



WEEKLY  
**CURRENT**  
AFFAIRS

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## DIRECTOR'S MESSAGE



“Civil Service is not just a job; it is an opportunity, to do your bit for society and to contribute to nation-building. It is an opportunity to realise your potential and make a meaningful contribution in the emancipation of masses.”

**Mr. Dilip Kumar**

**Director, Vajirao IAS Academy**

Good Civil Servants ensure efficient and smooth governance. They are the backbone of the country and they have the power to make a difference in people's life.

We have set up extremely tough targets for ourselves. Now a day's, most of the students are well aware and focused about their aim. They just need a streak of guidance. We feel that we have done our bit in providing that blue streak of guidance and we are honoured to be a reason of smile on certain lips, proud to be your teacher, friend and guide.

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# I. SIMPLIFY EDITORIAL

## [1.1] Panchayats: Core to Development

### Syllabus: Governance [GS Paper-2]

#### Context

Grassroots governance is the foundation of India's democratic and development journey, with panchayats serving as the closest tier of governance to the people. Unlike top-down models, panchayat-led approaches enable locally contextualized strategies, ensuring that development initiatives are tailored to the unique needs and aspirations of rural communities. The recent launch of the Panchayat Advancement Index (PAI) and renewed government focus on empowering panchayats underscore their centrality in achieving sustainable and inclusive rural development.

#### Historical Evolution and Constitutional Mandate

**Ancient Roots and Colonial Disruption:** Panchayats have ancient origins, referenced in texts like Manusmriti and Arthashastra, and were historically central to village self-governance. However, British colonial rule undermined these institutions, replacing them with centralized systems focused on revenue collection.

**Post-Independence Revival:** After independence, Mahatma Gandhi's vision of *Gram Swaraj* inspired the revitalization of panchayats as vehicles for grassroots democracy. The Balwant Rai Mehta Committee (1957) and subsequent committees recommended a decentralized, three-tier Panchayati Raj system, culminating in the 73rd Constitutional Amendment Act of 1992.

#### The Three-Tier Structure

- **Gram Panchayat:** Village level, directly elected representatives
- **Panchayat Samiti:** Block/intermediate level
- **Zila Parishad:** District level

This structure ensures that governance is brought closer to the people, with Gram Panchayats as the most immediate interface for rural citizens.

#### Significance of Panchayats in Rural Development

- **Participatory Democracy and Local Empowerment:** Panchayats embody the principles of democratic decentralization, enabling direct participation, representation, and decision-making by rural citizens in matters affecting their lives. The Gram Sabha, comprising all adult villagers, is the fulcrum of this

participatory process, allowing for open discussion and formulation of village-specific development plans.

- **Inclusive Governance and Social Justice:** Panchayats play a critical role in promoting social justice by addressing poverty, empowering women, and ensuring the inclusion of marginalized groups through reservation of seats and targeted welfare schemes. Their proximity to the community allows them to identify and address local issues more effectively than distant state or national authorities.
- **Catalysts for Sustainable Development:** Panchayats are instrumental in translating national and state development policies into local action. Their responsibilities span agriculture, infrastructure, water management, health, education, and social welfare, making them pivotal in achieving the Sustainable Development Goals (SDGs) at the grassroots.

### Recent Initiatives: Panchayat Advancement Index (PAI)

The Ministry of Panchayati Raj's launch of the Panchayat Advancement Index (PAI) marks a significant step in strengthening grassroots governance. The PAI ranks over 216,000 panchayats on their progress across key themes:

- Poverty alleviation and enhanced livelihood
- Health
- Water sufficiency
- Self-sufficient infrastructure
- Good governance

This data-driven approach acknowledges the central role of panchayats in rural transformation and incentivizes performance-based development.

### Advantages of Panchayat-Led Development

- **Contextual Strategies:** Panchayats can tailor development interventions to local realities, considering unique social, economic, and environmental factors.
- **Enhanced Accountability:** Mechanisms like social audits and participatory budgeting foster transparency and citizen oversight.
- **Efficient Resource Utilization:** Panchayats manage local finances and mobilize resources for community priorities, enhancing the effectiveness of government schemes.
- **Community Ownership:** Local involvement ensures greater acceptance, sustainability, and success of development initiatives.

### Challenges Facing Panchayats

Despite their potential, panchayats face several challenges:

- **Resource Constraints:** Limited financial autonomy and dependence on higher tiers for funds restrict their effectiveness.
- **Capacity Deficits:** Many panchayat members lack adequate training and administrative skills, affecting governance quality.
- **Political Interference:** Excessive control by state governments can undermine local autonomy.

- **Social Barriers:** Caste, gender, and power imbalances sometimes hinder true participatory governance.

### **Way Forward: Strengthening Panchayats for Inclusive Development**

To realize the full potential of panchayats as engines of rural development, the following measures are essential:

- **Financial Empowerment:** Enhance fiscal devolution and grant panchayats greater control over local resources.
- **Capacity Building:** Invest in training and skill development for panchayat members and staff.
- **Legal and Administrative Reforms:** Ensure functional autonomy and reduce bureaucratic interference.
- **Promote Social Inclusion:** Strengthen mechanisms for participation of women and marginalized groups.
- **Leverage Technology:** Use digital platforms for governance, monitoring, and citizen engagement.

### **Conclusion**

Strong panchayats are indispensable for grassroots governance and sustainable development in India. By empowering local institutions, fostering participatory democracy, and enabling context-sensitive solutions, panchayats can transform rural India and drive progress towards national development goals. The Panchayat Advancement Index and continued policy focus on local self-governance are promising steps, but sustained commitment to capacity building, resource allocation, and inclusive participation remains crucial for realizing the vision of vibrant, self-reliant villages at the core of India's development journey.

**Source:** [BS](#)

## **[1.2] Clean Energy Revolution For Reforming India's Agriculture**

### **Syllabus: Environment, Energy [GS Paper-3]**

#### **Context**

India stands at a critical juncture where the health of its environment and the sustainability of its agricultural systems are deeply intertwined. As the world faces the escalating impacts of climate change, India's reliance on fossil fuels and unsustainable agricultural practices poses significant risks to its ecological health and food security. Drastic steps are now essential-not only to restore planetary health but also to ensure the well-being of India's vast population.

## **The Urgency for Clean Energy Revolution**

### **India's Energy Landscape and Its Environmental Toll**

- India is the world's third-largest power market, with energy demand growing at an unparalleled rate of 7–8% per year. Historically, this growth has been powered by fossil fuels, primarily coal, making India responsible for about 8% of global carbon emissions. Continuing on this path would be catastrophic for both India and the planet.
- However, a shift is underway. Economic and climate imperatives have converged: renewable energy is now cheaper than fossil fuels in India-by nearly half-making the transition not just environmentally necessary but also economically logical.

### **Recent Progress and Ambitious Targets**

- India has committed to augmenting renewable energy capacity by 300% by 2030<sup>1</sup>.
- The country aims to connect 500 GW of clean energy by 2030, a target equivalent to the combined capacity of France, Germany, and Italy.
- Recent years have seen a surge in solar and wind installations, with 18.8 GW of new renewable generators connected in just eight months of 2024.
- India is expected to account for almost half of the world's additional renewable energy capacity additions through 2026.

## **Unsustainable Agriculture: A Looming Crisis**

### **Current Agricultural Practices and Their Impact**

India's agricultural system, while crucial for food security, is heavily reliant on water-intensive crops, chemical fertilizers, and pesticides. These practices have led to:

- Depletion and contamination of water resources
- Degraded soil health and loss of biodiversity
- Increased greenhouse gas emissions and vulnerability to climate shocks

The majority of Indian agriculture remains rainfed, accounting for 60% of net sown area and 40% of total food production. This makes the sector especially vulnerable to erratic rainfall and climate change.

### **Need for Systemic Change**

To restore ecological balance, India's agricultural production system must transition toward sustainability. This requires:

- Reducing dependency on synthetic inputs
- Adopting climate-resilient and resource-efficient practices
- Diversifying crops and integrating farming systems

## **Government Initiatives for Sustainable Agriculture**

### **National Mission for Sustainable Agriculture (NMSA)**

The NMSA focuses on enhancing productivity, especially in rainfed areas, through integrated farming, water use efficiency, soil health management, and resource conservation. Key strategies include:

- Improved crop seeds and livestock varieties

- Efficient water and nutrient management
- Promotion of agroforestry and integrated farming systems
- Support for agricultural insurance and credit

### **Promoting Organic and Natural Farming**

- The Paramparagat Krishi Vikas Yojana (PKVY) advances organic farming, with over 8.41 lakh hectares under organic cultivation as of June 2024.
- The government is transitioning one crore farmers to natural farming, establishing 10,000 bio-input resource centers, and supporting certification and branding of organic produce.
- Market Development Assistance and subsidies for organic fertilizers further incentivize sustainable practices.

### **Clean Energy and Agriculture: The Synergy**

- **The Green Revolution in Agriculture:** Clean energy solutions such as solar water pumping, biogas, renewables-based cold storages could easily cut down the carbon footprints in agriculture. Incentivizing farmers to adopt renewable energy would change the whole rural economy and agriculture for better.
- Job and Economic Opportunities-the renewables sector promises to create considerable employment in manufacturing, installation, and maintenance. This is all happening within a situation of a vibrant national renewable technologies market because of government policies and a skilled workforce that fosters innovation and entrepreneurship in this field.

### **Challenges to the Transition**

#### **Policy and Implementation Hurdles**

Despite ambitious targets, India has faced setbacks due to:

- Inconsistent policy support and frequent changes in regulations
- Tariffs on solar panels and continued subsidies for fossil fuels
- Slow adoption of sustainable practices at the grassroots level

#### **Social and Economic Barriers**

- Small and marginal farmers often lack access to technology, credit, and markets needed for sustainable transitions.
- There is a need for greater awareness, training, and extension services to facilitate the adoption of new practices.

### **The Way Forward: Drastic Steps for a Sustainable Future**

Integrated Approach for Clean Energy and Sustainable Agriculture

- **Policy Coherence:** Establish synergies between clean energy and agricultural policies to make sure renewable energy supports sustainable agriculture and vice versa.
- **Incentives and Support:** Expand financial and technical support for farmers to adopt renewable energy and sustainable practices.

- **Capacity Development:** Develop relevant training, research, and extension capacities that cater to farmers and rural communities.
- **Community Participation:** Enhance community-based resource management and decentralized renewable energy systems.

### Conclusion

India's revolution in clean energy and sustainable agriculture is not just an environmental imperative-it is a socio-economic necessity. By accelerating the adoption of renewables and transforming agricultural systems, India can restore the health of its planet, ensure food security, and become a global leader in climate action. The time for drastic steps is now; with the right policies, investments, and community engagement, a sustainable and prosperous future is within reach.

**Source:** [The Indian Express](#)

## [1.3] Reinvigorating India's Industrial Sector

### Syllabus: Economy [GS Paper-3]

#### Context

India's industrial sector, a key engine of economic growth, is currently experiencing a period of pronounced slowdown. The latest data on the Index of Industrial Production (IIP) for fiscal year 2024-25 reveals growth at its lowest in four years, raising concerns about the underlying health and resilience of the sector amid global and domestic challenges.

#### Current State of Industrial Growth

- India's IIP grew by 4% in FY 2024-25, a significant decline from 5.9% in FY 2023-24 and much lower than the post-pandemic rebound of 11.4% in FY 2021-22. March 2025 saw a marginal improvement to 3% from February's 2.7%, but this remains well below the previous year's 5.5% for the same month.
- The deceleration is attributed to weaker performances in key sectors: manufacturing, mining, and electricity. Manufacturing output grew by only 3% in March 2025 (down from 5.9% a year earlier), mining output increased by a meager 0.4%, and power generation growth eased to 6.3% from 8.6%.

#### Sectoral Analysis: Uneven Performance

- **Manufacturing and Mining:** Manufacturing, which constitutes the bulk of industrial output, saw growth slow to 4% in FY25 from 5.5% in FY24. Mining experienced a sharper fall, from 7.5% to 2.9% over the same period. The capital goods segment-a proxy for investment activity-also saw its growth decelerate to 2.4% from 7% in the previous year, suggesting tepid private sector investment.

- **Electricity and Power:** Power output, while showing a cyclical uptick in summer months, also slowed over the year, indicating that the boost is not broad-based but seasonal.
- **Consumer Goods:** Diverging Trends: Consumer durables (e.g., electronics, appliances) witnessed a notable uptick, growing from 3.6% in FY24 to 8% in FY25, reflecting strong urban demand and premiumization trends. In contrast, consumer non-durables (e.g., FMCG, essentials) contracted by -1.6% in FY25 after growing 4.1% the previous year, pointing to persistent weakness in rural consumption and essentials demand.

## **Consumption Patterns: Rural vs Urban Divide**

### **Urban Consumption: Driving Durables**

- Urban areas are seeing increased demand for premium, feature-rich consumer durables, aided by rising disposable incomes, digital adoption, and easy financing options.
- The Production-Linked Incentive (PLI) scheme and other government policies are further fueling supply-side growth in this segment.

### **Rural Consumption: Strained by Inflation and Income**

- Rural consumption remains under pressure due to the lingering effects of high food inflation in late 2024, which, despite easing retail inflation (down to 4.6% in FY25), has impacted farm incomes and non-durable goods demand.
- While some data suggests rural demand is gradually catching up with urban trends, the gap in per capita expenditure persists, and the contraction in non-durables signals ongoing stress.

## **Investment and Trade: Headwinds Persist**

### **Private Investment**

- Even after the sharp drop in the repo rate by the Reserve Bank of India to 6%-the first such cut in more than a year-uncertainty in the economic and trade environment continues to keep down private capital expenditures.
- Lower lending rates do not mean investments will increase unless domestic consumption and export demand stage a strong revival.

### **Exports and MSMEs**

- Flat growth of goods exports in FY25 is a cause of major concern, especially from the point of view of MSMEs, which account for almost 46% of India's exports. This sector that was doing well has witnessed impediments arising from strained trade with key partners such as the USA.
- The ongoing negotiations for a Bilateral Trade Agreement with the U.S. assume great significance because that will protect the interests of nearly 60 million MSMEs and the 250 million jobs that depend on them.

## Policy Imperatives: The Way Forward

### Short-Term Measures

- **Fiscal Stimulus Targeted:** Specifically, more attention would need to be given to the sectors that are reeling under the most severe impact of the slowdown especially manufacturing, mining and rural-centered areas.
- **Increase in Rural Incomes:** Increasing DBT, rural infrastructure, and employment schemes can stimulate demand in rural areas, particularly for non-durables.

### Medium to Long-Term Strategies

- **Export Competitiveness:** in terms of accepting trade agreements at a much faster pace and reducing all logistical bottlenecks providing support to MSMEs on the global turf.
- **Investment in Technology Skills:** The introduction of newer advanced manufacturing technology, along with upskilling the workforce, will improve productivity and competitiveness.
- **Ease of Doing Business:** Reforms in every regulatory room will remain a constant in making compliance simpler and access to credit easier, which would attract both domestic and foreign investors.

## Conclusion

India's industrial sector is at a crossroads, facing both cyclical and structural challenges. While certain segments like consumer durables are witnessing robust growth, the overall slowdown in IIP, persistent rural distress, and lackluster investment signal the need for proactive and targeted policy interventions. Reviving broad-based industrial growth will require a combination of fiscal support, regulatory reforms, and strategic trade negotiations to insulate the sector from global turbulence and ensure inclusive, sustainable growth.

Source: [The Hindu](#)

## [1.4] Rising Temperatures: Need for Proactive Policies

### Syllabus: Geography [GS Paper-1]

#### Context

Heatwaves are a recurring phenomenon in northern India during April to June, but recent years have witnessed a marked escalation in both their intensity and duration. The region is now grappling with earlier, longer, and more severe heat events, a trend that underscores the urgent need for proactive public policy responses to safeguard public health, agriculture, and infrastructure.

## **Current Trends: Escalating Heatwaves in North India**

### **Record-Breaking Temperatures**

- In 2024, parts of Delhi recorded temperatures as high as 53°C, with Rajasthan and other northern states experiencing similar extremes.
- 2025 saw the earliest heatwave in recorded history, with February already marking record-breaking high temperatures and warm nights.
- As of March and April 2025, cities like Delhi, Chandigarh, Jaipur, and Amritsar have consistently recorded temperatures nearing or exceeding 40°C, with the Indian Meteorological Department (IMD) issuing repeated heatwave alerts.

### **Changing Seasonal Patterns**

- Winters are becoming shorter, with summers and heat waves arriving earlier each year.
- The frequency and duration of heatwaves have increased, with projections for 2025 indicating more heatwave days than the historical average.

## **Underlying Causes**

### **Climate Change and Global Warming**

- Global warming is a primary driver, raising baseline temperatures and exacerbating heatwave conditions.
- Reduced frequency and strength of western disturbances, which typically bring cooling, have contributed to persistent heat spells.

### **Urbanization and Land Use Change**

- Rapid urbanization in cities like Delhi and Chandigarh has intensified the urban heat island effect, making urban centers hotter than surrounding rural areas.
- Loss of green cover and increased concretization further trap heat, reducing natural cooling.

### **Atmospheric and Meteorological Factors**

- Clear skies and reduced wind speeds during pre-monsoon months allow for greater solar heating, pushing temperatures higher.
- The transition from winter to summer has become abrupt, with little respite in between.

## **Impacts of Intensifying Heatwaves**

### **Public Health Crisis**

- Heatwaves pose severe health risks, especially for vulnerable populations such as children, the elderly, and those with pre-existing conditions.
- In 2024, official data recorded nearly 150 deaths due to heatwaves, though independent estimates suggest the actual toll was much higher.
- Heat-related illnesses-heatstroke, dehydration, and exacerbation of chronic diseases-are on the rise.

### **Agricultural and Economic Losses**

- Prolonged heat stress affects crop yields, particularly winter-sown crops, threatening food security and farmers' livelihoods<sup>1</sup>.

- Increased demand for irrigation and water stress exacerbate existing resource challenges.

### **Strain on Infrastructure**

- Surging temperatures drive up electricity demand for cooling, straining power grids and leading to frequent outages.
- Urban infrastructure, not designed for such extremes, faces increased wear and tear.

## **Current Policy Responses: Gaps and Limitations**

### **Reactive Measures**

- Most responses remain reactive, focusing on issuing heat alerts and advisories, rather than addressing root causes or building long-term resilience.
- Public awareness campaigns and advisories are helpful but insufficient for the scale of the challenge.

### **Limited Early Warning and Preparedness**

- While the IMD has improved forecasting and alert systems, there is a need for better integration with local governance and health systems.
- Emergency response plans, especially for vulnerable groups, are often lacking or poorly implemented.

## **Towards Proactive Public Policy: Recommendations**

### **1. Strengthen Early Warning Systems**

- Enhance the accuracy and reach of heatwave forecasts, ensuring timely dissemination to all stakeholders, including rural and marginalized communities.
- Integrate weather alerts with local health, disaster management, and municipal services for coordinated action.

### **2. Urban Planning and Green Infrastructure**

- Promote urban greening, rooftop gardens, and increased tree cover to mitigate the urban heat island effect.
- Encourage the use of cool roofs, reflective pavements, and heat-resilient building materials in city planning.

### **3. Health Sector Preparedness**

- Develop and implement heat action plans at state and city levels, with focus on vulnerable populations.
- Train healthcare workers to recognize and treat heat-related illnesses and ensure adequate supply of medicines, ORS, and cooling shelters.

### **4. Water and Energy Management**

- Invest in sustainable water management practices, including rainwater harvesting and efficient irrigation systems for agriculture.
- Promote energy efficiency and demand-side management to reduce stress on power grids during peak heat periods.

## **5. Public Awareness and Community Engagement**

- Conduct targeted awareness campaigns on heat risks, preventive measures, and first-aid for heat-related illnesses.
- Involve local communities in planning and implementing adaptation measures, leveraging traditional knowledge and practices.

## **6. Climate Change Mitigation and Adaptation**

- Accelerate the transition to clean energy sources to reduce greenhouse gas emissions.
- Mainstream climate adaptation into development planning, focusing on heat-resilient infrastructure and livelihoods.

## **Conclusion**

The rising frequency and severity of heatwaves in northern India are clear indicators of a changing climate and the inadequacy of current reactive approaches. Public policy must shift towards proactive, integrated, and long-term strategies that address both immediate risks and underlying vulnerabilities. Only through coordinated action-across government, civil society, and communities-can India build resilience against the escalating threat of extreme heat.

**Source:** [BS](#)



## 2. DAILY CURRENT AFFAIRS

### [2.1] Increased Incidents of Lightning in India

#### Syllabus - Geography [GS Paper-1]

##### Context

Around 162 people have been killed by lightning moves throughout 12 Indian states between March 2025 and mid-April 2025.

- Bihar recorded 99 deaths (61% of the national average), observed by Uttar Pradesh.

##### What is Lightning?

- Lightning is an electrical discharge among charged debris in a cloud and the ground.
- Although air commonly acts as an electrical insulator, whilst the voltage reaches about three million volts per meter (V/m), the air's insulating properties ruin down, allowing a powerful electric powered contemporary to pass through.
- This affects a surprising release of energy, developing a vivid flash and a related sound wave (thunder).

##### Factors Responsible for Increased Incidents of Lightning in India

- **Geographic and Climatic Conditions:** Regions with excessive humidity, along with the eastern states and coastal areas, are more liable to thunderstorms and lightning.
  - The topography, including the Himalayas and the Western Ghats, also impacts the frequency of lightning.
- **Monsoon Dynamics:** The monsoon season, with its extreme rainfall and convective pastime, is a main driving force of lightning in India.
  - The convergence of moist air masses and the rising of heat, wet air during the monsoon season frequently lead to the formation of thunderstorms and lightning.
- **Urbanization and Industrialization:** Rapid urbanization and industrialization growth the range of artificial heat assets and aerosols in the environment.
  - These decorate convection and contribute to more common thunderstorms, thus growing lightning incidents.
- **Climate Change:** Changes in global climate patterns are influencing local climate phenomena.
  - Increased temperatures and adjustments in humidity levels modify storm dynamics, probably leading to more frequent and intense lightning occasions.
- **Agricultural Practices:** The burning of agricultural residues and deforestation can contribute to the accumulation of particles in the environment.

- These particulates have an effect on cloud formation and increase the likelihood of thunderstorms and lightning.

### Government Initiatives

- CROPC (Climate Resilient Observing Systems Promotion Council) has advanced India's first Lightning Early Warning System, aimed toward predicting lightning moves and issuing signals.
- The cell app SACHET was launched to alert the public about coming near lightning hazards.
- In 2020, Damini Lightning apps were advanced by Indian Institute of Tropical Meteorology (IITM)-Pune.

### Way Ahead

- Strengthening communication systems to ensure warnings reach vulnerable populations efficiently.
- Training the local government to act rapidly upon early warnings.
- Increasing public focus about lightning safety measures, specially during pre-monsoon and monsoon seasons.
- Improving surface-level implementation of NDMA protocols to reduce fatalities.

**Source:** [The ToI](#)

### Prelims PYQ

**1. During a thunderstorm, the thunder in the skies is produced by the (2013)**

- 1. meeting of cumulonimbus clouds in the sky**
- 2. lightning that separates the nimbus clouds**
- 3. violent upward movement of air and water particles**

**Select the correct answer using the codes given below:**

- 1 only**
- 2 and 3**
- 1 and 3**
- None of the above produces the thunder**

**Ans: (d)**

- Around 162 people have been killed by lightning moves throughout 12 Indian states between March 2025 and mid-April 2025.
- Bihar recorded 99 deaths (61% of the national average), observed by Uttar Pradesh.
- Lightning is an electrical discharge among charged debris in a cloud and the ground.
- Although air commonly acts as an electrical insulator, whilst the voltage reaches about three million volts per meter (V/m), the air's insulating properties ruin down, allowing a powerful electric powered contemporary to pass through.
- This affects a surprising release of energy, developing a vivid flash and a related sound wave (thunder).

## [2.2] Viksit Bharat Vision: Drinking Water for All

### Syllabus: Water Resource [GS Paper-3]

#### Context

Water security is central to India's aspiration of becoming a developed nation by 2047, encapsulated in the vision of Viksit Bharat. Recognizing the foundational role of water in inclusive growth, the Union Housing and Urban Affairs Ministry has developed a comprehensive blueprint to achieve water security and sustainability, with a particular focus on providing "drink from tap" facilities across the nation.

#### Water Vision @2047: The Foundation

The Government of India's Water Vision @2047 places water at the core of the development agenda, aiming to ensure every citizen has access to safe and reliable drinking water. The vision addresses key challenges such as:

- Protection and improvement of water resources
- Tackling climate change impacts on water availability and quality
- Promoting efficient water use in all sectors, especially agriculture, which consumes 80% of the nation's water

The vision is being implemented through annual conferences and collaborative platforms, bringing together states, union territories, and stakeholders to formulate unified strategies for water sustainability.

#### Blueprint for Comprehensive Water Security

The Ministry's blueprint for water security and sustainability is built on several strategic pillars:

- **Strengthening Water Governance:** Establishing robust governance structures, including state-level Integrated Water Resources Management Authorities, to unify efforts across departments and ensure effective planning and regulation.
- **Infrastructure Development:** Focused investment in water storage, treatment, and distribution infrastructure, with an emphasis on 24x7 pressurized water supply systems (PWSS) and district-metered areas (DMAs) to ensure continuous and safe water delivery.
- **Data and Technology:** Introduction of a draft National Water Data Policy to centralize and make accessible data on water quantity, quality, and usage, fostering evidence-based decision-making and public-private partnerships.
- **Participatory Approaches:** Engaging communities at the grassroots through initiatives like 'Jal Sanchay Jan Bhagidari' and Gram Panchayat-led certification processes to ensure transparency and accountability.

#### 'Drink from Tap' Initiative: Transforming Urban and Rural Water Supply

The Ministry of Housing and Urban Affairs has released a detailed manual for implementing "drink from tap" systems in urban areas. Key features include:

- Transition from intermittent to 24x7 pressurized water supply
- Prevention of contamination within distribution systems and household storage
- 100% metering to ensure sustainability and accountability
- Adoption of cutting-edge technologies and best practices in system design, operation, and maintenance

## Conclusion

The Centre's vision for Viksit Bharat recognizes that ensuring safe, clean, and reliable drinking water from the tap is fundamental to India's development journey. Through robust policy frameworks, technological innovation, participatory governance, and targeted infrastructure investments, India is making significant strides toward comprehensive water security and sustainability. The goal is clear: by 2047, every citizen should be able to turn on the tap and access safe drinking water, marking a transformative leap towards a developed, equitable, and resilient nation.

Source: [The Hindu](#)

## UPSC Mains Practice Question

**Q. Critically examine the initiatives taken by the Government of India in this regard and suggest measures to ensure sustainable water supply.**

## [2.3] World Social Report 2025

### Syllabus: Social Justice [GS Paper-2]

#### Context

The World Social Report 2025, published by the United Nations Department of Economic and Social Affairs in collaboration with UNU-WIDER, provides a comprehensive analysis of the current global social landscape. It highlights the alarming rise in economic insecurity and inequality, urging immediate policy reforms to address these challenges and accelerate progress towards the Sustainable Development Goals (SDGs).

#### Current Global Context

##### Persistent Vulnerabilities Despite Progress

- Although significant strides have been made in reducing extreme poverty and improving material well-being over the past three decades, a large segment of the global population remains vulnerable.
- Over 2.8 billion people survive on daily incomes between \$2.15 and \$6.85, making them highly susceptible to economic shocks that can push them back into extreme poverty.
- Job insecurity is widespread, with 60% of people fearing job loss, reflecting the precarious nature of employment worldwide.

##### Rising Inequality and Distrust

- Income inequality is on the rise, undermining social cohesion and trust in institutions.
- More than half of the global population lacks trust in their governments, a situation exacerbated by the proliferation of misinformation and the concentration of wealth and power at the top.

#### Key Findings of the World Social Report 2025

##### Three Pillars for Sustainable Development

The report identifies three guiding principles essential for addressing the current social crisis:

- **Equity:** Ensuring fair opportunities and outcomes for all.
- **Economic Security:** Providing stability and protection against economic shocks.
- **Solidarity:** Fostering a sense of shared responsibility and collective action.

### **Impact of Inequality and Economic Insecurity**

- Economic insecurity and inequality are eroding social cohesion, fueling frustration, and deepening societal divisions.
- Without urgent intervention, the SDGs, particularly those related to poverty and inequality, are unlikely to be achieved by 2030.

### **Need for Transformative Solutions**

#### **Policy and Institutional Gaps**

- The report stresses that current policies and institutions are inadequate for the rapidly evolving social environment.
- There is a pressing need for transformative, inclusive policies that can break the vicious cycle of insecurity, inequality, and distrust.

#### **Restoring Trust and Cohesion**

- Restoring public trust and rebuilding social cohesion require a reassessment and realignment of policy frameworks to better address contemporary challenges.
- The report calls for a new global policy consensus based on equity, economic security, and solidarity.

### **Implications for Sustainable Development Goals (SDGs)**

- The concentration of wealth and persistent inequalities threaten the achievement of the SDGs by 2030.
- The report underscores that, at the current pace, many targets related to poverty, inequality, and social protection will remain unmet unless decisive action is taken.

### **Conclusion**

The World Social Report 2025 paints a stark picture of the global social landscape, marked by rising insecurity, inequality, and declining trust. It calls for urgent, transformative policy action rooted in equity, economic security, and solidarity to restore social cohesion and accelerate progress towards the SDGs.

**Source:** [DESA Publications](#)

### **UPSC Mains Practice Question**

**Q. The global social landscape is undergoing rapid transformation due to technology, migration, and inequality. Analyze the major trends shaping the global social order and their implications for India.**

## **[2.4] Heavy Metal Pollution in Global Farmlands**

### **Syllabus: Environmental Pollution [GS Paper-3]**

#### **Context**

A landmark global study has revealed that approximately 242 million hectares—about 14–17% of the world’s cropland—are contaminated by toxic heavy metals, posing a grave threat to food security, ecosystem health, and public safety. This contamination affects as many as 1.4 billion people who

live in regions where agricultural soils exceed safe limits for heavy metals like arsenic, cadmium, cobalt, chromium, copper, nickel, and lead.

## **Key Findings of the Study**

### **Extent of Contamination**

- The study analyzed nearly 800,000 soil samples from 1,493 regional studies, using advanced machine learning to map global contamination patterns.
- 14–17% of global cropland, or about 242 million hectares, is contaminated with at least one heavy metal above safety thresholds for agriculture and human health.
- A previously unrecognized “metal-enriched corridor” was identified across low-latitude Eurasia, reflecting both natural and anthropogenic sources.

### **Geographical Hotspots**

- Cadmium is the most widespread contaminant, especially in South and East Asia, the Middle East, and parts of Africa.
- Other metals like nickel, chromium, arsenic, and cobalt also frequently exceed safe levels in various regions.
- Europe is not immune: 28% of its soils exceed safe limits for toxic metals.

## **Sources of Heavy Metal Pollution**

### **Natural Sources**

- Weathering of metal-rich bedrock and volcanic activity contribute to baseline soil contamination, particularly in geologically active regions.

### **Anthropogenic Sources**

- Mining, industrialization, coal combustion, and improper agricultural practices (like excessive use of phosphate fertilizers and contaminated irrigation water) are major contributors.
- Industrial point sources, such as zinc-plating enterprises, have been identified as significant local contributors, especially for metals like zinc and cadmium.

## **Environmental and Health Impacts**

### **On Agriculture and Ecosystems**

- Heavy metal pollutants remain in soils for decades, lowering agricultural production and harming soil biodiversity.
- Contaminated soils jeopardize the quality of water and can enrich toxic metals within the food chain; these toxic metals affect farm animals, as well as humans.

### **On Human Health**

- This long-term exposure would bring near-fatal illnesses like kidney failure, cancer, and nerve and developmental impairment in children.
- Cadmium is related not just to kidney failure but also to cancer to mention and its abundance within regions producing staple crops raises the risk.

### **Future Risks and Projections**

- It is expected that the problems would only provide an even bigger challenge as such a demand would grow with technology advancement and urbanization.
- The FAO has warned that as current trends are set to continue, by the year 2050 nearly 90% of soil globally would be under risk.
- Further information might be established as local topography and climatic conditions would also trigger mobility and build-up of heavy metals in soils.

## Policy Recommendations and Way Forward

### Urgent Actions Needed

- Implement stricter environmental regulations to control industrial emissions and mining waste.
- Promote sustainable farming practices, such as crop rotation, phytoremediation, and reduced use of contaminated fertilizers.
- Strengthen soil monitoring and surveillance using modern technologies like machine learning for early detection and intervention.
- Raise public awareness and educate farmers about the risks and management of heavy metal contamination.

### International Cooperation

- The study underscores the need for a coordinated global response, as soil pollution is a transboundary issue affecting food trade, public health, and environmental sustainability.

### Conclusion

Heavy metal contamination of agricultural soils is a critical, yet underappreciated, global crisis. With nearly a sixth of the world's cropland affected and over a billion people at risk, urgent multi-sectoral action is required to safeguard food security, public health, and the environment for future generations.

Source: [DTE](#)

### UPSC Mains Practice Question

**Q. Heavy metal pollution in agricultural land poses a major threat to global food security and human health. Discuss the causes, consequences, and suggest measures to tackle this growing challenge.**

## [2.5] Political trilemma in the West

### Syllabus: International Relation [GS Paper-2]

#### Context

The crisis in Western democracies, marked by political polarization, eroding trust in institutions, and rising populism, finds a compelling explanation in Dani Rodrik's political trilemma. This framework reveals how attempts to balance democracy, national sovereignty, and globalization have created unsustainable tensions, leading to the current upheaval.

#### Theoretical Foundations of Rodrik's Political Trilemma

Core Premise: Rodrik's trilemma posits that nations can achieve only two of three objectives simultaneously:

1. Deep globalization (economic integration)
2. National sovereignty (policy autonomy)
3. Popular democracy (mass political participation)

Attempting to pursue all three triggers systemic contradictions. For instance, globalization necessitates supranational rules that clash with national self-determination, while democratic pressures often oppose market-driven policies.

## From Theory to Reality: Western Democracies' Dilemma

### 1. Globalization and Democracy at Sovereignty's Expense (EU Model)

- The European Union exemplifies this configuration, where member states ceded monetary policy, trade, and migration control to supranational bodies. While enabling a \$18.4 trillion single market (2023), it sparked backlash among citizens feeling marginalized by policies like free movement.
- **Consequences:** Brexit and far-right parties (e.g., Germany's AfD, France's National Rally) emerged as reactions to perceived cultural and economic threats.

### 2. Globalization and Sovereignty with Technocratic Governance

- Countries like Kenya and post-2008 Eurozone nations adopted technocratic policymaking, prioritizing market stability over public opinion. Central banks and institutions like the IMF imposed austerity measures, triggering protests (e.g., Kenya's 2023 anti-IMF riots).
- Risk: This approach deepens democratic deficits, as seen in declining voter turnout and growing anti-establishment sentiment.

### 3. Sovereignty and Democracy with Limited Globalization (Bretton Woods Model)

- Nations like India and China restricted globalization through protectionism and controlled foreign investment. While preserving policy autonomy, this model often suppresses dissent (e.g., China's censorship) or slows growth (India's pre-1991 License Raj).

## Consequences of Ignoring the Trilemma

### Economic Discontent and Populist Surges

- **Deindustrialization:** The U.S. lost 5 million manufacturing jobs (2000–2020), concentrated in regions like the Rust Belt, fueling Donald Trump's protectionist rhetoric.
- **Inequality:** Globalization's benefits skewed toward urban elites, leaving rural areas behind. In the UK, areas with GDP/capita below £20,000 strongly supported Brexit.

### Erosion of Democratic Norms

- **Institutional Distrust:** Only 40% of Americans expressed trust in government in 2025 (Pew Research), down from 77% in 1964.
- **Authoritarian Populism:** Leaders like Hungary's Viktor Orbán capitalized on anti-globalization sentiments to centralize power, undermining judicial independence and media freedom.

## Navigating the Trilemma: Pathways for Stability

### Rebalancing Globalization

- **Equitable Growth:** Implement policies like wage insurance for displaced workers and regional investment funds, as proposed in the EU's Just Transition Mechanism.
- **Targeted Protectionism:** Use strategic tariffs to shield critical industries without full-scale trade wars (e.g., CHIPS Act in the U.S.).

### Democratic Renewal

- **Decentralization:** Empower local governments in policymaking, as seen in Germany's Länder system, to bridge the gap between elites and citizens.
- **Transparency Reforms:** Mandate public consultations for trade agreements and central bank decisions, akin to New Zealand's Reserve Bank Act.

### Cooperative Sovereignty

- **Issue-Based Alliances:** Replace broad supranational entities with flexible coalitions, like the Global Methane Pledge, allowing sovereignty on non-priority issues.

## Conclusion

Rodrik's trilemma underscores a hard truth: Western democracies must consciously prioritize either democratic accountability or global integration, as simultaneous pursuit of both with sovereignty is untenable. The path forward lies in rebuilding social contracts through inclusive growth and participatory governance, rather than resorting to isolationism or authoritarianism. As the EU's struggles and America's populist wave show, half-measures will only deepen the crisis.

Source: [The Hindu](#)

## UPSC Mains Practice Question

**Q. Critically examine the major challenges confronting democracies today. Suggest measures to strengthen democratic institutions and processes in the context of these challenges.**

## [2.6] Third UN Ocean Conference

### Syllabus: International Organizations [GS Paper-2]

#### Context

The Third United Nations Ocean Conference (UNOC3), scheduled for June 9–13, 2025, in Nice, France, co-hosted by France and Costa Rica, represents a pivotal moment in global ocean governance. With mounting threats from climate change, overexploitation, and pollution, the conference aims to accelerate action and foster consensus to conserve and sustainably use the ocean, in line with Sustainable Development Goal 14 (SDG 14).

#### Background and Significance

- The first two UN Ocean Conferences, held in New York (2017) and Lisbon (2022), laid the groundwork for international cooperation on ocean issues.
- UNOC3 comes a decade after the Paris Agreement (COP21), highlighting the urgent need for tangible progress in ocean conservation as the ocean crisis deepens.
- The ocean is essential for climate regulation, biodiversity, food security, and the livelihoods of billions, but remains the least funded SDG area.

#### Objectives and Priorities of UNOC3

##### 1. Accelerating Action for SDG 14

- The overarching theme is “Accelerating action and mobilizing all actors to conserve and sustainably use the ocean”.
- The conference seeks to catalyze urgent and transformative action, supporting the implementation of SDG 14, which focuses on life below water.

##### 2. Building Consensus and Partnerships

- UNOC3 will bring together around 100 heads of state and government, scientists, civil society, the private sector, and international donors.
- The aim is to forge effective partnerships, mobilize finance, and strengthen knowledge-sharing for sustainable ocean governance.

### 3. Key Focus Areas

- Governance: Advancing multilateral processes, especially the ratification and implementation of the Agreement on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ Agreement), to address the legal vacuum in the high seas.
- Finance: Mobilizing resources for ocean conservation and the sustainable blue economy, addressing the chronic underfunding of SDG 14.
- Science and Knowledge: Enhancing marine science and data dissemination to inform evidence-based policymaking.

### Conference Structure and Stakeholder Engagement

- The conference will feature plenary sessions, Ocean Action Panels, and dedicated events for stakeholder engagement.
- Civil society, including NGOs, academia, and indigenous communities, are actively consulted through initiatives like “A Call to All Voices of the Ocean” and visioning exercises for future ocean sustainability.
- The “Nice Ocean Action Plan,” comprising a political declaration and voluntary commitments, will be adopted by consensus to guide global ocean action.

### Challenges and Opportunities

#### 1. Addressing the High Seas Governance Gap

- Over 60% of the ocean lies beyond national jurisdiction, lacking effective legal oversight, leading to overfishing, pollution, and biodiversity loss.
- Ratification of the BBNJ Agreement by at least 60 countries is critical to close this gap and ensure sustainable management of the high seas.

#### 2. Mobilizing Finance and Technology

- SDG 14 remains the least funded of all SDGs, necessitating innovative financing mechanisms and technology transfer to developing countries.

#### 3. Enhancing Scientific Collaboration

- Bridging knowledge gaps through international scientific cooperation is vital for informed decision-making and adaptive management of marine resources.

### Conclusion

The Third UN Ocean Conference is a historic opportunity to build consensus and drive transformative action for ocean conservation. By fostering collaboration across governments, civil society, and the private sector, UNOC3 aims to secure the health of the ocean for current and future generations, making tangible progress toward achieving SDG 14 and safeguarding the planet’s blue heart.

Source: [The Indian Express](#)

### UPSC Prelims Practice Question

Q. Which of the following factors influence the salinity of ocean water?

1. Evaporation
2. Precipitation
3. River inflow
4. Ocean currents

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 1, 2, 3 and 4
- (d) 2, 3 and 4 only

Answer: (c)

## [2.7] Women's Disproportionate Burden in Risk Society

Syllabus: Indian Society [GS Paper-1], Social Justice [GS Paper-2]

### Context

In the modern era, often described by sociologist Ulrich Beck as a "risk society," manufactured and environmental risks such as climate change, pandemics, and economic instability have become pervasive. However, the distribution of these risks is far from equal. Women, particularly in developing countries, are disproportionately affected due to entrenched gender roles, socio-economic inequalities, and systemic barriers.

### Understanding the Concept of Risk Society

#### Definition and Features

- A risk society is characterized by the prevalence of human-made risks that transcend borders and social classes.
- These risks include environmental hazards, health crises, and economic uncertainties, which often amplify existing social inequalities.

#### Gendered Nature of Risks

- While risks are universal, their impact is not. Gender, along with class and location, determines vulnerability and coping capacity.
- Women's traditional roles in caregiving, resource management, and informal labor expose them to higher levels of risk.

### The Disproportionate Burden on Women

#### 1. Unpaid Care and Domestic Work

- Women globally perform the majority of unpaid care and domestic work, devoting three times more hours than men.
- This work is essential for societal functioning but is undervalued and often invisible in economic statistics, leading to economic dependence and limited career advancement.
- During crises like COVID-19, the burden of unpaid work on women has intensified, further widening gender inequalities.

#### 2. Health and Environmental Risks

- Women in developing regions are more exposed to health hazards due to roles such as water collection, use of biomass fuels, and caregiving.
- Exposure to polluted water, poor air quality, and inadequate sanitation increases the risk of diseases, particularly for women and girls.
- Climate change and environmental degradation often force girls to leave school to assist with household responsibilities, perpetuating cycles of poverty and limited opportunity.

### **3. Economic Vulnerability**

- Limited access to resources, property, and formal employment makes it harder for women to recover from economic shocks and disasters.
- Informal sector work, which many women rely on, is precarious and lacks social protection, increasing their vulnerability in times of crisis.

### **4. Mental and Physical Health Impact**

- The “double burden” of paid and unpaid work leads to higher stress, depression, and anxiety among women.
- Research shows that women who spend more time on unpaid work are more likely to experience adverse mental health outcomes than men.
- Lack of respite, leisure, and self-care further exacerbates emotional and physical distress.

## **Systemic and Social Factors**

### **Patriarchal Norms and Institutional Barriers**

- Deep-rooted patriarchal norms position women as primary caregivers, reinforcing gendered divisions of labor.
- National accounting systems and policies often ignore the value of unpaid care work, perpetuating women’s marginalization.

### **Global and Local Dimensions**

- The burden is particularly acute in low- and middle-income countries, where women spend even more time on unpaid work compared to those in high-income nations.
- In rural areas, women’s daily hours spent on care tasks can be significantly higher than in urban settings.

## **Addressing the Disproportionate Burden**

### **Policy Interventions**

- Recognizing and redistributing unpaid care work through supportive policies, such as paid family leave, accessible childcare, and flexible work arrangements.
- Promoting women’s access to resources, education, and decision-making roles to enhance resilience against risks.
- Collecting robust gender-disaggregated data to inform targeted interventions and monitor progress.

### **Changing Social Norms**

- Challenging patriarchal attitudes and promoting shared responsibility in households and communities.
- Empowering women through education and skill development to diversify livelihood opportunities.

## **Conclusion**

Women’s disproportionate burden in a risk society is a product of structural inequalities, entrenched gender roles, and lack of institutional support. Addressing these challenges requires a multi-dimensional approach-policy reform, social transformation, and recognition of women’s contributions-to ensure that risks and responsibilities are shared more equitably in society.

**Source :** [The Hindu](#)

## UPSC Mains Practice Question

**Q. Critically examine how modern environmental, technological, and social risks disproportionately impact women.**

### [2.8] NMCG Gets Tax Exemption

#### Syllabus: Government Budgeting [GS Paper-3]

##### Context

The National Mission for Clean Ganga (NMCG), the nodal agency for implementing the government's flagship Namami Gange programme, has recently been granted income tax exemption status by the Central Board of Direct Taxes (CBDT). This recognition as an 'authority' under the Income Tax Act marks a significant development in the mission's journey, ensuring greater financial autonomy and operational efficiency for Ganga rejuvenation efforts.

##### Background of NMCG

##### Evolution and Legal Status

- The NMCG was initially registered as a society under the Societies Registration Act, 1860, on August 12, 2011.
- In 2016, it was upgraded to an 'authority' under the Environment (Protection) Act, 1986, to strengthen its legal standing and governance structure.
- Despite this transition, the NMCG's PAN status continued as an Association of Persons (AOP), leading to confusion and tax demands from the Income Tax Department.

##### Mandate and Functions

- NMCG operates under the Ministry of Jal Shakti and is tasked with preventing, controlling, and abating pollution in the Ganga River.
- Its projects include sewage treatment, river surface cleaning, afforestation, industrial effluent monitoring, and promoting public participation in Ganga conservation.
- It serves as the implementation arm of the National Ganga River Basin Authority (now National Ganga Council), focusing on sustainable development and ecological restoration.

##### Tax Exemption: Legal Basis and Notification

##### CBDT Notification and Section 10(46A)

- The CBDT has notified the NMCG as an authority under Clause 46A of Section 10 of the Income Tax Act, 1961.
- This clause allows income tax exemption for bodies constituted under a Central or State Act for specified public purposes, such as environmental conservation and public welfare.
- The exemption is effective from the assessment year 2024-25, provided the NMCG continues to function as an authority under the Environment (Protection) Act, 1986.

##### Significance of the Exemption

- The exemption relieves NMCG from tax liabilities, notably addressing tax demands amounting to ₹243.74 crore that arose due to its earlier classification as an AOP.
- The CBDT has also condoned delays in filing revised returns for previous assessment years, allowing NMCG to claim exemptions retrospectively.

## Importance and Implications

### Financial and Operational Impact

- The tax exemption ensures financial autonomy for NMCG, enabling it to utilize resources more efficiently for Ganga rejuvenation projects.
- It removes administrative hurdles and tax uncertainties, allowing the mission to focus on its core objectives without the burden of tax disputes.

### Strengthening Namami Gange Programme

- With tax relief, NMCG can better implement projects related to wastewater management, riverfront development, and biodiversity conservation across multiple states.
- The move is expected to enhance public trust and encourage more effective public-private and international collaborations for river conservation.

### Policy and Governance Perspective

- The recognition of NMCG as an 'authority' under the I-T Act sets a precedent for other statutory bodies engaged in public welfare and environmental protection.
- It aligns with the government's broader objective of promoting sustainable development and efficient governance in large-scale environmental missions.

## Conclusion

The CBDT's decision to grant tax exemption and recognize the National Mission for Clean Ganga as an authority under the Income Tax Act is a landmark step. It not only resolves long-standing administrative and financial challenges but also empowers the mission to intensify its efforts towards restoring the Ganga's ecological health. This move reflects the government's commitment to sustainable river management and the effective implementation of flagship programmes like Namami Gange.

Source: [NDTV](#)

## UPSC Mains Practice Question

**Q. Discuss the objectives and achievements of the National Mission for Clean Ganga (NMCG). In your opinion, what are the key challenges in ensuring the long-term sustainability of the Ganga River Basin Management?**

## [2.9] India's Defence Dominance Over Pakistan

### Syllabus: Defence [GS Paper-3]

#### Context

According to the Stockholm International Peace Research Institute (SIPRI), India's military expenditure in 2024 reached \$86.1 billion, making it the fifth-largest military spender in the world. In stark contrast, Pakistan's military budget stood at \$10.2 billion, placing it 29th globally. This means India's defence spending was nearly nine times higher than Pakistan's, marking a significant widening of the military power gap between the two South Asian neighbours.

#### Global Context: Rising Military Expenditure

- **Global Surge:** 2024 witnessed a surge in global military spending to a record high of \$2,718 billion, incurring the largest increase-in-terms-of-percentage among years since the Cold War.

The top five countries (United States, China, Russia, Germany, and India) accounted for 60% of this total, indicating a tremendous increase in geopolitical tensions across the world.

- **Regional Dynamics:** The military budget is higher for India vis-à-vis Pakistan, but still this expenditure pales into insignificance when juxtaposed with China, which has an equivalent expenditure of around \$314 billion in 2024. The continued modernization of the military and assertiveness on the part of China render it a matter of serious concern for the strategic planners of India.

### India vs Pakistan: Key Defence Spending Statistics

- India's military expenditure registered an increase of 1.6% compared to last year's 2023 and has been going up by 42% since 2015.
- Pakistan's defence budget is down 5.1% from last year's budget but has increased only by 6% over the past decade.
- Both countries have shown a downward trend in defence spending as a share of GDP. However, Pakistan spends consistently more of its GDP on defence than India does.

### Drivers of India's High Defence Expenditure

#### 1. Security Challenges

- The neighboring countries with which India shares an active, unresolved border are the nuclear-armed countries Pakistan in the west and China in the north and east.
- Among them, ongoing border tensions combined with the crumbling ceasefire along the Line of Control with Pakistan and continuous Chinese troop deployments along the Line of Actual Control are what drive India to strengthen its defence spending.

#### 2. Modernisation and Self-Reliance

- India remains one of the world's largest arms importers but has increasingly turned its attention to domestic production.
- Seventy-five percent of capital outlays are now earmarked for domestic procurement in the modernization of Indian armed forces. And this is paving the way for indigenous production of armoured vehicles, helicopters, and submarines.
- Although expenditure continues to rise, the Indian armed forces are still operationally deficient in fighter aircraft, submarines, air defence, and night-fighting capabilities.

#### 3. Geopolitical Aspirations

- As a rising global power, India seeks to project influence and safeguard its interests in the Indian Ocean region and beyond.
- The defence budget supports not only traditional military needs but also investments in space, cyber, and nuclear capabilities.

### Implications for South Asia

- **Strategic Balance:** Large-scale spending on military expenditure highlights the widespread conventional superiority of India over Pakistan, thus possibly influencing deterrence dynamics and crisis stability. Yet, in the strategic equation, there are also the nuclear capabilities of Pakistan, as well as the asymmetric strategies that it uses.
- **Regional Arms Race:** The rise of defence budgets in India and the plummeting speed of addition in military forces in China would serve to further incite arms competition in South Asia and beyond.
- **Economic Dimensions:** Though high, India's defence spending is slowed down by gross domestic product comparisons that are moderate compared with Pakistan and reflects an avowedly balanced approach between security needs and developmental priorities.

## Conclusion

The military expenditure of India during the year 2024, being nearly nine times that of Pakistan, signals a major shift in the regional power balance. The defence budget of India, maintained in the annual running expenses as a matter of actual consequence in terms of geopolitical standing, is a reflection of heavy international responsibilities laid on it by means of incongruous security problems, modernization programs, and additional geostrategic imperatives. Nevertheless, India will consider defence outlays as an instrumental part of its national strategy for the foreseeable future in view of the persistent security dilemmas posed by Pakistan-and-Chinese challenges.

**Source:** The Hindu

## UPSC Mains Practice Question

**Q. With reference to India's military expenditure, consider the following statements:**

1. India is among the top five military spenders in the world.
2. The majority of India's defence budget is allocated to capital outlay for modernization.
3. The Stockholm International Peace Research Institute (SIPRI) publishes an annual report on global military expenditure.

Which of the statements given above is/are correct?

- A) 1 and 2 only
- B) 1 and 3 only
- C) 2 and 3 only
- D) 1, 2 and 3

**Answer:** B) 1 and 3 only

## [2.10] Judicial Mechanisms for Waste Management

**Syllabus: Governance [GS Paper-2], Environment [GS Paper-3]**

### Context

India faces a mounting crisis in waste management, with urbanization and industrialization leading to unprecedented levels of solid and hazardous waste. Ineffective implementation of waste management laws, lack of infrastructure, and administrative apathy have exacerbated the problem, posing grave threats to public health and the environment. In this context, judicial intervention has emerged as a powerful remedy to enforce compliance, uphold constitutional rights, and catalyze systemic reform.

### Judicial Intervention: The Need and Scope

#### Why Judicial Remedies Are Necessary

- Chronic neglect by municipal authorities and state agencies in managing waste has led to widespread pollution, disease outbreaks, and degradation of natural resources.
- The right to a clean and healthy environment is recognized as part of the fundamental right to life under Article 21 of the Constitution, making judicial enforcement imperative when executive action fails.

## Key Judicial Remedies

- Public Interest Litigation (PIL): Citizens and activists have approached the Supreme Court and High Courts through PILs to seek redressal for environmental harms caused by poor waste management<sup>2</sup>.
- Continuing Mandamus: Courts have adopted the tool of continuing mandamus, where they retain ongoing oversight and issue periodic directions to ensure sustained compliance with their orders.
- Polluter Pays Principle: The judiciary has enforced the principle that those responsible for pollution must pay for the remediation and compensate affected communities.

## Landmark Case: Almitra H. Patel v. Union of India

### Background and Issues

- In the landmark case of *Almitra H. Patel v. Union of India* (2000), the Supreme Court addressed the acute mismanagement of solid waste in Delhi, which had led to severe public health and environmental crises.
- The case highlighted the failure of the Municipal Corporation of Delhi to fulfill its statutory obligations and the direct violation of citizens' right to a pollution-free environment.

### Judicial Directions and Impact

- The Supreme Court constituted an expert committee to frame actionable guidelines for solid waste management in Class I cities, emphasizing segregation, scientific disposal, and community participation.
- The judgment compelled authorities to adopt sustainable practices, leading to the formulation and strengthening of waste management rules, including the Solid Waste Management Rules, 2016.

## Continuing Mandamus: A Powerful Judicial Tool

### Definition and Application

- Continuing mandamus refers to the practice where courts keep a case open and monitor the implementation of their directions through regular hearings and status reports.
- This remedy ensures that executive agencies remain accountable over time, preventing the dilution of judicial orders and fostering long-term compliance.

### Recent Examples

- The Supreme Court has used continuing mandamus to oversee the clean-up of hazardous waste sites, enforce solid waste management in cities, and monitor the implementation of environmental regulations.
- For instance, in cases involving the pollution of the Yamuna and Ganga rivers, and the remediation of toxic industrial sites, continuing mandamus has led to measurable improvements in waste management practices.

## Principles Upheld by the Judiciary

### Polluter Pays Principle

- The judiciary has consistently upheld that polluters must bear the financial burden of cleaning up environmental damage and compensating affected populations.
- This principle acts as a deterrent and incentivizes compliance with environmental norms.

### Right to a Clean Environment

- By interpreting Article 21 to include the right to a clean and healthy environment, courts have expanded the scope of fundamental rights and empowered citizens to seek judicial remedies against environmental degradation.

## Challenges and the Way Forward

### Implementation Gaps

- Despite progressive judicial pronouncements, challenges remain in translating court orders into effective ground-level action due to bureaucratic inertia, lack of resources, and coordination failures.

### Strengthening Judicial Remedies

- Continued judicial oversight, public participation, and strict enforcement of penalties are vital to ensure sustainable waste management.
- The judiciary must also encourage capacity-building in local bodies and foster innovation in waste processing and recycling.

### Conclusion

Judicial remedies, especially continuing mandamus and the polluter pays principle, have played a transformative role in addressing India's waste management crisis. By holding authorities accountable and safeguarding environmental rights, the judiciary acts as a catalyst for systemic change. However, sustained vigilance, robust institutional mechanisms, and community engagement are essential to realize the full potential of these judicial interventions.

Source: [The Hindu](#)

### UPSC Mains Practice Question

**Q. Effective waste management is critical for sustainable urban development in India. Discuss the current challenges in solid waste management and suggest innovative and policy-level solutions to address them.**

## [2.11] India's Tree Cover Initiative

### Syllabus: Environment [GS Paper-3]

#### Context

Expanding tree cover is a vital component of India's environmental strategy, addressing climate change, ecological balance, and sustainable development. Despite progress, India's forest and tree cover remains below the 33% target set by the National Forest Policy of 1988, standing at 25.17% of its geographical area. As the country faces rapid industrialization, urbanization, and ecosystem degradation, increasing tree cover is more urgent than ever.

#### Importance of Expanding Tree Cover

##### Climate Change Mitigation

- The photosynthesis process provides a mechanism for trees to absorb large amounts of atmospheric CO<sub>2</sub>, which is then stored in biomass and soils.
- Approximately one-third of CO<sub>2</sub> released globally from fossil fuel combustion is sequestered by forests each year, making afforestation and reforestation vital climate actions.
- Since 2005, India has added around 2.29 billion tonnes of CO<sub>2</sub>-equivalent carbon sink and has plans to reach a further 2.5-3.0 billion ton, with these goals being included in India's Nationally Determined Contributions (NDCs) for 2030.

## Enhancing Soil and Water Health

- Tree cover helps in soil structure, erosion control, and organic matter promotion, which means healthy and resilient soils.
- Through recharge, trees help groundwater while regulating water cycles; hence, they reduce flood risks and enhance water quality.
- In the past ten years, the improvement of soil organic carbon from 55.85 to 56.08 tonnes per hectare within India is the testimony to these benefits.

## Biodiversity Conservation

- Expanding tree cover restores wildlife habitats, nurtures pollinators, and upholds ecological balance.
- Native trees promote biodiversity, while forest corridors enhance wildlife movement and human-animal conflict mitigation.

## Current Status and Trends

### Growth in Forest and Tree Cover

- As of the latest India State of Forest Report (ISFR 2023), the country's green cover stands at 827,357 sq km (25.17% of total area), with forest cover at 715,343 sq km and tree cover at 112,014 sq km.
- Over the past decade, forest cover has increased by 16,631 sq km and tree cover by 20,747 sq km, demonstrating the impact of afforestation programs and conservation policies.

### Regional Variations

- States like Chhattisgarh, Uttar Pradesh, Odisha, and Rajasthan have seen the highest increases in tree and forest cover, while some states like Madhya Pradesh and Karnataka have experienced declines, highlighting the need for region-specific strategies.

### Strategies for Expanding Tree Cover

- **Afforestation and Agroforestry:** Large-scale afforestation, including integrating trees into agricultural landscapes (agroforestry), boosts carbon sequestration and provides additional income for farmers. Government initiatives such as the Green India Mission, National Agroforestry Policy, and Trees Outside Forests Program are promoting these approaches.
- **Technological and Community Approaches:** Remote sensing and resource mapping help monitor forest health and identify priority areas for intervention. Community participation, corporate social responsibility (CSR), and public-private partnerships are crucial for scaling up tree planting efforts.

### Challenges and Considerations

- **Species Selection and Ecosystem Suitability:** Planting non-native or inappropriate species can disrupt local ecosystems. Restoration efforts must prioritize native species to maintain ecological integrity.
- **Land Use and Maintenance:** Tree planting can compete with agriculture or grazing, affecting livelihoods. Long-term maintenance and protection from pests, fire, and encroachment are essential for success.
- **Timeframe and Sustainability:** Trees require decades to mature and realize their full carbon sequestration potential, making tree cover expansion a long-term investment.

## Conclusion

Expanding tree cover is indispensable for India's environmental resilience, climate commitments, and sustainable development. Success requires scientific planning, native species selection, community engagement, and integration with broader conservation strategies. As India strives to meet its forest cover targets, a holistic, inclusive, and sustained approach will be key to ensuring ecological and economic benefits for generations to come.

Source: [The Hindu](#)

### UPSC Mains Practice Question

**Q. In the context of rapid urbanization and climate change, discuss the significance of expanding tree cover and evaluate the challenges in achieving this goal.**

## [2.12] World Bank's Poverty and Equity Briefs (PEBs)

### Syllabus - Economy [GS Paper-3]

#### Context

India's excessive poverty dropped substantially from 16% in 2011–12 to 2.3% in 2022–23.

#### About the Poverty and Equity Briefs (PEBs)

- They are biennial reports by the World Bank and provide a brief assessment of poverty, inequality, and shared prosperity tendencies in over 100 developing countries.
- It is launched during the Spring and Annual Meetings of the World Bank and IMF, they aim to keep poverty reduction crucial on the global agenda.

#### Measurement

- Poverty rates and overall wide variety of negative as measured by the national poverty line and for the international severe poverty line (\$2.15 in 2017 PPP terms), as well as the lower-middle-income (\$3.65) and upper-middle-income (\$6.85) poverty lines.
- Comparable poverty and inequality trends for apples-to-apples comparisons over the years and throughout countries.
- Multidimensional poverty measure, which includes measures of poverty that also reflect non-economic deprivations that poor people face in areas like education and access to general services.

#### Recent Findings for India

- India has made massive development in lowering poverty, with intense poverty — measured at \$2.15 per day in purchasing power parity (PPP) terms — falling from 16% in 2011–12 to 2.3% in 2022–23
  - The decline lifted 171 million people above the internationally similar poverty line.
- Rural severe poverty declined from 18.4% to 2.8%, and concrete from 10.7% to at least 1.1%, narrowing the rural-urban gap drastically.
- Using the \$3.65/day lower-middle-income nations (LMIC) poverty line, poverty dropped from 61.8% to 28.1%, with 378 million people transferring above the brink.
- The World Bank's multidimensional poverty index (MPI), which incorporates intense poverty but excludes nutrition and health deprivation, confirmed that non-financial poverty declined from 53.8% in 2005–06 to 16.4% in 2019–21, and similarly to 15.5% in 2022–23.
- India's five most populous states — Uttar Pradesh, Maharashtra, Bihar, West Bengal, and Madhya Pradesh — accounted for 54% of the country's intense poverty in 2022–23 and 51% of its multidimensionally poor in 2019–21.
- Despite upgrades, wage inequality is high, the top 10% earn 13 times more than the lowest 10%.

- The Gini index based on consumption progressed (28.8 to 25.5), however income inequality rose (Gini from 52 to 62).
- Youth unemployment stands at 13.3%, rising to 29% amongst graduates, with most jobs remaining informal, mainly in agriculture.
- Female employment remains low at 31% with a 234 million gap in comparison to men, although overall employment has been growing since 2021–22.

**Source:** [The PIB](#)

### **Mains PYQ**

**1. Though there have been several different estimates of poverty in India, all indicate reduction in poverty levels over time. Do you agree? Critically examine with reference to urban and rural poverty indicators (2015)**

- India's excessive poverty dropped substantially from 16% in 2011–12 to 2.3% in 2022–23.
- They are biennial reports by the World Bank and provide a brief assessment of poverty, inequality, and shared prosperity tendencies in over 100 developing countries.
- It is launched during the Spring and Annual Meetings of the World Bank and IMF, they aim to keep poverty reduction crucial on the global agenda.
- Poverty rates and overall wide variety of negative as measured by the national poverty line and for the international severe poverty line (\$2.15 in 2017 PPP terms), as well as the lower-middle-income (\$3.65) and upper-middle-income (\$6.85) poverty lines.
- Comparable poverty and inequality trends for apples-to-apples comparisons over the years and throughout countries.

## **[2.13] Medical Tourism in India**

### **Syllabus - Economy [GS Paper-3]**

#### **Context**

Minister of State for Ayush said that India has now emerged as one of the most sought-after destinations for treatment and medical tourism.

#### **Key Highlights**

- Medical tourism refers to the exercise of traveling to another country or area for medical remedy, techniques, or fitness-related services.
- The medical tourism enterprise in India is valued at about \$9 billion, the country attracts sufferers from throughout the globe for superior treatments in cardiology, orthopedics, oncology, and organ transplants.
- Medical tourism in India multiplied by around 33% year-on-year in 2023 nearly 6.6 lakh.
- Popular destinations for medical tourism in India include cities like Delhi, Mumbai, Chennai, Bangalore, and Hyderabad, which can be home to top of the line healthcare centers.

## Factors Responsible for the Growth of Medical Tourism in India

- **Cost-Effective Treatment:** India offers medical procedures at a fragment of the cost in comparison to countries just like the US or Europe.
  - Factors Responsible for the Growth of Medical Tourism in India
- **High-Quality Healthcare:** India has a well-established healthcare infrastructure with across the world accredited hospitals and skilled medical professionals.
- **Availability of Advanced Medical Technology:** Indian hospitals are prepared with modern-day medical generation and modern remedies, specially in fields like cardiology, oncology, and orthopedics.
- **Shorter Wait Times:** Medical travelers can get entry to timely remedy, regularly averting long wait instances common in some Western healthcare structures.
- **Government Support and Policies:** The Indian government has implemented rules that encourage medical tourism, consisting of medical visa facilitation and promoting the world internationally.

## Significance for India

- **Economic Growth:** It boosts the economic system by generating revenue from global sufferers, contributing to the healthcare sector and related industries (e.g., hospitality, transportation).
- **Improved Healthcare Infrastructure:** To cater to medical travelers, hospitals invest in trendy facilities, which also advantages nearby sufferers by way of improving ordinary healthcare quality.
- **Promotion of India's Global Image:** It complements India's popularity as a global healthcare destination, attracting more foreign investment and partnerships within the medical discipline.
- **Technological Advancements:** The demands for superior remedies and international standards of care drives innovation and the adoption of recent medical technologies in Indian healthcare.
- **Skill Development:** It fosters the improvement of an incredibly professional staff, as healthcare experts benefit publicity to global standards and various patient wishes.
- **Diplomatic Ties:** As sufferers from different countries searching for treatment in India, they may be uncovered to rich cultural history and hospitality.
  - This exchange of experiences can foster more understanding and goodwill among nations, paving the way for strengthened diplomatic ties.

## Challenges

- Strong competition from Malaysia, Thailand and Singapore.
- Most of the medical care isn't always covered by insurance and it makes medical value travel (MVT) much less appealing.
- The MVT facilitators are not nicely prepared and authorized. Many unprofessional sellers exploit the medical value travellers.
- **Lack of Regulations:** There are not any complete rules to control the MVT sector, which leaves the world unorganised and lacks tracking of the quality of services.
- **Promotion of MVT:** Individual Hospitals are carrying out their publicity however there may be no powerful marketing campaign to set up India as a brand for medical value travel.
- **Accreditation:** Although, India keeps a strong accreditation system through National Accreditation Board for Hospitals and Healthcare Providers (NABH). However, there is not much recognition about NABH in foreign countries and international patients still attach lots more value to Joint Commission International (JCI) accreditation.

## Way Ahead

- With a fast paced modern way of life, there are more demands for health and alternate therapies.
- India has invested closely in AYUSH and is in a unique position to attract medical value travellers for a remedy through AYUSH and also for boosting wellness.
- There is a need for more help from the Government towards regulations, facilitation and advertising of India as a Medical Value Travel destination.

**Source: The AIR**

## Mains PYQ

**1. “Besides being a moral imperative of a Welfare State, primary health structure is a necessary precondition for sustainable development.” Analyse. (2021)**

- Minister of State for Ayush said that India has now emerged as one of the most sought-after destinations for treatment and medical tourism.
- Medical tourism refers to the exercise of traveling to another country or area for medical remedy, techniques, or fitness-related services.
- The medical tourism enterprise in India is valued at about \$9 billion, the country attracts sufferers from throughout the globe for superior treatments in cardiology, orthopedics, oncology, and organ transplants.
- Popular destinations for medical tourism in India include cities like Delhi, Mumbai, Chennai, Bangalore, and Hyderabad, which can be home to top of the line healthcare centers.

## [2.14] India’s Claim in the Central Arabian Sea

### Syllabus - Geography [GS Paper-1]

#### Context

India has strategically elevated its claim in the Central Arabian Sea, adding nearly 10,000 square kilometers to its Extended Continental Shelf (ECS).

#### Key Highlights

- **Recent Addition in the Arabian Sea:** According to the National Centre for Polar and Ocean Research (NCPOR), Goa, India’s seabed, could nearly equal its land area of 3.274 million square kilometers.
- **Modified Strategy:** In response to Pakistan’s objections over disputed areas in the Western Arabian Sea, the Commission on the Limits of the Continental Shelf (CLCS) rejected India’s complete claim inside the place in March 2023.
  - Recently, India restructured its claims into partial submissions, securing uncontested regions whilst leaving disputed areas for bilateral discussion.

#### About the Continental Shelf

- It is a crucial concept in maritime law, defined under the United Nations Convention on the Law of the Sea (UNCLOS).

- It refers to the submerged extension of a country's landmass, stretching from the coastline to the deep ocean floor.
- Coastal countries have sovereign rights over their continental shelf for exploring and exploiting natural assets, along with minerals, oil, and fuel.

### Exclusive Economic Zone (EEZ) and Beyond

- Nations are entitled to an EEZ extending 200 nautical miles from their coastline, granting special rights to fishing, mining of minerals, polymetallic nodules, and resource extraction like oil reserves.
- India presently possesses 12 nautical miles of territorial sea and 200 nautical miles of EEZ.
- Beyond the EEZ, countries can claim an ECS in the event that they provide scientific proof to the CLCS that the shelf is a natural extension in their landmass.

### UNCLOS and the CLCS

- UNCLOS, followed in 1982, provides the legal framework for defining and claiming the continental shelf.
- The CLCS, established under UNCLOS, evaluates scientific statistics submitted by countries and makes recommendations at the outer limits of their continental shelf.

### Process of Claiming a Continental Shelf Under UNCLOS

- **Scientific Evidence:** Nations must offer particular scientific statistics proving that the continental shelf is a natural extension of their landmass to the seabed.
  - It includes geological and geophysical surveys, bathymetric mapping, and sediment analysis.
- **Submission to the CLCS:** It includes technical data and maps outlining the proposed boundaries.
- **Review and Recommendations:** The CLCS critiques the submission and may request additional information or modifications.
  - It affords guidelines at the outer limits of the continental shelf, which might be binding once familiar.
- **Resolving Overlaps:** If the claimed area overlaps with every other country's continental shelf, bilateral negotiations or agreements are required to solve disputes.
- **Final Approval:** Once the CLCS recommendations are typical, the claiming state gains rights to discover and make the most resources in the ECS, which includes minerals, oil, and fuel.

### Navigating Geopolitical Challenges

- **Sir Creek Dispute:** Located in the marshes of the Rann of Kutch, keeps to undertaking India's maritime claims.
  - Pakistan raised objections to portions of India's ECS submission, mentioning overlaps near the maritime border.
- **Oman Overlap:** India's ECS in the Arabian Sea overlaps with Oman's claims; but, an Agreement in 2010 ensures that this shared place is not under dispute.
- **Contests inside the East:** On India's jap and southern coastlines, ECS claims in the Bay of Bengal and Indian Ocean span 300,000 square kilometers but have confronted challenges from Myanmar and Sri Lanka.

Source: [The Hindu](#)

**1. Critically evaluate the various resources of the oceans which can be harnessed to meet the resource crisis in the world. (2014)**

- India has strategically elevated its claim in the Central Arabian Sea, adding nearly 10,000 square kilometers to its Extended Continental Shelf (ECS).
- **Recent Addition in the Arabian Sea:** According to the National Centre for Polar and Ocean Research (NCPOR), Goa, India's seabed, could nearly equal its land area of 3.274 million square kilometers.
- **Modified Strategy:** In response to Pakistan's objections over disputed areas in the Western Arabian Sea, the Commission on the Limits of the Continental Shelf (CLCS) rejected India's complete claim inside the place in March 2023.
  - Recently, India restructured its claims into partial submissions, securing uncontested regions whilst leaving disputed areas for bilateral discussion.

## **[2.15] Monsoon Forecasting in India**

### **Syllabus - Geography [GS Paper-1]**

#### **Context**

The India Meteorological Department (IMD) expected 'above everyday' rainfall (105% of the long-period average) during the 2025 southwest monsoon season (June-September).

#### **Key Highlights**

- The monsoon is critical for agriculture, financial system, and water sources, providing around 70% of India's annual rainfall.
- Since 2007, the accuracy of monsoon forecasts has progressed appreciably, with absolutely the errors in rainfall reducing by 21% from 1989-2006 to 2007-2024.
- Meteorology in India dates again to historical times, with early texts like the Upanishads, Brihatsamhita, Arthashastra, and Meghdoot showing superior knowledge of weather and rain.
- Scientific meteorology commenced in the 17th century, with Edmund Halley explaining the monsoon. The British installed early observatories in the 18th and 19th centuries, and Captain Piddington coined the term "cyclone."

#### **History of Monsoon Forecasting**

- The IMD began forecasting the monsoon in 1877, driven by the need to recognize rainfall patterns after the devastating 1876-78 Great Famine.
- Henry Francis Blanford, within the late 1800s, studied the connection between Himalayan snow cover and monsoon rainfall.
  - He made the first long-range forecast in 1886.
- Sir John Eliot took Blanford's work forward by incorporating local weather conditions and data from the Indian Ocean and Australia, even though his predictions had been nonetheless limited in accuracy.
- Sir Gilbert Walker in 1904, brought statistical models using 28 parameters, identifying the Southern Oscillation (SO) as a key effect on the Indian monsoon.

- He divided India into 3 subregions for forecasting.

### Scenario After Independence

- IMD endured the use of Walker's version till 1987, however it was much less effective because of modifications in climate patterns and loss of correlation with key parameters.
- In 1988, The IMD shifted to a new regression model (Gowariker Model) using 16 variables, however issues continued with the accuracy of local forecasts.

### New Models and Strategies

- In 2003, IMD delivered two new models based on 8 and 10 parameters.
- The two-stage forecast method was also implemented, even though it had combined effects.
- In 2007, IMD evolved a Statistical Ensemble Forecasting System, reducing the range of parameters to enhance accuracy and bringing ensemble forecasts to growth robustness.
- In 2012, the Monsoon Mission Coupled Forecasting System (MMCFS) was launched to combine ocean, atmospheric, and land data for better forecasts.
- In 2021, the Multi-Model Ensemble system in addition progressed forecast accuracy by combining international climate models, along with MMCFS.

**Source:** [The Indian Express](#)

### Mains PYQ

**1. What do you understand by the phenomenon of temperature inversion in meteorology? How does it affect weather and the inhabitants of the place? (2013)**

- The India Meteorological Department (IMD) expected 'above everyday' rainfall (105% of the long-period average) during the 2025 southwest monsoon season (June-September).
- The monsoon is critical for agriculture, financial system, and water sources, providing around 70% of India's annual rainfall.
- Since 2007, the accuracy of monsoon forecasts has progressed appreciably, with absolutely the errors in rainfall reducing by 21% from 1989-2006 to 2007-2024.
- Meteorology in India dates again to historical times, with early texts like the Upanishads, Brihatsamhita, Arthashastra, and Meghdoot showing superior knowledge of weather and rain.
- Scientific meteorology commenced in the 17th century, with Edmund Halley explaining the monsoon. The British installed early observatories in the 18th and 19th centuries, and Captain Piddington coined the term "cyclone."

## [2.16] Indian Cyber Crime Coordination Centre (I4C) under PMLA

### Syllabus - Security [GS Paper-3]

#### Context

The government has approved Indian Cyber Crime Coordination Centre (I4C) to share and get hold of data from the Enforcement Directorate under the anti-money laundering law.

## Key Highlights

- It is aimed toward detecting money trails and combating cyber frauds.
- The Revenue Department under the Finance Ministry included I4C under Section 66 of the Prevention of Money Laundering Act.
- **Need:** This information sharing could assistance was aware of the masterminds behind such frauds which are typically trans-national.

## About Directorate of Enforcement (ED)

- **Established:** It was established in 1956 with the formation of an 'Enforcement Unit' under the aegis of the Department of financial Affairs and handles Exchange Control Laws violations under Foreign Exchange Regulation Act, 1947 (FERA 1947).
  - A year later, the Enforcement Unit was renamed the Enforcement Directorate.
- It is a multi-disciplinary employer mandated with research of the offence of money laundering and violations of forex laws.
- The statutory capabilities of the Directorate encompass enforcement of following Acts:
  - **The Foreign Exchange Management Act, 1999 (FEMA):** It is a civil regulation enacted to consolidate and amend the legal guidelines regarding facilitating external trade and payments.
  - **The Prevention of Money Laundering Act, 2002 (PMLA):** It is a criminal law enacted to prevent money, ED has been given the responsibility to put in force the provisions of the PMLA.
  - **The Fugitive Economic Offenders Act, 2018 (FEOA):** This regulation was enacted to discourage financial offenders from evading the manner of Indian regulation by means of ultimate outside the jurisdiction of Indian courts.

## What is Cybercrime?

- Cybercrime refers to criminal activities that involve the use of computers, networks, and digital technologies.
- It incorporates a wide number of illicit activities carried out in the digital space, frequently with the rationale to compromise, harm, or gain unauthorized access to laptop systems, networks, and statistics.
- Cybercriminals rent numerous techniques and tools to take advantage of vulnerabilities in networks, and they'll target individuals, businesses, or even governments.
- Common types of cybercrime encompass:
  - **Hacking:** Unauthorized access to computer systems or networks to steal, regulate, or ruin information.
  - **Phishing:** Deceptive attempts to acquire sensitive data, including usernames, passwords, and monetary info, by posing as a sincere entity.
  - **Malware:** Malicious software program designed to disrupt, harm, or benefit unauthorized get entry to pc structures.
  - **Identity Theft:** Stealing and using someone's personal data, such as social security numbers or credit card details, for fraudulent purposes.
  - **Cyber Espionage:** Covert sports aimed at gaining unauthorized access to sensitive data for political, monetary, or military functions.
  - **Cyberbullying:** Using digital platforms to bother, threaten, or intimidate individuals.

## Impact of Cyber Crimes

- **National Security Threats:** Cyber crimes pose a chance to national security when state-sponsored actors or criminal organizations target critical infrastructure, government institutions, or military structures.

- **Data Breaches:** Data breaches cause the publicity of personal data, trade secrets, intellectual belongings, and other confidential data, inflicting high damage to the affected entities.
- **Disruption of Services:** Cyber attacks disrupt critical services including power grids, verbal exchange networks, and transportation structures.
- **Reputational Damage:** Organizations that fall victim to cyber assaults frequently go through reputational harm.

### Initiatives by Government of India to Prevent Cybercrimes

- **Indian Computer Emergency Response Team (CERT-In):** CERT-In is the national nodal organization for responding to cybersecurity incidents.
- **National Critical Information Infrastructure security Centre (NCIIPC):** NCIIPC is liable for defensive critical data infrastructure from cyber threats.
- **Cyber Crime Prevention towards Women & Children (CCPWC) scheme:** The Ministry of Home Affairs has furnished financial assistance to all the States & UTs under the scheme to assist their efforts for setting up of cyber forensic-cum-training laboratories, training, and hiring of junior cyber consultants.
- **Indian Cyber Crime Coordination Centre (I4C):** It provides a framework and environment for Law Enforcement Agencies (LEAs) to deal with cyber crimes in a complete and coordinated way.
- **National Cyber Crime Reporting Portal:** It is launched to enable the public to record incidents concerning all forms of cyber crimes.
- The Citizen Financial Cyber Fraud Reporting and Management System module has also been launched for instant reporting of financial frauds and to stop siphoning off funding by the fraudsters.
- **Cyber Swachhta Kendra (Botnet Cleaning and Malware Analysis Centre):** This initiative is aimed at growing consciousness about botnet and malware infections and supplying equipment for detection and cleansing.

**Source:** [The Hindu](#)

### Mains PYQ

**1. What are the different elements of cyber security? Keeping in view the challenges in cyber security, examine the extent to which India has successfully developed a comprehensive National Cyber Security Strategy. (2022)**

- The government has approved Indian Cyber Crime Coordination Centre (I4C) to share and get hold of data from the Enforcement Directorate under the anti-money laundering law.
- It is aimed toward detecting money trails and combating cyber frauds.
- The Revenue Department under the Finance Ministry included I4C under Section 66 of the Prevention of Money Laundering Act.
- **Need:** This information sharing could assistance was aware of the masterminds behind such frauds which are typically trans-national.

## [2.17] 11th BRICS Labour & Employment Ministers' Meeting 2025

### Syllabus - International Relations [GS Paper-2]

#### Context

11th BRICS Labour & Employment Ministers' Meeting 2025 has followed the Declaration Under Brazilian Presidency.

#### Key Highlights

- The meeting, convened under the slogan “Strengthening the Cooperation of the Global South for More Inclusive and Sustainable Governance”.
- The declaration addresses two pivotal issues: “Artificial Intelligence (AI) and the Future of Work” and “The Impacts of Climate Change at the World of Work and a Just Transition”.
- The statement commits BRICS nations to:
  - Promote inclusive AI regulations that balance innovation with worker security.
  - Advance social speech to ensure fair climate transitions.
  - Strengthen South-South cooperation on labour governance, digital inclusion, and inexperienced activity introduction.
- A fundamental decision was the advent of a Policy Observatory, a platform for exchanging reports on decent work and social security.

#### Major Challenges Faced with the aid of Workers

- **Artificial intelligence is considerably reshaping the labor relations:** While generation creates new opportunities, it also brings risks such as activity displacement and developing inequalities.
- **Ministers expressed concern over disparities amongst BRICS nations,** mainly in access to digital infrastructure, availability and cost of education.
- **Focus on Vulnerable Groups:** Women, Youth, Older employees, Persons with disabilities are more at risk of disruptions due to automation and damaging results of climate change.
- **Climate Change and Employment:** The transition to a low-carbon economy offers both challenges and employment opportunities.
  - Millions of efficient jobs might be generated, but only with appropriate training.

#### Suggestions

- Implementation of staff reskilling applications.
- Strengthening partnerships among universities and private sector companies.
- Investing in digital literacy and future-ready skills development.
- Updating occupational security and health requirements to protect workers exposed to intense climate conditions.
- Investment in adaptive methods to future-proof the workforce.

#### Conclusion

- Representatives from exertions unions and international organisations emphasised the need for greater equitable international governance and demanded the reform of establishments including the IMF and the World Bank to deal with poverty and promote decent work.
- They also underscored the importance of climate financing and regulations to prevent setbacks.

## **BRICS**

- BRICS is an acronym that refers to a collection of 5 predominant emerging economies: Brazil, Russia, India, China, and South Africa.
  - Egypt, Ethiopia, Iran, Indonesia, and the United Arab Emirates have joined BRICS as new complete contributors.
- The term was coined by economist Jim O'Neill in 2001.
- BRICS collectively 5 of the biggest developing countries of the world, representing around 41% of the global population, around 24% of the global GDP and around 16% of global trade.
- **Economic growth:** All individuals are projected to develop in 2024, with costs starting from 1.1% to 6.1% (IMF).
- **Origin:** As a formal grouping, BRIC began after the assembly of the Leaders of Russia, India and China in St. Petersburg at the margins of the G8 Outreach Summit in 2006.
  - The grouping was formalized all through the 1st meeting of BRIC Foreign Ministers at the margins of UNGA in New York in 2006.
  - Initially, the grouping was termed BRIC as South Africa was inducted in 2010 and from there on it's been referred to as BRICS.
- **Summits:** The governments of the BRICS states have met annually at formal summits since 2009.
- BRICS countries have come collectively to planned on vital issues under the 3 pillars of:
  - Political and security,
  - Economic and financial and
  - Cultural and people-to-people exchanges.
- **New Development Bank:** Formerly referred to as the BRICS Development Bank, is a multilateral development financial institution set up by the BRICS states.
  - The Bank shall help public or private initiatives through loans, guarantees, equity participation and different financial contraptions.

**Source:** [The PIB](#)

## **Prelims PYQ**

**1. The 'Fortaleza Declaration', recently in the news, is related to the affairs of (2015)**

- (a) ASEAN**
- (b) BRICS**
- (c) OECD**
- (d) WTO**

**Ans: (b)**

- 11th BRICS Labour & Employment Ministers' Meeting 2025 has followed the Declaration Under Brazilian Presidency.
- The meeting, convened under the slogan "Strengthening the Cooperation of the Global South for More Inclusive and Sustainable Governance".
- The declaration addresses two pivotal issues: "Artificial Intelligence (AI) and the Future of Work" and "The Impacts of Climate Change at the World of Work and a Just Transition".
- The statement commits BRICS nations to:

- Promote inclusive AI regulations that balance innovation with worker security.
- Advance social speech to ensure fair climate transitions.
- Strengthen South-South cooperation on labour governance, digital inclusion, and inexperienced activity introduction.
- A fundamental decision was the advent of a Policy Observatory, a platform for exchanging reports on decent work and social security.

## **[2.18] Procurement of 26 Rafale-M Fighter Jets for the Indian Navy**

### **Syllabus - International Relations [GS Paper-2]**

#### **Context**

India and France officially concluded an Inter-Governmental Agreement (IGA), valued at almost ₹64,000 crore, to obtain 26 Rafale-M fighter jets for the Indian Navy.

#### **Key Highlights**

- G2G is a mode of defence procurement concerning direct negotiation between the government of the importer country with that of the exporter country.
  - Deliveries are set to begin from mid-2028 and likely to be completed by 2030.
- It consists of 26 Rafale-M aircraft, it also covers training of group members in both France and India.
  - The package consists of more equipment for the existing Rafale fleet of the Indian Air Force.
- **Transfer of Technology:** The ToT provisions for the combination of indigenous weapons which includes the Astra Beyond Visual Range (BVR) air-to-air missile on the Rafale aircraft.
  - It also includes the status quo of a manufacturing facility for the Rafale fuselage in India, in addition to Maintenance, Repair, and Overhaul (MRO) centers for plane engines, sensors, and weapons.
- **Significance:** This initiative is anticipated to generate hundreds of jobs and create significant revenue for several [Micro, Small, and Medium Enterprises \(MSMEs\)](#) in India.

#### **Modernising Indian Navy's Requirements**

- **The Indian Navy currently operates aircraft companies:** INS Vikramaditya, which was acquired from Russia, and INS Vikrant, which was indigenously evolved and commissioned in 2022.
  - These providers presently function the MiG-29K fighter jets, 45 of which have been procured from Russia.
- Due to their low availability costs and the approaching stop of their provider life, the Navy sought to acquire a new fleet of service-based fighter jets.
- Although the original plan was to accumulate 54 jets, the number was reduced to 26 following the DRDO's notion to increase the indigenous Twin Engine Deck-Based Fighter (TEDBF).
- The Indian navy will even acquire 31 MQ-9B armed High Altitude Long Endurance (HALE) Remotely Piloted Aircraft Systems (RPAS) under a cope with the U.S.
- Of the 31 RPAS, also referred to as Sea Guardians, 15 are intended for the Navy and 8 each for the Army and IAF.
- Deliveries are scheduled between January 2029 and September 2030.

Source: [The Hindu](#)

### Prelims PYQ

1. What is “Terminal High Altitude Area Defense (THAAD)”, sometimes seen in the news? (2018)

- (a) An Israeli radar system
- (b) India’s indigenous anti-missile program
- (c) An American anti-missile system
- (d) A defence collaboration between Japan and South Korea.

Ans: (c)

- India and France officially concluded an Inter-Governmental Agreement (IGA), valued at almost ₹64,000 crore, to obtain 26 Rafale-M fighter jets for the Indian Navy.
- G2G is a mode of defence procurement concerning direct negotiation between the government of the importer country with that of the exporter country.
- It consists of 26 Rafale-M aircraft, it also covers training of group members in both France and India.
- **Transfer of Technology:** The ToT provisions for the combination of indigenous weapons which includes the Astra Beyond Visual Range (BVR) air-to-air missile on the Rafale aircraft.
- **Significance:** This initiative is anticipated to generate hundreds of jobs and create significant revenue for several [Micro, Small, and Medium Enterprises \(MSMEs\)](#) in India.

## [2.19] Guidelines for Setting up of Bio-input Resource Centres (BRC)

### Syllabus - Environment [GS Paper-3]

#### Context

The Ministry of Agriculture and Farmers’ Welfare has provided the recommendations for putting in bio-input useful resource centres (BRC) under the National Mission on Natural Farming (NMNF).

#### Key Highlights

- **Financial Assistance:** ₹1 lakh per BRC, furnished in two installments of ₹50,000 each.
  - Assistance excludes costs like sheds, land condominium, or permanent infrastructure.
- **Purpose of BRCs:** Facilitate cluster-level manufacturing and availability of natural farming bio-inputs.
  - Act as understanding hubs for disseminating practices and solutions associated with natural farming.
  - Tailor bio-inputs in step with local soil, vegetation, and land-use patterns.
- **Eligibility:** BRCs need to be run by entrepreneur organizations already practicing natural farming.
  - If unavailable, the state natural farming cell will identify and onboard farmers willing to transition.

- **Affordability Focus:** Inputs produced and offered ought to continue to be cheap for small and marginal farmers.
- **Integration with Other Schemes:** Emphasis on convergence with programmes just like the Formation and Promotion of 10,000 FPOs, [National Mission on Edible Oilseeds](#), and so on.

### Significance of the BRC Guidelines under NMNF

- BRCs will locally produce and supply ready-to-use inputs.
- Will promote cluster-based collective efforts, enhancing access to markets and reducing expenses.
- BRCs will help scale up natural and organic farming by ensuring quality inputs and place-specific formulations.

### About National Mission on Natural Farming (NMNF)

- **Type:** Centrally Sponsored Scheme (CSS)
- **Nodal Ministry:** Ministry of Agriculture & Farmers' Welfare
- **Launch Date:** November 25, 2024
- **Primary Objective:** Promote nature-based, sustainable structures of farming
  - Reduce dependence on chemical inputs
- **Implementation Target (Next 2 Years):** To be implemented in 15,000 clusters of inclined Gram Panchayats
  - Reach out to at least 1 crore farmers
  - Cover 7.5 lakh hectares of agricultural land

**Source:** [The DTE](#)

### Mains PYQ

#### 1. What are the present challenges before crop diversification? How do emerging technologies provide an opportunity for crop diversification? (2021)

- The Ministry of Agriculture and Farmers' Welfare has provided the recommendations for putting in bio-input useful resource centres (BRC) under the National Mission on Natural Farming (NMNF).
- **Financial Assistance:** ₹1 lakh per BRC, furnished in two installments of ₹50,000 each.
- **Purpose of BRCs:** Facilitate cluster-level manufacturing and availability of natural farming bio-inputs.
- **Eligibility:** BRCs need to be run by entrepreneur organizations already practicing natural farming.
- **Affordability Focus:** Inputs produced and offered ought to continue to be cheap for small and marginal farmers.
- **Integration with Other Schemes:** Emphasis on convergence with programmes just like the Formation and Promotion of 10,000 FPOs, [National Mission on Edible Oilseeds](#), and so on.

## [2.20] Green Municipal Bond

### Syllabus - Economy [GS Paper-3]

#### Context

Under Swachh Bharat Mission-Urban, Ghaziabad issued India's first Certified Green Municipal Bond, elevating ₹150 crore for a new Tertiary Sewage Treatment Plant (TSTP).

#### About Green Municipal Bonds

- Municipal Bond is a debt instrument issued by urban local bodies (ULBs) or municipal companies to finance infrastructure and public provider initiatives.
- The Green Municipal Bond is a subtype of municipal bonds used solely to fund environmentally sustainable and climate-resilient infrastructure initiatives, such as renewable energy, water remedy, and waste control.
- Article 243W of the Indian Constitution entrusts ULBs with functions like water supply, sanitation, and waste management—making them eligible to raise bonds.

#### Significance of GMBs

- **Sustainable Development:** Aligns with ESG (Environment, Social, Governance) making investment principles, now quintessential to many international investors' methods.
- **Low-Cost Capital:** Offers cost-effective, long-term financing, regularly more low-priced than commercial bank loans.
- **Broadened Investor Base:** Attracts institutional and international investors, decreasing over-reliance on conventional domestic loans.
- **Infrastructure Boost:** Ideal for urban potential constructing in water remedy, sanitation, and waste management.

#### Challenges

- **Limited Municipal Capacity:** Many urban local bodies (ULBs) lack financial expertise and credit worthiness to difficulty bonds independently.
- **Regulatory Hurdles:** Complex approval approaches and restrained market intensity restrict quicker adoption of green bonds.
- **Monitoring and Accountability:** Ensuring obvious utilization of funds and environmental effect assessment remains difficult.
- **Low Investor Awareness:** Limited recognition amongst home buyers about green finance systems reduces demand.

#### Way Ahead

- **Capacity Building:** Strengthen ULBs through training in financial planning, ESG compliance, and challenge evaluation.
- **Policy Incentives:** Provide tax breaks, hazard ensures, and simplified frameworks to encourage green bond issuance.
- **Robust Verification Mechanisms:** Establish third-party certification systems for green credentials and effect monitoring.
- **Expand Investor Outreach:** Promote green bonds to pension funds, insurance companies, and ESG-focused traders.
- **Integrate with National Missions:** Align municipal green finance initiatives with [AMRUT](#), [Smart Cities](#), and [Jal Jeevan Mission](#) for synergy.

Source: [The PIB](#)

## Mains PYQ

1. *“Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)”. Comment on the progress made in India in this regard. (2018)*

- Under Swachh Bharat Mission-Urban, Ghaziabad issued India’s first Certified Green Municipal Bond, elevating ₹150 crore for a new Tertiary Sewage Treatment Plant (TSTP).
- Municipal Bond is a debt instrument issued by urban local bodies (ULBs) or municipal companies to finance infrastructure and public provider initiatives.
- The Green Municipal Bond is a subtype of municipal bonds used solely to fund environmentally sustainable and climate-resilient infrastructure initiatives, such as renewable energy, water remedy, and waste control.
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## [2.21] 2025 Special 301 Report of USTR

### Syllabus - Economy [GS Paper-3]

#### Context

The Office of the United States Trade Representative (USTR) released its 2025 Special 301 Report assessing the adequacy and effectiveness of intellectual property (IP) rights security and enforcement by U.S. Trading partners.

#### About “Special 301” Report

- It is an annual report of the global state of IP security and enforcement. USTR conducts this assessment pursuant to Section 182 of the Trade Act of 1974, as amended by the Omnibus Trade and Competitiveness Act of 1988 and the Uruguay Round Agreements Act.
- It aims to promote innovation by figuring out and addressing challenges that preclude IP rights, along with vulnerable enforcement, inadequate trade secret protection, discriminatory innovation guidelines, online piracy, counterfeit items, and restrictive market access measures.
- In the state-of-the-art record, over 100 trading partners were reviewed, with 26 placed on the Priority Watch List or Watch List.
- The assessment of Ukraine was suspended because of the continuing war.

#### India Specific Findings and Related Concerns

- India has once again been located at the U.S. Trade Representative’s (USTR) ‘Priority Watch List’ in the 2025 Special 301 Report due to ongoing concerns about intellectual property (IP) security and enforcement.
- Despite some development, along with amendments to patent guidelines and increased engagement with the U.S., India continues to face criticism for indistinct patent laws, long approval delays, weak copyright enforcement, and insufficient trade secret protections.

- The report highlights issues like unauthorized report sharing, piracy, and high customs duties on IP-in depth products.

### Steps and Progress of India

- India had made significant progress to promote IP security and enforcement in some areas and took steps to in part deal with long-status issues with patent pre-furnish opposition complaints and bulky reporting requirements by notifying the Patents (Amendment) Rules, 2024.

### Future Outlook

- The US will display the implementation of the amendments and inspire similar reforms to reduce patent pendency cases, and improve the patent system generally.

### Intellectual Property in India

- According to the World Intellectual Property Indicators (WIPI) 2024, India is among the top ten nations globally in all 3 most important intellectual property (IP) classes—patents, logos, and business designs.
- In 2023, India recorded the quickest growth in patent applications (15.7%) of most of the top 20 nations, ranking sixth globally with over 64,000 filings, more than half of which were by citizens.
- Patent presents surged by 149.4% year-on-year, reflecting an unexpectedly evolving IP environment.
- Between 2018 and 2023, patent and design filings more than doubled, even as trademarks rose by 60%, and India's patent-to-GDP ratio almost tripled.
- Industrial layout programs rose 36.4%, led by sectors like textiles, tools, and health. India also ranked fourth in worldwide trademark filings in 2023, with 90% reported by citizens, and now has the world's 2nd-biggest number of lively trademark registrations (3.2 million).
  - These developments highlight India's growing focus on innovation and IP-pushed growth.

**Source:** [The Indian Express](#)

### Mains PYQ

**1. In a globalized world, Intellectual Property Rights assume significance and are a source of litigation. Broadly distinguish between the terms—Copyrights, Patents and Trade Secrets. (2014)**

- The Office of the United States Trade Representative (USTR) released its 2025 Special 301 Report assessing the adequacy and effectiveness of intellectual property (IP) rights security and enforcement by U.S. Trading partners.
- It is an annual report of the global state of IP security and enforcement. USTR conducts this assessment pursuant to Section 182 of the Trade Act of 1974, as amended by the Omnibus Trade and Competitiveness Act of 1988 and the Uruguay Round Agreements Act.
- It aims to promote innovation by figuring out and addressing challenges that preclude IP rights, along with vulnerable enforcement, inadequate trade secret protection, discriminatory innovation guidelines, online piracy, counterfeit items, and restrictive market access measures.
- In the state-of-the-art record, over 100 trading partners were reviewed, with 26 placed on the Priority Watch List or Watch List.
- The assessment of Ukraine was suspended because of the continuing war.

## [2.22] National Security over Disclosure in Pegasus: SC

### Syllabus - Polity & Governance [GS Paper-2]

#### Context

The Supreme Court, even while listening to the Pegasus case, stated there may be no trouble with a country having adware for national security, but the actual issue is its use against individuals, which will be examined.

#### Key Highlights

- The Supreme Court stated that national security can not be compromised, and there may be not anything incorrect with a rustic possessing or using adware for security functions.
- The bench, led by Justice Surya Kant and Justice N Kotiswar Singh, clarified that the key situation isn't always ownership of adware but against whom it's far deployed.
- **Individual Right to Privacy Recognised**
  - While declining to make the whole report public, the Court acknowledged that individuals have a Constitutionally covered right to privacy.

#### Petitions Alleging Government Surveillance

- The case stems from petitions reported in 2021 by journalists, activists, and public figures.
- They alleged that the government used Pegasus spyware, a military-grade surveillance tool made by Israel's NSO Group, to monitor citizens.
- Petitioners argued that the core issue stays whether the government possesses and has used Pegasus.
- They stressed that ownership implies the potential for enduring surveillance.
- **Justice R V Raveendran Committee Report:** No Public Disclosure
- On demands to launch the report of the SC-appointed Justice R V Raveendran committee, the bench refused, mentioning national protection and sovereignty concerns.
  - In October 2021, the Supreme Court appointed a technical committee to analyze whether or not individuals' phones were hacked using Pegasus adware.
  - The committee was supervised by Justice (retd) R.V. Raveendran, and in 2022, submitted its findings to the court docket in a sealed cover.
  - In August 2022, the Supreme Court referred to the committee as having observed no conclusive evidence of Pegasus adware use in the phones examined.
  - Malware was detected in 5 systems, but its nature couldn't be definitively related to Pegasus.
  - The Centre did not cooperate with the investigation, as per the report.
- SC remarked that while individuals may be informed if their phones had been focused, the report cannot become a public debate report.

#### Spyware

- Spyware is a form of malicious software (malware) designed to secretly accumulate information from a user's tool and transmit it to third parties without consent.
- It is often used for financial gain by advertisers, data agents, or cybercriminals.

#### Purpose and Risks

- Spyware collects touchy information like surfing history, economic info, and login credentials.

- It poses critical threats by:
  - Enabling identification theft and financial fraud
  - Slowing device and community performance
  - Causing data breaches in businesses
  - Installing additional malicious software

### Common Types of Spyware

- **Adware** – Monitors interests to serve or promote centered commercials.
- **Infostealer** – Gathers specific data and chat logs.
- **Keyloggers** – data each keystroke to steal usernames, passwords, and messages.
- **Rootkits** – Grants deep access to a gadget, often undetectable.
- **Red Shell** – Tracks personal interest all through PC game installations.
- **System Monitors** – Captures emails, web sites visited, and keystrokes.
- **Tracking Cookies** – Follows person conduct across the web.
- **Trojan Horse Virus** – Delivers spyware by disguising as legitimate software programs.

### How Spyware Works?

- **Infiltration** – Installed via apps, malicious web sites, or attachments.
- **Monitoring and Data Capture** – Tracks browsing, captures keystrokes, and takes screenshots.
- **Transmission or Sale** – Sends stolen data to attackers or sells it on the dark web.

### Impact

- Spyware compromises personal and business data, facilitates identity robbery, and weakens cyber security defenses.
- Detecting and casting off spyware may be challenging due to its stealthy nature.

**Source:** [The Hindu](#)

### Mains PYQ

**1. What are the different elements of cyber security? Keeping in view the challenges in cyber security, examine the extent to which India has successfully developed a comprehensive National Cyber Security Strategy. (2022)**

- The Supreme Court, even while listening to the Pegasus case, stated there may be no trouble with a country having adware for national security, but the actual issue is its use against individuals, which will be examined.
- The Supreme Court stated that national security can not be compromised, and there may be not anything incorrect with a rustic possessing or using adware for security functions.
- The bench, led by Justice Surya Kant and Justice N Kotiswar Singh, clarified that the key situation isn't always ownership of adware but against whom it's far deployed.
- **Individual Right to Privacy Recognised**
  - While declining to make the whole report public, the Court acknowledged that individuals have a Constitutionally covered right to privacy.

## [2.23] Inclusion of Caste Enumeration in the Upcoming Census

### Syllabus - Governance [GS Paper-2]

#### Context

Recently, the Cabinet Committee on Political Affairs (CCPA), chaired by Prime Minister of India, has decided to consist of caste enumeration in the upcoming Census exercising, marking a great shift in India's method to demographic statistics series.

#### Historical Perspective of Caste Based Enumeration

- The ultimate caste-based enumeration in India was achieved in 1931 under British rule, recording 4,147 awesome castes.
- Post-Independence, only Scheduled Castes (SCs) and Scheduled Tribes (STs) were counted inside the decennial Census.
- In 1961 Directive, the Union Government authorized states to conduct their own surveys to pick out OBCs (Other Backward Classes).
- In 2011, Socio-Economic Caste Census was carried out to obtain records about socio-economic popularity of diverse groups.

#### Constitutional Basis for the Decision

- **Union Subject:** As per Article 246 of the Constitution of India, the Census is a Union situation, indexed in the Union List under the Seventh Schedule.
- It ensures that caste enumeration, performed as a part of the principle Census, can have a uniform and obvious framework across the country.
- The Census Act, 1948 gives the legal framework for conducting population censuses in India. It outlines the strategies, obligations, and penalties related to census operations.

#### Significance of Caste Enumeration

- **Digital Census:** The next Census may be carried out in digital mode, with respondents having the option to fill the questionnaire by a mobile application.
  - A new column for caste enumeration might be delivered, offering a drop-down code directory for easy selection.
- **Data-Driven Policy Making:** Comprehensive caste statistics will permit evidence-primarily based governance, ensuring fair representation in training, employment, and welfare programs.
  - It will assist refine reservation policies.
  - It will resource inside the implementation of the 33% reservation for women in Parliament and State Assemblies.
- **Addressing Socio-Economic Disparities:** The data will offer insights into financial inequalities amongst caste organizations, helping in centered development programs.
- **Judicial Demand:** The Supreme Court's judgment inside the Indra Sawhney case established that a state's end regarding the "backwardness" of a group has to be based on proper assessment and objective evaluation.

#### Concerns Related to Caste Enumeration

- **Potential for Political Exploitation:** Critics argue that caste enumeration will be used as a political tool to influence electoral methods.
  - There are issues that state-level caste surveys have lacked transparency and were carried out with political motivations.

- **Risk of Deepening Social Divisions:** Some concern that caste enumeration might also toughen caste identities, leading to fragmentation instead of inclusivity.
  - The debate over caste-based reservations could intensify, developing social tensions.
- **Challenges in Implementation:** Ensuring accurate data collection without manipulation or misrepresentation remains a challenge.
  - The method for caste classification should be transparent and scientifically verified.

### Conclusion

- The inclusion of caste enumeration in the next Census is a landmark decision that promises to reshape India's socio-political landscape.
- By offering detailed statistics on caste demographics, the government aims to cope with inequalities and foster inclusive development.
- As the Census unfolds, its effect on policy-making and societal dynamics could be carefully watched.

**Source:** [The Indian Express](#)

### Prelims PYQ

#### 1. Consider the following statements: (2009)

1. Between Census 1951 and Census 2001, the density of the population of India has increased more than three times.
2. Between Census 1951 and Census 2001, the annual growth rate (exponential) of the population of India has doubled.

Which of the statements given above is/are correct?

- (a) 1 only  
 (b) 2 only  
 (c) Both 1 and 2  
 (d) Neither 1 nor 2

**Ans: (d)**

- Recently, the Cabinet Committee on Political Affairs (CCPA), chaired by Prime Minister of India, has decided to consist of caste enumeration in the upcoming Census exercising, marking a great shift in India's method to demographic statistics series.
- The ultimate caste-based enumeration in India was achieved in 1931 under British rule, recording 4,147 awesome castes.
- Post-Independence, only Scheduled Castes (SCs) and Scheduled Tribes (STs) were counted inside the decennial Census.
- In 1961 Directive, the Union Government authorized states to conduct their own surveys to pick out OBCs (Other Backward Classes).
- In 2011, Socio-Economic Caste Census was carried out to obtain records about socio-economic popularity of diverse groups.

## [2.24] Right To Digital Access

### Syllabus - Polity and Governance [GS Paper-2]

#### Context

The Supreme court emphasized that digital access is a crucial component of the Right to Life under Article 21.

#### Key Highlights

- The judgment was based on a petition filed by a set of acid attack survivors.
- They raised concerns about how disabled people, which includes acid attack sufferers, discover it almost not possible to correctly complete the digital KYC tactics, which encompass visible responsibilities.

#### Supreme Court Ruling

- The court said that the state has a responsibility to offer an inclusive digital environment to the marginalised, underprivileged, inclined, disabled, and traditionally-excluded sections of society.
- **Directive to Improve KYC Accessibility:**
  - The Court mandated that alternative verification mechanisms need to be brought for the ones unable to blink or use facial popularity.
  - It is also referred to as for complete compliance with Section 46 of the Rights of Persons with Disabilities (RPwD) Act, 2016, which mandates accessibility in digital and print media.
  - Websites, mobile applications, and digital systems should be made compliant with widely wide-spread accessibility standards.
- The nation's responsibilities under Article 21, with Articles 14, 15 and 38 of the Constitution, have to encompass the duty to ensure that digital infrastructure, government portals, and financial technologies are universally reachable.

#### Article 21 of the Indian Constitution

- No individual will be deprived of his life or personal liberty besides according to process established by law.
- Article 21 is part of the Fundamental Rights, Part III of the Constitution. It is assured to all humans, residents and non-residents alike.
- It places a restriction on the nation from arbitrarily interfering with a person's life and liberty.
- Over time, courts have interpreted it to also impose positive obligations on the nation to ensure a dignified life.

#### Rights Included Under Article 21 ( Judicial Interpretation)

- **Right to livelihood:** Olga Tellis v. Bombay Municipal Corporation (1985)
- **Right to clean environment:** Subhash Kumar v. State of Bihar (1991)
- **Right to education (previous to Article 21A):** Mohini Jain v. State of Karnataka (1992)
- **Right to privacy:** Justice K.S. Puttaswamy v. Union of India (2017)
- **Right to die with dignity:** Common Cause v. Union of India (2018)

Source: [The Hindu](#)

## Mains PYQ

### 1. “The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government”. Discuss. (2020)

- The Supreme court emphasized that digital access is a crucial component of the Right to Life under Article 21.
- The judgment was based on a petition filed by a set of acid attack survivors.
- They raised concerns about how disabled people, which includes acid attack sufferers, discover it almost not possible to correctly complete the digital KYC tactics, which encompass visible responsibilities.
- The court said that the state has a responsibility to offer an inclusive digital environment to the marginalised, underprivileged, inclined, disabled, and traditionally-excluded sections of society.

## [2.25] Clumpiness of the Universe

### Syllabus - Science and Technology [GS Paper-3]

#### Context

The latest studies that indicate the important thing to revealing the essential nature of the universe lies in finding out how clumpy it is.

#### Clumpiness of Universe

- The universe was explosively born in a ‘Big Bang’ in the void some 13.08 billion years ago, it improved, engendering galaxies, star clusters, sun systems, and planets.
- When scientists looked at the cosmic microwave historical past (CMB) — the radiation left over from the Big Bang itself — they saw an without a doubt smooth glow throughout the sky.
- They concluded that the early universe ought to have been remarkably uniform with most effective small versions in density.

#### The S8 Tension

- The clumpiness of the universe refers to the non-uniform distribution of be counted, in which be counted is concentrated in regions like galaxies and galaxy clusters, at the same time as different areas are notably empty.
- The “clumpiness” is measured by the “clumpiness aspect,” frequently denoted as S8, which reflects how much dependency is clustered together as compared to an frivolously dispensed situation.
- A better cost for S8 shows more clustering with a greater quantity of matter clumped together, even as a decrease cost suggests a more uniform distribution to be counted.
- **S8 tension:** A hassle arose while cosmologists used special approaches to measure the fee of S8 and came up with one of a kind estimates.
  - This loss of settlement has ended up referred to as the ‘S8 anxiety’ in astrophysics.

### Why Does It Matters?

- If this anxiety can't be explained via observational uncertainties it is able to suggest:
  - The Lambda Cold Dark Matter ( $\Lambda$ CDM) version is incomplete or needs revision.
- Dark matter or dark energy may behave in another way than currently assumed.
- New physics could be concerned (e.g., interacting darkish strength, modified gravity, or maybe time-various fundamental constants).

### The Lambda Cold Dark Matter ( $\Lambda$ CDM) Model

- Over the years, cosmologists have attempted to map the overall spread of matter through the early universe.
- In the same old cosmological model,  $\Lambda$ CDM version, darkish depend and dark power — the mysterious pressure that drives the expansion of the universe — include approximately 95% of the universe.
- The interaction among these additives influences how the primordial fluctuations developed into the large-scale structures that we study nowadays.

**Source:** [The Hindu](#)

### Prelims PYQ

*1. Which of the following is/are cited by the scientists as evidence/evidence for the continued expansion of the universe? (2012)*

- 1. Detection of microwaves in space*
- 2. Observation of redshift phenomenon in space*
- 3. Movement of asteroids in space*
- 4. Occurrence of supernova explosions in space*

*Select the correct answer using the codes given below:*

*(a) 1 and 2*

*(b) 2 only*

*(c) 1, 3 and 4*

*(d) None of the above*

**Ans: (a)**

- The latest studies that indicate the important thing to revealing the essential nature of the universe lies in finding out how clumpy it is.
- The universe was explosively born in a 'Big Bang' in the void some 13.08 billion years ago, it improved, engendering galaxies, star clusters, sun systems, and planets.
- When scientists looked at the cosmic microwave historical past (CMB) — the radiation left over from the Big Bang itself — they saw an without a doubt smooth glow throughout the sky.
- They concluded that the early universe ought to have been remarkably uniform with most effective small versions in density.