingrained practices.**

**Conclusion**
- **The SC's judgment** on child marriage is **a crucial reminder of the ongoing struggle against this practice in India.**
- **While legislative frameworks like the PCMA are essential, they must be supported by broader social reforms** and economic support systems.
- The **complexities of child marriage, particularly when it comes to marriages by choice or under coercion, require nuanced legal approaches** and compassionate solutions.

## 7. An Approaching Milestone in Constitutional Governance
**Context**
- **November 26, 2024, marks a significant milestone** in India's history, the **75th anniversary of the adoption of the Constitution of India.**
- The **Constitution of India is not just a legal document**, but a symbol of the country's deep-rooted constitutional culture.
- As India celebrates this Constitution Day, **it is important to examine the core values embedded in the Indian Constitution and that have withstood the test of time.**

**Values That Have Shaped India's Constitutional Governance**
- **People's Respect for Democratic Institutions**
  - o The first core value that defines India's constitutional culture is the **deep respect the people have for democratic institutions.**
  - o **When the Constitution was adopted in 1949, life expectancy in India was around 32 years**, a reflection of the economic and social challenges of the time.
  - o Over the decades, **life expectancy has more than doubled to about 70 years,** marking significant improvements in living standards.
  - o This **progress has strengthened people's trust in the institutions** that have guided the nation's development.
- **People's Consistent Participation in Elections**
  - o Despite frustrations with political leadership and governance, **Indians continue to participate in elections in large numbers.**

- o **Voter turnout has consistently hovered around 60%** since the first general elections in 1951-52, with the 2024 election seeing a turnout of 65.79%.
- o This **sustained participation reflects a deep-seated belief in the democratic process.**
- o The **willingness of the electorate to engage in every level of elections,** whether local, state, or national, is a testament to their faith in democracy.
- o This **respect for democratic institutions is a core constitutional value** that has withstood the test of time.
- **Smooth Transition of Power**
  - o Another vital element of India's democratic tradition is the **smooth transition of power after elections.**
  - o Over the past seven decades, **India has witnessed numerous elections, resulting in different political parties** holding power at the state and national levels.
  - o These parties have often espoused differing ideological perspectives, **yet the fundamental principle of a peaceful transfer of power has remained sacrosanct.**
- **Stability of Democratic System Irrespective of Political Rivalries**
  - o While elections in India are often charged with intense campaigns and divisive rhetoric, **the results bring a sense of humility,** underscoring the fact that it is the people of India who are the true victors in every election.
  - o **The electorate's ability to make informed choices** and enable the peaceful transfer of authority from one government to another reflects a core constitutional value.
  - o This **smooth transition ensures the stability of the democratic system,** irrespective of political rivalries or changing leadership.

## Some Other Vital Components of India's Constitutional Culture

- **Protection of Rights and Freedoms**
  - o The **protection of fundamental rights and freedoms** is a **cornerstone of India's Constitution.**
  - o The **framers of the Constitution, many of whom were deeply involved in the Indian independence movement**, were acutely aware of the potential for state overreach.
  - o Despite having led the fight against colonial rule, **they remained sceptical of concentrating too much power in the hands of the state and instead prioritised the protection of individual rights.**
  - o This **vision is reflected in the establishment of courts as independent institutions** tasked with safeguarding citizens' rights.
  - o Over the years, **India's judiciary has played a crucial role in upholding these fundamental rights,** reinforcing the constitutional value of individual freedoms.
  - o The **foresight of the framers to limit state power and emphasize the protection of personal liberties** has only grown stronger, solidifying its place as a central pillar of India's constitutional governance.
- **Federalism and Constitutional Governance**
  - o **India's Constitution recognises the extraordinary diversity of the country,** especially its linguistic, cultural, and regional differences.
  - o The **framers were mindful of the need to strike a balance between fostering a national identity and preserving the unique identities** of its various states.
  - o **To achieve this, they enshrined federalism as a core feature of the Constitution,** allowing for the autonomy of states while promoting unity.
- **Rise of State Level Political Discourse and Grassroots Politics**
  - o The **rise of state-level political parties and their participation in coalition governments** at both state and national levels has **strengthened federal principles.**
  - o Additionally, **the 73rd and 74th Constitutional Amendments, which established local self-governing bodies** like panchayats and municipal corporations, **have further decentralised governance.**
  - o This **deepening of federalism has contributed to the inclusivity and equity in India's governance**, ensuring that diverse voices are heard and represented in the political process.

## Role of Media and Civil Society in Shaping India's Constitutional Culture

- **A free and robust media**, along with an active civil society, **is essential to a functioning democracy.**
- **In India, the media is diverse**, operating in multiple languages and **reflecting a wide range of perspectives.**
- The **evolution from print to broadcast media and the subsequent innovations in digital platforms** have expanded access to information, **making the media a key player in the democratic process.**

- **Despite challenges related to media independence and economic pressures** on media organisations, the **media and civil society continue to play a critical role in holding the government accountable and promoting transparency.**
- By **creating informed public discourse, the media helps instill faith in democracy**, ensuring that citizens can make well-informed decisions.
- **This interplay between the media, civil society, and the public** is a **vital component of India's constitutional culture.**

**Importance of Freedom and Constitutional Ideals**
- Sceptics, like **the British commander Claude Auchinleck, once doubted whether a nation as diverse as India could remain united.**
- Yet, **India has proven that a shared commitment to constitutional ideals can forge a national identity** that transcends differences.
- The **Constitution has been a unifying force,** not only governing the political and social life of the country but also galvanizing the collective conscience of its people.

**Conclusion**
- **India's 75-year journey of constitutional governance is a story of resilience,** progress, and a deep commitment to democratic values.
- **The respect for democratic institutions, smooth transitions of power, protection of rights and freedoms, federalism,** and the role of media and civil society have all **contributed to the country's democratic success.**
- As we commemorate this historic occasion, **it is a time to celebrate the values that have guided India's development and will continue to shape its future.**

## 8. SC Upholds Section 6A of Citizenship Act

**Why in News?**

In a landmark decision, the Supreme Court of India upheld the constitutional validity of Section 6A of the Citizenship Act, 1955.

This section grants citizenship to certain immigrants who entered Assam between January 1, 1966, and March 25, 1971.

**Section 6A of the Citizenship Act 1955:**
- **Background:**
  o Section 6A was introduced following the **Assam Accord of 1985**, which aimed to address concerns regarding migrants from Bangladesh.
  o **The accord** established that January 1, 1966, would be the base cut-off date for identifying foreigners in Assam, with provisions for regularising those who entered between this date and March 24, 1971.
  o This was meant to mitigate the socio-political tensions arising from immigration in the state.
- **Provisions of Section 6A:**
  o Under this section, individuals of Indian origin who entered Assam **before January 1, 1966**, are deemed citizens.
  o Those who entered after this date but **before March 24, 1971**, can register as citizens, though they are excluded from electoral rolls for ten years.
  o Anyone entering **after March 24, 1971**, is classified as an illegal immigrant.

**Why was Section 6A of the Citizenship Act Challenged?**
- **Grounds for challenge:**
  o Petitioners, including NGOs like Assam Public Works and Assam Sanmilita Mahasangha, argued that Section 6A is **discriminatory and violates the equality clause of the Constitution**.
  o They contended that it **sets a different standard for citizenship in Assam** compared to the rest of India, which is July 1948.

- Concerns were raised that granting citizenship to migrants would infringe upon the cultural rights of indigenous Assamese people under **Article 29(1) of the Constitution**.
- **Defence of Section 6A:**
  - The government defended Section 6A by citing **Article 11 of the Constitution**, which empowers Parliament to regulate citizenship matters.
  - The Centre argued that if Section 6A were to be struck down, **a vast number of residents would risk being rendered stateless** after enjoying citizenship for over five decades.
  - The Centre highlighted that Assam has historically been a **diverse state**, with demographic changes influenced by various **geopolitical factors**.

**SC's Ruling Regarding Section 6A of the Citizenship Act:**
- **Background:** The SC's decision followed a 2014 referral to a Constitution Bench to address pivotal legal questions surrounding this section.
- **Bench:** The ruling was delivered by a **five-judge bench** led by Chief Justice DY Chandrachud, **with a 4:1 majority.**
- **Majority opinion:**
  - **Parliamentary authority:**
    - CJI stated that Articles 6 and 7 of the Constitution pertain solely to the citizenship rights at the time of the Constitution's inception.
    - In contrast, Section 6A addresses individuals not covered by these articles.
    - The Parliament has the authority to define citizenship criteria based on unique circumstances.
  - **Unique circumstances justified the differentiation:** The situation in Assam (particularly the demographic impacts of migration) warranted a specific legal framework, which did not violate the right to equality under **Article 14** of the Constitution.
  - **Cultural rights:** The mere presence of diverse ethnic groups does not undermine cultural rights and Section 6A embodies the "**spirit of fraternity**".
- **Dissenting opinion:**
  - **Temporal unreasonableness:** The statutory provision (Section 6A) may have been constitutionally valid at the time of its enactment, it has become "unconstitutional" with the efflux of time.
  - **Absence of a clear timeline for identifying foreigners:** This undermines the rights of Assam's indigenous people and complicates the citizenship verification process.

**Key Takeaways from the SC's Ruling on Section 6A of the Citizenship Act:**
- The SC's ruling on Section 6A **reaffirms the complexities surrounding immigration and citizenship in India**, particularly in Assam.
- While the majority opinion legitimises the law based on the unique context of the state, the dissent raises critical questions about the rights of indigenous populations and the practical implications of citizenship verification processes.
- This verdict will likely influence ongoing discussions regarding the National Register of Citizens (NRC) in Assam and the broader narrative of immigration in India.


# 9. A Food-Sufficient India Needs to Be Hunger-Free Too

**Context**
- The aim of **ending hunger, food insecurity, and malnutrition by 2030** is a critical component of the United Nations' **Sustainable Development Goals (SDGs).**
- However, **achieving this goal appears increasingly difficult**, **with factors such as rising conflicts, climate change, and economic slowdowns threatening progress,** particularly in vulnerable and food-deficient regions.
- Therefore, **it is important to have an assessment on the current state of global hunger, the challenges in achieving food security**, and the necessary measures to ensure a transition from mere food sufficiency to widespread nutritional well-being.


**The Global State of Hunger and the Role of Economic Access in Food Security**

- **Prevalence of Hunger**
  - The **global prevalence of hunger remains alarmingly high**, with progress towards achieving the goal of zero hunger lagging.
  - **According to recent data, 9.4% of the world's population**, or approximately 757 million people, are **undernourished as of 2023.**
  - **The problem is particularly acute in Africa, where 20.4% of the population faces hunger,** compared to 8.1% in Asia, 6.2% in Latin America and the Caribbean, and 7.3% in Oceania.
  - **Despite a lower percentage, Asia has the largest number of undernourished individuals, with 384.5 million people facing hunger**, followed by 298.4 million in Africa.
- **Increasing Undernourished Population**
  - Projections indicate that **by 2030, Africa will be home to half of the world's undernourished population.**
  - The **distribution of undernourishment is also uneven within regions**, showing a rural bias where rural areas fare worse than urban and semi-urban areas.
  - Additionally, **there is a gender dimension to hunger**, **with women being more disadvantaged** than men, although this gap is narrowing.
  - **Addressing these disparities is crucial for achieving global food security** and ensuring that all individuals, regardless of location or gender, have access to sufficient and nutritious food.
- **The Role of Economic Access in Food Security: Lack of Purchasing Power**
  - One of the primary reasons behind food insecurity is **the lack of purchasing power to afford adequate diets.**
  - The **cost of a healthy diet (CoHD) has increased globally**, reaching an average of 3.96 purchasing power parity (PPP) dollars per person per day in 2022.
  - This **cost varies across regions,** with Asia experiencing a higher average of $4.20 per day.
  - Despite this increase, **the number of people unable to afford a healthy diet decreased slightly from 2.88 billion in 2021 to 2.83 billion in 2022.**
  - However, in low-income countries, access to healthy diets remains a significant challenge.

**The Global Hunger Index (GHI) and the Indian Context**
- The **GHI has often been a topic of debate, especially in relation to India's ranking.**
- Critics argue that the **GHI's focus on indicators like nutrition and early-age mortality may not fully capture the broader reality** of hunger.
- In India, data from surveys like those conducted by the National Sample Survey Office (NSSO) provide insights into actual food consumption patterns.
- For example, **recent statistics show that 3.2% of the population does not meet the minimum requirement of 60 meals per month,** while more than half of the population has three meals per day.
- **This reveals that, while a majority of the population has access to food, a significant number still face challenges in securing even basic sustenance.**

**The Challenges of Unhealthy Diets in India**
- **Affordability of Healthy Foods**
  - A primary challenge in promoting healthy diets in India is the **affordability of nutrient-rich foods.**
  - **According to the EAT-Lancet Commission, a healthy diet includes a variety of food groups**, such as fruits, vegetables, protein sources (especially plant-based), and whole grains.
  - However, **these foods can be expensive for a significant portion of India's population.**
  - For example, **studies have shown that adopting a diet aligned with the EAT-Lancet reference might cost up to 60% of the mean daily per capita household income** in South Asia.
  - This makes it difficult for many low-income families to incorporate these foods into their diets regularly.
- **Cultural Preferences and Dietary Habits**
  - Cultural factors and traditional dietary habits play a significant role in shaping food choices in India.
  - **While Indian diets are diverse, many are heavily reliant on staple grains** such as rice and wheat.
  - These **staples often dominate meal composition, leading to an imbalance** when it comes to the intake of other essential food groups, like proteins and healthy fats.
  - **Protein-rich foods such as lentils, eggs, dairy products,** and meats are sometimes **seen as supplementary rather than integral to daily diets.**

- **Awareness and Knowledge Gaps**
  o A lack of awareness about what constitutes a balanced diet contributes significantly to unhealthy eating patterns in India.
  o **Many people are unaware of the specific nutrient requirements** for different stages of life, such as childhood, pregnancy, and old age.
  o For example, **the importance of protein-rich foods, iron-rich greens, and calcium-rich dairy products is often underappreciated**, particularly in rural areas where access to nutritional education is limited.
- **The Role of Government Policies and Subsidies**
  o Government policies and subsidies also shape dietary patterns in India.
  o **Programs like the Public Distribution System (PDS) focus primarily on providing staple grains** like rice and wheat at subsidised rates.
  o While **these programs are crucial in addressing hunger and food security, they do not necessarily promote a diverse or balanced diet.**
  o The limited focus on pulses, fresh fruits, vegetables, and protein-rich foods in such programs means that many households primarily rely on carbohydrates for their daily energy intake.

**Necessary Measures to Ensure a Transition from Mere Food Sufficiency to Nutritional Well-Being**
- **Addressing the Challenge of Unhealthy Diets**
  o To overcome the challenge of unhealthy diets in India, **a multi-pronged approach is needed.**
  o **Educational campaigns that emphasise the benefits of balanced diets**, especially in rural and low-income areas, can play a significant role in shifting dietary habits.
  o Additionally, **government policies should prioritise not just food security but also nutritional security** by ensuring that programs like the PDS include a wider range of nutrient-rich foods.
- **Need for a Cultural Shift**
  o It is **important to develop a cultural shift towards valuing nutrition** as part of daily life.
  o This **includes dispelling myths around traditional diets** and introducing people to new, healthy recipes that incorporate a variety of food groups.
- **Regulating Prices, Availability of Fresh Foods, and Food Banks**
  o **Efforts to make healthy foods more affordable**, such as regulating the prices of essential food items and encouraging local production, **are also crucial.**
  o Moreover, **increasing the availability of fresh produce in both urban and rural areas through better infrastructure and distribution networks** can help improve access to nutritious foods.
  o **Encouraging local food banks, reducing food waste, and promoting community-supported agriculture are steps** that can ensure that surplus food reaches those who need it most.
- **Need for a Humanitarian Approach to Food Distribution**
  o For countries that are proud of being self-sufficient in food production, **achieving true success means going beyond sufficiency to becoming hunger-free.**
  o This **involves adopting a humanitarian approach to food distribution**, where surplus food in one region can be redirected to food-deficient areas.
  o Ultimately, **the global community must work together to address inequalities,** build resilience in food systems, and ensure that nutritious diets are within reach for everyone.

**Conclusion**
- **Achieving the goal of ending hunger, food insecurity, and malnutrition by 2030 is an urgent priority,** but progress remains uneven due to economic disparities, regional vulnerabilities, and rising food costs.
- **Addressing these challenges requires a multifaceted approach, including reforms in food distribution systems, awareness campaigns**, and initiatives to make healthy diets more affordable.
- **By focusing on sustainable solutions** and fostering global cooperation, **the world can move closer to a future where hunger is eradicated** and every individual has access to a better life through the right to nutritious food.

# 10. Call for Review of the India-ASEAN Trade Deal

**Why in news?**

A review of the India-ASEAN trade deal by 2025 is included in Prime Minister Narendra Modi's 10-point plan at the 21st ASEAN-India Summit. This review stems from concerns over the growing trade imbalance favoring ASEAN and increased Chinese investments in the region.

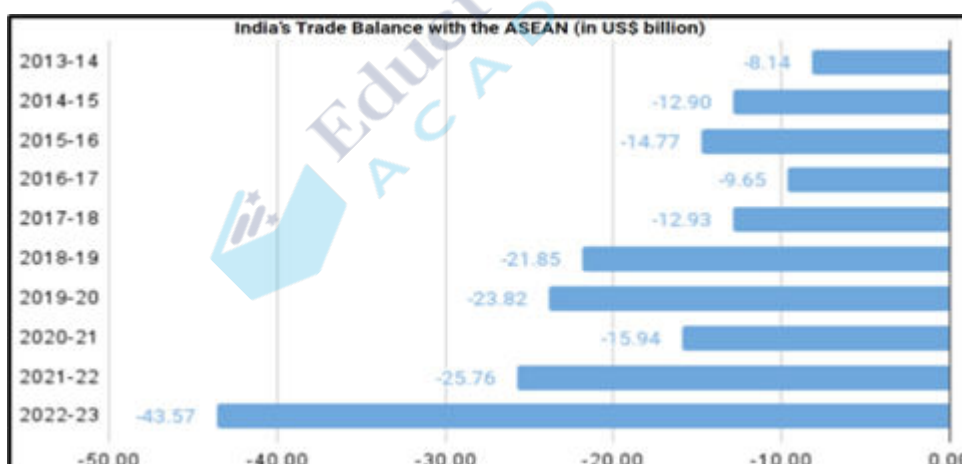**India-ASEAN free trade deal (AIFTA)**

- **About**
  - AIFTA is a free trade agreement between India and the ten member states of the Association of Southeast Asian Nations (ASEAN).
  - It aimed to enhance economic cooperation by offering tariff concessions on goods traded between India and ASEAN countries.
  - It eliminates tariffs on 75% of goods traded between the two regions, and commits parties to reduce tariffs on an additional 10% of product lines to below 5%.
  - The AIFTA promotes economic cooperation in sectors such as:
    - Agriculture, fisheries, and forestry; Services; Mining and energy; Science and technology; Transport and infrastructure; Manufacturing.
- **Agreements**
  - The AIFTA includes:
    - The ASEAN-India Trade in Goods (AITIG) Agreement, signed in 2009 and entered into force in 2010
    - The ASEAN-India Framework Agreement on Comprehensive Economic Cooperation, signed in 2003
    - The India-ASEAN Agreement on Services and Investment, signed in 2014 and implemented in 2015
- **Performance**
  - ASEAN remains a crucial trading partner for India, accounting for 11% of its global trade, with bilateral trade reaching US$ 122.67 billion during 2023-24.
  - India's trade with ASEAN experienced astounding growth after signing the ASEAN-India Trade in Goods Agreement (AITIGA).
  - However, the trade disproportionately benefits the ASEAN region.
    - Between FY 2009 and FY 2023, imports from ASEAN to India grew by 234.4% while exports from India rose only by 130.4%.
    - As a result, India's trade deficit expanded from US$ 7.5 billion annually when the agreement was enacted in 2011 to approximately US$ 44 billion in 2023.

India's Trade Balance with the ASEAN (in US$ billion)

| Year | Trade Balance |
|------|---------------|
| 2013-14 | -8.14 |
| 2014-15 | -12.90 |
| 2015-16 | -14.77 |
| 2016-17 | -9.65 |
| 2017-18 | -12.93 |
| 2018-19 | -21.85 |
| 2019-20 | -23.82 |
| 2020-21 | -15.94 |
| 2021-22 | -25.76 |
| 2022-23 | -43.57 |

**Why is India asking for a review of the India-ASEAN trade deal?**

- **Current agreement is not balanced**
  - India wants to review the AIFTA because it believes the current agreement is not balanced.
  - This deal is leading to a trade deficit due to issues like:
    - non-reciprocal concessions,
    - non-tariff barriers, and

- concerns about rules of origin exploitation, which allows other countries, particularly China, to <u>route exports to India through ASEAN nations</u>, undermining domestic manufacturing in India.
- **India as a global manufacturing hub**
  - The potential adjustment of tariffs is influenced by the need to protect burgeoning sectors within India's economy, aligning with the government's "Make in India" initiative to transform India into a global manufacturing hub.
  - For instance, raising tariffs on mobile phone parts and automobile components could incentivize domestic production and reduce import dependency.
- **Asymmetry in negotiation power**
  - In the goods trade category, India eliminated import duties on approximately 74 percent of tariff lines and reduced duties on an additional 14 percent of tariff lines—highlighting one consolidated offer to ASEAN.
  - At the same time, each ASEAN member made separate offers to India.
  - This asymmetry in negotiation power also hinders India's flexibility in protecting vulnerable domestic industries from competitive ASEAN imports.
    - The tariff preferences enjoyed by ASEAN countries in the Indian market under the AITIGA have been much greater than those Indian companies receive in ASEAN markets.
- **Rerouting concerns**
  - The rising influx of Chinese investments and goods into ASEAN has sparked concerns over the rerouting of Chinese products into India through the region.
  - In response, India's Ministry of Commerce and Industry launched an anti-dumping investigation into steel imports from Vietnam.
  - The Economic Survey highlighted that <u>Chinese firms are increasingly rerouting supply chains through countries like Mexico and Vietnam</u>.
- **Need for modernization**:
  - The AIFTA is considered outdated and needs to be updated to reflect current market dynamics.

**Current Status of the Trade Deal Review**
- The two sides agreed to initiate a review during the 16th ASEAN-India Economic Ministers Meeting (AIEMM) in September 2019.
- However, it took three years to barely agree on the scope of the review at the 19th AIEMM in September 2022.

# 11. International NGOs and the Perils of Outsourcing Development

**Context**
- **International Non-Governmental Organisations (INGOs) have long been active players in the development of numerous nations**, often presenting themselves as allies in the quest for progress and social betterment.
- Yet, **their interventions frequently lead to negative outcomes** for the communities they intend to help.
- Therefore, **it is crucial to examine the adverse effects of donor-driven agendas led by INGOs, focusing on their role in conservation, water management, and gender imbalance.**

**Case Studies of the Displacement of Communities and Failed Development Projects by INGOs**
- **Conservation in East Africa: Displacing Indigenous Communities**
  - **In Tanzania and Kenya**, INGOs have led various **conservation projects aimed at preserving wildlife and natural habitats.**
  - These projects, **however, have frequently disregarded the traditional rights of indigenous populations,** leading to the displacement of communities like the Maasai.
  - **The Maasai people have lived in harmony with their environment for centuries,** maintaining sustainable land use practices that support both their livelihoods and the local ecosystem.
  - **Despite this, INGO-driven conservation policies have often imposed strict regulations on land use,** prioritising wildlife preservation over the rights of these communities.
  - For example, **INGOs have worked with governments to establish national parks and protected areas,** ostensibly to safeguard endangered species and maintain biodiversity.

- o However, **these projects often fail to recognise the Maasai's deep connection to their ancestral lands.**
- **Water Privatisation in Bolivia: Ignoring Local Needs**
  - o **In the early 2000s, several INGOs supported the privatisation of water services in Cochabamba** as part of a broader agenda to improve infrastructure and access to clean water.
  - o **The underlying belief was that privatisation would bring in much-needed investment and expertise,** leading to better management and efficiency in water distribution.
  - o However, **the reality was far different; privatisation, instead of increasing access to water, resulted in steep price hikes** that made water unaffordable for many of Cochabamba's residents.
  - o **The water privatisation move led to widespread protests, known as the Cochabamba Water War,** where thousands of citizens took to the streets to demand a return to public control over water resources.
  - o The **protests were so intense that the Bolivian government eventually reversed the privatisation policy.**

**Historical Roots of Gender Imbalance and the Role of INGOs in Worsening Gender Imbalance in India**
- **Historical Roots of Gender Imbalance: Colonial Policies and Cultural Narratives**
  - o India's gender imbalance cannot be understood **without considering the historical context of British colonial rule, which laid the groundwork for later developments.**
  - o **Scholars like L.S. Vishwanath and Bernard S. Cohn have argued that British land reforms in the 18th and 19th centuries** created economic conditions that **incentivised female infanticide among certain landowning castes.**
  - o These **reforms altered the system of land ownership**, making it more advantageous for families to have male heirs, who were seen as better suited to inherit and manage property.
  - o This **shift in economic structures led to an increase in the deliberate killing of female infants.**
  - o Despite this, **British colonial authorities framed female infanticide as a cultural problem,** attributing it to the supposed backwardness of Indian society.
  - o This **narrative served to deflect attention from the colonial policies that had contributed to the problem.**
- **The Role of INGOs in Introducing Sex-Determination Technology**
  - o From the **1950s to the 1980s,** the efforts of INGOs such as the **Ford Foundation, the Rockefeller Foundation, and the Population Council significantly influenced India's approach to population control.**
  - o These organisations, **motivated by Malthusian concerns about global overpopulation, saw India's large and growing population as a major challenge** to development.
  - o Their **agenda was rooted in a belief that reducing population growth was essential for India's progress and global stability.**
  - o This **perspective led them to aggressively promote policies that prioritised population control** over other pressing public health issues.
  - o A critical aspect of this INGO influence was the **introduction of sex-determination technologies in India.**
  - o **These technologies, including amniocentesis tests and later ultrasound machines, were initially developed for medical purposes** such as detecting genetic disorders in foetuses.
  - o However, **their application in India quickly shifted towards determining the sex of the foetus,** which led to a surge in sex-selective abortions
- **The Spread of Sex-Determination Practices and the Normalisation of Female Foeticide**
  - o The initial intention behind promoting these technologies may not have been to encourage gender-selective abortions, **but the INGOs' focus on population control created conditions where such practices thrived.**
  - o In a country where cultural **preferences for male children were already prevalent,** the availability of **technology to determine foetal sex led to a rapid rise in female foeticide.**
  - o Once amniocentesis and ultrasound technologies became accessible, **families with a preference for male children began to use these methods to selectively abort female foetuses.**
  - o A paper published by I.C. Verma and colleagues in Indian Paediatrics defended the use of amniocentesis for sex selection, su**ggesting that it could help reduce unnecessary fecundity by allowing families to stop having children** once a male child was born.
  - o **By 1978, over 1,000 female foetuses had been aborted at AIIMS alone,** and by the early 1980s, sex-selective abortions had become widespread across India.
  - o **Between 1978 and 1983, it is estimated that around 78,000 female foetuses were aborted** nationwide as the practice spread to other government hospitals and clinics.

**Impact of Sex Determination Technology by INGOs on India's Demographic Landscape**
- **Decline in Sex Ratio**
  - Census data from the decades following the introduction of these technologies reveals a marked decline in the child sex ratio.
  - **In 1951, the ratio was 943 girls for every 1,000 boys**, which was close to the natural sex ratio of about 950 girls per 1,000 boys.
  - **However, by 1991, this ratio had dropped to 927,** with the most significant declines occurring **after the introduction of amniocentesis and ultrasound technologies in the late 1960s.**
  - **The decline in the sex ratio was especially severe in states with greater access to sex-determination technology, such as Punjab and Haryana**, which are geographically close to Delhi, where many INGOs were headquartered.
- **Missing Female Births: Lasting Impact on Indian Society**
  - **By 2001, these states recorded drastic drops in their child sex ratios**, with Punjab at 876 and Haryana at 861 girls per 1,000 boys.
  - **A 2006 study, published in The Lancet, estimated that between 1980 and 2010, approximately 10 million female births were missing in India** due to the widespread practice of sex-selective abortion.
  - **This meant that an average of 500,000 female foetuses were aborted annually,** representing a massive **demographic shift that has left a lasting impact on Indian society.**

**Way Forward**
- As developing nations continue to engage with INGOs, **it is crucial for local policymakers to exercise caution and scepticism when considering the advice of INGOs and consultancies.**
- INGOs, **despite their resources and expertise, often bring agendas that may not align with the priorities of local communities.**
- Hence, local policymakers can ensure that foreign aid and expertise contribute positively to the country's development goals, **rather than perpetuating the historical patterns of exploitation and misjudgement** that have too often characterized such engagements.

**Conclusion**
- **The role of INGOs in exacerbating gender imbalances in India is a cautionary tale about the dangers of imposing external solutions** without a deep understanding of local contexts.
- It **highlights the importance of assessing the broader social impacts of technological and policy interventions.**
- While the INGOs involved may have had good intentions, **their focus on population control and their disregard for cultural nuances led to widespread harm**

## 12. Judicial Activism in India
**Why in the News?**
At a public event in New Delhi, Vice President Jagdeep Dhankhar said that the exercise of executive authority by the judiciary or the legislature was not in consonance with democracy.

**About Judicial Activism:**
- Judicial Activism refers to the proactive role played by the judiciary in protecting and expanding the rights of citizens and ensuring that justice prevails, especially when other branches of the government (executive and legislature) fail to do so.
- In India, judicial activism has been instrumental in shaping the country's socio-political landscape by holding authorities accountable and upholding the fundamental rights enshrined in the Constitution of India.

**Meaning and Scope of Judicial Activism:**
- Judicial Activism implies the judiciary's intervention in legislative and executive matters by interpreting laws in a manner that ensures justice, fairness, and constitutional values are upheld. It often involves:
  - **Broad interpretations of the Constitution** to secure rights for citizens.

- o **Directing government action** to address inaction or failure in fulfilling constitutional duties.
- o **Taking suo motu cognizance** (acting on its own accord) of issues related to public interest.
- Judicial activism primarily stems from the belief that the judiciary has a responsibility to ensure that laws are interpreted in a manner that protects the rights of individuals and preserves democratic principles.

**Constitutional Basis for Judicial Activism:**
- Several **articles in the Indian Constitution** serve as the foundation for judicial activism:
  - o **Article 32 – Right to Constitutional Remedies**:
    - Article 32 is often referred to as the "heart and soul" of the Constitution, as described by Dr. B.R. Ambedkar.
    - It empowers citizens to approach the Supreme Court for enforcement of their fundamental rights.
    - This provision forms the backbone of **Public Interest Litigation (PIL)**, a tool often used in judicial activism to provide justice to marginalized sections of society.
  - o **Article 21 – Right to Life and Personal Liberty**:
    - Article 21 has been widely interpreted by the judiciary to include various rights that ensure a dignified life, such as the right to privacy, right to a clean environment, right to education, and right to health.
    - The **expansion of the scope of Article 21** is a hallmark of judicial activism in India.
  - o **Article 142 – Enforcement of Decrees and Orders of the Supreme Court**:
    - This article empowers the Supreme Court to pass any order necessary for doing "complete justice" in any matter pending before it.
    - This is often seen as a significant tool for the Court to act in the interest of justice, even in cases where statutory law may not explicitly provide a remedy.

**Examples of Judicial Activism in India:**
- **Vishakha v. State of Rajasthan (1997)**:
  - o In this landmark case, the Supreme Court addressed the issue of **sexual harassment at the workplace**.
  - o Since no specific law existed at the time, the Court invoked Article 21 (Right to Life) and Article 32 (Right to Constitutional Remedies) to lay down guidelines for preventing sexual harassment in workplaces, now popularly known as the **Vishakha Guidelines**.
  - o These guidelines were eventually codified in the **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013**.
- **Maneka Gandhi v. Union of India (1978)**:
  - o In this case, the Supreme Court expanded the scope of **Article 21** by declaring that the right to life and personal liberty cannot be confined to mere physical existence but must include the **right to live with dignity**.
  - o The Court held that any law affecting life or liberty must be "just, fair, and reasonable," setting a precedent for **procedural fairness** in legal matters.

**Impact of Judicial Activism in India:**
- **Strengthening Democracy**:
  - o Judicial activism has played a pivotal role in safeguarding democratic values by keeping a check on the powers of the executive and legislature.
  - o It has ensured that the government functions within the framework of the Constitution.
- **Protection of Fundamental Rights**:
  - o Through expansive interpretations of fundamental rights, the judiciary has protected individual liberties, thereby empowering the marginalized sections of society.
  - o The **expansion of the scope of Article 21** is a significant outcome of judicial activism, as seen in cases like **S. Puttaswamy v. Union of India (2017)**, where the right to privacy was declared a fundamental right under Article 21.
- **Environmental Protection**:
  - o Judicial activism has been a catalyst for environmental conservation in India. Landmark rulings, such as the **Taj Trapezium Case (1996)** and the **MC Mehta v. Union of India (Ganga Pollution Case)**, have led to stricter regulations on industries that pollute the environment.
  - o These cases showcase how judicial intervention has directly influenced government policy.

**Criticism of Judicial Activism:**

- **Judicial Overreach**:
  - Critics argue that in some cases, the judiciary has overstepped its boundaries, venturing into areas reserved for the executive or legislature, thereby violating the **separation of powers**
  - Some argue that judicial activism can evolve into **judicial overreach**, where courts make policy decisions instead of interpreting the law.
- **Lack of Accountability**:
  - Unlike elected representatives, judges are not accountable to the public, raising concerns that judicial activism might sometimes reflect the personal biases of judges rather than democratic principles.

**News Summary:**

- During an event, Vice President Jagdeep Dhankhar emphasized that in a democracy, the separation of powers must be respected.
- He stated that executive authority is solely the domain of the **executive branch**, while legislation belongs to the **legislature**, and judicial verdicts are the responsibility of the **courts**.
- He expressed concern that if the **judiciary** or **legislature** exercises executive powers, it contradicts the principles of democracy and constitutional norms.
- Dhankhar urged the public and intelligentsia to reflect on the issue of **judicial overreach**.
- Additionally, he touched upon the issue of **anti-national narratives** and stressed the need to address them effectively.

## 13. Prison Reform in India

**Why in News?**

The Supreme Court issued a series of directives to the Centre and states to ensure that **no inmate is subjected to work assignments or housing arrangements based on their caste**. The SC declared this **provision in various jail manuals "unconstitutional"** for violating the inmates' right to dignity, equality and non-discrimination.

The ruling ended the long-standing practice of discrimination against prisoners based on caste and demanded prompt reforms in all states and UTs.

**SC's Verdict on Caste Bias, Segregation in Prisons:**

- **Background:** The court's verdict came on a petition moved by a journalist, urging the court to issue clear directions to ensure that all prison manuals and practices (that reinforce caste hierarchies) are overhauled.
- **The court's verdict:**
  - The verdict **specifically addressed** the entrenched **discriminatory practices against marginalised** communities, including scheduled castes (SC), scheduled tribes (ST) and denotified tribes (DNTs) **in India's prisons**.
  - The apex court held that the treatment of inmates from **DNTs as "habitual offenders"** within prison walls across India are oppressive to fundamental human dignity and personality.
  - The bench held that caste-based assignments of labour, such as assigning menial tasks (cleaning and sweeping) to marginalised castes while reserving cooking for higher castes, is a **violation of Articles 14 and 15 of the Constitution.**
  - The provision that food shall be cooked by 'suitable caste' reflects notions of untouchability prohibited under the Constitution in **Article 17**.
  - **The SC expanded the scope of Article 21**, stating that caste-based discrimination hinders personal growth and development.
  - The court further held that the selective assignment of menial jobs to specific castes amounted to forced labour under **Article 23.**
  - The judgement highlighted several gaps in **the Model Prison Manual of 2016** in addressing caste-based discrimination.
    - The court noted that it failed to fully eliminate caste-based segregation and labour division in prisons.
    - It also criticised the manual for not incorporating **the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act 2013** that bans manual scavenging.
- **Court's directives to Centre, states and UTs**

- o To combat caste-based prejudices, the bench called for strict adherence to guidelines laid down in **Arnesh Kumar Vs State of Bihar (2014) and Amanatullah Khan Vs Commissioner of Police, Delhi (2024.** The guidelines require police officers to **ensure procedural safeguards**, particularly for vulnerable communities, reinforcing the broader fight against systemic biases.

**Issues Related to Prisons in India:**

- **Fundamental rights of prisoners:**
  - o Article 21 guarantees the right to life and personal liberty.
  - o **Article 39A** ensures free legal aid for those in need.
- **Key issues in Indian prisons:** Prison conditions in India face several critical challenges that **impact inmates' rights and welfare.** These include -
  - o **Overcrowding:**
    - Currently, prisons in India **operate at 117% capacity**, primarily due to a high number of under-trial prisoners.
    - The SC has emphasised the right to speedy justice under Article 21 of the Constitution, but many cases remain unresolved.
  - o **Unhygienic conditions:** Many inmates lack access to proper medical facilities. Female prisoners often do not receive adequate sanitary products and basic health services.
  - o **Custodial torture:** Despite the **1986 DK Basu judgement** prohibiting torture, reports of custodial violence continue, with increasing cases of custodial deaths.
  - o **Delays in trials:** Lengthy legal processes disrupt prison administration and prolong inmates' suffering. The right to a speedy trial has been recognised but is often not upheld.
  - o **Challenges for women prisoners:** The number of female inmates is rising, but they often face inadequate facilities. There is also a lack of dedicated women's prisons.

**Prison Reforms - Recommendations of Committees, Provisions of Laws and Key Judgements:**

- **Justice Mulla committee 1983:** It recommended -
  - o Improved prison accommodations,
  - o Creation of the Indian Prisons and Correctional Services,
  - o **Public and media visits for transparency,**
  - o Reduction of under-trial prisoners through expedited trials.
  - o **A national policy on prisons.**
  - o Using alternatives to imprisonment, such as community service, etc.
- **Justice V.R. Krishna Iyer committee 1987:**
  - o **Induction of more women into the police force.**
  - o Separate institutions with women employees alone, especially for women offenders.
  - o Necessary provisions to restore the dignity of convicted women.
- **Justice Amitav Roy panel (2018) of the SC:** It recommended several prison reforms - special fast track courts, improvements in lawyer-prisoners ratio, use of video-conferencing for trial, etc.
- **Provisions of the Model Prisoners Act of 2023:**
  - o **Legal aid to prisoners:** It is the state's duty to provide free legal aid by suitable legislation or schemes.
  - o **Parole:** It is a form of early release for prison inmates where the prisoner agrees to abide by behavioural conditions.
  - o **Furlough:** It is the right of prisoners to retain family and social ties. This also helps them counter the ill effects of prolonged time spent in prison.

- o **Other provisions:** Special facilities for women and transgender prisoners, Provisions for use of technology in prison administration, etc.
- **Key case laws:**
  - o Hussainara Khatoon vs. Home Secretary (1979): Emphasises the **right to a speedy trial.**
  - o State of Rajasthan vs. Balchand (1978): **Establishes that bail is the rule, not jail.**

# General Studies III

## 1. What Challenges does India Face in Fertilizer Imports?

**Why in the News?**

India is currently grappling with significant challenges in meeting its fertilizer demands due to dependency on imports, especially amidst the ongoing Ukraine and Gaza crises, which could further impact fertilizer availability and prices.

**About Fertilizers:**
- A fertilizer is a <u>chemical product either mined or manufactured material containing one or more essential plant nutrients that are immediately or potentially available in sufficiently good amounts</u>.
- Fertilizers have played an essential role in agricultural production, providing vital nutrients for crops, increasing demands over the years.
- As an agrarian country, India is home to numerous small and marginal farmers and is often plagued by low productivity and low quality.
- Crops are mainly rain-fed and cultivated on a single piece of land over time, decreasing soil fertility in many regions.
- Thereby, increasing quantities of nitrogen fertilizers have been used in the country.

**Macro & Micro Elements in Fertilizers:**
- <u>Macro Nutrients</u>: Nitrogen (N), Phosphorus (P), Potash (K), Calcium, Sulfur (S), and Magnesium are known as macro-nutrients (required in comparatively larger amounts).
- <u>Micro Nutrients</u>: Iron (Fe), Zinc (Zn), Copper, Boron, Manganese Molybdenum, Chloride, and others are the micro-nutrients (required in a smaller quantity) for the growth and development of crop plants.
- Among the various types**, NPK** (nitrogen, phosphorus, and potassium) fertilizers are the most common ones, and **Urea** stands as the most highly consumed fertilizer in India.
- <u>India is the second-largest consumer of fertilizers globally, with an annual consumption of more than 55.0 million metric ton</u>.

**Current Fertilizer Import Scenario:**
- India's domestic fertilizer production does not meet its full demand, creating a dependency on imports. As per the **2023 Standing Committee of Parliament report**:
  - **Urea**: 20% of the domestic requirement is imported.
  - **Diammonium Phosphate (DAP)**: 50-60% of the demand is met through imports.
  - **Muriate of Potash (MOP)**: 100% dependency on imports.
- The report stresses a need for self-reliance in fertilizer production to stabilize supplies.

**Production and Consumption Trends:**
- India's **annual fertilizer consumption** in **2021-22** was **579.67 lakh metric tonnes (LMT)**, with:
  - **Urea**: 341.73 LMT
  - **DAP**: 92.64 LMT
  - **MOP**: 23.93 LMT
  - **NPK (Nitrogen, Phosphorus, and Potassium)**: 121.37 LMT
- Domestic production for the year totalled **435. 95 LMT**, leaving a shortfall of **143.72 LMT**. Notably, MOP is entirely imported due to the lack of local production.

**Impact of the Ukraine and Gaza Conflicts:**
- Experts, at the **Food and Agriculture Organization (FAO)**, highlighted potential volatility in fertilizer prices due to the Ukraine and Gaza conflicts. This unrest could:
  - Affect **oil prices**, impacting petroleum-based fertilizer production.
  - Disrupt imports from **Russia** and **West Asia**, two significant suppliers for India's fertilizer imports.

**Financial Burden of Fertilizer Subsidies:**
- The Indian government has allocated substantial funds to support fertilizer affordability. In the **2023-24 Budget**:

- o **Total subsidy**: ₹1.79 lakh crore.
- o **Indigenous Urea subsidy**: ₹1.04 lakh crore.
- o **Imported Urea subsidy**: ₹31,000 crore.
- o **Indigenous P&K Fertilizer subsidy**: ₹25,500 crore.
- o **Imported P&K Fertilizer subsidy**: ₹18,500 crore.
- These subsidies, while necessary for farmers, impose a heavy financial burden on the government.

**Strategic Initiatives for Self-Reliance:**
- Experts recommend increasing India's production capacity and reducing reliance on imports:
  - o **New Urea Plants**: Since the **2012 investment policy**, six new urea plants have been established, adding **76.2 LMT** to India's production capacity. Currently, **36 urea plants** operate, with recent additions like **Ramgundam, Gorakhpur, Sindri, and Barauni** facilities.
  - o **Shift to Sustainable Fertilizers**: Emphasis on **nano urea** and **natural farming** could reduce chemical fertilizer usage and dependency.
  - o **Investment in Domestic Production**: The Standing Committee suggests fostering a favorable environment for investments from public, cooperative, and private sectors in fertilizer manufacturing.

**Policy Recommendations and Future Outlook:**
- The Standing Committee recommends:
  - o Increasing incentives for fertilizer manufacturing within India.
  - o Encouraging use of **nano urea** and shifting focus to organic and sustainable farming practices.
  - o Investing in infrastructure to better utilize existing fertilizers efficiently.
- By expanding production capacities and promoting sustainable agricultural practices, India could gradually reduce its dependency on imported fertilizers, stabilizing the domestic market and insulating it from global disruptions.

## 2. Navigating India's Economic Growth Challenges
**Why in News?**
The Finance Ministry's latest monthly economic review points to evidence of a slowdown in urban demand as reflected in the performance of various indicators during the first half of FY25.
It summarises key factors contributing to the shifting economic landscape in India, highlighting challenges and potential growth avenues.

**Performance of the Indian Economy:**
- **Overview:**
  - o India's economic growth faces a **slowdown in urban demand**, with r**ural resilience offering partial balance**.
  - o While rural areas show increasing consumption, **urban centres experience demand softness** due to **high food inflation, weakened credit growth, and increased household expenses**.
- **Urban demand challenges:**
  - o **Softening demand in consumer goods:**
  - o **Major fast-moving consumer goods (FMCG) companies**, such as Tata Consumer Products and Nestle India, signal a decline in urban demand due to high food inflation, especially in metropolitan regions.
  - o **Auto companies** also report demand slowdown, exacerbated by seasonal factors like monsoon rains and election-related spending restrictions.
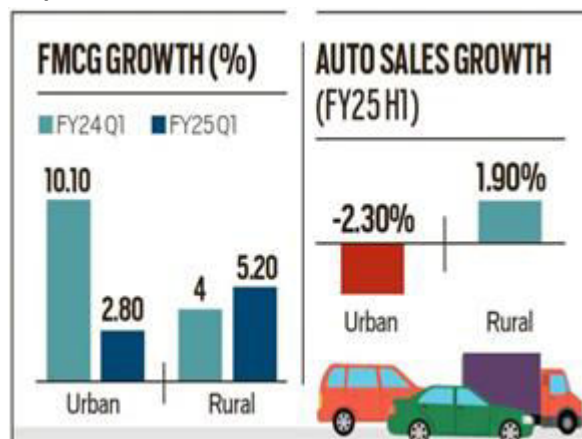
- **Decline in economic indicators:**
  - **GDP:** India's Q1 FY25 GDP growth moderated to 6.7%, with projections for further decline in Q2 due to weakened urban investment and consumption.
  - **Corporate profits:** A review of listed companies' Q2 results shows slowing profit growth, largely due to rising input costs. Crisil noted this as the slowest growth in the last 16 quarters.
  - **Real wages and spending:** Urban wages have also stagnated, with growth in salary outlays falling from 1.2% in Q1 to 0.8% in Q2 FY25, indicating reduced consumer spending capacity.
  - **Inflationary pressures:**
    - **Persistent food inflation** has made the Reserve Bank of India (RBI) cautious about rate cuts.
    - RBI Governor emphasises a flexible approach to inflation management, avoiding premature easing of monetary policy.
  - **Rural demand resilience:**
    - **FMCG and auto sales:**
      - Rural consumption shows positive momentum, reflected in FMCG volume sales growth and rising tractor and three-wheeler sales.
      - Nielsen IQ data shows rural FMCG sales rose by 5.2% in Q1 FY25, compared to 4% the previous year.
    - **Agriculture and wage growth:** Real wage growth for agricultural and non-agricultural rural workers supports rising consumption, bolstered by a favourable monsoon season.
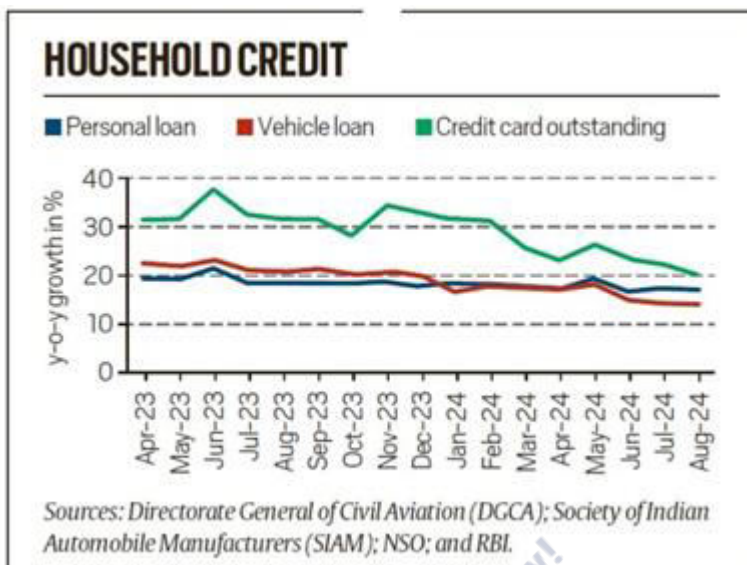
**HOUSEHOLD CREDIT**

Sources: Directorate General of Civil Aviation (DGCA); Society of Indian Automobile Manufacturers (SIAM); NSO; and RBI.

**Policy Responses and Future Outlook of the Indian Economy:**
- **Government and RBI initiatives:**
  - **Government expenditure:**
    - Increased government spending post-election season could stabilise growth, with a strong capital expenditure plan expected from September to March.
    - Central government expenditure in the first five months of FY25 reached Rs 16.52 lakh crore, down 1.2% from the previous year, indicating room for expansion.
  - **RBI's monetary stance:** The RBI remains flexible, cautiously monitoring inflation before adjusting rates. RBI continues to support growth by balancing inflation concerns with strategic policy measures.
- **Festive demand and external stimuli:**
  - **Festive season:** With upcoming festivals, consumer discounts and demand are anticipated to lift sales. This boost may partially offset the urban slowdown.
  - **Global influences:** Potential monetary easing by the US Federal Reserve may encourage capital inflows to India, supporting investment and growth in the coming quarters.

**Conclusion:**
- **India's economic outlook is mixed**, with rural resilience and government spending likely to stabilise growth despite urban demand challenges.
- **High inflation and global uncertainties remain key concerns**, but fiscal policies and a strategic monetary stance from the RBI provide a foundation for sustainable recovery.
- **The evolving economic environment** will require continued data-driven adjustments to maintain growth momentum.

# 3. A Case for Food Subsidies: An Investment, not a Waste

**Context**

- **India's agricultural sector is at a crucial crossroads,** with challenges ranging from increasing crop productivity to ensuring long-term food security amidst climate change.
- Some **renowned agronomists argue that the country needs to invest more in agricultural research and development (R&D)** rather than spending on food subsidies.
- Their **proposition to redirect funds from food subsidies to R&D, while rooted in logical trade-offs, requires a deeper examination,** particularly regarding the value and purpose of food subsidies.

**The Debate on Food Subsidies**

- The **debate over food subsidies in India is complex and multifaceted,** touching upon issues of food security, fiscal responsibility, and social welfare.
- **Food subsidies, provided through the Public Distribution System (PDS) under the National Food Security Act (NFSA),** are crucial for millions of low-income households, offering affordable access to staple grains and ensuring a basic level of food security.
- While **proponents argue that these subsidies are essential for alleviating hunger and supporting vulnerable populations**, critics contend that reallocating these funds toward agricultural R&D would be more beneficial in the long term.
- This **debate raises fundamental questions about the role of food subsidies in India's social policy** and the potential trade-offs involved in redirecting funds to other sectors.

**The Case for Food Subsidies and Misconception About the Fiscal Impact of NFSA**

- **A Critical Role in Ensuring Food Security**
  - Food subsidies **play a critical role in ensuring food security for India's population**, particularly for those below the poverty line.
  - By providing subsidised grains like rice and wheat, **the PDS helps millions of people access a basic level of nutrition.**
  - The **importance of this system became even more evident during the COVID-19 pandemic**, when disruptions in income and employment left many families struggling to afford food.
  - **Food subsidies acted as a safety net, supporting households through the crisis** and ensuring that they could meet their minimum dietary needs.
- **An Essential Financial Amnesty**
  - For families earning less than Rs. 20,000 a month, **the PDS offers an essential financial amnesty.**
  - The **modest income transfers these families receive through subsidised grain allows them to allocate a portion of their limited resources** to other essential foods, such as pulses, milk, and vegetables.
  - Thus, **food subsidies not only help maintain caloric intake but also indirectly support dietary diversity and nutrition**, enabling families to achieve a more balanced diet.
  - The **argument that food subsidies could be curtailed overlooks their broader value in supporting the health, education, and productivity** of India's most vulnerable citizens.
- **An Income Transfer and Social Investment**
  - **Food subsidies also function as a modest income transfer for the bottom half of the income distribution**, allowing poor households to allocate more of their budget to other necessities.
  - By **receiving grains at subsidised rates, families save on food costs and can spend on other essentials like education,** healthcare, and diverse food items, which improves overall well-being and economic stability.
  - **For these households, the PDS acts as an economic cushion, helping them manage rising costs of living and reducing the need for short-term coping strategies** like taking on debt.
- **Misconceptions About the Fiscal Impact of NFSA**
  - **Critics have expressed concerns that the NFSA would dramatically increase the government's fiscal burden** by necessitating higher grain procurement.
  - However, **evidence suggests that the NFSA's impact on government expenditure has been less severe** than anticipated.
  - **While the NFSA expanded the number of beneficiaries, it simultaneously reduced the per-capita grain allocation**—from 7.9 kg per person per month to 5 kg.

- This **change has helped offset the increase in beneficiaries, thereby limiting the overall fiscal impact of the NFSA** on the food subsidy bill.
- This **reduction in per-beneficiary allocation demonstrates that the NFSA has not led to substantial increases in grain procurement** or inflated the subsidy bill to the extent predicted by critics.

**The Way Forward**
- **Increase in R&D Investment Without Compromising Food Security**
  - There is no doubt that agricultural R&D is critical for the future of India's farm sector.
  - However, **addressing the need for increased R&D funding does not necessarily require cutting food subsidies.**
  - Rather, **the government could explore alternative sources of funding, such as revising other subsidy programs**, particularly production-linked incentives for certain industries, or increasing taxes on luxury goods.
  - The **emphasis should be on making agricultural investments without sacrificing the welfare of the most vulnerable sections of society.**
- **Distinguishing Food Subsidies from Input Subsidies**
  - A **key point of contention in critics' argument is the conflation of food subsidies with input subsidies** such as those for fertilizers and electricity.
  - **While input subsidies are indeed wasteful** and contribute to environmental degradation, **food subsidies primarily benefit consumers, not farmers.**
  - **Studies show that the farmer's share of the food subsidy bill is much smaller** than that of input subsidies.
  - Therefore, **reducing food subsidies would not directly improve agricultural practices or R&D funding, as critics suggest.**
- **Optimising the Efficiency of Existing Food Subsidies**
  - **There is room for optimising the efficiency of existing food subsidies** without reducing the scope of the PDS.
  - For example, **modernising the PDS through technology, reducing leakages, and improving targeting could help streamline the system and reduce costs without compromising its coverage.**
  - By implementing these measures, **the government could improve the effectiveness of food subsidies and free up resources for other priorities,** such as agricultural R&D.

**Conclusion**
- **The debate over food subsidies in India reflects a broader tension between immediate social** welfare and long-term economic development.
- W**hile critics argue for redirecting funds from food subsidies to agricultural R&D**, this approach overlooks the critical role that food subsidies play in supporting vulnerable populations.
- Rather than reducing food subsidies, **policymakers should seek alternative funding sources for agricultural R&D and optimize existing subsidy programs to ensure efficiency.**

## 4. How to Realise the Full Potential of Digital Public Infrastructure

**Context**
- **The adoption of the Global Digital Compact (GDC)** at the United Nations Summit **marks a pivotal moment in the realm of digital governance.**
- This **initiative aligns with the multi-phase Universal Safeguards for Digital Public Infrastructure (DPI) launched in 2023 by the Office of the UN Secretary-General's Envoy on Technology (OSET)** and the United Nations Development Program (UNDP).
- As digital governance evolves, **the GDC sets the stage for global cooperation, with India taking a leading role in championing the cause of DPIs,** especially for the Global South.

**An Analysis of India's Leadership in Promoting Digital Public Infrastructure (DPI)**
- **Pioneering Initiatives: Aadhaar and UPI**
  - **At the heart of India's leadership in DPIs is the Aadhaar program**, the world's largest digital identity system, which provides unique identification numbers to over 1.3 billion residents.

- o **Launched in 2009, Aadhaar was designed to ensure that every Indian has a secure and verifiable identity,** which in turn facilitates access to various public services.
- o Aadhaar has **enabled more efficient delivery of social welfare schemes** reducing leakages and ensuring that subsidies reach the intended beneficiaries directly.
- o **In addition to Aadhaar, India's Unified Payments Interface (UPI) has revolutionised the digital payments landscape**.
- o UPI, **launched in 2016, is an interoperable real-time payment system** that allows seamless transactions between banks and payment platforms.
- o **As of August 2024, UPI has facilitated a staggering 14.96 billion digital transactions** in a single month, making it one of the largest digital payment systems globally.
- o **By leveraging this digital identity, India has built an extensive ecosystem that connects people to services like banking, health, and education**, driving financial and social inclusion across the country.
- **The Modular Open-Source Identity Platform (MOSIP)**
  - o India's commitment to promoting DPIs on a global scale is further **demonstrated by its development of the Modular Open-Source Identity Platform (MOSIP).**
  - o **MOSIP is a not-for-profit initiative** designed to help countries build their own digital identity systems.
  - o **It is a customisable, open-source platform** that provides the technological infrastructure needed for digital identity programs.
  - o **By offering MOSIP to other nations, India has empowered governments to create secure and interoperable digital identity systems**, without the burden of high licensing costs or the need for proprietary software.
- **Driving Economic Inclusion through DPIs**
  - o India's focus on digital public infrastructure is **deeply tied to its goal of fostering economic inclusion.**
  - o **By providing digital identities, promoting cashless transactions**, and creating digital ecosystems for financial services, **India has made significant strides in bringing marginalised communities into the economic fold.**
  - o One of the **key successes has been the rapid expansion of bank account ownership under the Pradhan Mantri Jan Dhan Yojana (PMJDY**), which uses Aadhaar to verify identities.
  - o As a result, bank account ownership among Indian adults increased from 25% in 2008 to over 80% in recent years.

**Existing Challenges and the Need for Impact Assessments**
- **Existing Challenges**
  - o Despite the enthusiasm surrounding DPIs, **there are critical challenges that must be addressed.**
  - o The **UN's safeguard framework stresses the importance of managing and regulating the deployment of DPIs to ensure that they remain inclusive, accessible**, and effective.
  - o This is **especially crucial as DPI initiatives become more widespread, both in foundational areas such as digital identity and payments and in sectoral applications** like healthcare and education.
- **Necessity of Impact Assessment**
  - o The necessity of impact assessments for DPIs is **particularly significant in India, where these infrastructures have driven notable advancements**.
  - o **For instance, the rate of bank account ownership among adults in India rose from 25% in 2008 to over 80% in recent years,** with women owning 56% of these accounts.
  - o Furthermore, **digital transactions have become a major economic driver, contributing to nearly 50% of India's nominal GDP** in the fiscal year 2022-23.
  - o These **achievements have also facilitated access to credit through pre-sanctioned loans on platforms like UPI.**
  - o However, **beneath these impressive figures lie complex questions about the true impact of DPIs on people's lives, especially regarding their livelihoods**, income, and social agency.

**Necessary Measures to Overcome the Challenges Associated with Impact Assessments**
- **Integration of Impact Assessment During Design Phase**
  - o Integrating impact assessment mechanisms during the design phase of DPIs can **ensure that data is collected systematically from the outset.**
  - o Much like privacy and security considerations, **data collection capabilities must be built into DPI systems to create a continuous feedback loop.**

- o This **approach would allow for regular monitoring and adjustments, ensuring that DPIs remain effective** and equitable.
- **Transparent and Secure Data Collection System**
  - o **The second pillar, data, involves making relevant information accessible** through trusted and well-governed mechanisms.
  - o **Government agencies often prioritise data minimisation to prevent misuse,** but this caution can hinder effective assessments.
  - o **By building trust with citizens** and the private sector through transparent and secure data collection systems, **higher quality assessments can be achieved.**
  - o Moreover, **technical advancements are necessary to enhance data discoverability and utility,** enabling more precise evaluations of DPI impacts.
- **Dialogue Among Stakeholders**
  - o **Creating an atmosphere of dialogue among stakeholders is essential for building a community** that includes policymakers, third-party assessment agencies, the private sector, and civil society.
  - o **Engaging these actors in regular conversations can facilitate participative governance,** fostering accountability and encouraging shared responsibility for the success of DPIs.
  - o **Establishing clear protocols for such engagement will ensure that all voices are heard,** driving continuous improvement in the design and implementation of digital infrastructures.

**India's Influence on Global Digital Policies, Future Role and the Path Forward**
- **India's Influence on Global Digital Policies**
  - o **India's success with Aadhaar and UPI has positioned it as a thought leader** in global discussions on DPIs.
  - o **During its G20 presidency, India has championed the idea that DPIs can be a powerful tool** for accelerating development in low- and middle-income countries.
  - o By sharing its experience and best practices, **India has sought to encourage other nations to adopt similar approaches to building digital infrastructures** that are inclusive, scalable, and secure.
- **Influence Beyond Policy Advocacy**
  - o **The World Bank's ID4D (Identity for Development) initiative,** which supports nearly 60 countries in building foundational identification systems, **draws on lessons from India's Aadhaar model.**
  - o **Similarly, the G2Px program, which focuses on digitising government-to-person payments, benefits from India's experience** with direct benefit transfer schemes that leverage digital identity.
  - o These **initiatives reflect a growing recognition of the need to create inclusive digital ecosystems,** where foundational infrastructure like digital identity and payment systems serve as the bedrock for broader digital transformation.
- **India's Future Role and the Path Forward**
  - o **India's confidence in the transformative potential of DPIs is well-founded,** but it must also be matched with a commitment to thorough and regular impact assessments.
  - o **By institutionalising such assessments, India can take timely corrective actions when needed,** ensuring that the promise of DPIs is fully realized.
  - o **This approach will not only help in transforming economies but also in improving the lives of millions of people** across the country and beyond.

**Conclusion**
- The **adoption of the Global Digital Compact represents a significant step** towards global cooperation in digital governance.
- As DPIs gain prominence, **India's leadership and experience provide a valuable blueprint for other nations.**
- **Yet, the path forward requires careful attention to the challenges** of impact assessments, data collection, and inclusive governance.

## 5. Climate Finance to Developing Nations
**Introduction:**
- The issue of **climate finance** is a critical topic in global discussions on climate change.

- As the world faces increasingly severe environmental challenges, the burden falls disproportionately on **developing nations**.
- These countries often bear the brunt of climate impacts, such as floods, droughts, and extreme weather events, while having contributed the least to global emissions.
- The **29th Conference of the Parties (COP29)**, scheduled to be held in **Baku, Azerbaijan** from **November 11 to 22, 2024**, will focus heavily on climate finance, making it a crucial meeting for addressing this global inequality.

## What is Climate Finance?
- According to the **United Nations Framework Convention on Climate Change (UNFCCC)**, climate finance refers to **local, national, or transnational financial flows** that support efforts to **mitigate** and **adapt** to climate change.
- These funds can come from **public**, **private**, and **alternative sources**.
- Key uses of climate finance include:
  - **Mitigation**: Reducing or preventing greenhouse gas emissions.
  - **Adaptation**: Helping vulnerable regions and communities adapt to the impacts of climate change.
- **Developed countries** are expected to contribute the bulk of climate finance, given their historical responsibility for emissions, while **developing nations** need this support to manage both their developmental needs and climate action.

## Why Do Developing Nations Need Climate Finance?
- Developing countries are among the **most vulnerable** to climate change due to:
  - **Geographical factors**: Many are located in regions more prone to extreme weather conditions.
  - **Economy reliance on agriculture**: Sectors like agriculture, which are particularly sensitive to climate change, are often the backbone of their economies.
  - **Limited resources**: These nations have fewer financial and technological resources to adapt to climate change or recover from climate-related disasters.
- For example, the **International Energy Agency (IEA)** reported that in **2021**, around **675 million people** in the developing world lacked access to electricity.
- These countries face not only developmental challenges but also the urgent need for climate-friendly energy solutions, which are often more expensive.

## About Copenhagen Accord:
- The Copenhagen Accord is a political agreement that was reached in 2009 at the 15th session of the UNFCCC.
- At the **Copenhagen Accord**, developed nations pledged to provide **$100 billion annually** in climate finance by **2020** to help developing countries combat climate change.
- However, this goal has not been fully realized. Key issues with this commitment include:
  - **Over-reporting**: Developed nations often report **commitments** rather than actual **disbursals** of funds.
  - **Reclassification of aid**: Existing development aid is sometimes rebranded as climate finance, reducing the impact of new and additional funding.
  - **Loans vs. Grants**: A significant portion of the reported climate finance consists of loans, not grants, adding to the debt burden of developing countries.
- For instance, in **2022**, **69.4%** of international public climate finance was in the form of loans, with only **28%** provided as grants.
- Developing nations argue that climate finance should be predominantly **grants** or at least **concessional loans** (loans with low-interest rates), to avoid increasing their financial burdens.

## India's Climate Finance Needs:
- India is a prime example of a country with ambitious climate goals but significant financial needs. India's climate targets include:
  - **500 GW of non-fossil fuel capacity by 2030**.
  - **5 million metric tonnes of green hydrogen (GH2)** production capacity annually.
  - **Electric Vehicle (EV) penetration** across various categories by 2030.
- The cost to achieve these goals is enormous:
  - An estimated **₹16.8 lakh crore** will be required for renewable energy projects by 2030.

- o India's **Green Hydrogen Mission** alone requires an additional **₹8 lakh crore** in investments.
  - o To meet its **electric vehicle (EV)** targets, consumers will need to spend **₹16 lakh crore** on EVs.
- Looking further ahead, **India requires ₹850 lakh crore in investments between 2020 and 2070** to meet its **net-zero emissions**

**New Collective Quantified Goal (NCQG):**
- As the current $100 billion climate finance target expires in 2025, there is a push for a new, more ambitious goal, called the **New Collective Quantified Goal (NCQG)**. The **NCQG** must include:
  - o **Actual disbursals**, not just commitments.
  - o **New and additional funding**, beyond existing aid.
  - o **Public capital** in the form of direct grants.
  - o **Mobilized private capital** that results from public funding initiatives.
- A high-level expert group at **COP26** and **COP27** determined that developing countries (excluding China) will need around **$1 trillion** in external climate finance annually by **2030**.

**Challenges in Climate Finance:**
- The road to securing adequate climate finance for developing countries is fraught with challenges:
  - o **High capital costs**: Developing countries often face **twice the cost** of capital for green technologies, such as solar photovoltaics, compared to developed nations.
  - o **Competing developmental needs**: Developing nations need to balance economic growth with climate action, often needing external financial support to do so.

**Conclusion:**
- As the world prepares for **COP29**, climate finance remains at the forefront of global negotiations.
- Developing countries, including India, need substantial external financial assistance to meet their climate goals and adapt to the growing impacts of climate change.
- The ongoing debate around the **$100 billion commitment** and the push for a more ambitious **NCQG** highlights the urgency for **developed countries** to fulfil their responsibilities and ensure that **vulnerable nations** have the resources they need to fight climate change effectively.

# 6. Rising Dependence on Agriculture for Livelihoods in India
**Why in News?**
The landscape of rural India is undergoing a significant transformation, as indicated by the recent All India Rural Financial Inclusion Survey for 2021-22.
This survey (commissioned by NABARD) reveals a noteworthy increase in the proportion of rural households reliant on agriculture for their livelihoods, signifying a break from a decades-long pattern of dwindling rural agricultural links.

**Growing Agricultural Households in India:**
- **Statistical insights:**
  - o According to survey, **57% of rural households were classified as "agricultural" in 2021-22**, a considerable rise from 48% in 2016-17.
  - o The survey defines **an agricultural household** as one that produces crops or livestock worth more than Rs 6,500 (Rs 5,000 in the earlier survey) and has at least one member engaged in self-employment in agricultural activities.
- **Income comparison:**
  - o The average monthly income for agricultural households stood at **Rs 13,661 in 2021-22**, surpassing the Rs 11,438 for non-agricultural rural households.
  - o Notably, agricultural households have seen their income from farming rise to over 45% of their total income, an increase from 43.1% in 2016-17.
  - o **This trend spans across various land sizes, illustrating a broad-based rise in agricultural income.**

**How the COVID-19 Impacted this Trend of Rising Agricultural Households and Income?**

- **Lockdown effects:**
  - The survey period coincided with the aftermath of COVID-19 lockdowns, which significantly impacted economic activities across sectors.
  - **Agriculture was exempt from many restrictions**, potentially leading to an overestimation of its share in rural livelihoods.
  - **The favourable monsoon seasons from 2019** further supported agricultural productivity, suggesting a complex interplay between external factors and survey results.
- **Labour force dynamics:**
  - According to the National Sample Survey Office's (NSSO) Periodic Labour Force Surveys (PLFS), agriculture engaged 64.6% of the country's workforce in 1993-94.
  - That share fell to 58.5% in 2004-05, 48.9% in 2011-12, and a low of 42.5% in 2018-19.
  - However, post-2019, **the farm sector's share of the employed labour force rebounded**, with figures rising to 45.6% and 46.5% in the pandemic years.

**Rising Agricultural Dependency Amid Economic Growth:**

- **The paradox:**
  - Despite the Indian economy experiencing robust growth, with an annual GDP increase of 8.3% in recent years, agricultural dependency has persisted.
  - The proportion of the rural workforce engaged in agriculture rose from 57.8% in 2018-19 to 59.8% in 2023-24.
  - This trend presents a paradox: **why is a growing economy relying more on agriculture?**
- **Structural employment issues:**
  - This paradox can be partly explained by the **stagnation in manufacturing employment**, which accounted for only 11.4% of the workforce in 2023-24, down from previous years.
  - **The movement of surplus labour** does not appear to be transitioning from agriculture to manufacturing; instead, **it is shifting to informal sectors** with similar low productivity and wage characteristics.
- **Regional disparities in agricultural employment:**
  - According to the PLFS data for 2023-24, States like Chhattisgarh (63.8%), MP (61.6%), and UP (55.9%) have high agricultural workforce shares, while states like Goa (8.1%) and Kerala (27%) exhibit much lower dependence on agriculture.
  - **These variations highlight regional economic conditions and the effectiveness of rural development initiatives.**

**Way Ahead to Address the Rising Dependence on Agriculture for Livelihoods in India:**

- The rising dependence on agriculture for livelihoods in India **necessitates a thorough examination of underlying causes**.
- As the economy grows, the challenge remains to **create sustainable employment opportunities outside of agriculture.**
- Policymakers need to focus on **strengthening the agricultural sector while simultaneously promoting diversification into higher productivity sectors**.
- Understanding this paradox is crucial for **crafting effective strategies** that ensure balanced economic growth and improved livelihoods in rural India.

## 7. India's Shift to a Cautious Approach in Trade Negotiations

**Context:**

India is adopting a more cautious strategy in its trade negotiations, halting talks for free trade agreements (FTAs) with smaller countries like Oman and Peru. This shift is due to concerns that past FTAs have disproportionately benefitted partner countries.

The pause in negotiations comes not only due to the widening trade gap but also concerns over the outflow of investment from the country.

**Widening Trade Deficit with FTA Countries**

- **Background**
  - India's trade agreements with countries like the UAE and ASEAN have resulted in surging imports, widening the trade deficit.
- **Deficit with ASEAN**
  - ASEAN remains a crucial trading partner for India, accounting for 11 percent of its global trade, with bilateral trade reaching US$ 122.67 billion during 2023-24.
  - India's trade with ASEAN experienced astounding growth after signing the ASEAN-India Trade in Goods Agreement (AITIGA).
  - However, the trade disproportionately benefits the ASEAN region.
    - Between FY 2009 and FY 2023, imports from ASEAN to India grew by 234.4 percent while exports from India rose only by 130.4 percent.
    - As a result, India's trade deficit expanded from US$ 7.5 billion annually when the agreement was enacted in 2011 to approximately US$ 44 billion in 2023.
- **Deficit with UAE**
  - India's trade deficit with the United Arab Emirates (UAE) widened after the signing of the Comprehensive Economic Partnership Agreement (CEPA) in May 2022.
  - Within eight months of the CEPA coming into effect, India's trade gap with the UAE widened by more than $5 billion.
  - India's exports to the UAE grew by 11% to $20.25 billion, while imports climbed 24.4% to $36.23 billion.

**Strategies employed by India to address the issue**

- **Development of a New SOP**
  - The Commerce Ministry is drafting a fresh Standard Operating Procedure (SOP) to streamline future trade negotiations.
  - The SOP will include modern chapters on labor, environment, and trade-offs, with a clear focus on human resource mobilisation and the hierarchy of negotiating teams.
  - The draft also includes input from the Ministry of External Affairs (MEA) and the Department of Economic Affairs (DEA), referencing consultancy private group.
- **Shift in Focus to Larger Markets and Geopolitically Important Countries**
  - India is now focusing on trade deals with larger markets such as the European Union and the UK, and countries of geopolitical importance like the Maldives.
  - Negotiations with smaller countries are paused, as India feels it has not received commensurate returns in past agreements.
    - India opens a large market for the partner country, but there is a sense that it is not receiving commensurate returns.
- **Reviewing Past FTAs and Tariff Asymmetry**
  - India is reviewing the ASEAN trade agreement, which has led to significant trade deficits post-Covid.
  - The review is expected to be completed by next year, focusing on resolving tariff asymmetry, which has disadvantaged India in these deals.
- **Stringent norms for Rule of origin and imposition of anti-dumping duties**
  - The rising influx of Chinese investments and goods into ASEAN has sparked concerns over the rerouting of Chinese products into India through the region.
  - The Economic Survey highlighted that Chinese firms are increasingly rerouting supply chains through countries like Mexico and Vietnam.
  - In response, India's Ministry of Commerce and Industry launched an anti-dumping investigation on various goods imported.
  - India is also taking a tough stand on the issue of rule of origin while negotiating with other countries.

**Challenges faced by India in trade negotiation**

- **Current Negotiating Capabilities**
  - One of the main challenges for India is the lack of subject matter expertise and institutional memory in trade negotiations.

- o In contrast, foreign negotiators tend to have more experience, putting India at a disadvantage.
  - ▪ Foreign negotiators are battle-hardened with years of expertise in negotiations, unlike in India where officials are rotated periodically.
- **Exit from RCEP and Concerns over Rising Imports from China**
  - o India exited the China-led Regional Comprehensive Economic Partnership (RCEP) negotiations due to concerns over rising imports from China.
  - o Meanwhile, trade between China and ASEAN grew after RCEP came into effect in 2022, increasing competition for India in the region.
- **Other challenges**
  - o Global economic slowdown, the rise of tariffs and non-tariff barriers, and new trade policies such as the EU's Carbon Border Adjustment Mechanism and Deforestation Rules as major challenges.

## 8. The Huge Cost of Moving Away From Coal

**Context:**

A recent study by iForest (International Forum for Environment, Sustainability and Technology) reveals that India will need over $1 trillion (Rs 84 lakh crore) over the next 30 years for a just transition away from coal. The study, the first of its kind, estimates the costs of phasing down coal mines and plants while ensuring socio-economic stability in coal-dependent regions.

**Coal Resource in India**

- **Statistics**
  - o According to the National Coal Inventory of 2023, the total estimated coal reserve (resource) of India is **378. 21 billion tonnes as of 01.04.2023.**



State wise Coal Resource in Billion Tonnes
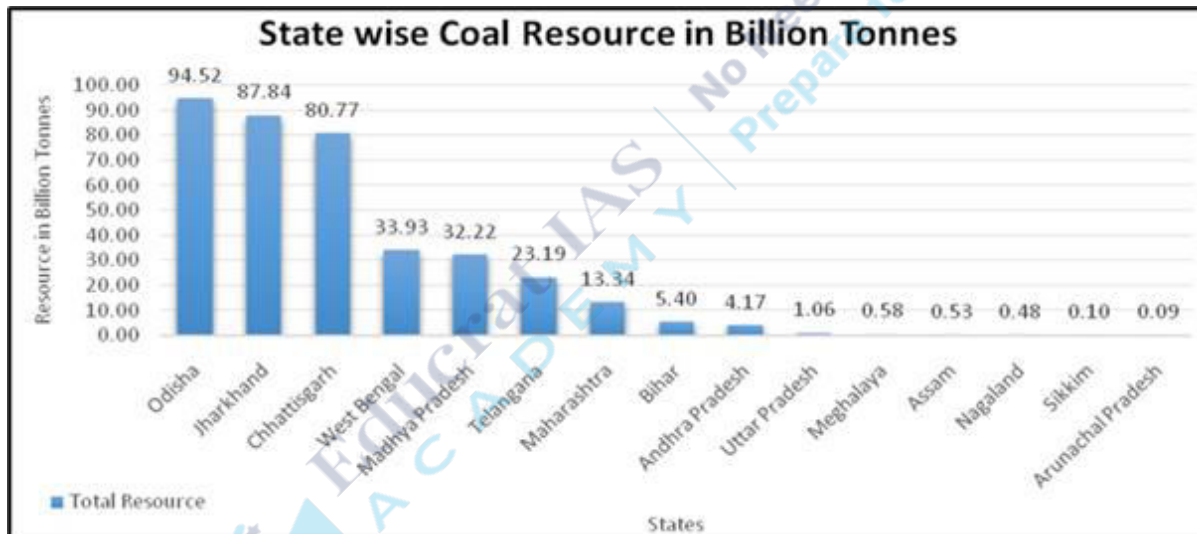
- **Coal Production**
  - o The all India Production of coal during **2023-24** was **997. 83 MT** with a positive growth of **11.71%.**
- **Coal Import**
  - o As per the present Import policy, coal can be freely imported (under Open General Licence) by the consumers themselves considering their needs based on their commercial consideration.
  - o Coking Coal is being imported by Steel sector mainly to bridge the gap between the requirement and indigenous availability and to improve the quality.
  - o Other sectors like Power sector, cement etc. and coal traders are importing non-coking coal.
  - o Total coal import during 2023-24 was 261 million tonnes.

**Ensuring a Just Energy Transition in India**

- **About Just Energy Transition and challenges associated**
  - o A "just" energy transition refers to an equitable and inclusive shift towards a low-carbon economy that takes into account the needs of workers and communities dependent on fossil fuels.

- o As the world's second-largest coal producer, India employs a vast number of individuals in coal mining, thermal power plants, logistics, and related sectors.
    - Public sector coal companies alone employ over 3.6 lakh workers, with many more in the private sector.
  - o As India aims for net-zero emissions by 2070, growing its renewable energy capacity will be crucial.
  - o However, ensuring that coal-dependent workers and regions are not left behind in this transition poses a major financial challenge.
  - o Balancing economic stability with climate goals will require significant investment.
- **Costs associated with a just transition**
  - o A study on India's just transition from coal, based on assessments of coal-dependent districts and international examples from South Africa, Germany, and Poland, identified eight key cost components.
  - o These include:
    - mine closures and site repurposing,
    - retiring coal plants and converting them to clean energy,
    - skilling workers for green jobs,
    - fostering new businesses,
    - community support,
    - green energy investments,
    - compensating states for revenue loss, and
    - planning costs.
  - o Nearly 48% of the estimated $1 trillion required over the next 30 years will be needed for green investments to replace coal-based energy infrastructure with cleaner alternatives.
- **Source of funds for this transition**
  - o Funding India's just transition away from coal will require a mix of public and private investments.
  - o Public funding, through grants and subsidies, will primarily address "non-energy" costs such as community support, skilling coal workers for green jobs, and aiding new businesses.
  - o India's $4 billion District Mineral Foundation funds, collected from miners, along with Corporate Social Responsibility (CSR) funds, can be used to support new businesses and coal-dependent communities.
  - o Private investments, on the other hand, are expected to cover most of the "energy costs," focusing on developing clean energy projects and green infrastructure.

**International Support for Coal Phase-Down – Case Studies**

- **South Africa's Just Energy Transition**
  - o South Africa's Just Energy Transition Investment Plan (JET-IP) will receive international financial support from countries such as the UK, France, Germany, the US, the EU, the Netherlands, and Denmark.
  - o The plan requires $98 billion over two decades, with $8.5 billion to be provided between 2023-2027.
  - o Most of the funds will go towards green energy investments, with financing through concessional loans, grants, and public-private partnerships.
- **Germany's Legislative Action on Coal Phase-Out**
  - o Germany has enacted legislation to phase out coal power by 2038, with over $55 billion allocated to close coal mines and power plants.
  - o The funds will also be used to support coal-dependent regions by fostering economic development.

**Findings from the Study of Coal-Dependent Districts in India**

- The study focused on four coal-dependent districts: Korba (Chhattisgarh), Bokaro and Ramgarh (Jharkhand), and Angul (Odisha), to assess their reliance on coal and estimate the costs of a just transition.
- In Bokaro, coal-based industries contribute 54% of the district's domestic product, employing around 1,39,000 workers in coal mining, power plants, and related sectors like steel and cement.
- The study estimates that a full coal phase-down in Bokaro will begin after 2040 and will require Rs 1.01 lakh crore over 30 years to rehabilitate workers, repurpose coal sites, and develop green energy infrastructure.

# 9. Parliamentary Committee to Review Armed Forces' Readiness for 'Non-Kinetic Warfare'

**Why in news?**

The Parliamentary Standing Committee on Defence has prioritized 17 subjects for deliberation, with a key focus on India's preparedness to counter hybrid warfare.

Hybrid warfare describes a conflict in which non-kinetic (non-military) tactics are employed to complement military action.

**Non-Kinetic Warfare**

- **About**
  - Non-kinetic warfare refers to <u>conflict methods that do not rely on traditional military force or physical destruction</u>.
  - Instead, it employs cyberattacks, electronic warfare, psychological operations, information manipulation, economic sanctions, and other strategies to disrupt an enemy's infrastructure, economy, or morale.
  - It can <u>involve non-military actors</u> and often targets critical infrastructure like power grids, communication networks, and financial systems.
- **Examples of non-kinetic warfare**
  - **Russia-Ukraine Conflict**
    - Alongside traditional military tactics, Russia has been accused of launching extensive cyberattacks against Ukraine's critical infrastructure.
    - Ukraine has faced disruptions to its power grid, communication systems, and government websites, as well as disinformation campaigns aimed at destabilizing the country.
  - **Israel-Hamas Conflict**
    - Both sides engaged in information warfare and cyberattacks.
    - Israel reportedly deployed cyber measures to block Hamas's communications, while Hamas used propaganda and social media to influence public opinion and spread misinformation globally.
  - **U.S. Election Interference (2016)**
    - The U.S. government accused Russia of meddling in its presidential election through disinformation campaigns, hacking of political parties, and social media manipulation to sway public opinion.
    - This is a classic case of information warfare aimed at destabilizing democratic processes.
  - **Chinese Cyberattacks on the U.S.**
    - China has frequently been accused of conducting cyber espionage against the United States, targeting government agencies, private companies, and defense contractors.
    - These cyberattacks aim to steal intellectual property, military technology, and sensitive information, undermining U.S. national security.
  - **Pager Blasts in Lebanon**
    - In a more localized example of non-kinetic warfare, pager blasts were reported in Lebanon.
    - These attacks were used to disrupt communication systems without the use of conventional military force, adding another layer to hybrid warfare tactics.
- **Difference from Kinetic Warfare**
  - Kinetic warfare involves physical force, such as the use of weapons, troops, and military machinery to inflict damage and secure objectives through direct combat.
  - Non-kinetic warfare, on the other hand, achieves its goals through non-violent means, focusing on disabling or weakening an enemy without physical engagement.
  - While kinetic actions result in visible destruction, non-kinetic warfare can cause long-lasting disruption without leaving obvious physical traces.
- **Threats and Challenges**
  - **Cybersecurity Risks**: Cyberattacks can cripple national infrastructure, such as power grids, financial systems, and transportation networks.
  - **Information Warfare**: Manipulating public opinion through misinformation or propaganda poses significant risks to societal stability.
  - **Economic Warfare**: Sanctions or economic destabilization can severely impact a nation's economy without direct conflict.

- o **Technology Dependence**: As more systems become digitally interconnected, the vulnerability to non-kinetic attacks increases.
- o **Detection and Response**: Non-kinetic threats are harder to detect and defend against compared to physical warfare, requiring advanced surveillance, cybersecurity measures, and technological preparedness.

**Standing Committee on Defence (SCOD)**
- **About**
  - o The Standing Committee on Defence constituted under Rule 331 C of the Rules of Procedure and Conduct of Business in Lok Sabha.
  - o The Committee have the Ministry of Defence under its jurisdiction.
- **Members and tenure**
  - o The Committee consist of **31 Members**: 21 Members from Lok Sabha, nominated by the Speaker, Lok Sabha and 10 from Rajya Sabha nominated by the Chairman, Rajya Sabha.
  - o The Chairperson of the Committee is appointed by the Speaker from amongst the Members of the Committee from Lok Sabha.
  - o The term of office of the Members of the Committee does not exceed one year.
- **Functions of the Committee**
  - o To consider the Demands for Grants of the Ministry of Defence, make reports on the same and present them to the Parliament;
  - o To examine such Bills pertaining to the Ministry of Defence as are referred to the Committee by the Speaker, Lok Sabha or the Chairman, Rajya Sabha as the case may be, and make reports thereon;
  - o To consider Annual Report of the Ministry of Defence and make reports thereon; and
  - o To consider National Basic Long-Term Policy Documents presented to the Houses, if referred to the Committee by the Speaker, Lok Sabha or the Chairman, Rajya Sabha as the case may be, and make reports thereon.

## 10. The Impact of Climate Change on Poor Farmers in India: FAO Report

**Background:**
- A recent report from the **Food and Agriculture Organization (FAO)** highlights how **climate change** disproportionately affects **poorer farmers in India**.
- Titled **"The Unjust Climate: Measuring the Impacts of Climate Change on Rural Poor, Women, and Youth,"** the report reveals the vulnerabilities faced by marginalized farming communities due to climate-induced stresses such as **heat stress**, **floods**, and **droughts**.

**About Food and Agriculture Organization (FAO):**
- It is a specialized agency of the **United Nations** that leads international efforts to defeat hunger, improve nutrition, and ensure food security.
- Its primary mission is to raise levels of nutrition, improve agricultural productivity, and better the lives of rural populations by promoting sustainable agricultural practices.
- Established in **1945**, FAO's headquarters is located in **Rome, Italy**.
- **Key Objectives of FAO:**
  - o **Eradicating Hunger and Food Insecurity**:
    - ▪ FAO works towards achieving a world free of hunger, ensuring that everyone has access to safe and nutritious food.
  - o **Sustainable Agriculture**:
    - ▪ The organization promotes the adoption of sustainable agricultural methods to increase productivity while preserving natural resources like soil, water, and biodiversity.
  - o **Improving Rural Livelihoods**:
    - ▪ FAO supports smallholder farmers, rural communities, and women by providing tools, knowledge, and access to markets to improve their economic opportunities.
  - o **Tackling Climate Change**:

- The FAO is actively involved in addressing the impacts of **climate change** on food systems and advocating for climate-resilient farming practices.

**Key Highlights of the Report:**
- The FAO, recently, presented the report "The unjust climate. Measuring the impacts of climate change on rural poor, women, and youth" at an event in New Delhi.
- Key Findings of the Report:
  - **Income Disparities**:
    - The report finds that **poor households** globally lose **5% of their income** annually due to heat stress and **4.4%** due to floods, compared to wealthier households.
    - In India, rural poor households are particularly vulnerable because their income sources are more reliant on **climate-sensitive agriculture**.
  - **Structural Inequalities:**
    - According to the report, the vulnerability of poor farmers is deeply rooted in **structural inequalities**.
    - Households exposed to climate stressors experience a more significant reduction in total income compared to those unaffected.
    - Poor farmers dedicate more resources to sustaining agricultural production during adverse events, leading to reduced opportunities for **off-farm employment**.
  - **Impact of Heat Stress and Floods**:
    - The report states that climate change widens the income gap between poor and non-poor households globally.
    - Floods increase this gap by approximately **$21 billion per year**, while heat stress contributes to a gap of over **$20 billion**.
    - In India, rising temperatures increase the dependency of poor households on farming, while off-farm incomes decrease by **33%**.
  - **Policy Recommendations**:
    - The FAO report suggests expanding **social security nets** for vulnerable communities.
    - **Anticipatory social protection programs**, which provide livelihood support ahead of extreme weather events, can help reduce poverty and reliance on harmful coping strategies.
    - The report also recommends addressing **gendered barriers** in employment, promoting **workforce diversification**, and providing **mentorship programs** to help rural communities participate in the modern workforce.
    - The report emphasizes the need to empower **women** and **youth** in rural areas to help combat the effects of climate change.
    - **Gender-transformative approaches** are necessary to challenge discriminatory social norms and enable women to make economic decisions that directly affect their lives.
    - The report suggests **mentorship programs** and initiatives to strengthen socio-emotional skills, allowing women and youth to better participate in the workforce and adapt to modern employment needs.

**NITI Aayog's Response:**
- Responding to the report, a member of **NITI Aayog**, said that India has been actively addressing the challenges posed by climate change. Key initiatives include:
- **National Innovations on Climate Resilient Agriculture (NICRA)**:
  - This project was implemented to help Indian farmers adapt to extreme weather conditions.
  - NICRA offers solutions for various crops, ensuring that farmers are equipped to handle adverse climatic events.
- **Employment Guarantee Schemes and Social Safety Nets**:
  - India was the first country to implement an **employment guarantee scheme** (Mahatma Gandhi National Rural Employment Guarantee Scheme) to provide economic security to its population.
  - During the COVID-19 pandemic, the government distributed **free food grains** (Pradhan Mantri Garib Kalyan Anna Yojana) to two-thirds of the population, demonstrating its commitment to addressing both climate-related and economic challenges.
- **Increasing Women's Participation**:

## 11. Union Government Announces MSP Hike for Rabi Crops

**Why in News?**

The Union government has declared minimum support prices (MSP) for six rabi crops for the 2025-26 marketing season, notably increasing the MSP for wheat by ₹150 per quintal to ₹2,425, marking a 6.59% rise from the previous MSP.

**Minimum Support Price (MSP) Regime in India:**

- **About MSP:** MSP is a form of **market intervention** (a policy decision not enforceable by law) by the Government of India to insure agricultural producers against any sharp fall in farm prices during bumper production years.
- **Announced by:** These are announced by the **Cabinet Committee on Economic Affairs** (Chaired by the PM of India) on the basis of the recommendations of the Commission for Agricultural Costs and Prices (**CACP**) at the beginning of the sowing season for certain crops.
- **Objectives:**
  o **MSPs are a guarantee price** for farmer's produce from the Government to prevent the farmers from distress sales and to procure food grains for public distribution.
    ▪ **For example,** if the market price for a commodity falls below the specified minimum price due to market surplus, government agencies will buy the entire quantity supplied by farmers at the announced minimum price.
  o The MSP hikes are **essential not only for farmers' welfare but also for stabilising agricultural markets**, especially as India aims to enhance domestic pulse production amid rising imports.
- **Background:**
  o India's agriculture was **devastated under British rule** and the farmers were impoverished.
  o **The Food-Grain Enquiry Committee**, established by the Jawaharlal Nehru administration in 1957, was the first attempt to address the agricultural earning issue.
  o In 1964, **Lal Bahadur Shastri** formed the Food Grain Price Committee (under LK Jha), to push for a MSP regime.
  o **The first MSP announcement** was made in 1967 by the then Agriculture Minister Jagjivan Ram.
  o Thus, the MSP regime came into existence as **a policy decision** (to be applicable uniformly across India) and the government set up the Agricultural Prices Commission (renamed as the CACP in 1985) for fixing MSP for crops.
- **Crops covered**:
  o Government announces MSPs for **22** mandated crops and fair and remunerative price (FRP) for **sugarcane** (total 23).
  o The mandated crops are **14** crops of the **kharif** season, **6 rabi crops** (Wheat, Barley, Gram, Masur [Lentil], Rapeseed & Mustard, Safflower) and two other commercial crops.

**Issues Faced by the MSP Regime in India:**

- **Limited coverage:** MSP is only applicable to certain crops, primarily those included in the government procurement system. Many farmers grow crops not covered by MSP, leaving them vulnerable to price fluctuations.
- **Regional disparities:** The implementation of MSP varies across states. Some regions benefit more due to better procurement infrastructure, while others face challenges in accessing MSP, leading to uneven support for farmers.
- **Discourage diversification:** Farmers may become overly reliant on MSP, which can discourage diversification and lead to overproduction of specific crops, causing market imbalances.
- **Procurement challenges:** While MSP aims to ensure fair pricing, actual procurement processes can be inefficient. Issues like delays in payments, inadequate storage facilities, and corruption can hinder farmers from benefiting fully.
- **Market distortions:** MSP can distort market signals by encouraging farmers to produce crops primarily for government support rather than responding to market demand, potentially leading to surpluses and wastage.
- **Neglect of non-cereal crops:** The MSP regime has historically focused on staple crops like wheat and rice, often neglecting pulses, oilseeds, and other essential crops. **This can impact nutritional diversity and food security.**

- **Inflationary pressure:** Increasing MSP without corresponding productivity improvements can contribute to inflation in food prices, affecting consumers and the overall economy.
- **Sustainability concerns:** The emphasis on certain crops may lead to unsustainable farming practices, such as excessive water use and soil degradation, affecting long-term agricultural viability.
- **Underutilisation of available support:** Many farmers are not fully aware of the MSP policies or how to access them, leading to underutilisation of available support.
- **Political interference:** MSP decisions can be influenced by political considerations, leading to inconsistencies in pricing and procurement policies that do not necessarily align with economic realities.

**News Summary Regarding MSP Hike for Rabi Crops:**
- **Details of MSP adjustments:**

| | MSP (Rs/Quintal) for RMS 2024-25 | MSP (Rs/Quintal) for RMS 2025-26 | Absolute Increase (Rs/Quintal) | % Increase |
|---|---|---|---|---|
| Wheat | 2275 | 2425 | 150 | 6.59 |
| Barley | 1850 | 1980 | 130 | 7.03 |
| Gram | 5440 | 5650 | 210 | 3.86 |
| Lentil (masur) | 6425 | 6700 | 275 | 4.28 |
| Rapeseed and mustard | 5650 | 5990 | 300 | 6.02 |
| Safflower | 5800 | 5940 | 140 | 2.41 |

- **Government's justification:**
  o Despite upcoming elections in states like Maharashtra and Jharkhand, the government **denied any political motives** behind the timing of these announcements.
  o According to the Union Agriculture Minister, these hikes will **ensure fair prices to farmers and encourage crop diversification**.
  o The decision to increase the MSP for mandated Rabi Crops for the Marketing Season 2025-26 aligns with the **Union Budget 2018-19** announcement of fixing the MSP **at a level of at least 1.5 times of the All-India weighted average cost of production**.
  o The anticipated margin over the All-India weighted average cost of production varies among crops, with **wheat leading at 105%,** followed by rapeseed & mustard at 98%, lentil at 89%, gram and barley both at 60%, and safflower at 50%.
- **Significance of wheat crop:**
  o **Wheat is India's 2nd-largest crop**, with a production estimate of 113.92 million tonnes for 2023-24.
  o **UP, MP, and Punjab** are the leading wheat-producing states.
  o In the current marketing season, the government has procured 26.6 million tonnes of wheat, benefiting approximately 22 lakh farmers.

# 12. How did the Haber-Bosch Process Change the World?

**Background:**
- The **Haber-Bosch process**, developed in the early 20th century, revolutionized global agriculture and food production by enabling the industrial synthesis of **ammonia (NH3)** from atmospheric nitrogen (N2) and hydrogen (H2).
- This innovation, which allowed for the mass production of nitrogen-based fertilizers, has had a profound impact on feeding the world's growing population and supporting modern agriculture.

**Understanding Nitrogen and Its Role in Nature:**
- **Nitrogen (N2)** is a critical element for life, as it is a key component of **proteins, enzymes**, and **amino acids** in both plants and animals.
- Although nitrogen is abundant in the atmosphere, making up about **78% of the air**, it is mostly present in an inert form (N2) that cannot be directly utilized by plants.
- Plants require **reactive nitrogen**, such as **ammonia (NH3)** or **nitrates (NO3-)**, to grow and thrive.
- In nature, reactive nitrogen is produced through two primary methods:
  o **Lightning**: The immense energy from lightning breaks nitrogen molecules, allowing them to combine with oxygen to form nitrogen oxides, which later become **nitrates** in the soil.

- o **Nitrogen-Fixing Bacteria**: Certain bacteria, such as **Rhizobia**, form symbiotic relationships with plants like **legumes**, helping convert atmospheric nitrogen into forms usable by plants.
- However, these natural processes provide limited amounts of nitrogen, insufficient to support the world's growing demand for food.

**The Haber-Bosch Process:**
- The **Haber-Bosch process**, developed by **Fritz Haber** and later industrialized by **Carl Bosch**, provided a solution to this problem by creating an artificial method for nitrogen fixation.
- The process involves combining nitrogen ($N_2$) and hydrogen ($H_2$) under high pressure (around 200 atmospheres) and temperatures of about 400-500°C, in the presence of a catalyst, to produce **ammonia**.
- **Ammonia** produced through this process is a critical ingredient in synthetic fertilizers, which are used to enrich soil and promote plant growth.
- The availability of ammonia-based fertilizers has enabled the world's agricultural productivity to grow exponentially, contributing to a sevenfold increase in the global food supply during the 20th century.

**Environmental Impact & Concerns:**
- While the Haber-Bosch process has been instrumental in solving global food shortages, it also presents significant environmental challenges.
- **Excessive Nitrogen Use**: The widespread use of nitrogen fertilizers has led to the accumulation of reactive nitrogen in the environment, which can cause **soil degradation**, **water pollution**, and **air contamination**. Excess nitrogen seeps into waterways through runoff, leading to problems like **eutrophication**—the excessive growth of algae that depletes oxygen in water bodies, killing aquatic life.
- **Nitrogen Pollution**: Reactive nitrogen released into the atmosphere can combine with water vapor, leading to **acid rain**, which damages ecosystems and erodes infrastructure.
- **Greenhouse Gas Emissions**: The production of ammonia through the Haber-Bosch process requires substantial amounts of energy, primarily from fossil fuels, contributing to the emission of **greenhouse gases** like carbon dioxide ($CO_2$).

**Global Food Security and the Haber-Bosch Process:**
- Despite its environmental drawbacks, the Haber-Bosch process remains essential for **global food security**.
- It is estimated that without synthetic fertilizers, about one-third of the world's population—nearly **2 billion people**—would face food shortages.
- The availability of nitrogen fertilizers has enabled countries to increase crop yields and sustain larger populations.
- For instance, in the early 20th century, India had an average life expectancy of only 19 years.
- By enabling the mass production of fertilizers, the Haber-Bosch process helped boost food production, contributing to improved health outcomes and increasing life expectancy to over **67 years**

**Technological Innovation and the Future:**
- While the Haber-Bosch process has been a crucial technological breakthrough, it is clear that **technological solutions alone cannot solve the challenges of feeding a growing population**.
- Experts suggest that along with continued innovation in fertilizer production, addressing these challenges requires **political action**, **sustainable farming practices**, and **social mobilization** to minimize environmental damage and ensure equitable food distribution.
- The lessons from the Haber-Bosch process underscore the importance of balancing **technological progress** with **environmental stewardship** and **social responsibility**.

**Conclusion:**
- The **Haber-Bosch process** revolutionized agriculture by providing an artificial method to produce nitrogen fertilizers, enabling the world to meet its growing demand for food.
- However, its environmental impacts cannot be ignored, as excess nitrogen contributes to pollution, soil degradation, and climate change.
- Moving forward, the challenge lies in balancing the benefits of this technology with sustainable practices and innovation to ensure a healthier and more equitable future for all.

## 13. Can India Escape the Middle-Income Trap?

**Introduction:**

- The **World Development Report 2024**, published by the **World Bank**, highlights the challenge of the **middle-income trap**, where countries experience a slowdown in growth as they reach higher income levels.
- The report identifies the **3i approach—investment, infusion, and innovation**—as essential strategies for countries aiming to transition from middle-income to high-income status.
- This approach requires dynamic state policies, particularly relevant to India's ambitions for sustainable economic growth.

**What is the Middle-Income Trap?**

- The middle-income trap refers to the stagnation of per capita income growth when economies reach around **11% of the U.S. per capita income**.
- This phenomenon hinders further progress toward high-income status.
- **Global Scenario:** Over the last 34 years, only **34 middle-income economies** have successfully transitioned to high-income levels, emphasizing the difficulty of escaping this trap.

**Lessons from Other Economies:**

- **South Korea:**
  - **State-Driven Growth:** South Korea's escape from the middle-income trap was characterized by a **strong state intervention** The government actively directed private sector activities, focusing on **export-driven growth**.
  - **Supportive Policies:** Successful companies were rewarded with access to new technologies, while underperforming firms were allowed to fail. This approach ensured that state resources were efficiently allocated.
  - **Role of Chaebols:** South Korean business conglomerates, or **chaebols**, became global leaders in innovation due to their emphasis on investment and technology adoption.
- **Chile:**
  - **Natural Resource Focus:** Chile's growth was facilitated through targeted state support for **natural resource sectors**, such as the **salmon industry**.
  - **Export Strategy:** The Chilean government ensured the success of specific export sectors through intervention and support, helping the country to climb up the income ladder.
- **European Union's Role:**
  - Most European countries that escaped the middle-income trap benefited from **EU membership**, which facilitated **free movement of capital and labor**—advantages that are not available to non-European nations.

**Challenges for India:**

- **Global Economic Headwinds:**
  - The global economic environment has changed significantly since the time of South Korea's rapid growth. Today, **world export growth** has slowed, and **protectionism** is on the rise, making it difficult for countries like India to access foreign markets.
  - India also faces the challenge of **premature deindustrialization**, where the contribution of manufacturing to GDP declines at lower levels of income than seen historically.
- **Stagnation in the Manufacturing Sector:**
  - Despite India's push for industrial growth, the **manufacturing sector** has struggled to become a robust engine of economic expansion.
  - This has been exacerbated by increased reliance on **agricultural employment** following the pandemic, reversing earlier progress in **structural transformation**.
- **Income Disparity and Low Wage Growth:**
  - While India's GDP growth has been estimated at **around 7%** recently, this growth is not reflected in **real wage increases**.
  - Data from the **Periodic Labour Force Survey (PLFS)** shows that nominal wage growth has been around 5-7%, barely keeping up with **inflation**.

- o Low wage growth means that **consumption demand** remains weak, which could hinder India's ability to escape the middle-income trap.
- **Challenges of Democracy:**
  - o Unlike South Korea and Chile, whose export-driven growth models were facilitated by **authoritarian regimes**, India operates within a **democratic framework**.
  - o This makes it crucial to balance **state intervention** with **democratic principles**, such as labor rights and freedom of expression.

**Strategies for India's Transition:**
- **Leveraging Investment and Innovation:**
  - o India needs to focus on **enhancing domestic investment** and fostering an environment conducive to **innovation**.
  - o This includes supporting **startups**, **tech companies**, and **research and development**.
- **Encouraging Responsible Business Practices:**
  - o For India to follow a path similar to South Korea's, it is vital to ensure that **state support** is based on **merit** and **performance** rather than **political connections**.
  - o This will ensure efficient allocation of resources and avoid crony capitalism.
- **Strengthening the Service Sector:**
  - o With manufacturing facing challenges, India's **service sector** has the potential to be a key driver of growth.
  - o It is essential to enhance the productivity and global competitiveness of **IT services**, **healthcare**, **education**, and **financial services**.
- **Inclusive Economic Growth:**
  - o Addressing **income inequality** and ensuring that **workers share in economic growth** is critical.
  - o Policies aimed at improving **social safety nets** and **educational opportunities** can empower more people to participate in India's growth story.

**Conclusion:**
- India's journey towards escaping the **middle-income trap** is fraught with challenges, from **global economic shifts** to **domestic structural issues**.
- However, by adopting a balanced approach that combines **state intervention**, **investment in innovation**, and adherence to **democratic values**, India can chart a path towards sustainable high-income status.
- Examples of countries like **South Korea** and **Chile** offer valuable lessons, but India must tailor these lessons to suit its unique economic and political context.

## 14. Gig Economy in India

**Why in the News?**

The Fairwork India Ratings 2024 report examines the changing nature of platform work as platforms increasingly take control of when and for how long workers can provide services, or gigs.

The report titled '**Fairwork India Ratings 2024: Labour Standards in the Platform Economy**' is the sixth consecutive annual study of this nature conducted by the Fairwork India Team.

It is a joint effort by the Centre for IT and Public Policy (CITAPP), International Institute of Information Technology, Bangalore (IIIT-B), in association with Oxford University.

**What is Gig Economy?**
- A gig economy is a free market system in which organisations hire or contract workers for a short span of time.
- Simply put, the positions are temporary to meet the company's requirements by having short-term engagements.
- Startups like Ola, Uber, Zomato, and Swiggy have established themselves as the main source of the gig economy in India.

**Who is a Gig Worker?**
- According to the Code on Social Security, 2020 (India), "A gig worker is a person who performs work or participates in work arrangements and earns from such activities, outside of the traditional employer-employee relationship."

- They are independent contractors, online platform workers, contract firm workers, on-call workers and temporary workers.

**What is the Size of Gig Economy in India?**
- A **NITI Aayog study on "India's Booming Gig and Platform Economy"** has estimated that at present, about 47 per cent of the gig work is in medium-skilled jobs, about 22 per cent in high skilled, and about 31 per cent in low-skilled jobs.
- These figures clearly indicate the importance of the gig working community in the Indian economy.
- Ensuring the comfort and security of this community is investing in a more progressive and prosperous future.
- Various studies have indicated that participation in the gig economy is higher in developing countries(5-12 percent) versus developed economies(1-4 percent).
  - Most of these jobs are in lower-income job-types such as deliveries, ridesharing, microtasks, care and wellness.
- These studies further estimate that in 2020-21, **77 lakh workers were engaged in the gig economy**.
- The gig workforce is expected to **expand to 2.35 crore workers by 2029-30**.

**What is the Average Age/Income of Gig Workers in India?**
- The **median age of Indian gig workers is 27 and their average monthly income is Rs 18,000**.
- Of these, about 71 per cent are the sole breadwinners of their families. Additionally, gig workers operate with an average household size of 4.4.

**Challenges Faced by Gig Workers:**
- While platform companies have created avenues of employment, it has often been marred by **low wages**, **unequal gender participation**, and a **lack of possibility for upward mobility** within an organisation.
- This has triggered protests from workers at companies like Swiggy, Zomato, Ola, Uber, and Urban Company, among others.
- Gig workers are typically **hired by companies on a contractual basis** and are not considered their employees.
- As a result, they do not receive some of the benefits that an on-roll employee of the company may have.
  - This means they often do not receive benefits like paid sick and casual leaves, travel and housing allowances, and provident fund savings, among other things.

**What Needs to be done in Order to Improve the Living Standards of these Gig Workers?**
- **Fiscal Incentives**:
  - NITI Aayog in its report "India's Booming Gig and Platform Economy" has said that fiscal incentives such as tax-breaks or startup grants may be provided for businesses that provide livelihood opportunities where women constitute a substantial portion of their workers.
- **Retirement Benefits**:
  - The report also recommended firms adopt policies that offer old age or retirement plans and benefits, and other insurance cover for contingencies such as the Covid-19 Pandemic.
  - Such plans and policies may be envisaged under the **Code on Social Security, 2020**.
  - Businesses should consider providing income support to workers as it would be a "critical step in providing assured minimum earnings and social security from income loss in the wake of uncertainty or irregularity in work".
  - It also suggesting offering paid sick leave to workers apart from insurance cover.
- **Case Study: The Rajasthan Platform Based Gig Workers (Registration and Welfare) Act 2023**
  - The Rajasthan State Assembly passed the Rajasthan Platform Based Gig Workers (Registration and Welfare) Act 2023.
  - Under the Act, a board will be established to ensure gig workers' registration and welfare, addressing their vulnerabilities and providing a platform for collective bargaining and negotiations.
  - The board can serve as an independent **grievance redress mechanism**.
  - The Act also has a provision of establishing a **social security fund** funded through a fee on every transaction.

## 15. Fairwork India Ratings 2024 report:

- The **Fairwork India Ratings 2024** report evaluates the working conditions of platform workers across various digital platforms in India.
- It highlights that many platforms do not ensure that their workers earn a **local living wage** and are generally unwilling to acknowledge the **collectivization** of workers.
- The report also discusses potential legislative changes for gig workers in states like **Karnataka** and **Jharkhand**.

**Key Findings of the Report:**
- **Overall Ratings**:
    - No platform achieved more than **6 out of 10 points** in the assessment.
    - The platforms were evaluated on **five key principles**: Fair Pay, Fair Conditions, Fair Contracts, Fair Management, and Fair Representation.
- **Assessment of Fair Pay**:
    - Only **Bigbasket** and **Urban Company** earned the first point under Fair Pay by ensuring a minimum wage that covers at least the **local minimum wage** after deducting work-related expenses.
    - No platform received the second point, which requires proof that workers earn a **local living wage** after work-related costs.
- **Evaluation of Fair Conditions**:
    - Platforms such as **Amazon Flex, BigBasket, BluSmart, Swiggy, Urban Company, Zepto,** and **Zomato** earned points for providing **safety equipment** and **safety training**.
    - **BigBasket, Swiggy, Urban Company, Zepto,** and **Zomato** were further recognized for offering **accident insurance** and **compensation for income loss** due to medical reasons.
- **Fair Contracts**:
    - BigBasket, BluSmart, Swiggy, Urban Company, Zepto, and Zomato were awarded points for making contracts accessible and transparent.
    - They also had protocols to protect **worker data**.
- **Fair Management**:
    - Platforms like Amazon Flex, BigBasket, BluSmart, Flipkart, Swiggy, Urban Company, and Zomato provided mechanisms for appeals against disciplinary actions.
    - BluSmart, Swiggy, Urban Company, and Zomato conducted regular external audits to prevent biases in work allocation.
- **Fair Representation**:
    - Despite a rise in **platform worker collectivization** over the last six years, no platform showed evidence of recognizing **collective worker bodies** or unions.

- **Implications & Future Prospects:**
    - The **Fairwork India Ratings 2024** report underscores the growing attention towards **gig worker welfare** in political and legislative discussions.
    - However, the report raises concerns about the slow pace of actual implementation.
    - It calls for a balanced approach where **platform companies**, **government bodies**, and **worker collectives** work together to ensure better standards of living and working conditions for gig workers in India.
    - Overall, the report serves as a crucial reminder of the challenges faced by gig workers and the gaps that remain in ensuring fair work conditions across digital labor platforms in India.

## 16. What are microRNAs?

**Why in News?**

The 2024 Nobel Prize in Physiology or Medicine was awarded to American biologists Victor Ambros and Gary Ruvkun by the Nobel Assembly at Karolinska Institute in Stockholm, Sweden.

The scientists won the esteemed prize for the **discovery of microRNA** and its role in post-transcriptional gene regulation.
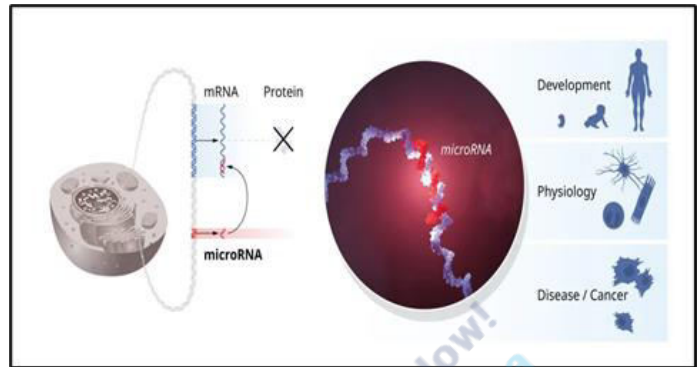
**What are microRNAs?**

- **Background:**
  - **Gene expression in cells and tissues** of every complex organism is precisely controlled and largely dependent on different conditions (such as development, changes in the environment, diseases or drugs).
  - Various cells and organ systems within such organisms (including humans) contain different **gene expression profiles.**
  - Thus, **proper understanding** of regulatory mechanisms involved in such expression represents one of the **key issues in genomic medicine**.
- **Non-coding RNA (ncRNAs):**
  - These molecules have **a role in a plethora of regulatory events** - from controlling the number of copies in bacterial division to X-chromosome inactivation in mammals.
  - Recent genomic scans of humans and animals have revealed that the majority of RNA transcripts are **ncRNAs** rather than messenger RNAs (mRNAs), which code for proteins.
- **About miRNAs:** MicroRNAs/ miRNAs are small, non-coding molecules of RNA, which plays an important role in determining how much mRNA, which carries genetic information, eventually gets translated into protein.
- **Significance of miRNA:**
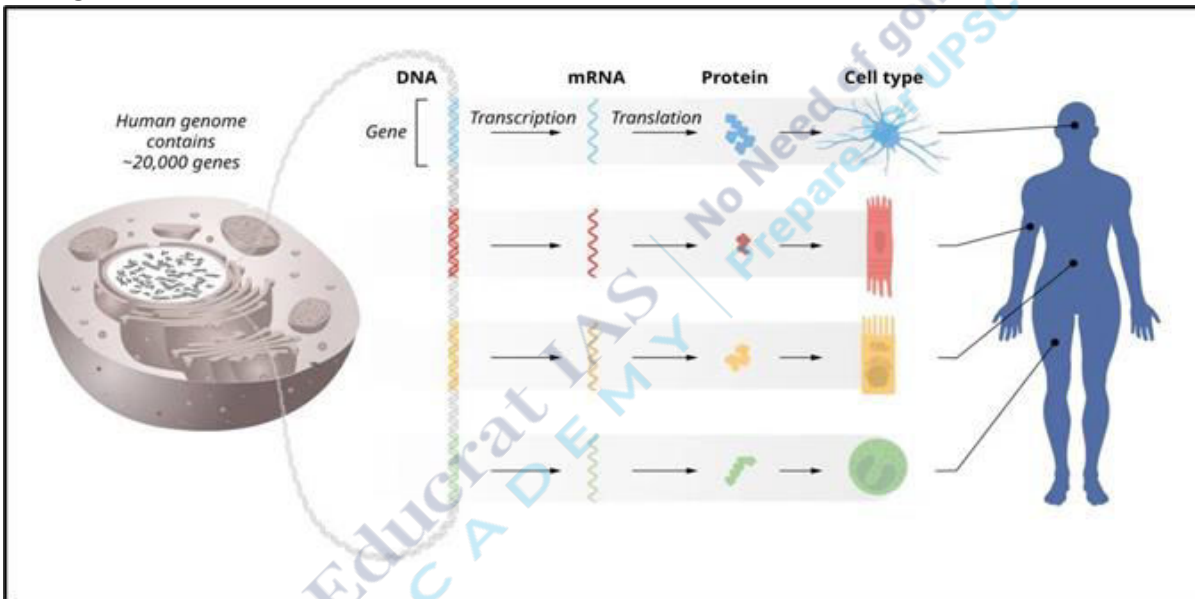


  - The body makes proteins in a complex process with two broad steps.
    - **In the transcription step**, a cell copies a DNA sequence into mRNA in the nucleus. The mRNA moves from the nucleus, through the cell fluid, and attaches itself to the ribosome.
    - **In the translation step**, another type of RNA called transfer RNA (tRNA) brings specific amino acids to the ribosome, where they are linked together in the order specified by the mRNA to make the protein.
  - **miRNA regulates** the production of proteins by bonding with and subsequently silencing the mRNA at an appropriate juncture. The process is called **post-transcriptional gene regulation.**
- **Discovery of miRNAs:**
  - miRNA was initially discovered in a tiny roundworm (C. elegans) by Victor Ambros' laboratory in 1993 while studying the gene lin-14. At the same time, Gary Ravkun identified the first miRNA target gene.
  - These two groundbreaking discoveries identified a novel mechanism of posttranscriptional gene regulation.

**2024 Nobel Prize in Physiology or Medicine:**

- **Why were scientists honoured?**
  - The scientists were honoured for their discovery of a fundamental principle governing **how gene activity is regulated**.

- o **Gene regulation is a process** that helps each cell pick the right tools for its specific tasks.
- o **Their research led them to the discovery of microRNA**, which provided a whole new way of understanding how bodies of complex organisms such as humans function.
- **Understanding the role of miRNA:**
  - Genetic information is stored in DNA inside the nucleus of each cell.
  - This information is copied to mRNA, which carries the instructions for protein synthesis.
  - Different tissues in the body create specific proteins based on their functions, such as making muscles contract and helping nerves communicate.
  - Cells differentiate and perform their tasks through gene regulation, which turns specific genes on or off.
  - **Errors in gene regulation** can lead to **serious diseases,** including cancer, diabetes, autoimmune conditions, etc.
    - o Hence, understanding gene regulation is **essential for understanding and potentially treating these diseases.**
  - A single micro-RNA **can regulate the expression of many genes**, and alternatively a single gene can also be controlled by multiple micro-RNAs.
    - o This leads to fine tuning of different types of cells despite similar genetic information.

## 17. India's Model Bilateral Investment Treaty

**Why in the News?**

India has eased certain conditions for UAE in the bilateral investment treaty. The India-UAE Bilateral Investment Treaty came into force on August 31 this year.

**About Bilateral Investment Treaty:**

- A Bilateral Investment Treaty (BIT) is an agreement between two countries that establishes the terms and conditions for private investments by nationals and companies of one country in the other country.
- BITs are aimed at promoting and protecting investments, ensuring a stable legal environment for investors from both countries.

**India's Model Bilateral Investment Treaty (BIT):**

- India's Model Bilateral Investment Treaty (BIT), introduced in 2016, is a framework designed to guide India's negotiations of investment treaties with other countries.
- The objective of this Model BIT is **to strike a balance between investor protection and sovereign rights of the host state to regulate in public interest.**
- The introduction of the Model BIT came after several disputes arose under India's earlier BITs, prompting the country to revise its investment treaty policy to safeguard both investor interests and India's regulatory autonomy.
- **Key Features:**
  - o **Protection of Investor Rights:**
    - The Model BIT ensures **fair and equitable treatment (FET)** of foreign investors but limits its scope.
    - Unlike traditional BITs, where FET is broadly interpreted, the Indian Model BIT provides a narrow definition, making it harder for investors to claim arbitrary treatment.
  - o **National Treatment and Most-Favoured-Nation (MFN) Clauses:**
    - **National Treatment** guarantees foreign investors the same treatment as domestic investors.
    - However, the **MFN clause** has been excluded from India's Model BIT to prevent foreign investors from using provisions from other treaties to gain favourable treatment.
  - o **Non-Expropriation:**
    - The Model BIT assures that **expropriation** (when the state takes private property for public use) will be carried out only for a public purpose and with due process.
    - It ensures that investors will be compensated fairly for expropriation, but it provides strong provisions to protect the state's right to regulate for public interest, such as health, environment, and social welfare.
  - o **Right to Regulate:**
    - One of the most notable changes in India's Model BIT is the explicit **right to regulate** in areas like public health, environmental protection, and safety.

- The Model BIT emphasizes that state actions taken to protect public interest should not be considered a breach of the treaty.
  - o **Investor Obligations:**
    - India's Model BIT introduces the concept of **investor obligations**, which means that foreign investors must comply with the host country's laws and regulations, including environmental and social standards.

- **Exclusions in India's Model BIT:**
  - o **No Protection for Tax-Related Issues:**
    - One of the significant exclusions is the lack of protection for **taxation matters**.
    - India's Model BIT explicitly states that taxation measures will not be subject to ISDS.
  - o **No Most-Favoured-Nation Clause:**
    - The **MFN clause** is absent in the Model BIT to avoid treaty-shopping by foreign investors (using favourable clauses from another treaty to their advantage).

**Benefits of Model BIT:**
- **Balanced Approach**:
  - o It strikes a balance between **investor protection** and the **state's right to regulate** in public interest, ensuring that India can pursue policy objectives without fear of excessive litigation.
- **Investor Obligations**:
  - o The inclusion of investor obligations, such as compliance with local laws and regulations, ensures accountability and promotes responsible investment.
- **Limiting Arbitrary Claims**:
  - o By narrowing the scope of **Fair and Equitable Treatment** and removing the **Most-Favoured-Nation** clause, the Model BIT reduces the likelihood of investors exploiting treaty provisions for arbitration.
- **Local Remedies Requirement**:
  - o Requiring investors to exhaust local remedies before initiating **Investor-State Dispute Settlement (ISDS)** promotes the use of domestic legal systems, easing the burden of international arbitration.

**Challenges of Model BIT:**
- **Investor Reluctance**:
  - o Stricter conditions, such as the **local remedies clause** and limited ISDS scope, may deter foreign investors from investing in India, fearing lengthy legal processes or inadequate protection.
- **Absence of MFN Clause**:
  - o The exclusion of the **MFN clause** could put Indian BITs at a disadvantage compared to treaties of other countries, reducing the attractiveness of India as an investment destination.
- **Complex Dispute Resolution**:
  - o The requirement to resolve disputes through domestic courts first might lead to **delays** in settling disputes, making investors wary of India's dispute resolution framework.
- **Exclusion of Taxation Matters**:
  - o By excluding **tax-related disputes** from arbitration, the Model BIT leaves investors vulnerable to unexpected tax policy changes without recourse to international arbitration.

**News Summary:**
- The **India-UAE Bilateral Investment Treaty (BIT)**, which came into effect on **August 31, 2024**, reflects changes aimed at making the treaty more **investor-friendly**.
- According to the **Global Trade Research Initiative (GTRI)**, two key changes stand out:
  - o **Reduction in Local Remedies Period**:
    - The period that investors must attempt to resolve disputes through India's legal system has been reduced from five years to three years.
    - This change provides investors with quicker access to **Investor-State Dispute Settlement**
    - While it attracts investors by speeding up dispute resolution, it also **weakens India's ability** to handle disputes domestically, increasing the chances of costly international arbitration.
  - o **Inclusion of Portfolio Investments**:

- Unlike India's **Model BIT**, which excludes **portfolio investments** (such as stocks and bonds), the India-UAE BIT includes them as protected investments.
    - This broadens the treaty's scope and increases India's exposure to disputes over financial instruments, moving away from the Model BIT's focus on long-term, direct investments.
- Overall, the treaty signals a shift towards a more open investment environment, but at the cost of some **regulatory sovereignty**.
- While it may encourage more investment from the UAE, it also raises the risk of higher arbitration claims.
- The **UAE is currently the seventh-largest investor in India**, with about **$19 billion** in **Foreign Direct Investment (FDI)** from April 2000 to June 2024.

# General Studies IV

## 1. Compassion that Embraced All: Gandhi Embodied Principles of UN Charter Well Before they were Framed

**Context**

- **Mahatma Gandhi's philosophy of non-violence has left an enduring mark on global history,** influencing great leaders such as Martin Luther King Jr. and Nelson Mandela.
- **Gandhi's ideas continue to resonate deeply with people worldwide,** shaping the way we confront modern challenges.
- **His life and legacy offer invaluable lessons on peace, sustainability, and human dignity, which are increasingly relevant** as humanity faces some of the most pressing issues of the 21st century.

**Mahatma Gandhi's Legacy, Vision, and Philosophical Depth of Non-Violence**

- **Non-Violence as a Strategy for Change**
  - Gandhi's **strategic application of non-violence was revolutionary in its simplicity and effectiveness** and his belief that **means and ends are inseparable was central to his approach.**
  - He **emphasised that using violent methods, even for a just cause,** would only perpetuate cycles of violence and injustice.
  - **Non-violence, according to Gandhi, is the only way to create a society grounded in peace,** mutual respect, and fairness.
  - Gandhi's use of non-violence was **most famously demonstrated in India's struggle for independence from British colonial rule.**
- **The Satyagraha Campaign During India's Independence Struggle**
  - Through various **peaceful campaigns such as the Salt March (1930) and the Quit India Movement (1942), he mobilised millions of Indians** to resist British oppression without resorting to violence.
  - His approach, termed **Satyagraha, or truth force, called for civil disobedience and non-cooperation with authorities** that enforced unjust laws.
  - Gandhi believed that **truth and moral righteousness could win over even the most powerful adversary,** without the need for physical confrontation.
- **The Philosophical Depth of Non-Violence**
  - **At the core of Gandhi's non-violence was his deep spiritual conviction** that all life is interconnected.
  - He was **influenced by a variety of spiritual traditions, including Hinduism, Jainism, and Christianity**, all of which emphasize compassion, non-harm, and the sacredness of life.
  - **For Gandhi, non-violence was not merely the absence of physical aggression; it was an attitude of love, forgiveness, and empathy** even toward one's enemies.
  - This idea can be understood in Gandhi's belief that **non-violence is more powerful than violence because it requires greater courage and inner strength.**
- **Non-Violence Beyond Politics**
  - Gandhi's philosophy of non-violence **extends far beyond political movements.**
  - He **envisioned a society where non-violence would permeate all aspects of life,** from personal relationships to community interactions and international diplomacy.
  - In his view, **non-violence was not just a strategy for protest but a moral framework for living**.
  - This meant fostering a deep sense of compassion, tolerance, and respect for all beings.
- **The Vision of Sarvodaya**
  - His commitment to **non-violence was closely linked to his vision of Sarvodaya, or the welfare of all.**
  - Gandhi **believed that a truly just society could only emerge when individuals were committed to the well-being of others**, particularly the poor and marginalised.
  - He was **an advocate for the concept of trusteeship,** where the wealthy and powerful would act as stewards of their resources for the common good, rather than for personal gain.
  - This **economic vision was deeply intertwined with his moral commitment to non-violence,** as it **sought to address the root causes of violence; inequality, exploitation, and greed.**

**The Global Impact of Mahatma Gandhi's Non-Violence**

- **Martin Luther King Jr. Fight Against Racism in the US**
  - Martin Luther King Jr. **called Gandhi's approach the guiding light of his own non-violent resistance against racial injustice.**
  - **King's leadership during the Civil Rights Movement in the 1950s and 60s,** particularly during events like the Montgomery Bus Boycott and the Selma to Montgomery marches, **mirrored Gandhi's emphasis on civil disobedience and peaceful protest.**
  - **King believed, like Gandhi, that non-violence was not a sign of weakness, but a way to create moral clarity** and expose the injustices of the existing social order.
- **Nelson Mandela's Fight Against Apartheid in South Africa**
  - **Similarly, Nelson Mandela, though initially advocating for armed resistance, eventually embraced non-violence** as a powerful strategy to dismantle apartheid in South Africa.
  - **Mandela recognised the potential of Gandhi's methods** to unite people in a common cause without deepening divisions through violence.
  - **Gandhi's influence on Mandela helped transform the anti-apartheid struggle into a global movement** grounded in principles of justice, equality, and non-violence.

**Challenges to Non-Violence in the Modern World**

- While **Gandhi's philosophy of non-violence** remains influential, **applying it in today's complex, fast-paced world is not without challenges.**
- **Global conflicts, terrorism, and systemic inequalities often lead to violent responses**, and non-violent approaches can seem slow or ineffective in the face of immediate danger.
- However, **Gandhi's legacy teaches us that non-violence is not a quick fix, but a long-term commitment** to building a more just and peaceful world.
- **It requires patience, resilience, and a belief in the power of moral force** to create lasting change.
- **In a world grappling with climate change,** rising inequality, and political polarisation, **Gandhi's message of non-violence offers a path forward.**
- His **belief in resolving conflicts through dialogue, empathy, and cooperation remains relevant** in addressing today's global crises.
- Moreover, **his insistence on non-violence as a way of life challenges individuals and societies to reconsider their relationships with one another** and with the planet.

**Mahatma Gandhi's Relevance in Addressing Contemporary Challenges**

- **The Climate Crisis**
  - **One of the most critical challenges** facing humanity today is the climate crisis.
  - **If the world fails to meet the targets set in the Paris Climate Agreement, the consequences will be catastrophic** for both humanity and the planet.
  - **Gandhi's philosophy of living in harmony with nature is especially relevant** in addressing this crisis.
  - His belief that **the Earth provides enough to satisfy everyone's needs, but not everyone's greed is a timely reminder** of the need for sustainable consumption and conservation of resources.
  - In recognition of this, **when India ratified the Paris Climate Agreement on October 2, 2016, it symbolically honoured Gandhi's legacy** by committing to global climate action.
- **Sustainable Development and Poverty Eradication**
  - A second **major challenge is the pursuit of sustainable development.**
  - Despite significant progress, **many countries still struggle with poverty, hunger, and inequality.**
  - The **UN's Sustainable Development Goals (SDGs), adopted in 2015, seek to address these issues** by promoting inclusive economic growth, gender equality, and access to education and health services.
  - **Gandhi's principles can guide us in our efforts to build a more equitable and sustainable world.**
  - **His focus on self-sufficiency, economic justice, and the importance of uplifting the poor aligns with the SDGs' objectives.**
  - Countries that have successfully reduced poverty and hunger, such as India, serve as examples of how commitment to these values can bring about meaningful change.
- **The Loss of Spiritual Knowledge**

- o While the world has made tremendous advancements in science and technology, **spiritual well-being has not kept pace.**
- o **Material prosperity alone does not lead to peace or happiness**; there is a growing need for compassion, understanding, and mutual respect in our increasingly diverse societies.
- o **Gandhi's teachings emphasise the importance of spiritual knowledge** as a foundation for peace and harmony.

**Conclusion**
- **Mahatma Gandhi's philosophy of non-violence, his commitment to sustainability,** and his advocacy for spiritual growth **offer a timeless blueprint for confronting the challenges of the 21st century.**
- **As the world grapples with the climate crisis, rising inequality**, and a loss of spiritual connection, **his teachings remind us of the importance of compassion, cooperation, and ethical leadership.**

# PRELIMS BOOSTER (THE HINDU, THE INDIAN EXPRESS & PIB)

## 1ST OCTOBER

### 1. Goa Maritime Symposium 2024:

Indian Navy is hosting the **fifth edition of the Goa Maritime Symposium at Naval War College, Goa.** It is a forum for fostering collaborative thinking, cooperation, and mutual understanding between India and key maritime nations of the Indian Ocean Region. It will be participated by the representatives from 12 Indian Ocean Littoral countries- **Bangladesh, Comoros, Indonesia, Madagascar, Malaysia, Maldives, Mauritius, Myanmar, Seychelles, Singapore, Sri Lanka and Thailand**. **Observers from Kenya and Tanzania**. It was conceptualised and instituted by the Indian Navy in 2016. The symposium is conducted biennially by the **Naval War College (NWC), Goa**.

### 2. Bharat 6G Alliance:

It is a collaborative platform which aims to achieve **universal and affordable connectivity, promote indigenous technology, and establish India as a global leader in the telecom sector**. This platform consist of public and private companies, academia, research institutions, and standards development organizations, aims to lead the development and deployment of 6G technology in India.

**Aim:** To bring together Indian startups, companies, and the manufacturing ecosystem to establish consortia that drive the design, development and deployment of 6G technologies in India.

### 3. Paryatan Mitra And Paryatan Didi Initiative:

The Union Ministry of Tourism has launched a national responsible tourism initiative titled Paryatan Mitra and Paryatan Didi. The primary aim of this initiative is to **elevate the overall experience for tourists in destinations, by having them meet 'tourist-friendly' people** who are proud Ambassadors and Storytellers for their destination. Paryatan Mitra and Paryatan Didi were piloted in six tourist destinations across India: **Orchha (Madhya Pradesh), Gandikota (Andhra Pradesh), Bodh Gaya (Bihar), Aizawl (Mizoram), Jodhpur (Rajasthan), and Sri Vijaya Puram (Andaman & Nicobar Islands).** Under this special emphasis is being placed on the training of women and youth to enable them to develop new tourism products & experiences like heritage walks, food tours, craft tours, nature treks. This training is driven by the '**Athithi Devo Bhava' philosophy treating tourists as honored guests.**

### 4. Nanjangud Rasabale Banana:

It is a variety of banana grown in and around the **Mysore district and Chamarajanagar district of Karnataka**. It was awarded the Geographical Indication (GI) tag in 2006 for its **thick pulp and distinct taste and aroma.**

**Soil required:** Black clay alluvial saline soil has given a unique aroma to this banana. Fruits possess medicinal properties and are believed to cure neurological ailments.

**Threats:** The Panama Wilt disease, a fungal infection caused by the **Fuserium Wilt pathogen** has been the bane of rasabale farmers.

### 5. SASTRA Ramanujan Prize:

**Alexander Dunn has been awarded the prestigious 2024 SASTRA Ramanujan Prize**. It was instituted in the year 2005. It is awarded every year by the SASTRA University near Kumbakonam in Tamil Nadu, on **Ramanujan's birth anniversary, December 22.**

**Eligibility:** The prize is **conferred annually to mathematicians from across the world** who is less than 32 years of age, working in an area influenced by the Srinivasa Ramanujan. The **age limit is 32 years** to commemorate the fact that Ramanujan accomplished a phenomenal body of work in this short span.

**Cash prize:** It carries a citation and award of $10,000. This award has gained global repute ever since it was instituted.

**Recipients: Manjul Bhargava and Akshay Venkatesh**

## 6. About CBI

**Genesis:** Established in **1963** on recommendation of **Santhanam Committee on Prevention of Corruption (1962-64).**

**Status:** Non-statutory & non-constitutional body. It is governed by **Delhi Special Police Establishment (DSPE) Act, 1946**.

**Ministry:** Ministry of Personnel, Pension & Public Grievances.

**Types of cases investigated:** Anti-corruption, Economic offences, sensational crime having inter-state/all-India ramifications etc.

## 7. Stem Cell

Type 1 diabetic woman was treated by using cells extracted from her own body after reprogrammed stem cell transplant.

### Stem Cells

Undifferentiated and unspecialised cells and have capacity to self-renew. Major sources of stem cells are embryos and adult tissues (adult stem cells).

### Three types depending on their potency:

- **Totipotent cells:** Able to differentiate into all possible cell types in an organism. E.g. zygote formed after fertilization and asexual spore.
- **Pluripotent cells:** Differentiated into most tissues of body but are unable to produce all tissue.
- **Multi-potent cells:** Cells have limited range of tissues into which they can differentiate.

## 8. Marburg Virus Disease (MVD)

An outbreak of Marburg Viral Disease in Rwanda has claimed multiple lives.

### About MVD

It is a rare but highly infectious viral hemorrhagic fever which affects both humans and primates (apes, monkeys) with high mortality rate. **Marburg and Ebola viruses are both members of Filoviridae family (filovirus).** Though caused by different viruses, the two diseases are clinically similar. Spreads through human-to-human transmission and also from bats to people. **Initially detected in 1967 in Marburg and Frankfurt (Germany); and in Belgrade (Serbia).** Most commonly found in Sub-Saharan Africa and there is no antiviral treatment or vaccine for disease.

## 9. National Centre of Excellence for AVGC (Animation,Visual Effects,Gaming and Comics):

It will be set up as a **Section 8 Company under the Companies Act, 2013 in India**. The Federation of Indian Chambers of Commerce & Industry and Confederation of Indian Industry represent the industry bodies as partners with the Government of India. It is **provisionally named the Indian Institute for Immersive Creators (IIIC).** It will be modeled after renowned institutions like the Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs).

## 10. Small Modular Reactors (SMRs):

Small Modular Reactors are **nuclear reactors designed to generate a small amount of electricity—typically up to 300 MW per unit**. Unlike traditional large nuclear reactors, which generate up to 1,000 MW or more, SMRs are smaller in size, allowing for modular deployment, enhanced safety features, and reduced construction times.

### TYPES OF SMRs:

**Pressurized Water Reactors (PWRs):** Most SMRs are based on PWR technology, where water is used as both a coolant and moderator.

**Fast Neutron Reactors:** These reactors use fast neutrons and liquid metal coolants to achieve higher efficiency in fuel use.

**Molten Salt Reactors (MSRs):** Instead of solid fuel, MSRs use liquid fuel dissolved in molten salt, offering inherent safety benefits by reducing the risk of meltdown.

**High-Temperature Gas-Cooled Reactors (HTGRs):** These reactors use helium as a coolant and can operate at higher temperatures, increasing efficiency.

## 11. Thermobaric Weapons:

These are often called **"vacuum bombs" or "enhanced blast weapons".** It consists of a fuel container with two separate explosive charges. This can be **launched as a rocket or dropped as a bomb from aircraft**. When it hits its target, the first explosive charge opens the container and widely scatters fuel mixture as a cloud. This cloud can penetrate any building openings or defences that are not totally sealed. There are **no international laws specifically banning their use**, but if a country uses them to target civilian populations in built-up areas, schools or hospitals, then it could be **convicted of a war crime under the Hague Conventions of 1899 and 1907.**

## 12. Mahakaleshwar Temple:

It is a Hindu temple dedicated to **Lord Shiva.**

**Location:** It is located in the ancient city of **Ujjain in the state of Madhya Pradesh**. The temple is situated on the banks of the holy river, **Shipra, tributary of Chambal river**. It is **one of the twelve Jyotirlingas of Lord Shiva**. It is also known as one of the seven **'Mukti Sthal'** or sacred places of liberation in India.

**Architecture:** It is a five-storied. The **main shrine is located underground**. The foundation and platform are built of stones. The temple also houses a tank constructed in the **sarvatobhadra style**.

## 3 OCTOBER

## 1. Mount Erebus

In a strange incident, **Antarctica's second largest volcano, Mount Erebus**, is spewing out gold dust, which has left scientists in complete shock. It is the **world's southernmost active volcano**.

**Location:** It is situated on **Ross Island, Antarctica.**

It was **discovered in 1841 by the British explorer Sir James Clark Ross,** who named it after his ship, the Erebus. It's a **stratovolcano characterized by a conical shape** and layers of hardened lava, tephra, and volcanic ash. **Mount Erebus is known for its persistent lava lake.** The lake has been active since

at least 1972and is one of only a few long-lived lava lakes on Earth.

## 2. Harpoon Missile:

The Harpoon is a **United States-designed subsonic antiship cruise missile that has been in service since 1977.** It has numerous variants, including air-, ship-, and sub-launched versions. It is **currently in service with the armed forces of more than 30 countries, including India**. It is an all-weather, over-the-horizon, anti-ship missile system.

**Propulsion:** Turbojet, solid propellent.

## 3. Exercise KAZIND:

The **8th edition of Exercise KAZIND 2024 is scheduled to be conducted at Surya Foreign Training Node, Auli, Uttarakhand**. It is a joint military Exercise held every year between India and Kazakhstan.

**Aim:** To enhance the joint military capability of both sides to undertake counter-terrorism operations in a sub-conventional scenario under **Chapter VII of the United Nations Charter.**

## 4. Cruise Bharat Mission:

It is **aimed at boosting the tremendous potential of cruise tourism in the country and to propel the country's cruise tourism industry by doubling cruise passenger traffic within five years; i.e. by 2029.** It will be implemented in three phases, beginning from **1 October 2024 up to 31 March 2029.**

- **Phase 1 (01.10.2024 – 30.09.2025)** will focus on conducting studies, master planning, and forming cruise alliances with neighbouring countries. It will also modernise existing cruise terminals, marinas, and destinations.
- **Phase 2 (01.10.2025 – 31.03.2027)** will concentrate on developing new cruise terminals, marinas, and destinations.
- **Phase 3 (01.04.2027 – 31.03.2029)** will focus on integrating all cruise circuits across the Indian Subcontinent.

**Nodal Ministry:** Ministry of Ports and shipping.

## 5. National Mission for Edible Oils - Oil Palm (NMEO-OP):

Launched by the **Government of India in August 2021**, NMEO-OP targets a substantial increase in oil palm cultivation and crude palm oil production. It is a **Centrally Sponsored Scheme with a special focus on the Northeast region and the Andaman and Nicobar Islands,** with a focus on increasing the area and productivity of oilseeds and Oil Palm.

**Targets:**
- To increase the area of oil palm to 10 lakh hectares from 3.5 lakh ha during 2019-20 by 2025-26 (an additional 6.50 lakh ha).
- Increase consumer awareness to maintain a consumption level of 19.00 kg/person/annum till 2025-26.

## 6. Jal Hi AMRIT Programme:

It was **launched under the AMRUT 2.0 scheme**. Under this initiative, it is envisaged to incentivise State & UTs to manage the used water (sewage) treatment plants efficiently to ensure **recyclable good quality treated water, meeting environmental standards,** on a sustained basis. The main focus is thus on **capacity building & incentivizing qualitative improvements** in the treated discharge effluent.

## 7. BharatGen:

The **BharatGen initiative was launched by the Union Ministry of Science & Technology**. It is an initiative which will create generative AI systems that can generate high-quality text and multimodal content in various Indian languages. It is the **first Government-supported Multimodal Large Language Model Initiative.** It is **implemented by IIT Bombay** under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS). The project is expected to be completed in two years along with plans to benefit several government, private, educational, and research institutions.

## 8. Anna DARPAN Project:

Recently, the Food Corporation of India (FCI) has selected Coforge Limited as the System Integrator (SI) for its digital transformation project, Anna DARPAN. **The project aims to streamline and enhance the supply chain management system at various levels.** This system will be designed to improve efficiency and productivity by leveraging data analytics to support strategic and operational decisions. The system will be integrated with internal and external systems, and a mobile-first approach will be prioritized to ensure that it is accessible anytime. As part of the project, **Coforge will be responsible for the end-to-end design, development, implementation, and maintenance of the Anna DARPAN system.**

## 4 OCTOBER

## 1. Sickle Cell Disease (SCD):

The pharmaceutical giant Pfizerrecently announced it would voluntarily withdraw its sickle cell disease therapy, Oxbryta, from worldwide markets, owing to the emergence of clinical data that links "fatal events" to the drug. It is an **inherited blood disorder marked by flawed hemoglobin**. Normally, **RBCs are disc-shaped** and flexible enough to move easily through the blood vessels. **People with SCD have atypical hemoglobin molecules called hemoglobin S, which can distort RBCs into a sickle, or crescent, shape**. These sickled RBCs do not bend or move easily and can block blood flow to the rest of the body. **The cause of SCD is a defective gene, called a sickle cell gene**. A person will be born with SCD only if two genes are inherited—one from the mother and one from the father. A bone marrow transplant (stem cell transplant) can cure SCD. **The UK recently became the first country to approve gene therapy treatment for SCD.**

## 2. Dharti Aaba Janjatiya Gram Utkarsh Abhiyan:

It aims to **foster holistic development in tribal villages, bringing transformative changes to the socio-economic landscape of the region**. The Abhiyan will cover around 63,843 villages, benefiting more than 5 crore tribal people in 549 districts, and 2,911 blocks spread across all tribal majority villages and aspirational blocks in 30 States/UTs. It **envisions saturation of critical gaps in social infrastructure, health, education, and livelihood**

through 25 interventions implemented by 17-line ministries of Govt of India. **Centrally sponsored scheme.**

## 3. National Biodiversity Strategy and Action Plans Tracker:

National Biodiversity Strategy and Action Plans (NBSAPs) Tracker revealed that only 10% of nations fulfil their biodiversity commitments ahead of COP16. It is a **new tool developed by the World Wildlife Fund for Nature (WWF),** which is monitoring the progress of countries in developing their NBSAPs that align with the goals of the Kunming-Montreal Global Biodiversity Framework (GBF).

**Aim:** It aims to make biodiversity policies accessible to all stakeholders, **ensuring transparency and accountability** as countries prepare for COP16.

NBSAPs are crucial blueprints for countries to outline their strategies to tackle biodiversity loss and meet international targets.

**Kunming-Montreal Global Biodiversity Framework**

It was adopted during the **15th meeting of the Conference of the Parties, or COP15, to the UN Convention on Biological Diversity in December 2022**. It aims to support the achievement of sustainable development goals and build on previous strategic plans. It sets a bold path towards **global harmony with nature by 2050.**

## 4. SARTHIE 1.0:

Recently, the **Department of Social Justice and Empowerment (DoSJE), Government of India, and the National Legal Services Authority (NALSA)** launched the SARTHIE 1.0. It is an initiative intended to **empower disadvantaged communities, including Scheduled Castes (SCs), Other Backward Classes (OBCs), Senior Citizens, Transgender Persons, Victims of Alcoholism and Substance Abuse**, persons engaged in the act of Begging, Denotified and Nomadic Tribes and more. It aligns with the **United Nations 2030 Agenda for Sustainable Development,** particularly the goals focused on **eradicating poverty, reducing inequality**, and promoting social protection policies that ensure greater equality for all.

**14 OCTOBER 2024**

## 1. United Nations High Commissioner For Refugees (UNHCR)

It was **established by the General Assembly of the United Nations in 1950** in the aftermath of the Second World War to help the millions of people who had lost their homes. It is a global organization dedicated to saving lives, protecting rights and building a better future for people forced to flee their homes because of conflict and persecution. It was awarded **Nobel Peace Prizes in 1954 and 1981**. It started the **Nansen Refugee Award in 1954** for recognition of outstanding service to the cause of refugees, displaced or stateless people.

**Headquarters:** Geneva, Switzerland

## 2. National Commission for Protection of Child Rights (NCPCR)

A statutory Body established under an **Act of Parliament (December 2005) under the Commission for Protection of Child Rights Act, 2005**. The commission's mandate is to **ensure that all laws, policies, programs and administrative systems conform to the vision of the rights of the child** as enunciated in the Constitution of India as well as the United Nations Convention on the Rights of the Child. A child is defined as a person falling in the age group of **0 to 18 years.**

## 3. Dragon Drones

Dragon Drones essentially release a substance called **Thermite - a mixture of aluminium and iron oxide**. Thermite was developed a century ago to weld rail - road tracks. When ignited, **thermite triggers a self sustaining reaction that is quite difficult to extinguish.** It can burn through almost anything and can even burn underwater**. Dragon Drones are believed to have been first deployed in the Russia - Ukraine war.** Thermite has been used in both the world wars. The use of thermite in wars is not prohibited under international law.

## 4. What is Aurora Borealis?

An aurora is a **natural light display in Earth's sky, predominantly seen in high-latitude regions (around the Arctic and Antarctic).** Auroras are caused by the **interaction of energetic particles (electrons and protons)** of the solar wind with atoms of the upper atmosphere. They are also commonly known as the **northern lights (aurora borealis) or southern lights (aurora australis)**

## 5. National Maritime Heritage Complex (NMHC)
is being developed at Lothal, Gujarat.

**About Lothal:**

**Historical importance:** A significant Indus Valley Civilization site dating back to 2,200 BC; known for its role as a **major trading hub.**

**Key discoveries:** World's oldest artificial dock, bead factories, warehouses, drainage systems, and evidence of maritime trade with West Asia and Africa.

**UNESCO status:** Nominated for the **UNESCO World Heritage list**, highlighting its historical significance in ancient maritime trade and culture.

## 6. T-90 Bhisma Tank

**Features**

It is equipped with a **125 mm smoothbore gun, capable of firing various types of shells**. An anti-aircraft gun mounted on top can bring down targets within a two kilometre range, and the tank can fire up to 800 shells per minute. Its compact size enables it to **manoeuvre quickly through forests, mountains, and marshy terrain at a speed of up to 60 kilometres per hour.**

## 7. Important provisions under the Right to Information Act, 2005

- **Section 2(h):** Public authorities mean all authorities and bodies under the union government, state government or local bodies.

- **Section 4 1(b):** Government has to maintain and proactively disclose information.
- **Section 6:** Prescribes a simple procedure for securing information.
- **Section 7:** Prescribes a time frame for providing information(s) by PIOs.
- **Section 8:** Only minimum information exempted from disclosure.
- **Section 8 (1)** mentions exemptions against furnishing information under the RTI Act.
- **Section 8 (2)** provides for disclosure of information exempted under the Official Secrets Act, 1923 if the larger public interest is served.

## 8. Wayanad X band radar

An X-band radar is radar that **emits radiation in the X-band of the electromagnetic spectrum: 8-12 GHz**, corresponding to wavelengths of around 2-4 cm. The smaller wavelengths allow the radar to produce images of higher resolution

**What is a radar?**

Radar is a detection system that uses radio waves to determine the **range, angle, or velocity of objects. A radar typically has a magnetron, transmitter, receiver, and a screen**. The magnetron generates radio waves which are released through an antenna in different directions at certain time intervals. If there is an object in the air, an aero plane for instance, the radio waves hit it and bounce back, to be caught by the receiver of the radar. By mapping the reflected waves on a screen with a grid map, the aero plane is displayed as a blip on the screen and its movement is shown as the radio waves strike it at intervals. This is the basic principle of a radar.

## 9. What is biobank

A biobank is a **repository of biological samples, such as blood, DNA, cells, tissues, and/or organs, alongside their genetic data.** These samples are collected from consenting individuals and intended for use in research. There are **19 registered biobanks in India.**

**15 OCTOBER**

## 1. Acemoglu, Johnson and Robinson share Nobel prize on Economics for work on wealth inequality.

**Ways to measure inequality:**

The **Gini coefficient (Gini index or Gini ratio)** is a measure of income inequality, wealth inequality, or consumption inequality within a nation or a social group. **A Gini index of 0 represents perfect equality, while an index of 1 implies perfect inequality.**

**Context: September retail inflation at nine-month high of 5.5% as food. prices rise at 9.2%**

## 2. What is the Wholesale Price Index?

It measures the changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses. Published by the **Office of Economic Adviser, Ministry of Commerce and Industry.**

### What is the Consumer Price Index?

It measures price changes from the perspective of a retail buyer. It is released by **National Statistical office (NSO) The CPI calculates the difference in the price of commodities and services such as food, medical care, education, electronics** etc, which Indian consumers buy for use. The CPI has several sub-groups including food and beverages, fuel and light, housing and clothing, bedding and footwear.

**Four types of CPI are as follows:**

- CPI for Industrial Workers (IW).
- CPI for Agricultural Labourer (AL).
- CPI for Rural Labourer (RL).
- CPI (Rural/Urban/Combined).

Of these, the **first three are compiled by the Labour Bureau in the Ministry of Labour and Employment**.

**Fourth is compiled by the NSO** in the Ministry of Statistics and Programme Implementation.

## 3. Inter parliamentary union

IPU is the international organization of Parliaments. It was **established in 1889 in Paris to promote representative democracy and world peace.** The IPU moved its headquarters to Geneva in 1921.

**Funding:** The IPU is financed primarily by its members out of public funds.

**Context: Jaishankar to visit Pak. today for SCO meeting**

## 4. What is the Shanghai Cooperation Organisation?

**Origins:** The SCO originated from the **"Shanghai Five,"** **formed in 1996**, consisting of China, Russia, Kazakhstan, Kyrgyzstan, and Tajikistan.

It was created to **address concerns about extremist religious groups and ethnic tensions following the dissolution of the USSR in 1991.**

**Establishment:** SCO was established on **15th June 2001, in Shanghai**, adding Uzbekistan as a sixth member.

Before the inclusion of Belarus, it had nine members: **India, Iran, Kazakhstan, China, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan. Afghanistan and Mongolia hold Observer Status.**

## 5. Haber Bosch process

The Haber-Bosch method allowed industries to **develop cheap synthetic fertilizers**, which was a critical component in the sevenfold rise in the world's food supply during the 20th century.

## 6. Tele Manas

Tele MANAS (Tele Mental Health Assistance and Networking Across States) is a **tele-mental health initiative** launched by the Government of India under the **National Tele Mental Health Programme (NTMHP) on October 10, 2022.**

## 7. What is Biopolymer?

They are the materials derived from **biological sources such as fats, vegetable oils, and sugars, which offer several advantages over traditional synthetic**

polymers, **which are typically made from petrochemical sources.** Biopolymers decompose naturally in the environment, primarily through the action of bacteria, leading to minimal environmental pollution. When biopolymers degrade, the carbon dioxide ($CO_2$) they release can be absorbed by the crops or biomass used to replace them, thus maintaining a carbon-neutral cycle.

## 8. Commission for Air Quality Management (CAQM):

The CAQM is a **statutory body established under the Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas, Act 2021**. It undertakes action for the prevention and control of Air pollution in Delhi-NCR & Adjoining Areas which impacts the air quality of the National Capital Territory (NCT) of Delhi. **The Commission is required to coordinate its actions on monitoring of air quality with the government of Delhi and the adjoining states, which includes Punjab, Haryana, Rajasthan, and Uttar Pradesh.** All the directions and orders by the Commission are of binding nature, and any person, officer, or authority shall be bound to comply with the same. The commission is directly accountable to the parliament. It is responsible for implementing a Graded response action Plan (GRAP) which was earlier implemented by EPCA (does not exist currently).

## 9. Europa Clipper

Europa Clipper is the **first mission designed to conduct a detailed study of Jupiter's moon Europa.** There's scientific evidence that the ingredients for life may exist on Europa right now. The spacecraft will travel 1.8 billion miles (2.9 billion km) to reach Jupiter in April 2030. It will **orbit Jupite**r, and conduct 49 close flybys of Europa. Europa clipper won't look for life as it has no life detectors. **Its objective is to determine if Europa has conditions suitable to support life.** Scientists are almost certain a deep, global ocean exists beneath Europa's icy crust.

## 10. Production Linked Incentive (PLI) Scheme for White Goods (Air Conditioners and LED Lights)

Designed to create a complete component ecosystem for ACs and LED lights Industry in the country and make India an integral part of the global supply chains. **The scheme was notified in 2021** with a total outlay of ₹6238 crore. The scheme will extend an incentive of 4-6% on incremental turnover over the base year (2019-20) of goods sold in India and exported to global markets, to eligible companies. **The first round of applications were invited in 2021 and the second round in 2022.** The third round application window has been opened recently. **The scheme will run for seven years till 2028-29. Even those selected in the third round will get benefits till FY29.**

## 16 OCTOBER

### 1. Renewable energy

India has reached a significant milestone in its renewable energy journey, with the country's total renewable energy capacity crossing the 200 GW (gigawatt) mark as of October 10, 2024.

**India's renewable energy targets:**

**By 2030:** Achieve 500 GW of installed electricity capacity from non-fossil fuel sources.

**Net-Zero by 2070:** As per India's commitments at COP26.

### 2. Anusandhan National Research Foundation (ANRF)

**Context:** The newly operationalised Anusandhan National Research Foundation (ANRF) has launched two initiatives: the Prime Minister Early Career Research Grant (PMECRG) and the Mission for Advancement in High-Impact Areas – Electric Vehicle (MAHA-EV) Mission.

**About Prime Minister Early Career Research Grant (PMECRG):**

**Origin**: Launched under ANRF to support early career researchers and boost scientific research.

**Aim:** To foster high-quality innovative research, drive technological progress, and contribute to India's global leadership in science and technology.

**About Mission for Advancement in High-Impact Areas – Electric Vehicle (MAHA-EV) Mission:**

**Origin:** Part of ANRF's MAHA scheme designed to address critical scientific challenges and align with national priorities like Atmanirbhar Bharat.

**Aim:** To develop domestic EV technologies, reduce import dependency, and position **India as a global hub for EV component development.**

## 3. International Telecommunication Union (ITU)

**Establishment:** Founded in 1865 as the International Telegraph Union, became a UN specialized agency in 1947.

**Mission:** Coordinates global standardization and development of telecommunication and ICT services.

**Membership:** Comprises 193 countries and over 1,000 companies, universities, and international organizations.

**Headquarters:** Located in Geneva, Switzerland.

## 4. National Organ and Tissue Transplant Organization (NOTTO)

It is a National level organization set up under **Directorate General of Health Services, Ministry of Health and Family Welfare. It has the following two divisions:**

1. "National Human Organ and Tissue Removal and Storage Network"

2. "National Biomaterial Centre".

It functions as the **apex centre for all India activities of coordination and networking for:**

- Procurement and distribution of organs and tissues; and
- Registry of Organs and Tissues Donation and Transplantation in the country.

## 5. Greenwashing Guidelines

Greenwashing refers to **marketing tactics where companies falsely claim or exaggerate the environmental benefits of their products or services,** often using vague or unsubstantiated terms such as **"natural," "eco-friendly," or "green."** The guidelines have been issued by the central consumer protection authority which works under the consumer affairs ministry.

**Key Features of the Guidelines:**

**1. Clear Definitions:** The guidelines provide clear definitions of terms related to greenwashing and environmental claims, ensuring that both businesses and consumers have a common understanding.

**2. Transparency Requirements:** Manufacturers and service providers are required to substantiate their environmental claims with credible evidence. This includes providing detailed information on the methodology and data used to support such claims.

**3. Prohibition of Misleading Terms:** The use of vague or misleading terms such as **"eco-friendly," "green," and "sustainable"** without proper substantiation is sought to be prohibited.

**4. Third-Party Certifications:** Third-Party Certifications are also accepted in substantiation of environmental claims.

**5. Adequate Disclosures:** The companies are required to provide clear and accessible disclosures of material information. Claims must specify the aspect referred to (good, manufacturing process, packaging, etc.) and be supported by credible certification or reliable scientific evidence.

## 6. THAAD (Terminal High Altitude Area Defense)

It is an advanced missile defense system designed to counter short, medium, and intermediate-range ballistic missile threats. It is the **only U.S. missile defense system capable of intercepting missiles both inside and outside the atmosphere (endoatmospheric and exoatmospheric).** It employs "hit-to-kill" technology, directly striking threat missiles to neutralize them, which allows it to defend a larger area than older systems like the Patriot

## 7. NORTH EAST MONSOON

**Context - North East monsoon set in over Tamilnadu and Puducherry**

The word monsoon comes from **Arabic word Mausim** which means weather

**About North East Monsoon**

The Northeast Monsoon, also known as the **Retreating Monsoon, occurs from October to December and is characterized by winds blowing from the northeast**. This monsoon primarily affects **southeastern India, including Tamil Nadu, and parts of the eastern coast.** During this period, the northeast trade winds bring moisture from the Bay of Bengal, resulting in rainfall. The Northeast Monsoon is crucial for replenishing water supplies in regions with less rain during the Southwest Monsoon.

## 8. GLOBAL HUNGER REPORT 2024

**Context**

India has been ranked **105th out of 127 countries in the Global Hunger Index (GHI) 2024,** placing it in the "serious" category for hunger levels.

**What is the Global Hunger Index (GHI)?**

GHI is a tool for comprehensively measuring and tracking hunger at global, regional, and national levels. **The index is published by Concern Worldwide**, an Irish humanitarian organisation, and **Welthungerhilfe**, a German aid agency. **Each country's GHI score is calculated based on a formula that combines four indicators**:

1 **Undernourishment** (Insufficient caloric intake)

2 **Child stunting** (Children with low height under age 5)

3 **Child wasting:** (Children with low weight for their height under age 5);

4 **Child mortality:** (Children who die before their fifth birthday).

## 9. Unlawful Activities (Prevention) Act (UAPA):

**Context - Half of UAPA investigation pending for over three years**

**About the Unlawful Activities (Prevention) Act (UAPA):**

It was **enacted in 1967** and was amended to be modelled as an **anti-terror law in 2004 and 2008.** In August 2019, Parliament cleared the Unlawful Activities (Prevention) Amendment Bill, 2019 to designate individuals as terrorists on certain grounds provided in the Act

**Key Provisions of the Act:**
- **Section 3 of the UAPA Act:** The government has powers to declare an association "unlawful".
- **Section 4:** The government is mandated to send the notification to the Unlawful Activities Prevention Tribunal within 30 days of issuing the gazette notification to have the ban ratified.
- **Section 7:** The government has power to prohibit the use of funds of an unlawful association.
- **Section 8:** All places that are used by the unlawful association can be notified and seized.

## 17 OCTOBER

### 1. Doctrine of Lis Pendens:

Lis pendens in common parlance means **"a pending legal action".** The maxim representing this doctrine means that **'during the pendency of litigation, nothing new should be introduced, and to maintain the status quo, to abstain from doing anything which may affect any party to the litigation**. It is based on the principle that during the pendency of a suit, the subject matter of it (i.e. the property in the suit) should not be transferred to a third party. It is dealt with in **Section 52 of the Transfer of Property Act, 1882,** which provides that if there is any transfer of any immovable property pending litigation, the same shall not affect the rights of the parties in respect to the immovable property. The outcome of the litigation, passed by a court of competent jurisdiction, in the matter during the pendency of which the transfer had taken place would be binding upon such a purchaser, who has purchased the property during the pending litigation. It **serves to protect the rights and interests of parties involved in a pending law suit concerning a specific property.**

### 2. Dr. A P J Abdul Kalam

Dr. Avul Pakir Jainulabdeen Abdul Kalam was born on October 15, 1931, in Rameswaram, Tamil Nadu. He is known as the **"Missile Man of India."**

**Major Contributions**: As Project Director, he developed **India's first indigenous Satellite Launch Vehicle (SLV-III), successfully launching the Rohini satellite in 1980.** Contributed to the PSLV configuration. He worked at DRDO, leading the Integrated Guided Missile Development Programme (IGMDP). **Developed AGNI and PRITHVI missiles** and focused on self-reliance in defense systems. He served as **Scientific Adviser to the Defence Minister, overseeing the Pokhran-II nuclear tests**

## 3. Minimum Support Price (MSP)

The minimum support prices are announced by the Government of India at the beginning of the sowing season for certain crops on the basis of the recommendations of the **Commission for Agricultural Costs and Prices (CACP).** Government announces minimum support prices (MSPs) for 22 mandated crops. **The mandated crops are 14 crops of the kharif season, 6 rabi crops and two other commercial crops**. In addition, the MSPs of toria and de-husked coconut are fixed on the basis of the MSPs of rapeseed/mustard and copra, respectively.

**The list of crops are as follows.**

**Cereals (7)** - paddy, wheat, barley, jowar, bajra, maize and ragi

**Pulses (5) -** gram, arhar/tur, moong, urad and lentil

**Oilseeds (8) -** groundnut, rapeseed/mustard, toria, soyabean, sunflower seed, sesamum, safflower seed and nigerseed

Raw cotton

Raw jute

Copra

De-husked coconut

## 4. Foreign Portfolio Investment (FPI):

FPI refers to the **purchase and holding of a wide array of foreign financial assets by investors seeking to invest in a country outside their own**. Foreign portfolio investors have access to a range of investment instruments such as stocks, bonds, mutual funds, derivatives, fixed deposits, etc. **FPI generally intends to invest money into the foreign country's stock market to generate a quick return.**

**Who regulates FPI in India?**

In India, foreign portfolio investment is regulated by the **Securities and Exchange Board of India (SEBI).** FPI in India refers to investment groups or FIIs (foreign institutional investors) and QFIs (qualified foreign investors).

**Advantages:**

It offers investors the freedom to diversify their portfolios internationally. **A portfolio investor can also take advantage of exchange rate differences.** Thus, an investor from an economically challenged country can invest heavily in a foreign country that has a much stronger currency, thereby making sizeable profits.

## 5. National Board for Wildlife (NBWL):

It is a **statutory board constituted by the Central Government under the Wild Life (Protection) Act, 1972**. It is responsible for guiding the government's decisions on matters related to wildlife conservation and issuing approvals for projects in protected areas (PAs). **The WLPA mandates that without the approval/recommendation of the NBWL**, construction of tourist lodges, alteration of the boundaries of PAs, destruction or diversion of wildlife habitat, and de-notification of Tiger Reserves, cannot be done.

## 6. What is Five Eyes Alliance?

**About:**

The Five Eyes is an intelligence alliance comprising nations including **Australia, Canada, New Zealand, the United Kingdom and the US.** These countries are parties to the multilateral UK-USA Agreement, a treaty for joint cooperation in signals intelligence.

## 7. Central Drugs Standard Control Organization (CDSCO)

It is the **National Regulatory Authority (NRA) of India for the medical devices industry under the provisions of the Drugs & Cosmetics Rules**. It works under the Ministry of Health & Family Welfare. Drugs Controller General of India (DCGI) is the head of the CDSCO.

**Headquarters:** New Delhi.

Under the Drugs and Cosmetics Act, CDSCO is responsible for,

- Approval of New Drugs; Conduct of Clinical Trials; Laying down the standards for Drugs; Control over the quality of imported Drugs in the country;
- Coordination of the activities of State Drug Control Organizations;
- CDSCO, along with state regulators, is jointly responsible for the grant of licenses of certain specialized categories of critical Drugs such as blood and blood products, I. V. Fluids, Vaccine and Sera.

# 8. Food and Agriculture Organisation (FAO):

It is a specialized agency of the United Nations (UN) that leads international efforts to defeat hunger. It is the **oldest permanent specialized agency of the UN, established in October 1945.**

**Mandate:** To improve nutrition, increase agricultural productivity, raise the standard of living in rural populations, and contribute to global economic growth.

The FAO coordinates the efforts of governments and technical agencies in programs for **developing agriculture, forestry, fisheries, and land and water resources.**

**Headquarters:** Rome, Italy.

**Members:** It currently has **194 Member States plus the European Union** (member organization).

**Funding:** FAO receives 100 percent of its funding from its member countries

**Reports published by the FAO:** The State of the World's Forests (SOFO), The State of World Fisheries and Aquaculture (SOFIA), The State of Agricultural Commodity Markets (SOCO), The State of Food Security and Nutrition in the World (SOFI).

# 9. What is a Gene:

A gene is a specific segment of DNA that codes for a particular protein or function. Genes are the **basic units of heredity and determine traits in organisms.**

**Genome:** The genome is the complete set of DNA in an organism, including all of its genes. It contains all the information needed for **growth, development, and functioning.**

**What is DNA:**

DNA (deoxyribonucleic acid) is the molecule that contains the genetic instructions for living organisms. It is shaped like a **double helix and consists of sequences of four nucleotides (A, T, C, G).**

**What is RNA**

RNA (ribonucleic acid) is a molecule that plays a crucial role in the **coding, decoding, regulation, and expression of genes.**

Unlike DNA, RNA is usually single-stranded and contains the nucleotide uracil (U) instead of thymine (T). It **helps in synthesizing proteins by carrying instructions from DNA to ribosomes, where proteins are made.**

# 9. What is microRNA: (this year nobel prize)

MicroRNAs, or miRNAs, are small, non-coding molecules of RNA. They are typically around **19-24 nucleotides long and play an important role in determining how much messenger RNA (mRNA),** which carries genetic information, eventually gets translated into protein.

**Role in human body**

These microRNAs act as **molecular switches**, fine-tuning the expression of genes in different cell types and under varying conditions.

They **regulates the production of proteins** by bonding with and subsequently silencing the mRNA at an appropriate juncture. The process is called **post-transcriptional gene regulation**.

MicroRNAs help fine-tune various cellular processes like **development, growth, and metabolism.**

Their role is essential in maintaining **normal cell function**, and disruptions in microRNA activity have been linked to diseases such as cancer

Mutations in genes coding for microRNAs have been found in humans, causing conditions such as congenital hearing loss, eye and skeletal disorders.

**Note - MicroRNA (miRNA) is different from messenger RNA (mRNA)**

**So what is messenger RNA**

Messenger RNA (mRNA) is molecule in cells that **carries codes from the DNA in the nucleus to the sites of protein synthesis in the cytoplasm (the ribosomes).T**he molecule that would eventually become known as mRNA.

## 18 OCTOBER

## 1. AMRIT Pharmacies

AMRIT Pharmacies (Affordable Medicines and Reliable Implants for Treatment) is a government initiative launched by the **Ministry of Health and Family Welfare in 2015**. It provides a wide range of generic and life-saving branded drugs, implants, and surgical consumables at highly subsidized rates. The **pharmacies established under this initiative complement the government's universal healthcare goals, alongside schemes like Ayushman Bharat**.

## 2. Zero Defect and Zero Effect' initiative

It is an **integrated and comprehensive certification system, launched in 2016 by the Ministry of MSME.** The objective of the Zero Defect Zero Effect (ZED) scheme is to;

- Encourage and enable MSMEs for manufacturing of quality products using latest technology
- Encourage MSMEs to achieve higher ZED Certification levels through graded incentives
- To support the "**Make in India" campaign.**

## 3. Section 6A of Citizenship Act, 1955

Section 6A provides the framework to recognise migrants in Assam as Indian citizens or to expel them based on the date of their migration. **The provision provides that those who have come to Assam on or after January 1, 1966, but before March 25, 1971, from specified territories, including Bangladesh**, and since then are residents of Assam, must register themselves under Section 18 for citizenship. Therefore, the **provision fixes March 25, 1971, as the cut-off date for granting citizenship to Bangladeshi migrants in Assam.**

**Key Highlights of the Judgement:-**

1. "Mere presence of different ethnic groups in a state is not sufficient to infringe the right guaranteed by Article 29(1)".

2. Immigrants who entered Assam before January 1, 1966, are deemed to be Indian citizens.

3. Immigrants who entered Assam between January 1, 1966, and March 25, 1971, are entitled to seek Indian citizenship provided they fulfill the eligibility criteria.

4. Immigrants who entered Assam on or after March 25, 1971, are declared to be illegal immigrants and are liable to be detected, detained, and deported.

## 4. Twilight Zone

The ocean twilight zone is a layer of water that stretches around the globe. It **lies 200 to 1,000 meters (about 650 to 3,300 feet) below the ocean surface, just beyond the reach of sunlight**. Also known as the **midwater or mesopelagic,** the twilight zone is cold and its light is dim, but with flashes of **bioluminescence**—light produced by living organisms.  Recent studies suggest that the biomass of fish in the twilight zone may be ten times greater than previously thought—more than in all the rest of the ocean combined. So far, the **twilight zone is largely unexplored** and its rich biodiversity has remained mostly beyond the reach of commercial fishing—and the international laws that govern the high seas.

## 5. SARTHI System:

It is an innovative solution to reduce **post-harvest losses in perishable food transportation.**

**Features**

It features dual compartments designed to store fruits and vegetables at different temperatures, addressing their unique storage needs. It is an **integration of IoT and real-time monitoring**. The data acquired from the sensors is integrated with IoT (Internet of Things) and sent to the cloud which can be downloaded using a mobile app for getting a real time information about the quality parameters and physiological changes occurring during transportation of fresh fruits and vegetables. Its sensors measure **temperature, humidity, ethylene, and CO2 levels**, sending data to a mobile app for quality assessment.

## 6. Karakoram Wildlife Sanctuary:

**Location:** It is located in the Union Territory of Ladakh along the territory's border with Jammu and Kashmir.

It is situated just to the **north of Hemis National Parkand to the east of Deosai National Park**. It is well known for its diverse landscape, featuring snow-covered peaks, alpine fields, and deep ravines.

**Climatic condition:** The average temperature during the warmest month is lower than 0 degrees Celsius in some heights and remains below 10 degrees Celsius in other parts.

**Major Peaks:** Major peaks within this Wildlife Sanctuary include **Saltoro Kangri, Saser Kangri I, and K12.**

**Rivers: Shyok and Nubra Rivers** are the major water sources of this sanctuary.

**Vegetation:** It is rich in alpine vegetation, medicinal plants, cold desert flora, endemic and rare species, and glacier vegetation.

**Fauna:** Ural, the argali, Tibetan gazelle, Siberian ibex, the bharal (blue sheep), and the snow leopard, Tibetan antelope (chiru) and Bactrian camel

**Flora:** It comprises broad-leaved shrubs namely the Rosia webbiana, Ephedra, Caragianae and several other bushes.

## 7. Brown dwarf:

Brown dwarfs are sometimes called **failed stars because they're lighter than stars, but heavier than gas giant planets.**

**Features**

These objects have a size between that of **a giant planet like Jupiter and that of a small star**. Brown dwarfs accumulate material like a star, not like a planet. They can also have clouds made out of precipitates in their atmospheres. However, while we have water clouds on Earth, the clouds on brown dwarfs are much hotter and likely made up of hot silicate particles. Thus, they hold onto their lighter elements (hydrogen and helium) more effectively than planets and have a relatively low metal content. **They do not have enough mass for their cores to burn nuclear fuel and radiate starlight. This is why they are sometimes referred to as "failed stars."**

The difference between brown dwarfs and stars is that, **unlike stars, brown dwarfs do not reach stable luminosities by thermonuclear fusion of normal hydrogen.**

Both stars and brown dwarfs produce energy by **fusion of deuterium** (a rare isotope of hydrogen) in their first few million years.

## 8. Employees Deposit Linked Insurance (EDLI) Scheme:

**Features:**
- Maximum assured benefit up to Rs 7 lakh to be paid to the nominee or legal heir of the EPF member if death occurs while in service.
- Minimum assurance benefit is of Rs 2.5 lakh in case the deceased member was in continuous employment for 12 months prior to his or her death.
- This life insurance benefit being given to the EPFO member is free of cost for the PF/EPF account holders.
- Minimal contribution by employer at 0.5% of employee's monthly wages, up to wage ceiling of Rs 15,000; no contribution made by employee.

**Auto-enrolment of PF members in the EDLI scheme.** Benefit directly credited to the bank account of a legal heir or nominee.

## 22 OCTOBER

## 1. National Air Quality Index

Air Quality Index is a **tool for effective communication of air quality status to people in terms**, which are easy to understand. It transforms complex air quality data of various pollutants into a **single number (index value), nomenclature and colour.**

There are six AQI categories, namely **Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe.**

Each of these categories is decided based on ambient concentration values of air pollutants and their likely health impacts (known as health breakpoints).

**AQ sub-index and health breakpoints are evolved for eight pollutants (PM10, PM2.5, NO2, SO2, CO, O3, NH3, and Pb)** for which short-term (upto 24-hours) National Ambient Air Quality Standards are prescribed.

## 2. Context

The **Union Minister of Ports, Shipping & Waterways,** dedicated key maritime projects to the nation during the 2nd Indian Lighthouse Festival.

### About

The new Kalwan reef Lighthouse in Gujarat as well as two projects in Odisha were inaugurated. **The festival is organised by the Ministry of Ports, Shipping, and Waterways (MoPSW).** It is aimed to explore the vast potential of lighthouse tourism and strategies for preserving these maritime structures, blending tourism development with heritage conservation. **Lighthouse tourism has been providing employment to many people and at the same time informing our next generations about the country's maritime history**. With an investment of Rs 60 crore, 75 iconic lighthouses across 9 coastal states and one union territory have been developed.

## 3. eShram-One Stop Solution

### Context

The Union Minister of Labor & Employment and Youth Affairs & Sports launched the 'eShram-One Stop Solution'.

### About

It will act as **a mediator to ensure that unorganized workers have easy access to a variety of Government schemes/programs**. It will help unorganized workers become aware of the schemes designed for them. It will facilitate in identification and implementation of the Social Security & Welfare Schemes for the unorganised worker and to help saturation of the schemes in the fast and effective manner. Consequently, **12 schemes of different Central Ministries / Departments have already been integrated/ mapped with the eShram.**

## 4. Exercise Malabar:

**Evolution:** Originally a **bilateral drill between India and the U.S. in 1992,** Malabar has transformed into a key multilateral event focusing on interoperability and shared maritime challenges in the Indian Ocean and Indo-Pacific.

**Objectives:** Malabar aims to **improve collaboration and engagement in maritime security** amid complex challenges, as stated by the Indian Navy.

**Exercise Kakadu**: Prior to Malabar, **Exercise Kakadu was held from September 9 to 20,** hosted by the Royal Australian Navy, involving around 3,000 personnel from 30 nations and significant naval assets.

Exercise Kakadu highlighted Australia's dedication to regional maritime security and international partnerships through collaboration with multiple nations.

## 5. Caenorhabditis elegans:

It is a nematode worm which is a small, relatively simple, and precisely structured organism. **elegans grows within 3-5 days from a fertilised egg to a millimetre-long adult,** and it has informed profound insights into the human body, as well as biology. It is widely used in research to understand **neuronal and molecular biology**. It was the first multicellular organism to have its full genome sequenced and neural wiring mapped. **It has two sexes—a hermaphrodite and a male.**

The hermaphrodite can be viewed most simply as a female that produces a limited number of sperm: she can reproduce either by self-fertilization, using her own

sperm, or by cross-fertilization after transfer of male sperm by mating. **Self-fertilization allows a single heterozygous worm to produce homozygous progeny.**

**What are Nematodes?**

These are any worm of the **phylum Nematoda**. These are among the most abundant animals on Earth.

They occur as **parasites in animals and plants or as free-living forms in soil, fresh water, marine environments**, and even such unusual places as vinegar, beer malts, and water-filled cracks deep within Earth's crust.

**Features**

- Nematodes are bilaterally symmetrical, elongate, and usually tapered at both ends.
- Some species possess a **pseudocoel**, a fluid-filled body cavity between the digestive tract and the body wall.



## 23 OCTOBER

## 1. Malaria

Malaria is a life-threatening disease, is caused by the **Plasmodium parasite and transmitted through bites from infected female Anopheles mosquitoes**. It is most prevalent in tropical and subtropical regions, including sub-Saharan Africa, Southeast Asia, and South America. **The most deadly species is Plasmodium falciparum, but Plasmodium vivax is the most widespread.** After entering the human body, the parasite multiplies in the liver and then infects red blood cells

**Symptoms:** Fever, headache, chills, Fatigue, confusion, seizures, difficulty breathing, jaundice, and dark urine.

## 2. Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)

**About PMBJP**

It was **launched in 2008 by the Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Government of India.** It aims to provide quality generic medicines at affordable prices to all, particularly the underprivileged. **The scheme is implemented by the Pharma & Medical Bureau of India (PMBI), a registered society.**

**Implementation:** Dedicated outlets, known as Janaushadhi Kendras, are established to offer these medicines.

These provide generic medicines at much lesser price. The potency of these medicines are the same as compared to expensive branded medicines available in the open market. **As of June 30, 2024, there are 12,616 operational Janaushadhi Kendras across India.**

## 3. Z-Morh Project

The Z-Morh tunnel is a 6.5-kilometer tunnel connecting the Sonamarg health resort with Kangan town in central Kashmir's Ganderbal district. **The name "Z-Morh" refers to the Z-shaped road section near the construction site**. **The tunnel will provide all-weather connectivity to Sonamarg, a famous tourist destination on the Srinagar-Leh highway.** The Billion Dollar tunnel project is also important for the success of the Zojila tunnel project, which is situated at an altitude of approximately 12,000 ft.

4. The **Fraser Institute** has released the **2024 Economic Freedom of the World Report**,
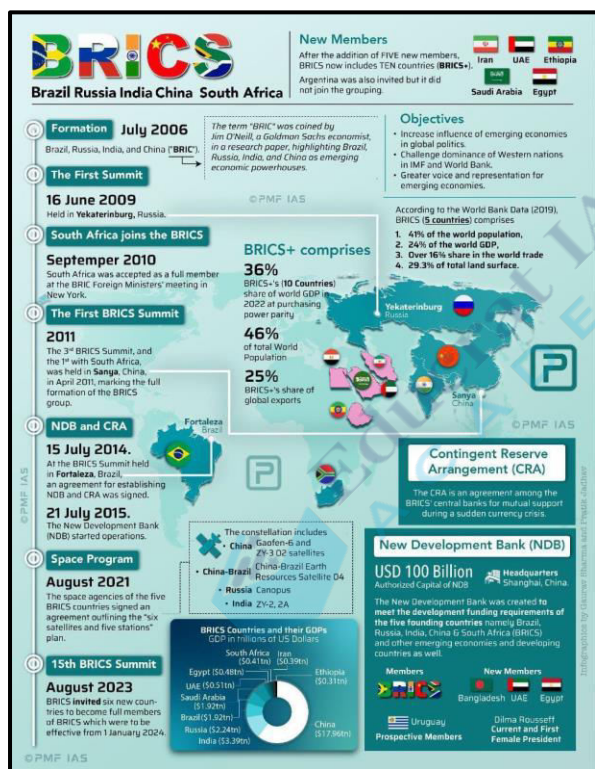
5. The Indian Navy and the Royal Navy of Oman recently concluded a bilateral naval exercise, **'Naseem-Al-Bahr'** off the coast of Goa.

## 6. iGOT-Karmayogi

Government approved the National Programme for Civil Services Capacity Building (NPCSCB) with six key pillars including **Policy Framework, Institutional Framework, Competency Framework, Digital Learning Framework (iGOT-Karmayogi), the electronic Human Resource Management System (e-HRMS) and the Monitoring and Evaluation Framework.** The Programme will cover all civil servants (including contractual employees) across different ministries, departments, organizations and agencies of the Union Government.

**Three new features launched on the iGOT Karmayogi platform are**

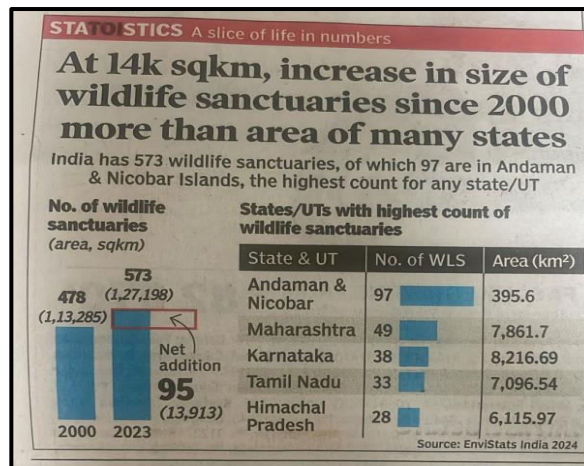**My iGOT:** It delivers targeted training courses on the home page of individual officer that directly address the unique capacity building needs of the officer as identified in the **Capacity-Building Plan for their Ministries/Departments.**

**Blended Programs:** This programme will facilitate equitable access to training methodologies across all levels to meet dynamic training needs of the officials. **Blended Programs integrate traditional offline (in person) classroom courses with online learning components.** It enables officers and faculty to leverage the flexibility and convenience of online courses while retaining the invaluable benefits of face-to-face classroom interactions.

**Curated Programs:** These are designed to cater to diverse learning needs of the Ministries/Departments and Training Institutions. This Course Providers will be able to curate relevant content, resources, and assessments from the repository of iGOT with a Programmatic approach to provide a tailored learning journey.



**STATISTICS** A slice of life in numbers

**At 14k sqkm, increase in size of wildlife sanctuaries since 2000 more than area of many states**

India has 573 wildlife sanctuaries, of which 97 are in Andaman & Nicobar Islands, the highest count for any state/UT

No. of wildlife sanctuaries (area, sqkm)

478 (1,13,285) — 2000
573 (1,27,198) — 2023
Net addition 95 (13,913)

States/UTs with highest count of wildlife sanctuaries

| State & UT | No. of WLS | Area (km²) |
|---|---|---|
| Andaman & Nicobar | 97 | 395.6 |
| Maharashtra | 49 | 7,861.7 |
| Karnataka | 38 | 8,216.69 |
| Tamil Nadu | 33 | 7,096.54 |
| Himachal Pradesh | 28 | 6,115.97 |

Source: EnviStats India 2024



**UNMASKED**

**Can nanoplastic contained in bottled water harm you?**

A recent research by US-based Proceedings of the National Academy of Sciences showed that bottled water contains millions of nanoplastic particles, which is between 10 and 100 times higher than previously estimated. This raises new concerns about their potential health effects. While the science is still emerging, here's a breakdown of what researchers know so far and how you can reduce your exposure.

**250,000** nanoplastic particles are contained in a litre of bottled water

Human hair diameter: 50-120μm
Nanoplastic: 0.001-1μm

They can leach from packaging or machinery used in production to enter water

These particles are less than a micron in size, much smaller than microplastics

**HEALTH RISKS**
Nanoplastics can cross the blood-brain barrier, placenta, and appear in urine

Chemicals like BPA and PFAS in plastics have known risks. Thousands of chemicals used in plastic manufacturing remain unstudied for toxicity

**PRECAUTIONS**
Opt for filtered tap water with non-plastic filters to reduce exposure. Use glass or stainless-steel bottles to avoid plastic contamination

**REDUCE PLASTIC USE**
Keep plastic bottles out of sunlight and heat to prevent degradation. Limit single-use plastics and food containers

Full research: 'Rapid single-particle chemical imaging of nanoplastics by SRS microscopy'

## 9. Cloud Chamber:

A cloud chamber is a **scientific apparatus that mimics the conditions required for cloud formation**. It resembles a closed cylindrical or tubular drum, inside which water vapour, aerosols, etc. are injected. Under the desired humidity and temperature inside this chamber, a cloud can develop. **India is building a cloud chamber with convection properties, as required to study Indian monsoon clouds.** Globally, there are only a handful of convective cloud chambers.

**Objective:** The **objective of establishing a convective cloud chamber is to gain a better understanding of cloud physics under conditions commonly affecting Indian weather systems**. Thereafter, this knowledge can be used for strategic planning of weather modification.

The Pune facility will allow scientists to study the seed particles that form cloud droplets or ice particles in a sustained manner. **Cloud physics basically involves the study of cloud behaviour during normal and extreme conditions; intra-particle interactions inside a cloud; the formation of rain droplets and ice particles;** the influence of moisture added into the atmosphere due to cyclones or low pressure systems; and interactions between different cloud layers, among others.

**Significance:** Scientists will have the flexibility to tailor physical and atmospheric parameters to suit environmental requirements that influence the Indian weather and climate.

## OCTOBER 24

## 1. Korowai Tribe:

The Korowai tribe is a group of indigenous people who live in the **southeastern part of Papua, Indonesia**. **The Korowai people have a deep connection to the forest, which they rely on for their survival.** They hunt and gather food from the forest, including wild animals and plants. Until around 1975, Korowai had almost no contact with the outside world. They are **famous for their treehouses**. Built-in 8-15 meters off the ground, though there are houses that were up to 45 meters on a tall tree. **The tribe has no particular hierarchy system, as the Korowai people treasure equality and harmony between them.** They have been sensationalised in modern media for their **association with cannibalism,** a practice of eating human flesh. While it is believed that the tribe historically practised cannibalism as part of their spiritual and social beliefs, it has largely faded over time.

## 2. Parboiled Rice

**Union Government has scrapped export tax on parboiled rice to boost rice exports**. Decision could lead to increase global supplies and soften international rice prices.

**About Parboiled Rice**

Parboiled rice refers to rice that has been partially boiled at the paddy stage in its inedible husk, before milling. It is called **miniket in West Bengal and Odisha**.

Generally, there are three major steps in parboiling, i.e. **soaking, steaming and drying.**

**Significance:** Increase in rice yield, prevents from insect attacks, contains more of B-vitamins and produces a bran higher in oil content.

## 3. Global Energy Monitor

As per Global Energy Monitor, Fossil capacity is set to drop below half of the power capacity mix in BRICS bloc for the first time ever in 2024.

**Other Key Findings**

Wind and utility-scale solar capacity in development across BRICS is double the amount of coal, oil, and gas power capacity.

BRICS countries have enough renewables projects in development to nearly triple capacity by 2030.

**BRICS Members**

Brazil, Russia, India, China, South Africa, UAE, Iran, Saudi Arabia, Ethiopia, and Egypt

## 4. Atlantic Meridional Overturning Circulation (AMOC)

Climate scientists are urging Nordic ministers to **prevent global warming from causing major change/ collapse in Atlantic Ocean current.** This collapse of AMOC would increase cooling of Northern Hemisphere, raise Atlantic sea levels, drop precipitation over Europe and North America and shift monsoons in South America.

**About AMOC**

A **system of ocean currents that circulates water within Atlantic Ocean, bringing warm water north and cold water south**. AMOC shutdown would cool northern hemisphere and decrease rainfall over Europe. It can also have an effect on the **El Nino.** It distributes heat and nutrients throughout the world's ocean basins.

## 5. Thakkar Bapa

Amritlal Vithaldas Thakkar, also known as Thakkar Bapa, was born on 29 November 1869 in Bhavnagar, Gujarat. He was a **prominent social reformer, freedom fighter, and humanitarian**, renowned for his dedication to the upliftment of tribal and marginalized communities in India.

**Early life:** He worked as an engineer for several years in India and abroad. Later he was **inspired by Mahatma Gandhi and the values of truth and non-violence.**

**Contribution to freedom struggle:** Thakkar Bappa joined India's freedom struggle and became an ardent advocate for the welfare of underprivileged communities.

In **1918, he played a crucial role in presenting the Compulsory Primary Education Bill to the Bombay Legislative Council.** Thakkar Bappa was actively involved in setting up the Harijan Sevak Sangh in 1932.

**Literary work:** He authored the book, Tribes of India, published in 1950

## 6. National Education Society for Tribal Students (NESTS)

NESTS fosters **technological literacy and modernizing education for tribal students across the nation**. Through the capacity-building programs, **NESTS aims to ensure that tribal students are well-prepared for future careers in STEM fields,** contributing to India's technological advancement.

## 7. Fourth nuclear-powered Ballistic Missile Submarine

India's fourth nuclear-powered ballistic missile submarine (SSBN), referred to as S4* was launched in Visakhapatnam.

**About**

**India currently has two SSBNs operational.** INS Arihant was commissioned into service in 2016. The second SSBN, INS Arighaat (S3) was commissioned in August 2024. The 3rd SSBN Aridhman (S4) is currently undergoing sea trials and is expected to be commissioned into service next year.

**Aridhman (S4)**

It has nearly **75% indigenous content and is equipped only with 3,500 km range K-4 nuclear ballistic missiles, which can be fired through vertical launching systems.** With unlimited range and endurance, the SSBN is constrained only by food supplies, crew fatigue and maintenance. The Indian Navy continues to modernize and expand its submarine fleet to meet evolving security challenges and enhance its maritime capabilities.

## 8. Discovery of New Genus of Jumping Spiders 'Tenkana'

The new species, Tenkana jayamangali, was discovered in Karnataka and named after the Jayamangali river, its initial sighting location.

## 9. 5th National Water Awards

The National Water Awards focus on the good work and efforts made by individuals and organizations across the country in attaining the government's vision of a Jal Samridh Bharat. **The Awards were introduced in 2018 by the Ministry of Jal Shakti, and first were given in 2019.** The awards were presented to 38 winners in nine categories including **Best State, Best District, Best Village Panchayat, Best Urban Local Body, Best Water User Association and Best Civil Society.**

**Winners in best District category;**
- Banda (Uttar Pradesh) from North Zone and Ganderbal (J&K) from north zone (joint winner),
- Indore (Madhya Pradesh) from west zone,
- Visakhapatnam (Andhra Pradesh) from south zone,
- Balangir (Odisha) from east zone
- Dhalai (Tripura) from the North East zone.

## 10. Spraying Diamond dust to cool Earth

**About**

Several other compounds, such as **sulphur, calcium, aluminium, and silicon**, have been suggested previously for doing the same job. The **central idea here is to scatter material that can reflect solar radiation into Space and prevent it from reaching Earth, thereby cooling down the planet**. The installation of space-based mirrors has also been proposed. Such solutions, called geo-engineering (more specifically solar radiation management), have been under study for quite some time, though they have never been tried.

## OCTOBER 25

### 1. Scurvy:

It is a disease caused by a **significant lack of vitamin C (ascorbic acid) in the diet**. Scurvy has been known since ancient Greek and Egyptian times.

**Causes:**

**Humans cannot synthesize vitamin C**. It needs to come from external food sources, **especially fruits and vegetables or fortified foods.** Thus, scurvy is caused by not eating enough fresh fruits and vegetables. Also, cooking destroys some of the vitamin C found in food.

**Symptoms:**

It can include anemia, exhaustion, spontaneous bleeding, limb pain, swelling, and sometimes ulceration of the gums and loss of teeth. It can be fatal if left untreated.

**Treatment:** It is treatable with oral or intravenous vitamin C supplements.

**Importance of Vitamin C:**

It's responsible for the development, growth, and healing of your skin, bones, and connective tissue. In addition, you need vitamin C for your blood vessels to function properly. **Vitamin C helps maintain your teeth and gums.** It helps your body absorb iron, which it needs to make red blood cells. Vitamin C also helps heal burns and other wounds. **Vitamin C is an antioxidant, meaning it protects your cells against damage from free radicals.** Free radicals are byproducts of normal cell activity which participate in chemical reactions within cells. Some of these reactions can cause damage over your lifetime.

### 2. Giant Salmon Carp:

It is also known as the **Mekong giant salmon carp**, is a species of freshwater fish in the family Cyprinidae and the single species in the monotypic genus Aaptosyax.

**Appearance:** The predatory fish can grow up to 4 feet in length, and has a conspicuous knob at the tip of its lower jaw. A striking patch of yellow surrounds its large eyes.

It is **endemic to the middle reaches of the Mekong River in northern Cambodia, Laos and Thailand**. Its population is much reduced (>90%) as a result of overfishing and habitat degradation.

**Conservation status**

**IUCN:** Critically Endangered

**Key facts about the Mekong River**

It is the **longest river in Southeast Asia, the 7th longest in Asia, and the 12th longest in the world.** It rises in southeastern **Qinghai province, China. It originates from the Sanjianyuang in the Tibetan Plateau**, with the area designated a national nature reserve to protect the headwaters of the Yangtze, Yellow, and Mekong Rivers. It is the **river with the most large fish species, including giant freshwater stingrays, giant pangasius, Mekong giant catfish, and giant barb**. It creates a huge delta, or triangular piece of land, in southern Vietnam. The delta has rich soil and is one of the **world's great producers of rice.**

### 3. Lake Erie:

It is the **fourth largest of the five Great Lakes of North America**. It forms the boundary between Canada (Ontario) to the north and the United States to the west, south, and east. **The lake's principal tributary rivers are the Detroit (carrying the discharge of Lake Huron), Huron, and Raisin rivers of Michigan etc**. The lake discharges at its eastern end through the Niagara River. It is an important link in the Lawrence Seaway.

**What is Microcystin?**

It is a **single-celled freshwater cyanobacterium** that forms colonies surrounded by mucilage. The genus Microcystis contains several species which often form massive blooms and which produce toxins. **Microcystin**

**is a potent liver toxin and possible human carcinogen.** It inhibits the activities of protein phosphatase-1 and protein phosphatase-2A, which leads to disruption of the cytoskeleton network and subsequent cell death.

## OCTOBER 28

### 1. Great Indian Bustard:

It is a bustard found on the Indian subcontinent. It is among the heaviest of the flying birds.

**Habitat:** It inhabits dry grasslands and scrublands.

**Distribution:** It is found mainly in the **Thar Desert of Rajasthan** that holds about 100 individuals. Also found in the arid regions of **Maharashtra (Solapur), Karnataka (Bellary and Haveri) and Andhra Pradesh (Kurnool)**

**Features:**
- It is a large bird with a **horizontal body and long**, bare legs, giving it an ostrich-like appearance.
- The **sexes are roughly the same size**, with the largest individuals weighing 15 kg (33 pounds).
- It can easily be **distinguished by its black crown on the forehead,** contrasting with the pale neck and head.
- The body is **brownish**, and the wings are marked with black, brown, and grey.
- They **breed mostly during the monsoon season**, when females lay a single egg on open ground.
- **Lifespan:** 12-15 years
- These birds are **opportunistic eaters**. Their diet ranges widely depending on the seasonal availability of food. They feed on grass seeds, insects like grasshoppers and beetles, and sometimes even small rodents and reptiles.

**Conservation Status:**

**IUCN:** Critically Endangered

**Wildlife (Protection) Act, 1972:** Schedule 1

**CITES:** Appendix 1

### 2. 21st Livestock Census:

The **Livestock Census is conducted every five years**. The census carries out a headcount of the number of domesticated animals, poultry, and stray animals in the country. The **census takes into account information about the species, breed, age, sex, and ownership status of the animals in question.**

**Background:** Since **1919, a total of 20 livestock censuses have been carried out so far**, with the last being conducted in 2019.

The enumeration process for the **21st census will take place between October 2024 to February 2025.**

**Focus of 21st Livestock Census**

According to the **Department of Animal Husbandry and Dairying, information on sixteen animal species will be collected in the 21st census**. These include: cattle, buffalo, mithun, yak, sheep, goat, pig, camel, horse, ponies, mule, donkey, dog, rabbit, and elephant. In total, the **census will capture information on 219 indigenous breeds of these sixteen species recognised by ICAR-National Bureau of Animal Genetic Resources (NBAGR).** Besides these, the census will also carry out a headcount of poultry birds such as fowl, chicken, duck, turkey, geese, quail, ostrich, and emu. **The census this time will be fully digitised, like the last one in 2019.** This will include "online data collection through a mobile application, monitoring at various levels through a digital dashboard, capturing the latitude and longitude of data collection location, and generation of livestock census report through software. **The 21st census will capture several new data points. These include:**

**Data on pastoral animals, pastoralists:** The census will, for the first time, collect data on the contribution of pastoralists to the livestock sector, their socio-economic status, and livestock holding.

**More details, granular information:** The census will find out the proportion of households whose major income comes from the livestock sector. It will also contain data on the gender of stray cattle

### 3. Benog Wildlife Sanctuary:

**Location:** It is situated about **11 kilometers from Mussoorie**, a popular hill station in the **Garhwal region of Uttarakhand.**

It was **established in the year 1993 and is named after the highest peak in the area, Benog Hill**, which rises to

a height of 2,250 meters above sea level. It is a **part of Rajaji National Park**. It is located on a pine-clad slope and is surrounded by snow capped peaks of the Himalayan ranges. **Aglar River, a tributary of the Yamuna River flows through the sanctuary.**

**Flora:** It is home to a variety of plant species, including oak and rhododendron forests. It is surrounded by benedictory pines, old cedar trees, and medicinal plants that grow in large amounts in this area.

**Fauna:** It is home to a variety of rare and common fauna, like the **Himalayan goat, panther, leopard, deer, and bear**. The place is known for the rare species of birds that habitat in its area. The sanctuary is home to several species of exotic birds, such as the **White Capped Water Redstart and the Red Billed Blue Magpie**, to name a few.

## 4. Coking Coal:

**Metallurgical coal, also known as met and coking coal, is a naturally occurring sedimentary rock found within the earth's crust**. It typically contains more carbon, less ash, and less moisture than thermal coal, which is used for electricity generation. It is an **essential ingredient in the production of steel**, making it one of the most widely used building materials on earth. It is a **bituminous coal with a suitable quality** that allows the production of metallurgical coke, or simply named coke. **Coke is the main product of the high-temperature carbonisation of coking coal.** It is an essential input material in steelmaking as it is used to produce pig iron in blast furnaces, acting as the reducing agent of iron ore and as the support of the furnace charge. It takes around 770 kilograms of coal to make one ton of steel, with approximately 70 percent of global steel produced in basic oxygen blast furnaces. The largest producers of coking coal were **China** (676 million tons in 2022-62%), **Australia** (169 million tons in 2022-15%), **Russia** (96 million tons in 2022-9%), **USA** (55 million tons-5%), and **Canada** (34 million tons-3%).

## 5. National Mission for Manuscripts

**Syllabus:** GS1(Art)/ GS 2/Governance

**In News**

The Union Ministry of Culture is planning to revive the National Mission for Manuscripts (NMM) , considering creating an autonomous body, potentially named the **National Manuscripts Authority, for preserving ancient texts.**

**About National Mission for Manuscripts (NMM)**

It was **launched in 2003 by India's Ministry of Tourism and Culture.** It aims to discover and preserve India's vast collection of manuscripts, estimated at around ten million, covering various themes, scripts, languages, and artistic styles. Its core mandate is to identify, document, conserve, and make accessible India's manuscript heritage. Achievements include creating metadata for 5.2 million manuscripts and digitizing over 300,000 titles, though only one-third have been uploaded.

## 6. Pradhan Mantri MUDRA Yojana (PMMY)

It was launched by the **Prime Minister on April 8, 2015** for providing loans up to Rs.10 Lakh to the non-corporate, non-farm small/micro enterprises. It **aims to provide financial inclusiveness and support to the marginalised and hitherto socio-economically neglected classes.**

**Categories:** MUDRA loans are offered in three categories namely, '**Shishu', 'Kishore And 'Tarun'** which signifies the stage of growth or development and funding needs of the borrowers:-

**Shishu:** covering loans upto Rs. 50,000/-

**Kishore:** covering loans above Rs. 50,000/- and up to Rs. 5 lakhs

**Tarun:** covering loans above Rs. 5 lakh and up to Rs. 10 lakh.

**Latest Developments:** A new "Tarun Plus" category will be introduced for loans ranging from ₹10 lakh to ₹20 lakh, specifically for eligible entrepreneurs.

## 7. NAFED

**Syllabus:** GS3/ Agriculture

**Context**

The **Appointments Committee of the Cabinet (ACC) chaired by PM has appointed Deepak Agarwal as the new Managing Director of the National Agriculture Cooperative Marketing Federation of India Ltd (NAFED).**

**About NAFED**

It was **established on October 2, 1958** with the objective to promote Co-operative marketing of agricultural produce to benefit the farmers. It is **registered under the Multi State Co-operative Societies Act** and comes under the Ministry of Agriculture

## 8. SPICE 2000 Bomb

**Syllabus:** GS3/ Defence

**In News**

Israel launched a SPICE 2000 bomb to destroy a building in Beirut.

**About SPICE Bomb**

The SPICE 2000 is a **type of guided bomb, often referred to as a "smart bomb."** It is made by Israel's owned Rafael Advanced Defense Systems. SPICE bombs use advanced guidance systems to accurately target specific locations. **The system utilizes both GPS and electro-optical sensors to navigate and target specific locations.**

## 9. Flue Gas Desulfurisation (FGD)

**Syllabus:** GS3/S&T

**Context**

The Punjab government might face a penalty for its failure to comply with timely installation of **Flue Gas Desulphurisation (FGD) systems** in thermal power plants (TPPs) across the state.

**About**

Flue Gas Desulphurisation is a set of technologies used to **remove sulfur dioxide ($SO_2$) from exhaust flue gases of fossil-fuel power plants and other industrial processes**. This is crucial for reducing air pollution and meeting environmental regulations. The **FGD systems — to control sulphur dioxide ($SO_2$) emissions — was mandated by the Ministry of environment, forest and climate change (MoEF&CC) across India in 2015.**

## 10. World's 1st Global Ecosystem Atlas

**Syllabus:** GS3/Biodiversity and Conservation

**Context**

World's 1st global ecosystem atlas is unveiled at the **16th Conference of Parties (COP16) to the United Nations Convention on Biological Diversity (CBD).**

**About**

The tool, developed by the **Group on Earth Observations (GEO), is the first of its kind to focus on mapping and monitoring ecosystems around the world.** The Atlas combines existing national ecosystem maps and fills in gaps using advanced techniques, such as Earth observation, artificial intelligence and field data collections. **It is open-source**, it would be freely accessible to all. It provides important information about the health and risks facing various ecosystems, which can help governments, businesses, financial institutions and local communities make better decisions for sustainable management.

11. **Saudi Arabia has officially commenced construction of the Mukaab — if completed, it is set to become the world's largest structure**.

## OCTOBER 29

## 1. YuvAi Initiative and Center for Generative AI, Srijan ("GenAI CoE")

**Syllabus:** GS2/ Governanc

**Context**

IndiaAI and Meta have launched the Center for **Generative AI, Srijan, at IIT Jodhpur**, alongside the "YuvAI initiative" in partnership with AICTE.

**YuvAi Initiative**

Meta, in collaboration with **MeitY and the All India Council for Technical Education (AICTE), launched the "YuvAi initiative for Skilling and Capacity Building".** The **program aims to bridge the AI talent gap in the country** by empowering 100,000 students and young developers aged 18-30 to leverage open-source large language models (LLMs) to address real-world challenges.

## 2. Center for Generative AI, Srijan

The GenAI CoE **aims to advance research and development in AI while fostering the growth of responsible and ethical AI technologies in India**. It will support and enhance open science innovation across the AI technology landscape.

## 3. Konark Sun Temple:

**Location:** It is located on the coastline of **Odisha in Puri district**. Also called the **Surya Devalaya**, the temple is dedicated to the Hindu god Surya. Textual evidence indicates that **Narasimha I (who reigned between 1238 and 1264) of the Eastern Ganga dynasty built the temple in 1250**. It was **designated a UNESCO World Heritage Site in 1984.**

**Features:**

It is a **classic example of the Odisha style of architecture or Kalinga architecture**. The temple complex has the appearance of a 100-foot-high solar chariot, with 24 wheels and pulled by six horses, all carved from stone. It is oriented towards the east so that the first rays of the sunrise strike the main entrance. **The wheels of the temple are sundials**, which can be used to calculate time accurately to a minute. Around the base of the temple, there are images of animals, foliage, warriors on horses, and other interesting structures. The temple also features elaborate stone carvings depicting scenes from Hindu mythology. **The temple, built from Khondalite rocks, is also known as 'BLACK PAGODA' due to its dark colour.** The temple remains a site of contemporary worship for Hindus, during the annual Chandrabhaga Festival, around the month of February.

## 4. What are Seaweeds?

Seaweeds are **marine algae**, simple plant-like organisms that live in the sea or other bodies of water. They are **known for their medicinal properties with manifold nutritional value.** Seaweeds are being used for making pharmaceutical capsules for the treatment of goitre, cancer, bone-replacement therapy and cardiovascular surgeries.

## 5. Mount Fuji:

Mount Fuji, also known as **Fuji-san, is the highest mountain in Japan, standing at 3,776 meters**. It is situated close to the Pacific coast in the Yamanashi and Shizuoka prefectures in the heart of the large island of Honshu, about 100 km to the southwest of the Tokyo-Yokohama metropolitan area. Unlike other famous high-elevation mountains in the world, **Mt. Fuji is not part of a large mountain range**. It is a **stratovolcano** that has been dormant since its last eruption in 1707 but is still generally classified as active by geologists. It has a **prominent summit crater and is constructed from innumerable basaltic lava flows, each a few meters thick**. It has a smooth slope and a wide, spreading base, creating a beautiful skyline as it narrows to a magnificent peak. It is said that **the main cause of Mt. Fuji's volcanic activity is the Pacific Plate sinking under the bottom of the Philippine Plate**. On the northern slopes of Mount Fuji lie the **Fuji Five Lakes (Fuji Goko), comprising, east to west, Lake Yamanaka, Lake Kawaguchi, Lake Sai, Lake Shōji, and Lake Motosu,** all formed by the damming effects of lava flows. Despite its active volcanic nature, Fuji's summit is covered in snow most times of the year. The **mountain is the major feature of Fuji-Hakone-Izu National Park, and it is at the centre of a UNESCO World Heritage site designated in 2013**

## 6. National Disaster Management Authority

It is the **apex statutory body for Disaster Management in India, established through the Disaster Management Act, 2005.** The Act envisaged the creation of the NDMA, headed by the Prime Minister, and State Disaster Management Authorities (SDMAs) headed by respective Chief Ministers, to spearhead and implement a holistic and integrated approach to Disaster Management in India.

## 7. Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana

It is a Central Sector Sub-scheme. It **aims to formalize the fisheries sector, improve access to credit, promote aquaculture insurance, and enhance supply chains** with an estimated outlay of Rs 6,000 crores over a period of four (4) years from FY 2023-24 to FY 2026-27 in all States/Union Territories.

## 8. Koel River:

Koel River originates from the **Palamau Tiger Reserve, Jharkhand, and flows in the western part of Palamu District. The river divides into two - the North Koel River and the South Koel River**. The former river is tapped near Kutku for irrigation reasons and finally joins with the Son River. The latter one flows across the Indian state of Orissa near Rourkela, before merging with the Brahmani River. Flowing through the hilly terrain of Jharkhand and Odisha, **the Koel River is part of the larger Damodar Valley region, known for its mineral-rich landscape**. It is prone to seasonal flooding, particularly during the monsoon months.

**Hydropower Potential:** The **North Koel Dam, also known as the Mandal Dam**, was constructed on the North Koel River in Jharkhand, intended to generate hydroelectric power and supply irrigation water

## 9. Bharatiya Antariksh Station

The **BAS is expected to take shape from 2028-2035.** Some of the experiments being mooted include: how weightlessness can influence muscle loss on those in space, what kind of algae may be suitable as nutrients or to preserve food for longer, how some algae may be processed to make jet fuel and the impact of radiation on the health of those aboard space stations.

The **International Space Station (ISS), which is a collaborative venture involving the United States, Canada, Russia, Japan, has been operational, in its complete form, since 1998.** But with changing geo-politics and costs, the ISS is expected to be decommissioned by 2030. Some countries are moving to build their own space stations.

**China launched the base module of its station, Tiangong, in 2021**

## 10. Marapi Volcano:

It is an **active volcano located in the Padang Highlands of western Sumatra, Indonesia**. The **mountain is part of the Ring of Fire—a long, horseshoe-shaped, seismically active belt that rings the Pacific Ocean**. The highest peak among several volcanoes in the highlands, Mount Marapi rises to 9,485 feet (2,891 meters) above sea level. It has steep slopes with dense vegetation on its lower flanks. Its summit contains the **Bancah caldera, which has a diameter of 0.9 miles (1.4 km) and is characterized by a series of overlapping craters.** Mount Marapi is often confused with a similar active volcano called Mount Merapi, which is located near the center of the island of Java, Indonesia. It has erupted 11 times during the early 21st century, with its deadliest single event having killed 60 people in 1979.

## OCTOBER 30

## 1. Sohrai painting

Sohrai Painting is a **folk/tribal painting tradition mostly practiced in the villages of Jharkhand's Hazaribagh area**. The colors used in this picture (red, black, yellow, and white) are natural earth colors foraged from the wild or purchased from local merchants. Chewing twigs are used as paint brushes, while cloth rags are used to apply the base coat.

**Theme:** The paintings are known for their **expressive storytelling,** depicting animals, birds and nature, which is a reflection of the agrarian lifestyle and the reverence for wildlife in tribal culture.

The paintings depict a **matriarchal tradition** in which the art form is passed down as a legacy to daughters by their mothers.

## 2. Sambhar Lake

**In News**

Over 40 migratory birds died at Sambhar Lake in Rajasthan.

**About Sambhar Lake**

**Location:** About 80 km southwest of Jaipur in east-central Rajasthan and is India's largest inland salt lake.

**Formation:** Formed in a depression of the **Aravalli Range**, it has a rich history, with its salt supply utilized by the Mughal dynasty and later jointly managed by the princely states of Jaipur and Jodhpur.

**Ramsar Site:** Recognized as a wetland of international importance since 1990.

**Salt Production:** The lake is a major salt producer, housing one of India's largest salt manufacturing units.

**Biodiversity:** The area has **xerophytic vegetation** and is home to flamingoes, pelicans, and other waterfowl.

## 3. Triton Island

**Location:** Triton Island is the southernmost island in the **Paracel Islands chain in the South China Sea**, situated closer to Vietnam than to other parts of China.

**Strategic Importance:** Triton Island is of strategic importance due to its proximity to vital shipping lanes, fisheries, and potential underwater energy reserves.

**Conflicting Claims:** The Paracel Islands, including **Triton Island, are claimed by China, Vietnam, and Taiwan**.

China asserts its claim based on the Nine-Dash Line, a demarcation on maps covering most of the South China Sea.

## 4. Justice K.S. Puttaswamy & Right to Privacy

**Puttaswamy Judgment (2017):** The Supreme Court of India declared the Right to Privacy as a fundamental right under Article 21 of the Indian Constitution, which guarantees the right to life and personal liberty. The **landmark judgment expanded privacy rights, asserting that the right is intrinsic to human dignity and autonomy.** It set important precedents for areas like **data protection, surveillance, and personal freedoms**. Justice Puttaswamy would be one of the first litigants to challenge the Aadhaar scheme. Globally, **Article 12 of the Universal Declaration of Human Rights (1948) and Article 17 of the International Covenant on Civil and Political Rights (ICCPR, 1966)** both provide legal protections against "arbitrary interference" with an individual's privacy.

## 5. Rule of Law Index has been published by the World Justice Project (WJP).

India stands at **98 out of 142 countries.**

**Top Rank:** Denmark has secured first rank, followed by Norway, Finland, Sweden, and Germany in terms of law and order.

## 6. Land Port Authority of India (LPAI)

The Land Ports Authority of India Act, 2010 provides for the establishment of the Land Ports Authority of India.

**The Authority shall consist of:**
- A Chairperson,
- Two Members, out of whom one shall be Member (Planning and Development) and other shall be Member (Finance)
- Not more than nine members, ex officio, to be appointed by the Central Government from amongst the officers, not below the rank of the Joint Secretary to the Government of India.

## 7. CORAL TRIANGLE

The Coral Triangle, often referred to as the **'Amazon of the seas'**, is a huge marine area spanning over 10 million square kilometres. It includes countries like **Indonesia, Malaysia, Papua New Guinea, Singapore, the Philippines, Timor-Leste, and the Solomon Islands.**

## 8. Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO):

It is an **international organization based in Vienna, Austria, established to implement the Comprehensive Nuclear Test-Ban Treaty (CTBT), which aims to ban all nuclear explosions worldwide.** CTBT is a multilateral treaty opened for signature in 1996 by which states agree to ban all nuclear explosions in all environments, for military or civilian purposes. The treaty envisages the mechanisms that control such **prohibition, including distant monitoring and data collection. It was signed by 183 states and ratified by 164** but has not entered into force as eight specific states among 44 (so-called Annex-2 states whose signatures are required for the Treaty to enter into force, namely the

US, China, Iran, Egypt, Israel, India, Pakistan, and North Korea) have not ratified the treaty yet. In order to verify compliance with its provisions, the treaty establishes a global network of monitoring facilities and allows for on-site inspections of suspicious events.

## 9. Civil Registration System (CRS) Mobile App:

It is designed to facilitate the registration of births and deaths across India. It was **developed by the Registrar General and Census Commissioner of India**. It aims to simplify and expedite the registration process for citizens, making it more accessible and efficient. The new app will allow citizens to register births or deaths at any time from any place in their state's official language.

**Key Facts about Registrar General and Census Commissioner of India (RGCCI):**

It is an **office under the Ministry of Home Affairs, Government of India,** responsible for conducting the decennial Census of India, compiling demographic and population statistics, and overseeing the Civil Registration System (CRS) in the country. **Established in 1961, the RGCCI is a crucial body for policymaking**, providing data that informs social, economic, and political decisions at all levels of government. The **Registrar General of India is the head of the Office of the Registrar General and Census Commissioner**

## 10. Mission Amrit Sarovar:

It was **launched on 24th April, 2022 with the resolve to build 75 Amrit Sarovars during the 75th year of independence as a part of Azadi ka Amrit Mahotsav**. It helps to overcome the water crisis in rural areas of the country. Every Amrit Sarovar will have a pondage area of at least 1 acre with a water holding capacity of about 10,000 cubic metre. It **focuses on water conservation, people's participation and proper utilization of soil excavated from the water bodies to boost infrastructure projects**. This Mission has been launched with a whole of Government Approach which involves 6 Ministries/Department namely: **Dept of Rural Development, Department of land resources, Department of Drinking Water and Sanitation, Department of Water resources, Ministry of**

**Panchayati Raj, Ministry of Forest, Environment and Climate changes.** There is no separate financial allocation for Mission Amrit Sarovar. Bhaskaracharya National Institute for Space Application and Geo-informatics (BISAG-N) has been engaged as Technical partner for the Mission.

## 11. Mission for Integrated Development of Horticulture:

It is a **Central Sponsored Scheme (CSS) being implemented w.e.f. 2014-15 for holistic growth of the horticulture sector.** It promotes the cultivation of fruits, vegetables, root and tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo. MIDH also provides technical advice and administrative support to State **Governments/ State Horticulture Missions (SHMs) for the Saffron Mission and other horticulture related activities Rashtriya Krishi Vikas Yojana (RKVY)/NMSA.**

**Funding:**

Under MIDH, Government of India (GOI) contributes 60% of total outlay for developmental programmes in all the states except states in North East and Himalayas, 40% share is contributed by State Governments. In the case of North Eastern States and Himalayan States, GOI contributes 90%. In the case of National Horticulture Board (NHB), Coconut Development Board (CDB), Central Institute for Horticulture (CIH), Nagaland and the National Level Agencies (NLA), GOI contributes 100%.

**Key Components**

- **National Horticulture Mission (NHM)** - Focuses on the development of horticulture in states and union territories.
- **Horticulture Mission for North East and Himalayan States (HMNEH) -** Addresses the specific needs of the northeastern and Himalayan regions.
- **National Bamboo Mission (NBM) -** Dedicated to promoting bamboo cultivation and its value chain.
- **Coconut Development Board (CDB) -** Works on the development of the coconut sector.

- **Central Institute of Horticulture (CIH):** It was established at **Medizipehima**, **Nagaland** in 2006-07 for providing technical backstopping through **capacity building and training of farmers** and **Field functionaries** in the North Eastern Region.