UPSC
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BIO-E3

(BIOTECHNOLOGY FOR ECONOMY, ENVIRONMENT AND EMPLOYMENT)
POLICY FOR FOSTERING HIGH-PERFORMANCE BIOMANUFACTURING

SOURCES

A Current Affairs Magazine from Mentorship India

Dear Students

The Mentorship India Bi-weekly is our half-monthly publication for staying updated on the latest developments shaping India and the World. Crafted with precision by our mentors, it serves as a comprehensive resource for students preparing for competitive exams. Offering insightful analysis, in-depth coverage, and strategic insights aligned with the exam syllabus, it empowers aspirants to navigate through contemporary issues with confidence. From breaking news to nuanced perspectives, our magazine transforms complex topics into easily digestible notes, ensuring every reader gains a holistic understanding of current affairs. Join us on a journey of knowledge enrichment and exam preparation excellence with our Bi-weekly Current Affairs.

FEATURES

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- **MAINS IN-DETAIL BI-WEEKLY**
  - The in-depth coverage of issue that carry most probability to be asked in the Exam.
- **PRELIMS IN-BRIEF BI-WEEKLY**
  - Subject-wise reading notes of most expectable themes from Prelims point-of-view.
- **SELF EVALUATION BI-WEEKLY**
  - An assignment containing 25 Prelims Questions and 5 Mains Questions for your self-evaluation
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Do you Overthink?

Juggling endless study materials, strategizing for the next test, and constantly evaluating your progress – the UPSC journey is a mental marathon. But amidst this whirlwind, are you a victim of overthinking?

Critical thinking is essential for success in the Civil Services exam. It helps you analyze information, form strong arguments, and craft compelling answers. However, overthinking turns this strength into a weakness. It breeds self-doubt, paralyzes action, and fuels anxiety. Imagine missing deadlines, getting overwhelmed during exams, or losing focus due to constant "what ifs." Not the ideal recipe for cracking UPSC, right?

So, how do you conquer this? Start with mindfulness. Take breaks, meditate, and let your mind relax. Set realistic goals, break your study material into manageable chunks, and tackle them one at a time. Trust in your preparation, and remember, perfection is a myth. Mistakes are just stepping stones to success.

Remember, we, your mentors, are here to guide you every step of the way. Don't let overthinking dim your determination. You have the potential to excel – now go out there and prove it!
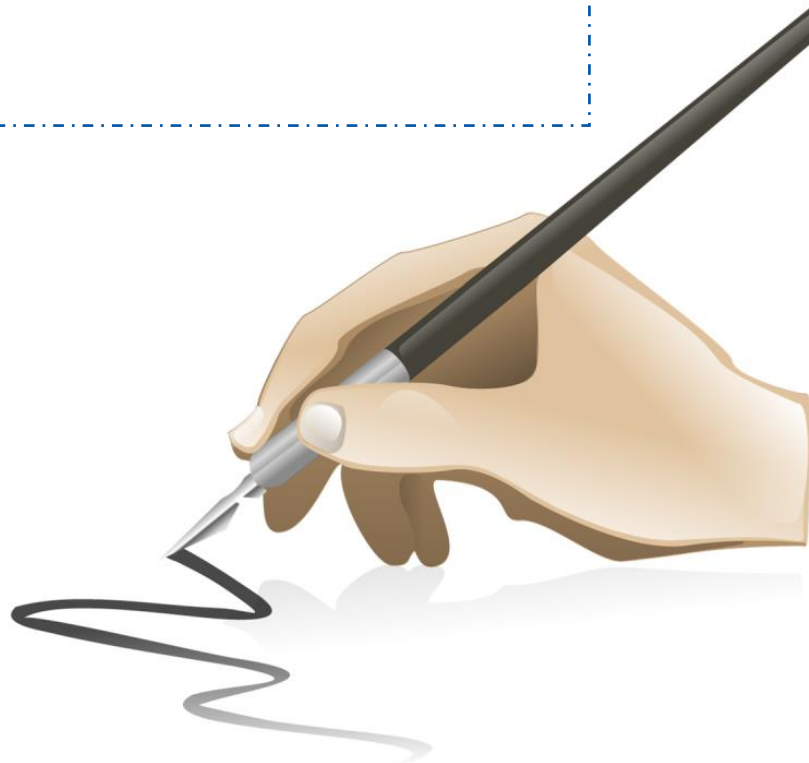
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UPSC Mentorship

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BIOE3 POLICY: ENHANCING BIOECONOMY, ENVIRONMENT, AND ENERGY EFFICIENCY

The Union Cabinet has recently approved the BioE3 (Biotechnology for Economy, Environment, and Employment) Policy, aimed at advancing high-performance bio manufacturing. This policy underscores India's commitment to harnessing biotechnology for economic growth, environmental sustainability, and job creation.

INTRODUCTION

The BioE3 policy represents a pivotal framework designed to integrate biological processes into economic, environmental, and energy strategies. By emphasizing the potential of biological innovations to drive sustainable development, the policy aligns with India's broader goals of economic growth, environmental protection, and energy efficiency

OBJECTIVES OF THE BIOE3 POLICY

Promote Bio economy

The BioE3 policy aims to stimulate the bio economy by leveraging biological resources, processes, and systems to create value across various sectors. **This includes:**

- **Biotechnology Innovations**: Advancing biotechnological research to develop new products and processes that can drive economic growth.
- **Sustainable Agriculture**: Enhancing agricultural productivity and sustainability through bio-based inputs and practices.
- **Industrial Biotechnology**: Promoting the use of biological processes in industrial applications to replace traditional chemical processes, thereby reducing environmental impact.

Environmental Protection

Environmental sustainability is a cornerstone of the BioE3 policy. Key goals include:

- **Pollution Reduction**: Using biological methods to clean up pollutants and manage waste more effectively.
- **Biodiversity Conservation**: Protecting and utilizing biological diversity in a way that maintains ecosystem balance and resilience.
- **Climate Change Mitigation**: Implementing biotechnological solutions to reduce greenhouse gas emissions and adapt to climate change impacts.

Enhance Energy Efficiency

The policy focuses on improving energy efficiency through:

- **Bioenergy Development**: Promoting the use of biological materials as renewable energy sources, such as biofuels and biogas.
- **Energy Conservation**: Utilizing biological processes to enhance energy efficiency in industrial and residential settings.
- **Innovation in Energy Technologies**: Supporting research and development of

cutting-edge biotechnologies for energy production and management.

KEY COMPONENTS OF THE BIOE3 POLICY

1. **Research and Development (R&D)**
   - **Funding and Support**: Allocating resources for R&D in biotechnology, environmental management, and energy efficiency.
   - **Collaborative Platforms**: Encouraging partnerships between academic institutions, research organizations, and industries to foster innovation.

2. **Regulatory Framework**
   - **Standards and Guidelines**: Developing and enforcing standards for biotechnological products and processes to ensure safety and efficacy.
   - **Intellectual Property Rights (IPR)**: Strengthening IPR frameworks to protect innovations and incentivize research.

3. **Capacity Building**
   - **Skill Development**: Training and upskilling the workforce in biotechnology and environmental management.
   - **Educational Programs**: Integrating bio economy, environmental, and energy efficiency topics into academic curricula.

4. **Public-Private Partnerships**
   - **Investment and Incentives**: Providing financial incentives for private sector investments in bio economy and clean technologies.
   - **Joint Ventures**: Encouraging collaborations between government agencies and private companies to scale up innovations.

5. **Implementation Mechanisms**
   - **Policy Coordination**: Establishing a central body to oversee the implementation and coordination of BioE3 initiatives.
   - **Monitoring and Evaluation**: Implementing robust monitoring systems to assess the effectiveness of policies and programs.

GOVERNMENT SCHEMES

1. **National Bio Economy Strategy (NBS)**
   - **Objective**: To enhance India's bio economy by fostering innovation, improving infrastructure, and supporting biotech start-ups.
   - **Components**: Includes funding for R&D, support for technology transfer, and development of biotech clusters.

2. **Pradhan Mantri Jan Arogya Yojana (PMJAY)**
   - **Objective**: While primarily a health insurance scheme, it indirectly supports bio economy by promoting healthcare innovations and biotechnology research.
   - **Components**: Provides financial protection for health services, thereby creating a demand for advanced biotech solutions.

3. **National Clean Energy Fund (NCEF)**
   - **Objective**: To finance innovative clean energy technologies, including bioenergy projects.
   - **Components**: Provides grants and loans for the development and commercialization of clean energy technologies.

4. **Biotechnology Industry Research Assistance Council (BIRAC)**
   - **Objective**: To support biotech start-ups and innovations through funding and mentoring.
   - **Components**: Offers grants, equity funding, and incubation support to emerging biotech enterprises.

5. **Bioenergy Programmes**
   - **Objective**: To promote the use of biological resources for energy production.
   - **Components**: Includes subsidies for biofuel production, support for biogas plants, and incentives for research in bioenergy technologies.

CHALLENGES

1. **Funding and Investment**
   - **Limited Resources**: Adequate funding for R&D and implementation remains a challenge.
   - **Investment Risks**: High-risk nature of biotech ventures may deter private investment.

2. **Regulatory Hurdles**
   - **Complex Regulations**: Navigating regulatory requirements can be cumbersome for innovators.
   - **Intellectual Property Issues**: Protecting innovations while fostering an open research environment is challenging.

3. **Infrastructure Constraints**
- **Lack of Facilities**: Insufficient infrastructure for advanced biotechnological research and development.
- **Capacity Gaps**: Inadequate facilities for scaling up bioenergy and environmental technologies.

4. **Skill Shortages**
- **Workforce Skills**: There is a shortage of skilled professionals in biotechnology and environmental management fields.
- **Training Needs**: Continuous skill development is necessary to keep pace with technological advancements.

WAY FORWARD

1. **Enhanced Investment**
- **Increase Funding**: Government and private sectors should increase investment in biotech R&D, environmental technologies, and bioenergy projects.
- **Support Start-ups**: Provide targeted financial support and incentives for biotech start-ups and innovation hubs.

2. **Streamline Regulations**
- **Simplify Processes**: Simplify regulatory processes to facilitate innovation while ensuring safety and efficacy.
- **Strengthen IPR Protections**: Enhance intellectual property protections to encourage investment in new technologies.

3. **Improve Infrastructure**
- **Develop Facilities**: Invest in state-of-the-art research facilities and pilot plants for biotech and clean energy technologies.
- **Enhance Capacity**: Build and upgrade infrastructure to support large-scale implementation of bioenergy and environmental projects.

4. **Strengthen Capacity Building**
- **Expand Training Programs**: Increase the availability and scope of training programs in biotechnology and environmental management.
- **Promote Education**: Integrate bio economy and sustainability topics into educational curricula to build a skilled workforce.

5. **Foster Collaboration**
- **Encourage Partnerships**: Promote public-private partnerships and international collaborations to leverage expertise and resources.
- **Facilitate Knowledge Sharing**: Create platforms for sharing knowledge and best practices among stakeholders.

CONCLUSION

- The BioE3 policy represents a strategic approach to integrating biological innovations into India's economic, environmental, and energy frameworks.
- By focusing on promoting the bio economy, enhancing environmental sustainability, and improving energy efficiency, the policy aims to address some of the most pressing challenges facing the country.
- However, realizing the full potential of BioE3 requires overcoming significant challenges related to funding, regulation, infrastructure, and skills.
- By addressing these challenges through increased investment, streamlined regulations, improved infrastructure, and strengthened capacity building, India can effectively harness the power of biological innovations to drive sustainable development and create a resilient, future-ready economy.

MAINS IN-DETAIL BI-WEEKLY

SWACHH BHARAT MISSION AS A 'GAME CHANGER' FOR PUBLIC HEALTH

A study by the International Food Policy Research Institute, published in Nature Journal, highlights that the Swachh Bharat Mission (SBM) significantly reduced infant mortality by enhancing sanitation.

SWACHH BHARAT MISSION (SBM)

Launch Date: October 2, 2014
Aim: To transform India into a cleaner nation by eradicating open defecation and promoting solid waste management.

KEY FINDINGS AND IMPACT OF SBM
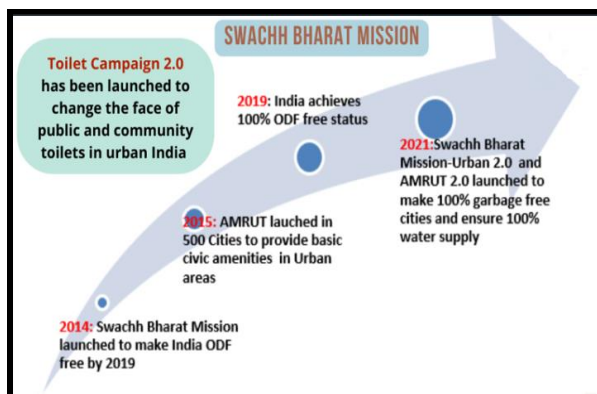
Reduction in Infant and Child Mortality:
Post-SBM implementation, there has been an accelerated decrease in infant and under-five mortality rates.
Districts with over 30% toilet coverage reported 5.3 fewer infant deaths per 1,000 live births and a 6.8 reduction in under-five mortality rates, showcasing the life-saving impact of sanitation efforts.

Improved Sanitation and Health Outcomes:
By 2019, improved sanitation led to 300,000 fewer diarrheal deaths, according to the World Health Organization (WHO).
Non-open-defecation-free (ODF) areas experienced 58% higher child wasting, as per the Bill & Melinda Gates Foundation, demonstrating the critical link between sanitation and child nutrition.

Women's Safety and Dignity:
A UNICEF study reported that 93% of women felt safer due to enhanced sanitation facilities at home, reducing their vulnerability to harassment and violence during outdoor defecation.

Education Impact:
Poor water, sanitation, and hygiene (WASH) facilities continue to hinder school attendance, particularly for girls. SBM has helped alleviate this to some extent, but there is still room for improvement.

FACTORS BEHIND SBM'S SUCCESS

Community Engagement:

SBM integrated community involvement, encouraging local ownership of sanitation efforts and fostering a sense of responsibility among citizens.

Information, Education, and Communication (IEC):
IEC campaigns were critical in driving behavioural changes. These campaigns emphasized the importance of hygiene and sanitation, leading to a greater demand for toilets and cleanliness.

Waste Management Systems:
SBM introduced systems for segregating, collecting, and treating waste, including the development of recycling centres. These systems, while effective, still face challenges, particularly in urban areas.

Capacity Building:
Extensive training for government officials and community workers ensured the successful implementation of sanitation programs, improving the long-term sustainability of SBM.

Citizen Monitoring:
SBM encouraged citizen participation through mobile and web applications, promoting transparency and accountability in monitoring sanitation progress.

CHALLENGES AND LIMITATIONS

Low Toilet Usage:
Despite achieving 100% sanitation coverage by 2019, only 85% of rural households regularly use toilets, pointing to the persistence of behavioural and cultural barriers.

Infrastructure Issues:
Problems such as broken toilets, unhygienic conditions, and full pits deter toilet usage, particularly in resource-constrained regions.

Water Scarcity:
In water-scarce areas like Gujarat's Dahod district, the limited availability of water hampers effective toilet use, forcing residents to revert to open defecation.

Caste-Based Disparities:
Surprisingly, toilet non-usage is higher among upper-caste households, highlighting the socio-cultural complexity of sanitation in India.

Solid Waste Management:
While SBM excelled in promoting toilet construction, urban solid waste management has struggled due to the capacity constraints of local bodies.

WAY FORWARD

Focus on Behaviour Change:
Initiatives like the "Darwaza Band" campaign have shown promise, but deeper community engagement is necessary for sustained toilet use and waste management.

Technological Innovations:
Implementing decentralized waste management models, such as sewage treatment plants in Devanahalli, can provide scalable and sustainable solutions, especially for densely populated regions.

Strengthening Urban Local Bodies:
Need of enhanced capacity to scientifically collect, segregate, and process waste.
Expanding mechanized sweeping and introducing underground waste bins can help urban sanitation.

Linking with Other Initiatives:
The integration of SBM with programs like JalJeevan Mission can ensure better access to water and sanitation facilities, leading to improved outcomes.

Localized Waste Management Models:
Engaging communities and public-private partnerships in developing localized waste management solutions can address the unique challenges of each area, ensuring more effective and sustainable practices.

Public Spaces and Slums:
Extending sanitation coverage to public spaces such as parks and bus stops, and providing customizable toilet models for slums, can address the needs of urban poor populations.

Waste Segregation and Recycling:
Introducing incentives for waste segregation and promoting a circular economy through recycling and reuse can reduce the burden on landfills and improve environmental sustainability.

OTHER INITIATIVES FOR SANITATION

Central Rural Sanitation Programme (CRSP):
Launched in 1986, CRSP was India's first major initiative for rural sanitation.

Total Sanitation Campaign (1999): This program marked a shift towards a demand-driven approach with lower subsidies.

SBM-G Phase II: The second phase of SBM emphasizes solid and liquid waste management and sustainability.

National Annual Rural Sanitation Survey (NARSS):
The survey plays a key role in tracking the progress of sanitation initiatives.

CONCLUSION

The mission should pivot from toilet construction to a community-driven approach that integrates cleanliness into daily life, ensuring long-term sustainability through public participation.

FIRST LEGALLY BINDING AI TREATY

The first legally binding AI treaty, signed by the US, EU and UK prioritises human rights and democracy, adopting a risk-based approach to AI regulation across public and private sectors.
It aims to mitigate the threats that AI may pose to human rights, democracy and the rule of law.

Artificial intelligence (AI) has revolutionised how societies operate, from transforming industries to reshaping economies. However, the rapid pace of AI advancement has raised numerous concerns about its implications for human rights, democracy, and the rule of law. To address these risks, the **Council of Europe** unveiled the **Framework Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law**, which is the world's first legally binding treaty on AI. Signed by countries such as the **US**, **UK**, and members of the **European Union**, the treaty seeks to regulate AI's lifecycle and ensure its compatibility with fundamental rights and democratic values. This article will explore the key elements, implications, and global significance of this treaty.

UNDERSTANDING ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence refers to the simulation of human intelligence in machines, enabling them to perform tasks typically requiring human cognitive abilities such as reasoning, learning, and decision-making. AI is categorized into narrow AI (designed for specific tasks like facial recognition or chatbots) and general AI (more autonomous and versatile systems). The increasing use of AI in various sectors, including healthcare, finance, and governance, has sparked a global conversation about its ethical implications, especially regarding privacy, equality, and accountability.

The **Council of Europe's Framework Convention** recognizes these challenges and aims to establish a robust legal framework to mitigate AI's potential risks. The treaty's focus on protecting human rights and ensuring democratic processes is crucial in a world where AI is increasingly used for decisions that directly affect human lives.

KEY FEATURES OF THE AI TREATY

Risk-Based Approach: One of the hallmark provisions of the treaty is its risk-based model, which mandates a careful evaluation of AI systems to determine their compatibility with human rights. AI systems that pose unacceptable risks—such as mass surveillance tools or systems with inherent biases—can be prohibited. This approach allows governments to assess AI applications based on their potential harm and determine appropriate regulatory actions.

Global Scope: While the EU AI Act applies only to EU member states, the Framework Convention extends its reach globally, inviting countries across continents to participate. The treaty allows countries to regulate AI within their national legal frameworks while ensuring that these regulations align with the treaty's principles. This makes the convention adaptable to varying legal, political, and economic contexts, while still adhering to universal democratic values.

Public and Private Sector: Unlike some regulatory frameworks that focus predominantly on government-controlled AI, this treaty mandates accountability across both public and private sectors. Whether used by governments for law enforcement or by corporations in advertising, AI systems must comply with standards protecting human rights and democratic norms.

Exemptions: The treaty exempts AI systems used for national security, defense, and research and development (R&D) activities from its provisions. This exemption allows for innovation and state interests in critical sectors while ensuring that commercial and civil AI applications remain regulated.

Lifecycle Regulation: The treaty covers the entire lifecycle of AI systems—from design to deployment and even decommissioning. This ensures that ethical considerations are integrated into AI development from the start, with an ongoing commitment to responsible usage.

SIGNIFICANCE OF THE AI TREATY

This treaty is not just a step forward for AI regulation; it is a critical move toward aligning technological advancements with **human rights**. The Framework Convention is crucial for several reasons:

Safeguarding Human Rights: AI systems often operate on large datasets that may include sensitive personal information. Biometric recognition systems, for example, pose serious privacy risks, and unchecked AI applications could lead to significant breaches of human rights. By providing a legal framework, the treaty protects individuals from violations such as mass surveillance, data exploitation, and biased algorithmic decision-making.

Protecting Democratic Values: The role of AI in democracy is twofold. On one hand, AI can enhance democratic processes by improving transparency and enabling data-driven decision-making. On the other hand, AI could potentially be used to manipulate political discourse through disinformation campaigns or surveillance of political activists. The treaty aims to safeguard free speech and open political debate by limiting the use of AI systems that threaten democratic engagement.

Promoting International Cooperation: In a globalized world, AI does not recognize borders. By creating a treaty with global outreach, the Council of Europe fosters international cooperation to tackle the challenges posed by AI. Countries that sign the treaty commit to working together to develop ethical standards, promoting a collective approach to AI regulation.

THE EU FRAMEWORK FOR AI REGULATION

While the **EU AI Act** shares many objectives with the Council of Europe treaty, it focuses more specifically on the European Union's member states. Enforced in 2024, the EU AI Act classifies AI systems based on their risk levels: **unacceptable**, **high-risk**, and **minimal-risk**. High-risk AI systems, such as those used in critical infrastructure or law enforcement, are subject to stringent regulatory oversight, while minimal-risk systems (like chatbots) face fewer restrictions.

The EU AI Act serves as a regional framework, but its principles align closely with the Council of Europe's broader treaty, particularly regarding the protection of human rights and ensuring transparency in AI systems. Together, these initiatives form a comprehensive approach to regulating AI, balancing innovation with ethical considerations.

CONCERNS RELATED TO AI

Despite these regulatory advances, concerns around AI remain prevalent. Some of the most pressing issues include:

Bias and Discrimination: AI systems often learn from historical data, which can embed societal biases into their decision-making processes. This can lead to discrimination in sectors like hiring, lending, and law enforcement.

Accountability: One of the central challenges in AI governance is determining who is accountable when AI systems fail or cause harm. The complexity of AI models makes it difficult to trace responsibility, particularly in cases involving autonomous systems.

Privacy: The large-scale collection and analysis of personal data by AI systems present significant privacy risks. AI-driven surveillance systems, for example, can violate privacy rights if not properly regulated.

INDIA'S STANCE ON AI

While India has not yet signed the Framework Convention, it is actively engaging with AI development. The **NITI Aayog**, India's policy think tank, has released several reports emphasizing the need for ethical AI in governance and societal applications. However, India currently lacks a comprehensive legal framework for AI regulation.

India has recognized the need for a balanced approach to AI, ensuring that technological progress benefits the population without compromising rights. There are ongoing discussions about adopting ethical guidelines for AI, particularly in sectors like **agriculture**, **healthcare**, and **education**, where AI holds significant potential to drive positive change.

GLOBAL INITIATIVES ON AI

Several global organizations have taken steps to regulate AI:

The **OECD AI Principles** set forth guidelines for trustworthy AI, focusing on transparency, accountability, and fairness.

UNESCO's AI Ethics Framework aims to guide countries on implementing AI systems that respect human dignity and autonomy.

These global initiatives, combined with the Council of Europe treaty, represent a growing recognition of AI's risks and the need for robust regulatory frameworks.

India has also made significant strides in the realm of Artificial Intelligence (AI) with various initiatives to

position itself as a global AI hub, while ensuring that AI developments contribute to economic growth and social welfare.

KEY INITIATIVES IN AI BY INDIA

National Strategy for Artificial Intelligence (AI for All): NITI Aayog's "AI for All" strategy aims to leverage AI not just for economic growth but also for inclusive social impact. The focus areas include healthcare, agriculture, education, smart cities, and smart mobility. For instance, AI tools are being developed to assist farmers with advisory services, monitor school dropouts, and provide remote healthcare services. This strategy highlights the potential of AI to transform sectors by offering scalable, locally developed solutions for both India and the broader developing world.

AI Garage Initiative: India envisions becoming an "AI Garage," where AI solutions developed in the country can be applied to the entire developing world. This initiative seeks to create an environment where global enterprises and institutions can use India as a playground to develop AI technologies that can be scaled globally. This also ties into India's goal of leveraging its soft power to foster international AI collaborations.

Digital India and AI-based Governance: AI is being integrated into governance frameworks under the "Digital India" initiative. AI-driven solutions are being used for public safety, such as the Punjab Artificial Intelligence System (PAIS) that aids the police in identifying criminals through facial recognition.

AI in Education and Agriculture: AI is also revolutionizing sectors like education and agriculture. For instance, AI is helping to curb school dropouts by analyzing student data, while in agriculture, AI-based tools are assisting farmers with predictive analytics on optimal sowing times, weather forecasts, and market trends.

AI Policy and Startups: India is home to over 1,500 AI startups that are working on innovative solutions in diverse sectors, from healthcare to retail. These start-ups are developing cutting-edge AI products like warehouse robots, smart electric scooters, and retail analytics solutions, playing a pivotal role in the AI ecosystem

These initiatives reflect India's commitment to shaping a comprehensive AI strategy that not only boosts economic growth but also addresses social challenges.

APPLICATIONS AND FUTURE IMPACT OF AI

AI applications are increasingly embedded in daily life, from **smart homes** to **automated decision-making** in governments and businesses. In healthcare, AI can assist in diagnosing diseases, while in education, it can create personalized learning experiences. However, AI's potential to displace jobs, manipulate political processes, or deepen societal inequalities necessitates responsible development and usage.

Looking forward, the impact of AI on society will depend largely on the strength and enforceability of regulatory frameworks like the **Council of Europe's Framework Convention**. As AI continues to evolve, so too will the regulatory mechanisms needed to manage it.

CONCLUSION

The **Framework Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law** is a crucial step in global AI regulation. By prioritizing human rights and democratic values, the treaty provides a comprehensive framework for ensuring that AI serves the public good. As AI systems continue to transform industries and societies, treaties like this will play a vital role in shaping a future where technology and humanity coexist harmoniously. Countries like India, still in the process of formulating their AI strategies, can benefit from engaging with such global frameworks to develop their own regulatory models that promote both innovation and accountability.

INDIA'S STRATEGIC DILEMMAS IN SOUTH ASIA

India's complex strategic challenges in the South Asian region, particularly focusing on the geopolitical, economic, and defense issues arising from its relationships with neighbouring countries like China and Pakistan.

INTRODUCTION

India finds itself grappling with multifaceted strategic challenges in South Asia.

From the ongoing military standoff with China in Ladakh to the diplomatic deadlock in the 31st India-China Border Affairs meeting, India's regional security is increasingly being influenced by external forces.

Additionally, China's growing clout in neighbouring countries, such as Pakistan, Sri Lanka, and Bangladesh, has heightened geopolitical complexities for India's foreign policy and defence planning.

COMPLEX GEOPOLITICAL LANDSCAPE

Border Tensions with China and Pakistan:

The Line of Actual Control (LAC) with China and the Line of Control (LoC) with Pakistan remain highly volatile, contributing to regional instability.

The ongoing confrontation in Ladakh and insurgency in Jammu & Kashmir have further exacerbated tensions. These flashpoints act as constant reminders of unresolved disputes.

China's Expanding Influence through BRI:

India perceives China's Belt and Road Initiative (BRI) and Maritime Silk Road with suspicion, especially given projects like the China-Pakistan Economic Corridor (CPEC) that pass through Pakistan-occupied Kashmir (PoK).

Furthermore, China's infrastructure investments in countries like Sri Lanka and the Maldives contribute to India's fear of being strategically encircled, a theory widely known as the "String of Pearls."

Political Shifts in Neighbouring Nations:

India's traditionally strong ties with neighbours like Bangladesh and the Maldives are under stress, with these nations increasingly engaging with China.

Meanwhile, relations with Sri Lanka and Nepal remain strained due to internal political dynamics and perceptions of Indian interference.

ECONOMIC RAMIFICATIONS

India's Trade Deficit with China:

India's dependence on Chinese imports in key sectors such as electronics and pharmaceuticals has led to a trade deficit of $85 billion.

This imbalance poses economic vulnerabilities that can have strategic consequences during periods of heightened geopolitical tensions.

Domestic Economic Challenges:

India's struggle with poverty, underemployment, and jobless growth continues to hamper its ability to allocate sufficient resources for strategic purposes such as defense modernization.

Addressing these domestic economic issues is critical for India to meet its regional and global aspirations.

DEFENCE AND SECURITY IMPERATIVES

Dependence on Defense Imports:

India's reliance on foreign arms imports is a major limitation on its strategic autonomy.

While India is one of the largest arms importers globally, it continues to lag behind in indigenous production of advanced military technology.

Modernising Military Capabilities:

The modernization of India's military forces is essential to counter China's rapid military advancements and Pakistan's continued development of its nuclear arsenal.

Emerging threats like cyber and hybrid warfare further complicate India's defence preparedness

Nuclear Deterrence:

India's nuclear strategy is facing growing challenges as both China and Pakistan enhance their nuclear capabilities.

India must reassess its nuclear doctrine and ensure a credible deterrence posture that addresses the evolving security environment in South Asia.

FUTURE PROSPECTS

Economic Growth:

India is poised to become one of the largest economies by 2047.

Achieving this milestone will require sustained investments in technology, infrastructure, and manufacturing.

Reducing its dependency on imports by becoming a global manufacturing hub is critical to mitigating economic vulnerabilities.

Resolving Domestic Challenges:

India must focus on addressing domestic issues such as poverty, education, and healthcare to ensure its rise as a global power.

A stable domestic environment is essential for India to focus on its international objectives.

A Cooperative Neighbourhood:

A peaceful and cooperative South Asia is crucial for India's regional and global ambitions.

Reducing tensions with neighbouring countries through diplomatic engagement and strengthening regional partnerships will enhance India's security and leadership prospects.

KEY GOVERNMENT INITIATIVES

AtmanirbharBharat (Self-reliant India):

Develop India into a global supply chain hub.

Build the government's trust in the private sector capabilities and prospects.

Establish 'good force multipliers' for Indian manufacturers.

Enter the global markets to export goods including agriculture, textiles, clothing, and jewellery.

Determine adequacy of each sector (e.g., defence, agriculture, healthcare, infrastructure, etc.),

with the help of FY22 budget, to achieve self-reliance.

Neighbourhood First Policy:

Emphasises strong bilateral relations and cooperation with neighbouring countries to ensure regional stability.

Act East Policy:

Focuses on strengthening ties with Southeast Asian countries, both economically and strategically.

WAY FORWARD

Formulate a Comprehensive National Security Strategy: India must develop a coherent security strategy that prepares the nation for conventional and non-conventional threats from China and Pakistan.

Diversify Economic Partnerships: To reduce its reliance on China, India should focus on expanding trade with other global partners and promoting domestic industries under Atmanirbhar Bharat.

Enhance Self-reliance in Defense: Accelerating domestic defence production will be key to India's long-term strategic autonomy.

Update Nuclear Doctrine: India should revisit its nuclear strategy in light of evolving threats from China and Pakistan, ensuring a credible and flexible deterrence posture.

CONCLUSION

India's leadership in South Asia and its aspirations to become a global power are fraught with challenges, both domestic and external.

However, with careful planning, a focus on self-reliance, and strong regional and international partnerships, India can successfully navigate the complex geopolitical dynamics of the region.

REFORMING THE PROCESS OF JUDICIAL APPOINTMENTS IN INDIA

India's process of appointing judges has been a topic of intense debate, particularly given the backlog of cases in the judiciary. As of April 2024, approximately 6 million cases remain unresolved across various High Courts, and 30% of judicial seats are still vacant.

HISTORICAL CONTEXT OF JUDICIAL APPOINTMENTS

Before the National Judicial Appointments Commission (NJAC) Act of 2014, the appointment of judges was governed by traditional conventions, primarily through the Collegium System. This system, where senior judges recommend appointments, has been central to judicial appointments in India.

THE COLLEGIUM SYSTEM

Definition: The collegium system is an internal mechanism created to democratize the appointment and transfer of judges in the higher judiciary.
Composition: It is headed by the Chief Justice of India (CJI) and includes the four senior-most judges of the Supreme Court.
High Court Collegium: Led by the Chief Justice of the High Court and four other senior judges of the same court.

EVOLUTION OF THE COLLEGIUM SYSTEM

Article 124 of the Indian Constitution: Stipulates that Supreme Court judges are appointed by the President of India after consulting relevant judges of the High Courts and the Supreme Court.
Article 217: Requires High Court judges to be appointed by the President after consultation with the CJI, the Governor of the state, and the Chief Justice of the High Court.

KEY JUDICIAL DECISIONS

First Judges Case (1981): The Supreme Court ruled that the President has the final authority in judicial appointments and is not obligated to follow the advice of the judges.
Second Judges Case (1993): The Supreme Court overruled its earlier decision, establishing the collegium system. It stated that the CJI would have the primary role in appointments and transfers.

Third Judges Case (1998): Reaffirmed the 1993 decision, with slight modifications, increasing the number of judges in the collegium from two to four.
Fourth Judges Case (2015): Declared the NJAC Act, 2014, unconstitutional, and upheld the collegium system as the primary mechanism for judicial appointments.

COLLEGIUM SYSTEM VS. NJAC

Collegium System: This method relies on the recommendations of senior judges. However, it has been criticized for its lack of transparency, accountability, and susceptibility to nepotism.
NJAC Act (2014): Aimed to replace the collegium system with a commission involving members from both the judiciary and the executive for a more balanced approach. However, the NJAC was declared unconstitutional by the Supreme Court in 2015, reinstating the collegium system.

CHALLENGES IN THE CURRENT JUDICIAL APPOINTMENT SYSTEM

Nepotism and Favoritism: The collegium system lacks clear guidelines for selecting judges, leading to concerns about nepotism and favoritism.
Misuse of Power: The judiciary holds immense power in appointing judges, leading to potential misuse.
Lack of Transparency: The system has been criticized for its opacity, which undermines public trust in the judiciary.
Inequitable Representation: Judicial appointments lack representation from marginalized communities. Data from 2018 to 2022 shows that 79% of High Court appointments were from the general category.
Social Diversity Issues: The collegium system has not effectively addressed social diversity in higher judiciary appointments.
Judicial Vacancies: India currently has 332 vacant High Court judge positions out of a total sanctioned strength of 1,114.

Gender Imbalance: Only 13% of High Court judges are women, highlighting a significant gender gap.

PROPOSED REFORMS FOR THE JUDICIARY

Consultation and Consensus: Engage all stakeholders, including the judiciary, legislature, civil society, and Bar Associations, in a discussion on reforming judicial appointments.

Inclusive Representation: Prioritize the inclusion of marginalized sections of society, including women, in judicial appointments.

Reforming the Memorandum of Procedure (MoP): Update the MoP to enhance transparency and accountability in the appointment process.

Creating a Cadre of Public Service for Retired Judges: Establish a pool of retired judges who can be appointed to various constitutional and statutory positions.

Comprehensive Judicial Reform: Address broader issues such as high litigation costs, inconsistent judicial outcomes, and enforcement of contracts.

INTERNATIONAL COMPARISONS AND BEST PRACTICES

United Kingdom: The Judicial Appointments Commission oversees judicial nominations, incorporating members from the judiciary, legal academia, politicians, and laypersons.

United States: The President nominates Supreme Court judges, who are then confirmed by the Senate.

Germany: Judicial appointments involve both the executive and legislative branches, ensuring a balanced approach.

CONCLUSION

A balanced approach to judicial independence, transparency, and efficiency is essential for reforming India's judicial appointment process. Collaborative efforts among all stakeholders will be crucial in achieving a more equitable and effective judiciary.

PUBLIC HEALTH POLICY CHALLENGES IN INDIA

India's public health sector has faced criticism after the Union Budget for insufficient focus on the social sector, revealing diverse challenges across different social strata.

INTRODUCTION

India's health sector is grappling with a complex set of challenges due to rapid socio-economic changes and an evolving disease burden.

Despite significant progress since independence, India's healthcare remains a critical issue. Achieving universal healthcare is challenging due to the country's demographic, geographic, and socio-economic diversity. While targeted government initiatives have successfully reduced mortality rates and controlled communicable diseases, the burden of Non-Communicable Diseases (NCDs) continues to rise.

KEY HEALTH NEEDS IN INDIA

Diseases of Poverty

1. **Communicable Diseases:** Persistent issues include HIV/AIDS, tuberculosis (TB), and malaria.
2. **Malnutrition:** Impacts a significant portion of the population, particularly children and pregnant women.
3. **Maternal and Child Health:** High rates of maternal and infant mortality remain a critical concern.

Environmental Challenges

1. **Pollution:** Air and water pollution pose severe health risks.
2. **Sanitation:** Inadequate sanitation facilities contribute to various health problems.
3. **Climate Change:** Alters disease patterns and exacerbates health risks.

Curative Care

1. **Non-Communicable Diseases (NCDs):** Rising prevalence of conditions like heart disease, cancer, diabetes, and chronic respiratory diseases.
2. **Long-Term Care:** Increased demand for ongoing medical care and management of chronic conditions.

KEY STAKEHOLDERS

Government and Policymakers: Responsible for policy formulation, resource allocation, and addressing diverse health needs.

Public Health Experts: Provide technical insights and shape health policies through evidence-based recommendations.

Private Healthcare Sector: Focuses on secondary and tertiary care but is often costly and inaccessible to poorer populations.

Vulnerable and Poor Populations: Experience significant health inequities and are most impacted by inadequacies in public health systems.

Middle and Upper-Class Citizens: Rely more on private healthcare but still require a strong public health infrastructure for comprehensive coverage.

CHALLENGES AND OPPORTUNITIES

Loss of Trust in Healthcare Providers: Trust deficits in both public and private sectors due to high costs and inadequate services.

Inadequate Infrastructure: Rural health facilities suffer from poor infrastructure, shortages of medical staff, and lack of essential resources. Strengthening primary healthcare is critical.

Overreliance on Private Sector: Public sector deficiencies lead to dependence on costly private services. Enhancing capacity in government hospitals is essential.

Market Regulations: Unregulated private sector leads to price gouging and variable care quality. Improved regulatory mechanisms are needed.

ECONOMIC IMPACT

Health Insurance Coverage: Limited coverage leads to financial strain from medical expenses. High out-of-pocket costs push many into poverty.

Commercialization of Healthcare: Profit-driven private hospitals exacerbate financial barriers to care. Government schemes like Pradhan Mantri Jan ArogyaYojana (PMJAY) offer some relief but do not address infrastructure deficiencies adequately.

SOCIAL IMPLICATIONS

Health Disparities: Widening gaps in healthcare access and outcomes between different social groups. The shift from preventive to curative care in primary health centres affects basic health service delivery.

Preventive and Promotive Care: Neglect of preventive measures like vaccination and health education leads to persistent health issues and affects overall population health.

GOVERNMENT SCHEMES
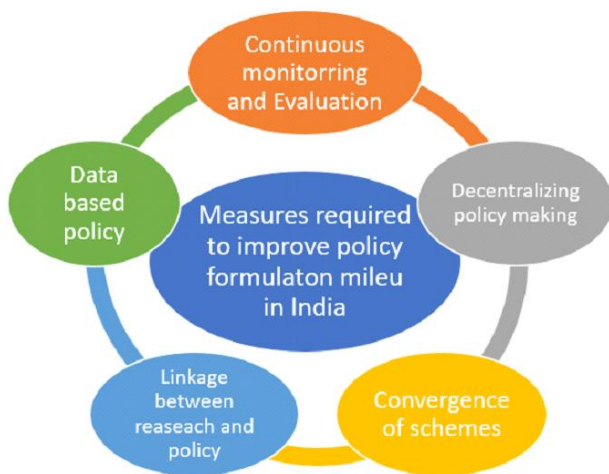
Pradhan Mantri Jan ArogyaYojana (PMJAY): Provides health coverage for economically disadvantaged families, focusing on secondary and tertiary care.

Health and Wellness Centres (HWC): Aims to offer comprehensive primary healthcare and promote preventive measures.

Public Funded Health Insurance (PFHI) Schemes: Designed to reduce financial burdens for vulnerable populations but often lack wide-reaching impact.

INTERNATIONAL BEST PRACTICES

Comprehensive Health Insurance: Universal coverage models in other countries ensure access to necessary health services without financial strain.

Strengthening Public Healthcare: Successful systems in Europe emphasize robust public health infrastructure at all levels to ensure equitable access.

Balanced Healthcare Approach: Integrating preventive, promotive, and curative care within primary healthcare systems, as seen in other countries, should be applied in India.

WAY FORWARD

Addressing Diverse Health Needs: Tailor health policies to the specific needs of various social groups, especially vulnerable populations.

Strengthening Public Sector Care: Invest in public institutions for secondary and tertiary care to reduce dependence on private providers and lower out-of-pocket costs.

Restoring Trust in Public Health Institutions: Improve infrastructure and care quality in public facilities to rebuild trust and ensure equitable access.

Promoting Preventive Healthcare: Focus on preventive measures to reduce disease burden and alleviate pressure on health services.

CONCLUSION

India's health sector is at a crucial juncture, facing the dual challenge of addressing immediate health needs while preparing for future demands. By adopting a comprehensive approach that integrates preventive and curative care, strengthens public health infrastructure, and ensures equitable access, India can build a more robust and inclusive health system. The ongoing economic, demographic, and epidemiological transitions necessitate a forward-thinking strategy to effectively address these challenges and improve overall health outcomes for the population.

PRELIMS IN-BRIEF BI-WEEKLY

HISTORY

Guru Padmasambhava

Name: Guru Padmasambhava (also known as Guru Rinpoche)

Era: 8th century

Region: Ancient India, with significant impact in Tibet and the Himalayan region

Contributions:

- Revered figure in Buddha Dhamma and Tibetan Buddhism
- Credited with spreading Buddhism to the Himalayan belt, including regions such as India, Nepal, Pakistan, Bhutan, Bangladesh, and Tibet
- Known for his role in founding Tibetan Buddhism in Tibet (arrived in 749 A.D.)

Teaching Location: Nalanda, a renowned centre of Buddhist studies in India

Cultural Impact:

- Integrated various cultural elements including Yogic and Tantric practices
- Influenced meditation, art, music, dance, magic, folklore, and religious teachings

Saora Tribe

Location: Primarily in Odisha; also found in Andhra Pradesh, Jharkhand, Madhya Pradesh, and Assam.

Language: Sora, a Munda language; has its own script called SorangSompeng.

Physical Characteristics: Show racial affinity to Proto Australoid traits, common among Central and Southern Indian aborigines.

Religion: Worship a variety of gods and spirits; intricate religious practices and customs; traditional tattooing practice called 'Tantangbo'.

Economic Classes:

- **Sudha Saora:** Engage in wet cultivation, wage earning, and firewood selling.
- **Lanjia Saora:** Practice shifting and terraced cultivation on hill slopes.

Settlement Pattern:

- No specific settlement pattern; houses are scattered.

- Megaliths erected for deceased kin are nearby.
- Village guardian deity, Kitungsum, is installed at the village entrance.
- Typical house: One-roomed, thatched, with stone and mud walls, low roof, high plinth, front verandah, and walls colored with red earth.

Thanjavur Veena

Types:

- **Ekantha Veena:** Carved from a single block of wood.
- **Sada Veena:** Composed of three sections— resonator (kudam), neck (dandi), and head, with joints.

Construction Material: Made from fresh bark of the Jack Fruit Tree, which undergoes multiple rounds of testing.

Frets: Features 24 fixed frets (Mettu) to accommodate all ragas.

Production Time: Takes approximately 15-20 days to complete, involving cutting, carving, shaping, and assembling.

Types of Veena:

- **Hindustani Classical Music:**Rudra veena, Vichitra veena.
- **Carnatic Classical Music:** Saraswati veena, Chitra veena.

Unique Aspect: Thanjavur is renowned for the manufacture of the Saraswati veena. Saraswati, the goddess of learning and arts, is traditionally depicted with a veena.

Konyak Tribe

Geographical Distribution: Primarily found in the Mon district of Nagaland and the Tirap and Changlang districts of Arunachal Pradesh, India.

Etymology

Name Origin: The term 'Konyak' is derived from 'Whao' (head) and 'Nyak' (black), translating to 'men with black hair'.

Social Structure

- **Thendu**: "Tattooed Face" group.
- **Thentho**: "White Face" group.
- **Patriarchy**: The society follows a patriarchal system where the eldest son inherits the paternal property.
- **Ethnic Origin**: Mongoloid.
- **Religion**: Approximately 95% of the Konyak population adheres to Christianity.
- Language
- **Linguistic Classification**: The Konyak language is part of the Northern Naga subgroup within the Sal branch of the Sino-Tibetan family.

Major Festivals:

- **Aolingmonyu**: Celebrates the arrival of spring.
- **Aonyimo**: Marks agricultural activities.
- **Laoun-ongmo**: A traditional festival with cultural significance.

Enemy Property Act 1968

Definition of Enemy: A country (and its citizens) that has committed external aggression against India, specifically Pakistan and China.

Enemy Property: Property belonging to or managed on behalf of an enemy, enemy subject, or enemy firm, including properties left behind by individuals who became citizens of Pakistan or China after leaving India during partition or after the 1962 war.

The Enemy Property (Amendment and Validation) Bill, 2016:

- **Amendments:** Expanded definitions of "enemy subject" and "enemy firm" to include legal heirs and successors of enemies, regardless of nationality. Enemy property remains vested in the Custodian even if the enemy or their legal heir ceases to be an enemy due to various reasons (death, change of nationality, etc.).
- **Impact:** The amended law continues to vest enemy properties in the Custodian despite

changes in the enemy status of individuals or firms.

- **Distribution of Enemy Properties in India:**
  - Maximum number in Uttar Pradesh: 4,991.
  - Bengal: 2,735.
  - Delhi: 487.

GEOGRAPHY

Madeira River

Major Tributary: Of the Amazon River.

Formation: Junction of the Mamoré and Beni rivers at Villa Bella, Bolivia.

Course: Flows northward and forms the border between Bolivia and Brazil for approximately 100 km (60 miles).

Basin:

Area: Encompasses approximately 1,300,000 square kilometers (502,000 square miles), covering about 19% of the Amazon Basin.

Distribution: Approximately 50% in Bolivia, 40% in Brazil, and 10% in Peru.

Significance:

- **Hydrological Role:** Crucial to the Amazon Basin's hydrology.
- **Ecosystem:** Supports diverse flora and fauna as a vital component of the region's ecosystem.

Eturunagaram Wildlife Sanctuary

Established: Declared a wildlife sanctuary in 1953.

Location: Borders Maharashtra, Chhattisgarh, and Telangana.

Rivers:

- **Dayyam Vagu:** A perennial river flowing through and dividing the sanctuary into two parts.
- **Godavari River:** Also passes through the sanctuary.

Vegetation: Tropical dry deciduous type.

Notable Event: Hosts Sammakkka Sarakka Jathra, one of Asia's largest tribal festivals, held every two years.

Pilibhit Tiger Reserve (PTR)

Location: Pilibhit District, LakhimpurKheri District, and Bahraich District, Uttar Pradesh

Geography:

- Lies along the India-Nepal border
- Located in the foothills of the Himalayas and the Terai plains
- River Gomti originates here
- ShardaSagar Dam is on the boundary of the reserve

Chital (Spotted Deer)

Distribution: Indian subcontinent (India, Sri Lanka, Bangladesh, Bhutan, Pakistan)

Habitat: Subtropical grasslands and forests

Physical Characteristics:

- **Lifespan:** 20 to 30 years
- **Height:** ~35 inches; **Weight:** ~187 pounds
- **Color:** Reddish brown with white spots
- **Antlers:** Present only in males; males are larger than females

Behavior:Social animals, often found in herds of 10 to 50

Diet: Primarily grasses, herbs, shrubs, foliage, and fruits

Conservation Status:IUCN Red List: Least Concern

Uri-I Hydroelectric Project

Location: Jhelum River, Jammu & Kashmir.
Commissioned: 1997.
Installed Capacity: 480 MW
Ownership: Central Government.

Operating Company: National Hydroelectric Power Corporation Limited (NHPC).

Jhelum River:
Flow Path: Originates from Verinag Spring, Anantnag, Kashmir Valley; flows through Srinagar, Wular Lake; enters Pakistan, joins Chenab River near Trimmu.
Major Tributaries: Kishenganga (Neelum) River, Kunhar River, Sandran River, Bringi River, Arapath River, Watlara River, Lidder River, Veshaw River.
Significance: Main waterway of Kashmir Valley, largest and most western river of the five Punjab rivers.

Cocoa Tree

Importance: Grown primarily for chocolate production.
Origin: Native to the Amazon basin of South America.
Geographic Range: Grows between 20° north and south of the equator in humid tropics, including West Africa and South America.
Required Climatic Conditions:

- **Altitude:** Can be cultivated up to 300 meters above mean sea level.
- **Rainfall:** Requires 1500-2000 mm of annual rainfall.
- **Temperature:** Ideal temperature range is 15°C-39°C, with an optimum of 25°C.
- **Soil:** Prefers deep, well-drained soils; commonly grown on clay loam and sandy loam soils. Optimal pH range is 6.5 to 7.0.
- **Shade Requirement:** Thrives as an under-storey crop with about 50% of light available in plantations.

Major Producing Regions:

- **Global:** Approximately 70% of the world's cocoa beans come from four West African countries: Ivory Coast, Ghana, Nigeria, and Cameroon.

- **India:** Cultivated primarily in Karnataka, Kerala, and Tamil Nadu, often intercropped with Arecanut and Coconut.

Bandipur Tiger Reserve

Location: Situated in Mysore and Chamarajanagar districts of Karnataka. Geographical confluence of the Western and Eastern Ghats.

Boundaries:

- **North-West:** Nagarahole Tiger Reserve (separated by Kabini Reservoir).
- **South:** Mudumalai Tiger Reserve.
- **South-West:** Wayanad Wildlife Sanctuary.
- **Rivers:** Kabini River to the north, Moyar River to the south.

History:

- Established in 1931 as Venugopala Wildlife Park by the Maharaja of Mysore.
- Renamed and expanded as Bandipur Tiger Reserve under Project Tiger in 1973.

Part of: Nilgiri Biosphere Reserve (UNESCO World Heritage Site).

Fauna: Hosts the largest population of wild Asian elephants in South Asia.

IndOBIS:

Indian Ocean Biodiversity Information System (IndOBIS) is the Indian regional node of the global Ocean Biodiversity Information System (OBIS).

It is hosted by the **Centre for Marine Living Resources & Ecology (CMLRE), Kochi.**

IndOBIS collects data of taxonomically resolved marine species occurrence records from the Indian Ocean and contributes to the OBIS as one of the 30 regional nodes of the Ocean Biodiversity Information System OBIS.

What is OBIS?

- It is one of the largest **global repositories** of **information on marine species**, containing millions of records from thousands of datasets contributed by researchers, governments, and organisations worldwide.
- It provides detailed information on species distribution across the world's oceans, including data on their occurrence, habitats, and environmental parameters.

- It offers tools and services that allow users to search, visualise, and download biodiversity data.
- It is supported by a **network of nearly 30 regional nodes** contributing data while ensuring the data's quality and accessibility.
- It is a ready reference resource in marine science, conservation, and education.
- It has been **set up by** the **Intergovernmental Oceanographic Commission** (IOC) of UNESCO for promoting marine science, conservation, and sustainable development.
- It is now an integral component of the International Oceanographic Data and Information Exchange (IODE) of IOC.

Krishna River

Location and Importance: The Krishna River is located in south-central India. It is the fourth-largest river in India by water inflows and basin size, following the Ganga, Godavari, and Brahmaputra.

Course:

- **Origin:** The Krishna River rises in the Western Ghats of western Maharashtra, near the town of Mahabaleshwar, approximately 64 km from the Arabian Sea.
- **Path:** It flows through the states of Maharashtra, Karnataka, Telangana, and Andhra Pradesh.
- **Destination:** It empties into the Bay of Bengal at Hamasaladeevi in Andhra Pradesh.

Geographical Boundaries:

- **North:** Bounded by the Balaghat range.
- **South and East:** Bounded by the Eastern Ghats.
- **West:** Bounded by the Western Ghats.
- Tributaries:
- **Right Bank Tributaries:** Ghatprabha, Malprabha, Tungabhadra.

- **Left Bank Tributaries:** Bhima, Musi, Munneru.

SCIENCE & TECHNOLOGY

BPaLM Regimen

Purpose: New treatment regimen for multi-drug-resistant tuberculosis (MDR-TB).

Introduced By: Union Health Ministry under the National TB Elimination Program (NTEP).

Composition: Combines four drugs:

- Bedaquiline
- Pretomanid
- Linezolid
- Optionally, Moxifloxacin

Approval: Pretomanid was approved and licensed for use in India by the Central Drugs Standard Control Organization (CDSCO).

Efficacy:

- Safer and more effective compared to traditional MDR-TB treatments.
- All-oral regimen with a low overall pill burden, enhancing patient compliance.
- Cure rate for drug-resistant TB in six months, compared to up to 20 months with previous treatments.
- Associated with fewer side effects.

Agni-4 Missile

Type: Intermediate-range ballistic missile.

Launch Site: Integrated Test Range, Chandipur, Odisha.

Operational Control: Conducted under the Strategic Forces Command, part of India's Nuclear Command Authority (NCA).

Features:

- **Range:** Up to 4,000 kilometres.

- **Length:** 20 metres.
- **Payload Capacity:** 1,000 kg.
- **Firing Platform:** Road-mobile launcher.
- **Missile Type:** Surface-to-surface.
- **Propulsion:** Mobile, two-stage solid-fuel system.

Development: Designed and developed by the Defence Research and Development Organisation (DRDO).

Valley Fever (Coccidioidomycosis)

Caused by the fungus *Coccidioides.*

Found in soil in southwestern U.S., south-central Washington, Mexico, and parts of Central and South America.

Transmission: Inhalation of fungal spores from dust or disturbed soil.

Symptoms: Can be asymptomatic or mild; severe cases can lead to pneumonia, pleural effusion, empyema, ARDS, hydropneumothorax, disseminated coccidioidomycosis, or coccidioidal meningitis.

Treatment: Mild cases often resolve on their own; severe cases require antifungal medications.

Fluoxetine

Definition: Fluoxetine is a common antidepressant medication.

Mechanism of Action: Inhibits the reuptake of serotonin by nerve cells (neurons), thereby increasing serotonin levels in the brain.

Uses:

- Treats depression
- Manages panic disorders
- Addresses anxiety
- Helps with obsessive-compulsive symptoms

Effects on Male Guppy Fish:

- **Low Concentrations**:
  - Reduced activity levels
  - Increased refuge-seeking behaviour
  - Altered body condition
  - Enlarged reproductive organs
  - Reduced sperm velocity
  - Suppressed behavioural plasticity, limiting flexible responses to the environment
- **High Concentrations**:
  - Increased variation in body condition between individuals
  - Increased variation in sperm numbers

Implications:

- Potential impacts on mating success and reproductive fitness in polluted waters
- Effects on behavioural and reproductive metrics may have ecological significance

Foot-and-Mouth Disease (FMD)

Definition: Severe, highly contagious viral disease of livestock with significant economic impact.

Affected Animals: Cattle, swine, sheep, goats, and other cloven-hoofed ruminants.

Susceptibility: Intensively reared animals are more susceptible than traditional breeds.

Disease Status: Transboundary animal disease (TAD) affecting livestock production and disrupting trade; not a human health or food safety threat.

Virus: Aphthovirus, family Picornaviridae.

Strains: Seven strains (A, O, C, SAT1, SAT2, SAT3, Asia1), endemic in different regions.

Immunity: Immunity to one strain does not protect against other strains or subtypes.

Transmission:

- Found in all excretions and secretions from infected animals.
- Aerosolized virus from breathing can infect others via respiratory or oral routes.

Impact: Severe production losses; animals often recover but may remain weakened and debilitated.

Vaccines: Available but must match the specific virus type and subtype.

Acetanilide

Physical Properties: White, odourless solid

Chemical Relation: Related to acetic acid

Historical Use:

- Introduced in 1886 as a fever-reducing drug.
- Effective for pain relief; used as an alternative to aspirin for treating headaches, menstrual cramps, and rheumatism.

Toxicity: Excessive or prolonged use can cause toxic side effects by interfering with haemoglobin function.

Metabolism:

- Primarily converted to acetaminophen (paracetamol) in the body.
- Acetaminophen has largely replaced acetanilide due to fewer blood disorder risks.

Industrial Use: Used as an intermediate in producing dyes, rubber, and other chemicals.

Metal-Organic Frameworks (MOFs) and 2D Materials

Definition: Uniformly structured porous materials that are multifunctional coordination polymers.

Features:

- Large surface area
- High functionality
- Versatile optoelectronic properties

Applications:

- Solid-phase extraction
- Electrochemical and optical sensors
- Detection of bacteria, aflatoxins, heavy metals
- Development into disposable electrodes, optical kits, fiber optic sensors, colorimetric strips

Zombie Fungus and Tarantulas

Scientific Name: Ophiocordycepsunilateralis

Characteristics:

- Drains host of nutrients and fills host body with spores for reproduction
- Seizes control of host's mind and motor functions before consuming the host's body

Hosts:

- Primarily infects insects such as ants and spiders
- Commonly targets carpenter ants

Tarantulas

Species: Over 900 species worldwide (except Antarctica)

Physical Characteristics:
- Large, hairy spiders
- Adult tarantulas average 5 inches (13 cm) in body length;

Behavior:
- Move slowly on eight hairy legs
- Nocturnal predators

SamudraPratap:

The vessel will help to **check the oil spillage** in the country's sea coast.

The ship was launched and named as **'SamudraPratap'**.

It is built by Goa Shipyard Limited (GSL) for the Indian Coast Guard.

It is the first time these types of vessels are being designed and built indigenously in India.

Features
- It boasts a length of 114.5 meters, a breadth of 16.5 meters, and a displacement of 4,170 tons. The vessel will be manned by 14 officers and 115 sailors and is equipped with state-of-the-art technology for pollution control.
- Notably, it features side-sweeping arms to contain oil spills while in motion, an advanced radar system for **oil spill detection**, and facilities **to recover and store various types of oil.**

Significance: The vessel is a crucial addition to the Indian Coast Guard's fleet, enhancing its capacity to manage oil spill response operations in India's Exclusive Economic Zone (EEZ) and beyond.

Rule 170 of the Drugs and Cosmetics Act (2018)

Purpose: Governs the manufacture, storage, and sale of Ayurvedic, Siddha, and Unani medicines to control inappropriate advertisements.

Introduction: Implemented in response to a parliamentary standing committee's concerns about misleading claims in advertisements.

Advertising Restrictions: AYUSH drug manufacturers must obtain approval and a unique identification number from the state licensing authority before advertising.

Required Submissions: Manufacturers must provide textual references, rationale from authoritative books, evidence of safety, effectiveness, and quality.

Rejection Criteria: Application may be rejected for:
- Absence of contact details.
- Obscene or vulgar content.
- Products promoting enhancement of sexual organs.
- Use of celebrity or government official endorsements.
- References to government organizations.
- Misleading or exaggerated claims.

Digital Bus Initiative

Joint Venture: National Digital India Mission and NIIT Foundation.

Started: 2017

Objectives:
- Bridge the digital divide in remote areas.
- Link communities to government programs and initiatives.
- Enhance learning interest and introduce a multidisciplinary approach to education.
- Promote collaborative learning and interpersonal skill development.
- Raise technology awareness in rural communities.
- Provide equal opportunities for rural youth.

Features of the Buses:
- Solar-powered and 5G-enabled.
- Fully equipped classrooms with computers, Internet access, and camera/video facilities.
- Preinstalled e-courses available free of cost.

Focus of Courses:
- Fundamental skills such as using e-mail, the Internet, and applications.
- Career programs to assist beneficiaries in finding jobs in nearby cities or towns.

Digital Agriculture Mission

Objective: Support digital agriculture initiatives, including the creation of Digital Public Infrastructure (DPI), implementation of the Digital General Crop Estimation Survey (DGCES), and other IT initiatives by various governmental and research entities.

Major Components of DPI:
- **AgriStack:** A farmer-centric DPI with three key registries:

- **Farmers' Registry:** Provides digital identity ('Farmer ID') linked to land records, livestock ownership, crops sown, demographics, and scheme benefits.
- **Crop Sown Registry:** Records details of crops planted by farmers through mobile-based Digital Crop Surveys each season.
- **Geo-referenced Village Maps:** Links geographic data on land records with physical locations.
- **Krishi Decision Support System (DSS):** Creates a geospatial system integrating remote sensing data on crops, soil, weather, and water resources for crop map generation, drought/flood monitoring, and yield assessment.
- **Soil Profile Maps:** Detailed maps (1:10,000 scale) of approximately 142 million hectares of agricultural land, with an inventory of 29 million hectares already completed.

India Semiconductor Mission (ISM):

Affiliation: A specialized Business Division within the Digital India Corporation.

Objective: Build a semiconductor and display ecosystem to establish India as a global hub for electronics manufacturing and design.

Responsibilities: Catalyze India's semiconductor ecosystem in manufacturing, packaging, and design with full administrative and financial powers.

Advisory Board: Composed of leading global experts in semiconductors.

Role: Acts as the nodal agency for schemes under the Semicon India Programme.

Semicon India Programme:

Launch Year: 2021.

Governing Body: Ministry of Electronics and IT (MeitY), Government of India.

Purpose:
- Provide financial support to companies investing in semiconductor and display manufacturing, and design.
- Promote indigenous Intellectual Property (IP) generation.
- Facilitate and incentivize Technology Transfer (ToT).

Key Schemes:

- **Semiconductor Fabs Scheme:** Establish semiconductor fabrication units in India.
- **Display Fabs Scheme:** Set up display fabrication units in India.
- **Compound Semiconductors/Silicon Photonics/Sensors Fab Scheme:** Develop compound semiconductors, silicon photonics, sensors fabs, and Semiconductor Assembly, Testing, Marking, and Packaging (ATMP)/OSAT facilities.
- **Design Linked Incentive (DLI) Scheme:** Encourage design activities linked to semiconductor and display technologies.

Grom-E1 Missile:

Origin: Developed by Russia, unveiled in 2018.

Base: Derived from the Soviet-era Kh-38 air-to-surface missile.

Type: Combines features of a missile and an aerial bomb.

Features:
- **Maximum Range:** 120 km (75 miles) when launched from an altitude of 12 km (7.5 miles) at a speed of 1,600 km/h (994 mph).
- **Warhead:**
  - **Standard:** High-explosive modular with a contact detonator.
  - **Variant:** Thermobaric design capable of detonating at high altitudes.
- **Weight:**
  - **Bomb:** 594 kg (1,310 pounds).
  - **Warhead:** 315 kg (694 pounds).
- **Altitude Impact:** At an altitude of 5 km, the range decreases to approximately 35 km.
- **Deployment:** Compatible with Russian aircraft including MiG-35, Su-34, Su-35, Su-57, and certain helicopters.

DRUG REPURPOSING

Definition: Drug repurposing (also known as drug repositioning or drug reprofiling) involves using an existing drug or drug candidate for a new treatment or medical condition different from its original indication.

Purpose:
- Identifies new therapeutic uses for existing or investigational drugs.
- Aims to leverage drugs with established safety profiles and known therapeutic benefits for new indications.

Process:
- Often serendipitous and unexpected.
- Focuses on compounds that have already been tested for other conditions.

Applications: Used in treatment development for rare diseases, oncology, infectious and autoimmune diseases, among others.

Significance: Reduces development timelines and costs compared to new drug development from scratch.

Su-30MKI

Development and Manufacturer: The Su-30MKI is a multirole combat fighter aircraft developed jointly by the Sukhoi Design Bureau and Hindustan Aeronautics Limited (HAL) for the Indian Air Force (IAF).

Design Features: Based on the Su-30 fighter aircraft, the Su-30MKI is equipped with thrust vectoring control and canards.It is classified as a fourth-generation fighter jet.

Engine Specifications: The aircraft is powered by two AL-31FP aero engines, which are high-temperature turbojet bypass engines of modular design.

Armament: The Su-30MKI fleet is equipped with the air-launched version of BrahMos supersonic cruise missiles, with successful testing completed in November 2017.

Avionics: It features a Tarang Radar Warning Receiver (RWR) that has been indigenously developed by the Defence Research and Development Organisation (DRDO).

Flight Range: The Su-30MKI has a maximum unrefuelled flight range of 3,000 km.

With in-flight refuelling, its range extends to 8,000 km with two refuellings.

Manufacturer: The aircraft is manufactured by Hindustan Aeronautics Limited (HAL).

EXERCISE Varuna

Type: Bilateral naval exercise.
Countries Involved: India and France.
Initiation Year: 1993.
Significance:
- Exercise Varuna symbolizes the strategic and defense partnership between India and France.
- It is a key component of the India-France strategic bilateral relationship.

Current Details:
2024 Edition Location: Mediterranean Sea.
Focus: Advanced tactical exercises emphasizing the interoperability and synergy between the two navies.
Key Participants:
Indian Navy: INS Tabar and the P-8I aircraft.
P-8I Aircraft: Known for maritime surveillance and anti-submarine warfare.
Objective: The exercise aims to enhance joint operational capabilities and reflect the growing complexity of the naval cooperation between India and France.

Central Industrial Security Force (CISF)

Establishment: Set up on 10 March 1969; made an armed force on 15 June 1983.
Current Strength: More than 188,000 personnel.
Headquarters: New Delhi, directly under the Union Ministry of Home Affairs.
Organizational Structure:
- **Head:** Director-General (an Indian Police Service officer).
- **Assisted by:** Additional Director-General (an IPS officer).
- **Sectors:** Seven (Airport, North, North-East, East, West, South, and Training).

Additional Wing: Fire Service Wing.
Key Functions:
- **Security Coverage:** Critical infrastructure including nuclear facilities, space establishments, airports, seaports, and power plants.
- **Airport Security:** Assigned in 2000 following the hijacking of Indian Airlines Flight IC-814.
- **Additional Responsibilities:** Protection of government buildings, heritage monuments,

Delhi Metro, Parliament House Complex, Central Jails of Jammu and Kashmir.

- **VIP Security:** Provides round-the-clock protection to important individuals.
- **Fire Protection:** Only CAPF with a dedicated fire wing.
- **Private Sector:** Expanded post-Mumbai attack in 2008 to include private corporate security and consultancy.

Public Interface: CISF is the only CAPF with a daily public interface, managing security at airports, Delhi Metro, and iconic monuments.

NARROW SPECTRUM ANTIBIOTICS

Classification of Antibiotics:

- **Narrow-Spectrum Antibiotics:** Target a specific group of bacteria.
- **Range:** Act on either gram-positive or gram-negative bacteria, but not both.
- **Usage:** Employed when the specific causative organism is known to minimize disruption to normal flora and reduce antibiotic resistance.
- **Examples:** Azithromycin, Clarithromycin, Erythromycin.

Gram Staining and Bacteria Classification:

- **Gram-Positive Bacteria:**
  - **Cell Wall:** Thick peptidoglycan layer.
  - **Staining:** Retain violet dye and stain violet.
  - **Infections:** MRSA, strep infections, toxic shock syndrome.
- **Gram-Negative Bacteria:**
  - **Cell Wall:** Thin peptidoglycan layer surrounded by an outer membrane with lipopolysaccharides.
  - **Staining:** Dye leaks out, staining red.
  - **Infections:** Salmonella, pneumonia, urinary tract infections, bacterial meningitis, gonorrhea.
- **Clinical Relevance:**
  - **Gram Staining:** Helps in identifying bacterial types and guiding appropriate antibiotic treatment.
  - **Resistance:** Narrow-spectrum antibiotics help avoid the spread of drug-resistant infections by targeting specific bacteria.

Narrow-Spectrum Antibiotics:

Definition: Antibiotics that target a specific group of bacteria.

Activity: Effective against either Gram-positive or Gram-negative bacteria, but not both.

Usage: Prescribed when the exact bacterial cause of an infection is identified.

Impact on Normal Flora: Preserved, as they affect fewer bacterial types compared to broad-spectrum antibiotics.

Resistance: Lower risk of contributing to the development of antibiotic-resistant strains.

Examples: Azithromycin, Clarithromycin, Erythromycin.

Technical Textiles

Definition: Textile materials and products used for their technical performance and functional properties rather than aesthetic or decorative qualities.

Alternative Terms: Industrial textiles, functional textiles, performance textiles, engineering textiles, invisible textiles, hi-tech textiles.

Applications: Used in various industrial sectors including earthworks, construction, civil engineering, transport, defense, medical, and healthcare.

Uses:

- **Individually:** For specific functions, such as fire-retardant fabric for uniforms and coated fabrics for awnings.
- **As Components:** To enhance strength, performance, or other functional properties in other products.

Fibres: Made from both natural and man-made fibres.

Classification: 12 major groups based on application areas: Agrotech, Geotech, Buildtech, Mobiltech, Hometech, Clothtech, Indutech, Meditech, Sportstech, Protech, Packtech, Oekotech.

Vishvasya Blockchain Technology Stack

Purpose: Provides Blockchain-as-a-Service (BaaS) with a focus on permissioned blockchain applications.

Hosting: Operated across NIC Data Centers located in Bhubaneswar, Pune, and Hyderabad.

Components

- **NBFLite**: A lightweight blockchain platform.
- **Praamaanik**: A blockchain-based solution for mobile app authenticity verification.

Applications

- **e-Stamps Solution**: Digital management and verification of stamp documents.
- **Judiciary Application**: Enhances management within the judicial system.
- **IPS Officers Training Record**: Manages service level training records for IPS officers.
- **Forensic Application**: Facilitates forensic data management and verification.
- **Consent Management Framework**: Manages consent for various processes and transactions.
- **IoT Device Security**: Ensures security and management of Internet of Things (IoT) devices.
- **Cotton Bale Tracking**: Tracks and identifies cotton bales throughout the supply chain.
- **Domicile Certificate Chain**: Digital management of domicile certificates.
- **Document Chain**: Includes chains for various certificates, such as caste certificates.
- National Blockchain Framework (NBF)

Key Features

- **Vision**: Establishes reliable and secure digital platforms.
- **Infrastructure**: Built on a distributed network.

Core Components

- **Distributed Infrastructure**: Underpins the framework's operation.
- **Core Framework Functionality**: Central functionalities enabling blockchain operations.
- **Smart Contracts & API Gateway**: Facilitates automated contract execution and integrates various services.
- **Security, Privacy & Interoperability**: Ensures secure, private, and interoperable blockchain interactions.

POLITY

Review Petition

Definition: To examine a judgment or order again.

Article 137 (Supreme Court): Empowers the Supreme Court to review its judgments or orders.

Article 226 (High Courts): Allows High Courts to review judgments for breaches of law or violations of the Constitution.

Grounds for Review Petition (Supreme Court, 2013 ruling):

- Discovery of new and important evidence not previously available.
- Mistake or error apparent on the face of the record.
- Any other sufficient reason analogous to the above grounds.

Who Can File: Not limited to parties to a case; any aggrieved person can seek a review.

Time Frame: Must be filed within 30 days of the date of judgment or order.

Procedure:

- **Filing:** Petition should outline grounds and include legal arguments and precedents.
- **Consideration:** Typically reviewed without oral arguments, except in exceptional cases.
- **Circulation:** Sent to the same bench that delivered the judgment, or any competent Court if the original bench is unavailable.

Outcome: If dismissed, a Curative Petition can be filed for further relief.

Narcotics Control Bureau (NCB)

The Union Home Minister recently inaugurated the zonal office of the Narcotics Control Bureau (NCB) in Raipur, Chhattisgarh.

About Narcotics Control Bureau (NCB):

- **Establishment:** The NCB was constituted on 14th November 1985 under the Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985.
- **Type:** It is the nodal drug law enforcement and intelligence agency in India, operating under the Ministry of Home Affairs.
- **Headquarters:** Located in New Delhi.

Functions and Powers:

- **Coordination:** The NCB coordinates actions across various offices, state governments, and authorities under the NDPS Act, Custom Act, Drugs and Cosmetics Act, and other relevant laws for enforcement against drug trafficking and abuse.
- **International Obligations:** It implements India's countermeasures against illicit drug trafficking in compliance with international conventions and protocols.
- **Assistance and Cooperation:** The NCB assists foreign authorities and international

organisations in preventing and suppressing illicit drug trafficking globally.

- **Domestic Coordination:** It also coordinates actions with other ministries, departments, and organisations concerning drug abuse and trafficking.

Enforcement Role:

- The NCB operates through its zonal offices, which:
  - o Data Collection
  - o Trend Analysis
  - o Intelligence Sharing
  - o Collaboration: Work closely with Customs, State Police, and other law enforcement agencies.

Election Commission of India (ECI)

The Election Commission of India (ECI) recently concluded the 18th LokSabha elections and announced dates for Assembly polls in Jammu and Kashmir and Haryana, reaffirming its role in ensuring transparent, free, and fair elections in India.

About the Election Commission of India (ECI):

- **Constitutional Foundation:**
  - o **Established under:** Article 324 of the Indian Constitution
  - o **Primary Role:** Conducts elections for Parliament, state legislatures, and the offices of the President and Vice President of India.
  - o **Exclusions:** Does not oversee elections for urban local bodies like municipalities and panchayats (managed by State Election Commissions).
- **Constitutional Provisions:**
  - o **Article 324:** Empowers ECI to supervise, direct, and control electoral processes.
  - o **Article 325:** Prohibits exclusion from electoral rolls based on religion, race, caste, or sex.
  - o **Article 326:** Establishes adult suffrage (voting rights for all citizens aged 18 and above).
  - o **Articles 327 & 328:** Empower Parliament and state legislatures to make laws regarding elections.

  - o **Article 329:** Prohibits judicial interference in electoral matters.
- **Functions and Jurisdiction:**
  - o **Advisory Role:** Advises the President/Governor on disqualification of MPs/MLAs.
  - o **Quasi-Judicial Role:** Disqualifies candidates for not submitting election expenses, resolves disputes about political party recognition and election symbols.
  - o **Administrative Role:** Manages delimitation, voter registration, electoral rolls, election scheduling, and ensures compliance with the Model Code of Conduct.

National Company Law Appellate Tribunal (NCLAT)

Constitution: Established under Section 410 of the Companies Act, 2013, with effect from 1st June 2016.

Purpose: To expedite corporate dispute resolution and enhance transparency and efficiency in corporate governance and insolvency processes.

Functions:

- Hear appeals against orders of the National Company Law Tribunal (NCLT) under Section 61 of the Insolvency and Bankruptcy Code, 2016 (IBC).
- Hear appeals against orders of the Insolvency and Bankruptcy Board of India (IBBI) under Sections 202 and 211 of the IBC.
- Hear appeals against decisions of the Competition Commission of India (CCI).
- Hear appeals against orders of the National Financial Reporting Authority (NFRA).
- Provide advisory opinions on legal issues referred by the President of India.

Headquarters: New Delhi.

Composition: Chairperson and judicial and technical members appointed by the Central Government based on expertise in law, finance, accountancy, management, and administration.

Disposal of Cases: Must dispose of appeals within six months from receipt. Decisions can be appealed to the Supreme Court.

Powers: Regulate its own procedures; powers similar to those of a civil court under the Code of Civil

Procedure, 1908; no jurisdiction for civil courts over matters authorized to NCLAT.

New Flag and Insignia of the Supreme Court of India

Flag Details

- **Color**: Blue.
- **Design Elements**:
- **Ashoka Chakra**: Symbol of India's heritage.
- **Supreme Court Building**: Represents the institution itself.
- **Constitution of India**: Symbolizes the foundation of legal authority.

Insignia

- **Text**:
    - English: 'Supreme Court of India'.
    - **Sanskrit**: 'Yato Dharmastato Jayah'
- **Translation of Sanskrit Phrase**: "Where there is Dharma, there is victory" or "Victory lies where righteousness prevails."

Concept and Design

- **Designer**: National Institute of Fashion Technology (NIFT), Delhi.
- **Flag Variants**: Includes cross table flat, single table flag, pole flag, and wooden frame.

Significance

- **Phrase Meaning**: Reflects the core values of justice and righteousness upheld by the Supreme Court.

Public Accounts Committee (PAC)

Purpose: To audit and review the revenue and expenditure of the Government of India.

Primary Function: Examines the audit reports of the Comptroller and Auditor General (C&AG) after they are presented to Parliament.

Role of C&AG: Assists the PAC during investigations to ensure transparency and accountability in government spending.

History and Evolution

- **Genesis**: Established in 1921, making it one of the oldest Parliamentary Committees in India.
- **Early Years**: Initially chaired by the Finance Member with secretarial functions managed by the Finance Department.
- **Post-1950 Changes**: After the Constitution of India came into effect on January 26, 1950, the PAC became a Parliamentary Committee under the Speaker's control. Its secretarial

functions were transferred to the Lok Sabha Secretariat.

Composition:

- Up to 22 members.
- 15 members elected by Lok Sabha.
- Up to 7 members elected by Rajya Sabha.

Election Process: Members are elected annually using the principle of proportional representation by single transferable vote.

Term: Members serve a term of one year.

Chairperson: Appointed by the Speaker from among the Lok Sabha members. Since 1967-68, a Member of the Opposition has been appointed as Chairperson.

Restrictions: Ministers cannot be members of the PAC. If a member is appointed as a Minister, they cease to be a member of the PAC.

SOCIAL JUSTICE

VisioNxt Initiative:

Description: India's first trend insights and forecasting initiative, focused on the Indian fashion and retail market.

Establishment: Conceived at NIFT Delhi (Creative Lab) and NIFT Chennai (Insights Lab) with support from the Ministry of Textiles, Government of India, in 2018.

Centralization: Now centralized in Chennai.

Mission: To identify, map, and analyze geo-specific trends reflecting India's cultural diversity and socio-economic nuances.

Services: Offers trend-related consultancy, academic courses, workshops, and fashion trend forecasts.

Technology: Combines Artificial Intelligence (AI) and Emotional Intelligence (EI) to generate insights.

Significance: Reduces dependence on global forecasting agencies, provides unique insights into Indian fashion consumers, integrates IT with textiles, and combines AI with human intelligence.

Accessibility: Reports available in Hindi and English via the VisioNxt portal.

Notable Development: Introduction of the "DeepVision" prediction model to decode and interpret fashion trends in India.

Upcoming Launch: "Paridhi," the first inclusive fashion trend forecast by VisioNxt, along with a web portal to disseminate India-specific fashion trends.

SAMRIDH Scheme

Full Form: Software Products Accelerated Growth for MSMEs and Startups (SAMRIDH).

Launched: August 2021.

Objective: To support and accelerate IT-based startups.

Focus: Provides customer connect, investors connect, and access to international markets.

Eligibility for Accelerators:

- Must be a registered Section-8 Society or Not-for-Profit Company with operations in India.
- Should have more than 3 years of experience and have supported over 50 startups (with at least 10 receiving external investment).
- Must have experience running startup program cohorts.

Implementation: Managed by MeitY Start-up Hub (MSH) and Digital India Corporation (DIC).

Centralized Pension Payment System (CPPS)

National-level centralized system for pension payouts. Replaces the decentralized system where EPFO Zonal/Regional Offices have limited arrangements with banks.

Eligibility for Pension

- Must be a member of EPFO.
- Must have completed 10 years of service.
- Must be at least 58 years old (or 50 years for early withdrawal at a reduced rate).
- Can defer pension up to age 60 for an additional 4% per year.

Implementation: Part of EPFO's IT modernization project Centralized IT Enabled System (CITES 2.01), launching on 1st January 2025.

Benefits

- Simplifies pension disbursement across India.
- Eliminates the need for transferring Pension Payment Orders (PPO) when relocating or changing banks.
- Estimated to benefit over 78 lakh EPFO EPS pensioners.

e-Shram Portal

Launch Year: 2021

Launched by: Ministry of Labour and Employment

Purpose: Registration and creation of a comprehensive National Database of Unorganized Workers

Features:

- **Aadhaar Integration:** Registration is Aadhaar verified and Aadhaar seeded.
- **Self-Declaration Basis:** Unorganised workers can register themselves.

Occupations: Covers over 400 occupations across 30 broad sectors.

Integration: Connected with National Career Service (NCS) Portal, Skill India Digital Hub (SIDH), myScheme portal, and Pradhan Mantri Shram Yogi Mandhaan (PMSYM) scheme.

Objective: Facilitate access to various social security schemes for unorganised workers.

AgriSURE Fund

Name and Objective: The AgriSURE Fund, also known as the Agri Fund for Start-ups & Rural Enterprises, aims to revolutionize the agricultural landscape in India by focusing on technology-driven and high-impact ventures.

Focus Area: The fund primarily targets technology-driven innovations, high-risk ventures, and impactful projects in agriculture and rural enterprises.

Funding Structure:

- The fund is a Blended Capital Fund with a total corpus of ₹750 crore.
- Contributions include ₹250 crore from the Government of India, ₹250 crore from NABARD, and ₹250 crore mobilized from banks, insurance companies, and private investors.
- It is classified under SEBI Registered Category II, Alternative Investment Fund (AIF).

Key Objectives:

- Promote innovative, technology-driven initiatives in agriculture.
- Enhance the farm produce value chain.
- Create rural ecosystem linkages and infrastructure.
- Generate employment and support Farmers Producer Organisations (FPOs).

Focus Areas for Investment:

- IT-based solutions and machinery rental services for farmers.
- Encouraging entrepreneurship and driving sustainable growth in the agricultural sector.

Fund Management: NABVENTURES, a wholly-owned subsidiary of NABARD, will manage the AgriSURE Fund.

POSHAN TRACKER INITIATIVE

Objective and Purpose:

- **Primary Focus:** Identifying and addressing growth issues among children aged 0-6 years.
- **Tools Used:** Real-time monitoring, WHO growth charts.
- **Outcome:** Ensures optimal nutritional outcomes.

Role of Anganwadi Workers (AWWs): Evaluating children's health status and implementing interventions based on detected deviations from growth patterns.

Technological Integration: ICT Tools and Devices: Uses advanced ICT tools and Growth Measuring Devices (GMD) at Anganwadi Centers (AWCs) for accurate data collection and monitoring.

Real-Time Monitoring: Significantly improves child health outcomes under Mission Poshan 2.0.

Poshan Tracker App Features:

- **360-Degree View:** Provides comprehensive insights into Anganwadi Centre activities, service deliveries, and beneficiary management for pregnant women, lactating mothers, and children under six.
- **Digitization:** Automates and digitizes physical registers used by workers, enhancing the quality of work.
- **Smartphones for AWWs:** Anganwadi workers are provided smartphones through Government e-Market (GeM) for efficient service delivery.
- **Technical Support:** A nodal person is appointed in each state to assist with the app and resolve issues.
- **Accessibility for Migrant Workers:** Migrants registered in their original state can access schemes and services at nearest Anganwadi Centers.

Launched By: Ministry of Women and Child Development (MoWCD).

INTERNATIONAL RELATIONS

Forum on China-Africa Cooperation (FOCAC)

Established: 2000 to formalize the strategic partnership between China and African nations.

Summits: Held every three years, alternating between China and an African member.

Membership: Includes 53 African nations (all except Eswatini) and the African Union Commission.

Current Theme: "Joining Hands to Advance Modernization and Build a High-Level China-Africa Community with a Shared Future."

Focus of the Current Summit: State governance, industrialization, agricultural upgradation, and China's infrastructure financing through the Belt and Road Initiative (BRI).

LAOS

Location: Indochinese Peninsula, Southeast Asia; only landlocked country in Southeast Asia.

Borders:

- North: China
- Northeast and East: Vietnam
- South: Cambodia
- West: Thailand
- Northwest: Myanmar (Burma)

Highest Point: PhuBia

Major Rivers: Mekong River (forms part of the border with Myanmar and Thailand); Tha, Beng, Ou, Ngum, Kading, Bangfai, Banghiang, and Kong rivers are tributaries.

Mountain Ranges:

- Anna mite Range
- LuangPrabang Range

United Nations Security Council (UNSC):

Type: One of the five principal organs of the United Nations (UN)

Primary Responsibility: Maintenance of international peace and security

Charter Obligation: All Member States are obligated to comply with UNSC decisions

Functions:
- Determines threats to peace or acts of aggression
- Calls for peaceful resolution of disputes
- Recommends methods of adjustment or terms of settlement
- Can impose sanctions or authorize military action to restore international peace and security

Powers:
- Establishment of peacekeeping operations
- Imposition of international sanctions
- Authorization of military action through resolutions

Membership:
- **Permanent Members (P5)**: United Kingdom, China, France, Russia, and the United States (each with veto power)
- **Non-Permanent Members**: 10 members elected by the General Assembly for two-year terms
- **Distribution:** Five from Africa or Asia, one from Eastern Europe, two from Latin America, two from Western Europe or other regions

Headquarters: United Nations Headquarters, New York City

India-Japan 2+2 Foreign and Defence Ministerial Meeting

Free and Open Indo-Pacific:
- Commitment to a rules-based Indo-Pacific and support for ASEAN's central role.
- Emphasis on Quad cooperation and regional stability.

Defence and Security Cooperation:
- Strengthened by Japan's 2022 National Security Strategy.
- Progress in joint military exercises and technology cooperation.

- Update to the 2008 Joint Declaration to address current security challenges.

Technology:
- Transfer of Japan's UNICORN radar technology and exploration of future defence tech cooperation.
- Women, Peace, and Security (WPS):
- Support for the WPS agenda to enhance women's roles in peacekeeping and conflict resolution.

About 2+2 Meetings:
- High-level diplomatic dialogues between the foreign and defence ministers of two countries.
- These meetings focus on strategic, security, and defence issues to strengthen bilateral relations, resolve conflicts, and build partnerships.

India's 2+2 Partners:
- United States: The first dialogue occurred in 2018, replacing the Strategic and Commercial Dialogue to deepen strategic cooperation.
- Russia: The inaugural meeting was in 2021, focusing on a multipolar world order and regional/international issues.
- Other Partners: Australia, Japan, Brazil, and the United Kingdom. These meetings aim to enhance defence and security cooperation and align on strategic interests.

Historical Note:
- **Indian National Army (INA):** Formed in 1942 by Captain Mohan Singh with Indian POWs and Japanese support, aiming for independence from British rule.
- Dissolved by December 1942 due to disputes with the Japanese Army. Reorganized in July 1943 by Subhas Chandra Bose into the Azad Hind Fauj, uniting former INA soldiers and Indian volunteers.

Key Facts About Japan:
- **Location:** East Asia, Pacific Ocean; an archipelago of five main islands (Hokkaido, Honshu, Shikoku, Kyushu, Okinawa).
- **Geography:** Lies east of the Sea of Japan, bordered by China, North Korea, South Korea, and Russia. Extends from the Sea of Okhotsk in the north to the East China Sea and Taiwan

in the south. Known as the "Land of the Rising Sun."

- **Features:** Mountainous, with the Japanese Alps on Honshu and Mount Fuji as the highest peak. Located on the Ring of Fire, experiencing frequent earthquakes and having about 200 volcanoes.

Colombo Security Conclave (CSC)

Members: India, Bangladesh, Sri Lanka, Maldives, Mauritius.

Observer: Seychelles.

Core Objective: Promote regional security by addressing transnational threats and challenges.

Origin: Evolved from trilateral meetings between National Security Advisors (NSAs) and Deputy NSAs from India, Maldives, and Sri Lanka, starting in 2011.

Evolution:

- Initially known as the Trilateral for Maritime Security Cooperation.
- Experienced a standstill after 2014 due to tensions between India and the Maldives.
- Revived and rebranded as CSC in 2020, with Mauritius and Bangladesh joining as new members.

Key Focus Areas:

- Maritime safety and security.
- Countering terrorism and radicalisation.
- Combating trafficking and transnational organised crime.
- Cyber-security and protection of critical infrastructure.
- Humanitarian assistance and disaster relief.

Permanent Secretariat: Colombo.

NAMIBIA

Continent: Africa

Position: South-western coast of the African continent, in the Southern and Eastern Hemispheres.

Borders: South Africa, Botswana, Zimbabwe, Zambia, and Angola.

Coastline: Atlantic Ocean to the west.

Topographic Zones:

- **Namib Desert:** Coastal desert along the Atlantic Ocean.

- **Central Plateau:** Lies inland from the Namib Desert.
- **Kalahari Desert:** Located further east of the Central Plateau.

BRUNEI

Location and Borders:

- **Region:** Northern coast of Borneo Island, Southeast Asia.
- **Hemisphere:** Northern and Eastern hemispheres.

Borders:

- **Maritime:** South China Sea to the north.
- **Land:** Bordered by Malaysia on all other sides; divided into two parts by Malaysian State of Sarawak.
- **Maritime Borders:** Shares maritime borders with China and Malaysia.

Highest Mountain: Bukit Pagon, located along the border with Malaysia.

Rivers: Includes Belait, Pandaruan, and Tutong rivers.

Major Industry: Significant oil producer in Southeast Asia.

Interpol

- **Full Name**: International Criminal Police Organization (INTERPOL).
- **Common Name**: Interpol.
- **Function**: Facilitates international police cooperation for tackling cross-border terrorism, trafficking, and other crimes.
- **Headquarters**: Lyon, France.
- **Membership**: 195 member countries.
- **Official Languages**: Arabic, English, French, and Spanish.

Status

- **Independence**: Interpol is an independent international organization and is not part of the United Nations system.
- **Role**: Acts as a point of contact for international investigations but does not conduct its own criminal investigations.

Governance

- **General Assembly**:
  - o **Function**: Supreme decision-making body.
  - o **Composition**: One delegate per member country.
- **General Secretariat**:
  - o **Role**: Manages day-to-day operations.
  - o **Leadership**: Directed by a Secretary General appointed for a five-year term.
- **Executive Committee**:
  - o **Composition**: 13 members representing different global regions.
  - o **Function**: Oversees the implementation of General Assembly decisions and supervises the Secretary General's work.

ECONOMY

Goods Trade Barometer

Formerly Known As: World Trade Outlook Indicator.
Developed By: World Trade Organization (WTO).
Purpose: Provides real-time information on world trade trends.
Function:

- **Leading Indicator:** Signals changes in world trade growth 2-3 months ahead of merchandise trade volume statistics.
- **Composite Index:** Combines various trade-related indices to highlight turning points in world merchandise trade.

Readings:

- **100:** Indicates trade expansion in line with recent trends.
- **Greater than 100:** Suggests above-trend growth.
- **Below 100:** Indicates below-trend growth.

Update Frequency: Quarterly.

Financialisation

Definition: Increase in the size and importance of a country's financial sector relative to its overall economy.
Characteristics

- Greater influence of financial markets, institutions, and elites on economic policy and outcomes.

- Shift from traditional industrial activities to financial activities involving trading, management, and speculation of financial assets.
- Increasing diversity of transactions and market players, intersecting with various parts of the economy and society.

Historical Context: Occurred as countries shifted away from industrial capitalism.
Economic Impact

- Changes in the structure and operation of financial markets.
- Influences corporate behavior and economic policy.
- Results in higher income growth in the financial sector compared to other sectors of the economy.

National Test House (NTH)

Established: 1912.
Institutional Affiliation: Under the Ministry of Consumer Affairs, Food & Public Distribution.
Functions:

- India's largest multi-location multidisciplinary industrial central government testing laboratory.
- Provides testing, calibration, and quality evaluation services as per national and international standards.
- Offers technical consultancy across various sectors.

Specialty: Pioneering governmental entity in India for drone certification.
Branches: Kolkata, Mumbai, Chennai, Ghaziabad, Jaipur, Guwahati, and Varanasi.

Dispute Resolution Scheme

Objective: Reduce litigation and provide faster, cost-effective resolution for taxpayers.
Legal Basis: Established under Section 245MA of the Income-tax Act, 1961.
Mechanism: Disputes are resolved electronically through Dispute Resolution Committees (DRCs).
Eligibility Criteria:

- Disputed amount should not exceed Rs. 10 lakhs.
- Taxpayer's income for the relevant year must be below Rs. 50 lakhs.
- Dispute must not involve information from searches or international agreements.

Dispute Resolution Committees (DRCs):

- **Establishment**: DRCs are present in all 18 regions across the country.
- **Powers**: Can modify orders, reduce penalties, or waive prosecution.
- **Decision Timeline**: Required to decide within six months of receiving the application.

Anti-Dumping Duty

Definition: Protectionist tariff imposed on foreign imports priced below fair market value.

Purpose: To counteract unfair competition by protecting local businesses and markets.

Dumping: Selling products abroad at prices lower than in the home market.

WTO Regulations: The World Trade Organization permits anti-dumping measures if there is evidence of material injury to domestic industries.

Evidence Required: Proof of dumping, the extent of price undercutting, and the injury or potential injury to the domestic market.

Impact on Consumers: Anti-dumping duties can lead to higher prices for domestic consumers.

India's Process: Final decision on anti-dumping duties is made by the Ministry of Finance.

World Gold Council (WGC)

Role: Market development organization for the gold industry.

Type: Non-profit association established in 1987.

Members: Includes leading and innovative gold mining companies.

Purpose:

- Promote gold use and demand through marketing, research, and advocacy.
- Enhance the industry's growth and sustain existing gold consumption.

Headquarters: London, with additional operations in India, China, Singapore, and the USA.

Coverage: Serves markets representing about 75% of global gold consumption.

Functions:

- Provides comprehensive industry analysis and sets gold standards.
- Proposes policies to ensure fairness and sustainability in gold mining.
- Promotes gold use across various sectors and institutions.
- Supports research on new gold applications and products.

Notable Achievement: Creator of the first gold exchange-traded fund (ETF).

Navratna Status

Introduction: The Navratna status scheme was introduced in 1997 to enhance the performance and autonomy of certain Public Sector Undertakings (PSUs).

Criteria for Navratna Status:

- **Company Classification**:Must be a Miniratna-I, Schedule 'A' company.
- **Performance**:
  - Must have achieved an 'excellent' or 'very good' MoU rating in three of the last five years.
  - Must have a composite score of 60 in six performance indicators.
- **Financial Requirements**:
  - Report a net profit of more than ₹5,000 crores for three consecutive years.
  - Maintain an average annual turnover of ₹25,000 crores for three years.
  - Alternatively, have an annual average net worth of over ₹15,000 crores for three years.

Advantages of Navratna Status:

1. **Financial Independence**:
   - Ability to invest up to ₹1,000 crores without central government approval.
   - Can invest up to 15% of net worth in a single project or 30% in a given year, with a cap of ₹1,000 crores.
2. **Capital Expenditure**:
   - No monetary ceiling for capital expenditure on new purchases or replacements.
3. **Strategic Initiatives**:

o   Permission to enter into technology joint ventures or strategic alliances.

Vertical Fiscal Imbalance (VFI)

Vertical Fiscal Imbalance (VFI): The discrepancy where sub-national governments' spending needs exceed their own revenue sources.

Nature of VFI: Represents a situation where different levels of government experience a mismatch between their revenues and expenditures.

Resulting Issue: A fiscal gap in sub-national governments caused by an imbalance in the decentralization of revenue and expenditure responsibilities.

Vertical Fiscal Asymmetry (VFA): This term describes the structural issue where revenue and expenditure responsibilities are unevenly distributed across different levels of government.

Resolution

- **Correction**: VFI can be addressed by reassigning revenue and expenditure responsibilities more equitably.
- **Financial Transfers**: One common solution is to provide financial transfers from the Union government to state governments to bridge the revenue-expenditure gap.

Unified Pension Scheme (UPS)

Launch Date: The Unified Pension Scheme was introduced on August 24, 2024.

Replacement: The scheme replaces the National Pension System (NPS) with a structure closely resembling the Old Pension Scheme (OPS).

Contributions under the UPS:

Employee Contribution: Employees are required to contribute 10% of their salary.

Government Contribution: The government contributes 18.5% of the employee's salary.

Sustainability: The government's contribution may be adjusted based on periodic actuarial assessments to ensure the scheme's sustainability.

Transition from NPS to UPS:

National Pension System (NPS): Originally implemented for employees joining on or after January 1, 2004, the NPS linked pension pay-outs to the accumulated contributions invested in market-linked securities.

Switch Option: Employees who joined after 2004, including retirees, have the option to switch from NPS

to UPS, which is expected to benefit approximately 99% of NPS members.

Agriculture Infrastructure Fund (AIF) Scheme

The government has expanded the scope of the Agricultural Infrastructure Fund (AIF) scheme to enhance farm-related infrastructure facilities across the country.

Agriculture Infrastructure Fund (AIF) Scheme:

- **Launch Year:** 2020.
- **Type:** Central Sector Scheme.
- **Objective:** To provide medium- to long-term debt financing for investment in post-harvest management infrastructure and community farming assets through interest subvention and financial support.
- **Duration:** The scheme spans from FY 2020 to FY 2032 (10 years).
- **Exclusions:** Public Sector Undertakings (PSUs) are not directly eligible, but projects sponsored by them under PPP are eligible.

Pradhan Mantri Jan DhanYojana (PMJDY)

Pradhan Mantri Jan DhanYojana (PMJDY) celebrated its 10th anniversary on August 28, 2024 marking a significant achievement in promoting financial inclusion.

Key Points:

- **Launch Date:** August 28, 2014
- **Objective:** To provide universal access to banking services, including savings accounts, credit, insurance, and pensions.
- **Significance:** Backbone for Direct Benefit Transfers (DBTs) and several government schemes.

Account Features:

- **Zero-Balance Accounts:** No minimum balance required.
- **RuPay Debit Card:** Includes accident insurance coverage of up to ₹2 lakh.
- **Overdraft Facility:** Up to ₹10,000 available per household.

Recent Achievements:

- **Account Growth:** From 14.72 crore in March 2015 to 53.13 crore by August 2024.

- **Deposits:** Increased from ₹15,670 crore (March 2015) to over ₹2.31 lakh crore (August 2024).
- **Rural Focus:** 66.6% of accounts are in rural and semi-urban areas.

ECOLOGY & ENVIRONMENT

National Tiger Conservation Authority (NTCA)

Established: Created in 2005 and given statutory status under Section 38L of the Wild Life (Protection) Amendment Act, 2006.
Constituted By: Ministry of Environment, Forest, and Climate Change (MoEFCC).
Objectives:

- Provide statutory authority to Project Tiger for legal compliance.
- Enhance accountability of Center-State management of Tiger Reserves.
- Facilitate oversight by Parliament.
- Address livelihood interests of local communities around Tiger Reserves.

Composition:

- Minister in charge of MoEFCC (Chairperson).
- Minister of State in MoEFCC (Vice-Chairperson).
- Three members of Parliament, Secretary (MoEFCC), and other members.

Powers and Functions:

- Approve tiger conservation plans by State Governments.
- Maintain sustainable ecology and regulate land use in tiger reserves.
- Make and enforce tourism rules and guidelines for Project Tiger.
- Address human-animal conflicts and promote coexistence.

- Provide public information on conservation, tiger population, and habitat status.
- Coordinate research and monitoring of tigers.
- Support tiger reserve management and capacity-building programs.

Loss and Damage Fund (LDF)

Established: At the 2022 UNFCCC Conference (COP27) in Egypt.
Purpose: To provide financial support for both economic and non-economic losses caused by climate change.
Economic Losses: Quantifiable impacts such as costs for rebuilding infrastructure or loss of agricultural revenue.
Non-Economic Losses: Impacts that are difficult to quantify, such as trauma, community displacement, or loss of biodiversity.
Oversight: Managed by a Governing Board; the World Bank serves as the interim trustee for four years.
Support Mechanism: Provides grants and concessional financing.
Contributions: Encourages voluntary contributions from both developed and developing countries.

Poba Reserve Forest

Location: North-eastern Assam, India
Establishment: Created in 1924
Boundaries:

- **North**: Foothills of the Himalayan range in Arunachal Pradesh
- **East and South**: Confluence of the Siang, Dibang, and Lohit Rivers into the Brahmaputra River, and adjacent to Dibru-Saikhowa National Park
- **West**: Revenue villages of Jonai Sub-division, Dhemaji district of Assam

Ecological Significance:

- Important migratory route for elephants
- Connects **D' Ering Memorial Wildlife Sanctuary (Arunachal Pradesh)**, **KabuChapri Proposed Reserve Forest**, and **Dibru-Saikhowa National Park (Assam)**
- Second significant elephant migration route from the north to the south bank of the Brahmaputra River (other route: Panpur-Kaziranga)

Phrynarachne decipiens

Common Name: Phrynarachne decipiens is commonly known as the bird dung or bird-dropping crab spider.

Distribution:

- Originally known from Malaysia and Indonesia (Java and Sumatra).
- Newly recorded in India from Assam's Sonapur in Kamrup (Metropolitan) district and Chirang Reserve Forest in Kokrajhar district.

Habitat and Appearance:

- Typically found lying motionless 1-2 feet above ground on the upper side of broad leaves.
- Its chalky white color and web deposition on leaves mimic bird droppings, making it difficult to spot.

Features: Notable for its stout spermathecae (a sac-like organ in the female reproductive tract), where posterior heads are nearly touching each other.

Part of the genus Phrynarachne, which includes 35 accepted species.

Species Recorded in India: In addition to P. decipiens, three other species – P. ceylonica, P. ceeliana, and P. tuberosa – have been recorded and re-described from Assam.

Food Recovery to Avoid Methane Emissions (FRAME) Methodology

Objective and Focus:

- **Purpose:** Quantifies avoided emissions and co-benefits from redirecting food loss and waste to direct human consumption.
- **Methodology:** Focuses on food recovery and redistribution operations to avoid methane emissions.

Development and Partnerships:

- **Developed By:** The Global Food Banking Network (GFN) in collaboration with the Global Methane Hub and the Carbon Trust.
- **Origins:** Initially piloted in Mexico and Ecuador, analyzing six community-led food banks.

Global Methane Hub:

- **Mission:** A philanthropic organization focused on reducing global methane emissions and increasing financial resources for methane reduction efforts.
- **Contribution:** Donated $10 million to the Climate and Clean Air Coalition (CCAC) to support 30 countries in developing methane reduction plans.

Arnoux's Beaked Whale

Scientific Name: Berardius arnuxii

Common Name: Arnoux's Beaked Whale

Cetacean Family: Includes whales, dolphins, and porpoises.

Physical Description

- **Size**: Can grow up to approximately 30 feet (9 meters) in length.
- **Body Shape**: Spindle-shaped, resembling dolphins.
- **Dorsal Fin**: Small, triangular, slightly hooked, located towards the rear of the body.
- **Coloration**: Predominantly dark brown with lighter shades on the head and undersides, featuring white patches.
- **Teeth**: Known as Southern four-toothed Whales due to the presence of four visible teeth in the lower jaw even when the mouth is closed.
- **Sexual Dimorphism**: Females are generally slightly larger than males.
- **Scarring**: Males often exhibit extensive scarring, particularly around the dorsal fin.

Behaviour and Social Structure

- **Group Size**: Typically found in groups of 6-10 individuals, with larger groups of up to 80 recorded.
- **Social Nature**: Gregarious species with a tendency to form cohesive groups.
- Distribution
- **Habitat**: Exclusive to the Southern Hemisphere.
- **Range**: Circumpolar distribution in deep, cool temperate, and subpolar waters, from approximately 40°S to the Antarctic ice shelf edge (about 78°S).

IUCN Red List: Least Concern

Diving Abilities: Renowned for their exceptional diving skills.

Purandar Figs

India's first ready-to-drink fig juice made from GI-tagged Purandar figs has been exported to Poland with facilitation by the Agricultural and Processed

Food Products Export Development Authority (APEDA).

Purandar Figs:

- **GI Tag:** Awarded in 2016, Purandar figs are recognized for their quality and unique characteristics.
- **Cultivation:** Grown in Purandartaluka, Pune district, Maharashtra. Requires dry weather, hilly slopes, and well-drained medium land.
- **Soil:** Red and black soil in Purandar is rich in Calcium and Potassium, contributing to the figs' violet colour and size.
- **Features:** Bell-shaped, larger than other varieties, with distinctive violet skin. Contains more than 80% pulp with a pinkish-red colour, known for high nutritional value and rich in vitamins and minerals.

Agricultural and Processed Food Products Export Development Authority (APEDA):

- **Establishment:** Created by the Agricultural and Processed Food Products Export Development Authority Act of 1985.
- **Ministry:** Operates under the Ministry of Commerce and Industry.
- **Objective:** Develop and promote the export of scheduled products. Exporters of these products must register with APEDA.
- **Headquarters:** New Delhi

Functions:

- Setting standards and specifications for scheduled products.
- Registering exporters on payment of required fees.
- Improving packaging and marketing of scheduled products.
- Inspecting products to ensure quality.
- Providing training and development support related to scheduled products.
- Conducting surveys and feasibility studies.
- Collecting and publishing statistics.

Carrhotus piperus

A newly discovered jumping spider species.

Found on pepper (*Piper nigrum*) plants, approximately two metres above the ground.

Specific Epithet: 'piperus' reflects the plant's name and the spider's habitat.

Significance: Increases the number of known Carrhotus species in India to 10 and globally to 37.

Distinctive Features:

- Unique prolateral protrusion.
- Beak-shaped embolus.

Water Spinach (Ipomoea aquatica)

Native Region: Tropics and subtropics; first domesticated in Southeast Asia.

Cultivation:

- **Southeast Asia:** Commercially grown in Malaysia, China, Hong Kong, Singapore, and Indonesia.
- **India & US:** Grows as a wild weed, found along paddy fields, ponds, and rivers.

Season in India: Available around the monsoon season (July-August).

Local Names in India:

- West Bengal: Kalmi saag
- Uttar Pradesh: Naari ka saag
- Maharashtra: Nalichi-bhaji
- Tamil Nadu: Sarkaraivalli

Growth Conditions:

- Requires minimal care and grows quickly in waterways.
- Optimal growth conditions include non-saline and non-stagnant water.

Health Benefits:

- Contains beta carotene, calcium, vitamin E, iron, and ascorbic acid.
- High levels of phyto-antioxidants may help in mitigating doxorubicin-induced damage.
- Research indicates effectiveness against lead poisoning.

SELF EVALUATION BI-WEEKLY

PRELIMS

Q1. Which of the following statements regarding anti-dumping duties is/are correct?

1. Anti-dumping duties are designed to protect local businesses from foreign competition that sells products below domestic market value.
2. The World Trade Organization (WTO) does not permit the imposition of anti-dumping duties.
3. Anti-dumping duties can result in higher prices for domestic consumers.
4. In India, the decision to impose anti-dumping duties is made by the Ministry of Commerce.

Which of the statements given above is/are correct?

A. 1and 2 only
B. 1 and 3 only
C. 1, 3, and 4 only
D. 2 and 4 only

Q2. Which of the following countries share a border with Laos?

1. Thailand
2. Cambodia
3. Malaysia
4. Myanmar
5. China
6. Vietnam

Which of the statements given above is/are correct?

A. 1, 2,4, and 6 only
B. 1, 2, 3, and 5 only
C. 1, 4, 5, and 6 only
D. 2, 3, 5, and 6 only

Q3. Which of the following statements about Guru Padmasambhava (Guru Rinpoche) are correct?

1. Guru Padmasambhava is known as one of the founding fathers of Tibetan Buddhism and arrived in Tibet in 749 A.D.
2. He was a Tantrist and a member of the Yogācāra sect, and he taught at Nalanda in India.
3. He spread the message of Buddhism exclusively within the Indian subcontinent and did not reach the Himalayan regions.
4. Guru Padmasambhava's influence extended to various cultural practices including meditation, art, and dance.

Which of the statements given above is/are correct?

A. 1 and 2 only
B. 2 and 3 only
C. 1 and 4 only
D. 3 and 4 only

Q4. Which of the following statements regarding the United Nations Security Council (UNSC) are correct?

1. The UNSC has the authority to impose sanctions and authorize military action to maintain or restore international peace and security.
2. The UNSC consists of 15 members, including five permanent members with veto power and ten non-permanent members elected for a two-year term.
3. The permanent members of the UNSC are elected by the General Assembly every year.
4. The UNSC's decisions are not binding on UN Member States.

Which of the statements given above is/are correct?

A. 1 and 2 only
B. 2 and 4 only
C. 1, 2, and 3 only
D. 1 and 4 only

Q5. Which of the following statements about Pilibhit Tiger Reserve and Chital are correct?

1. Pilibhit Tiger Reserve is located along the India-Nepal border and is known for its dry teak forests and Vindhya mountain soils.
2. The Chital, or spotted deer, is found only in India and has a conservation status of Endangered on the IUCN Red List.
3. The flora of Pilibhit Tiger Reserve includes dense sal forests and diverse grass meadows maintained by periodic flooding.
4. Chital are social animals often found in herds and mainly feed on grasses, herbs, and fruits.

Which of the statements given above is/are correct?

A. 1 and 3 only
B. 1 and 4 only

C. 2 and 4 only

D. 3 and 4 only

Q6. Which of the following are true regarding the Navratna status for Public Sector Undertakings (PSUs)?

1. A PSU must be a Miniratna-I, Schedule 'A' company to qualify for Navratna status.
2. The company must achieve a net profit of over ₹5,000 crores for two consecutive years.
3. Navratna companies can invest up to ₹1,000 crores in a single project without central government approval.
4. The Navratna status allows for capital expenditure without any monetary ceiling.

Which of the statements given above is/are correct?

A. 1 and 3 only

B. 2 and 4 only

C. 1, 3, and 4 only

D. 1 and 2 only

Q7. Which of the following categories was not part of the Ramon Magsaysay Award from 1958 to 2008?

1. Government Service
2. Community Leadership
3. Business Innovation
4. Journalism, Literature, and Creative Communication Arts

Which of the statements given above is/are correct?

A. 1 and 2 only

B. 3 only

C. 2 and 3 only

D. 1, 2, and 4 only

Q8. Which of the following statements is/are correct regarding the Uri-I Hydroelectric Project and the Jhelum River?

1. The Uri-I Hydroelectric Project is situated on the Chenab River.
2. The Jhelum River is a major tributary of the Indus River.
3. The Uri-I Hydroelectric Project was commissioned in 2007.
4. The Jhelum River flows through Wular Lake before entering Pakistan.

Which of the statements given above is/are correct?

A. 1 and 3 only

B. 2 and 4 only

C. 1 and 4 only

D. 2 and 3 only

Q9. Which of the following statements is/are correct regarding Rule 170 of the Drugs and Cosmetics Act introduced in 2018?

1. Rule 170 was introduced to regulate advertisements for allopathic medicines.
2. Manufacturers of AYUSH medicines need to obtain approval from the state licensing authority before advertising their products.
3. Advertisements that include testimonials from celebrities or government officials are permissible under Rule 170.
4. The rule was introduced following recommendations from a parliamentary standing committee concerning misleading claims.

Which of the statements given above is/are correct?

A. 1 and 3 only

B. 2 and 4 only

C. 1 and 4 only

D. 2 and 3 only

Q10. Which of the following statements is/are correct regarding the Colombo Security Conclave (CSC)?

1. The CSC was originally known as the Trilateral for Maritime Security Cooperation.
2. The CSC includes Pakistan as a member state.
3. Seychelles is a member country of CSC.
4. The CSC focuses on issues such as cyber-security and humanitarian assistance.

Which of the statements given above is/are correct?

A. 1 and 4 only

B. 2 and 3 only

C. 1 and 3 only

D. 2 and 4 only

Q11. Which of the following statements is/are correct regarding the Saora tribe?

1. The Saora tribe is primarily located in the state of Andhra Pradesh.
2. They speak the Sora language, which uses the script SorangSompeng.
3. The Saora tribe's traditional tattooing practice is known as 'Tantangbo'.
4. Saora villages have a uniform settlement pattern with closely clustered houses.

Which of the statements given above is/are correct?

A.1 and 4 only

B. 2 and 3 only

C. 1 and 3 only
D. 2 and 4 only

Q12. Which of the following statements about the e-Shram portal is/are correct?

1. The e-Shram portal was launched by the Ministry of Labour and Employment in 2021 to create a National Database of Unorganized Workers.
2. Registration on the portal requires verification through a method other than Aadhaar.
3. The portal allows registration for workers in over 400 occupations across 30 sectors.
4. The e-Shram portal is integrated with the National Career Service (NCS) Portal and Pradhan Mantri Shram Yogi Mandhaan (PMSYM) scheme.

Which of the statements given above is/are correct?

A. 1 and 2 only
B. 1, 3, and 4 only
C. 2 and 3 only
D. 1 and 3 only

Q13. Which of the following statements about the Krishna River is/are correct?

1. The Krishna River originates near Mahabaleshwar in western Maharashtra and flows into the Bay of Bengal.
2. It is the second-largest river in India by water inflows and basin size.
3. The Krishna River Basin covers an area of approximately 258,948 square kilometers.
4. Its principal tributaries include the Ghatprabha and the Munneru, which join from the left bank.

Which of the statements given above is/are correct?

A. 1 and 3 only
B. 1, 3, and 4 only
C. 1, 2, and 3 only
D. 1 and 4 only

Q14. Which of the following characteristics is associated with Arnoux's Beaked Whale (*Berardius arnuxii*)?

A. Found exclusively in the Northern Hemisphere.
B. Noted for its brilliant diving abilities.
C. Typically observed in solitary individuals.
D. Exhibits a dorsal fin located towards the front of its body.

Q15. Which of the following applications is NOT associated with the Vishvasya Blockchain Technology Stack?

A. e-Stamps Solution
B. Judiciary Application
C. Cotton Bale Identification and Tracking
D. Mobile Payment Authentication System

Q16. Which of the following statements accurately describes Interpol?

A. Interpol is part of the United Nations system and operates under its directives.
B. It has 195 member countries and is headquartered in Paris, France.
C. Interpol is an independent organization, with its headquarters in Lyon, France, and does not conduct its own investigations.
D. The General Assembly of Interpol is composed of the Secretary General and the Executive Committee.

Q17. Which of the following statements about the Public Accounts Committee (PAC) is accurate?

A. The PAC was established after the enactment of the Constitution of India in 1950.
B. The Chairperson of the PAC is appointed by the President of India.
C. A Minister can be a member of the PAC if they were elected before their appointment as Minister.
D. The PAC reviews the audit reports of the Comptroller and Auditor General (C&AG) and is responsible for examining government expenditure.

Q18. Which of the following statements about Valley Fever (Coccidioidomycosis) is/are correct?

1. It is caused by a fungus found in soil.
2. It can be transmitted from person to person.
3. Severe cases may include symptoms such as pneumonia and acute respiratory distress syndrome (ARDS).
4. Treatment for severe cases typically involves antifungal medications.

Select the correct answer using the code below:

A. 1 and 2 only
B. 1 and 3 only

C. 2 and 4 only
D. 1, 3, and 4 only

Q19. Which of the following statements about the Centralized Pension Payment System (CPPS) is/are correct?

1. CPPS will replace the existing decentralized pension disbursement system used by EPFO.
2. CPPS will be implemented as part of the Centralized IT Enabled System (CITES 2.01) from January 2025.

Select the correct answer using the code below:

A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2

Q20. Which of the following statements about Carrhotus piperus is/are correct?

1. Carrhotus piperus is a newly discovered jumping spider species found on pepper plants.
2. It increases the known number of Carrhotus species in India to 10 and globally to 37.
3. The specific epithet 'piperus' is derived from the spider's habitat, not the plant.

Select the correct answer using the code below:

A. 1 and 2 only
B. 2 and 3 only
C. 1 only
D. 1, 2, and 3

Q21. Which of the following statements about the Forum on China-Africa Cooperation (FOCAC) is/are correct?

1. FOCAC was established in 2000 to formalize the strategic partnership between China and African nations.
2. The summit is held annually and alternates hosting between China and an African member.
3. The current summit will focus on topics including state governance, industrialization, and agricultural upgradation.
4. The African Union Commission is not a member of FOCAC.

Select the correct answer using the code below:

A. 1 and 3 only
B. 1 and 2 only

C. 1, 3, and 4 only
D. 1, 2, and 3 only

Q22. Which of the following statements about the Loss and Damage Fund (LDF) is/are correct?

1. The LDF was established at the 2022 UNFCCC Conference (COP27) in Egypt to support economic and non-economic losses caused by climate change.
2. Economic losses can be directly quantified in monetary terms, while non-economic losses are harder to assign a monetary value.
3. The LDF is overseen by a Governing Board, with the World Bank serving as the interim trustee.
4. Financial support from the LDF is only available as concessional financing and is limited to developed countries.

Select the correct answer using the code below:

A. 1 and 2 only
B. 1, 2, and 3 only
C. 1, 2, and 4 only
D. 1, 3, and 4 only

Q23. Which of the following statements about the National Test House (NTH) is/are correct?

1. NTH is under the Ministry of Consumer Affairs, Food & Public Distribution.
2. It was established in 1912 and is the largest multi-location central government's testing laboratory in India.
3. NTH offers services including testing, calibration, and quality evaluation but does not deal with drone certification.
4. NTH has branches in Kolkata, Mumbai, Chennai, Ghaziabad, Jaipur, Guwahati, and Varanasi.

Select the correct answer using the code below:

A. 1, 2, and 4 only
B. 1 and 2 only
C. 2 and 4 only
D. 1, 2, and 3 only

Q24. Which of the following statements about Technical Textiles is/are correct?

1. Technical textiles are designed primarily for their aesthetic and decorative characteristics.
2. They are used in various industrial sectors including construction, defense, and medical applications.

3. Technical textiles can be made from both natural and man-made fibres.
4. They are classified into 12 major groups, including Agrotech, Geotech, and Meditech.

Select the correct answer using the code below:
A. 2, 3, and 4 only
B. 1, 2, and 3 only
C. 1 and 4 only
D. 2 and 4 only

Q25. Which of the following statements about the National Company Law Appellate Tribunal (NCLAT) is/are correct?
1. NCLAT was established under the Companies Act, 2013, to hear appeals against orders of the National Company Law Tribunal (NCLT)

and the Insolvency and Bankruptcy Board of India (IBBI).
2. The NCLAT has the authority to regulate its own procedures and has powers similar to those of a civil court under the Code of Civil Procedure, 1908.
3. NCLAT decisions cannot be appealed to the Supreme Court.
4. NCLAT's advisory jurisdiction includes providing opinions on legal issues referred by the President of India.

Select the correct answer using the code below:
A. 1 and 2 only
B. 1, 2, and 4 only
C. 2 and 4 only
D. 1, 2, 3, and 4

MAINS

1. Critically evaluate the achievements and limitations of the SBM, and suggest strategies for ensuring its long-term sustainability and success.

2. India is yet to adopt a comprehensive AI policy. In light of the first legally binding AI Treaty, discuss India's position on AI regulation and the steps India can take to align itself with global AI governance standards.

3. Analyse India's strategic challenges in South Asia, particularly with China and Pakistan, and suggest measures to ensure regional stability and strategic autonomy.

4. Discuss the evolution and current challenges of the judicial appointment process in India. Critically

analyse the impact of the Collegium System and the National Judicial Appointments Commission (NJAC) Act on judicial independence and transparency. Suggest reforms to address the key issues in the current system, including representation, transparency, and efficiency.

5. Evaluate the current challenges and opportunities in India's healthcare system. How can strengthening public sector healthcare and promoting preventive care address these challenges? Suggest policy measures to improve health outcomes and ensure equitable access to healthcare.

SOLVED ESSAY BI-WEEKLY

SCIENCE IS THE POETRY OF REALITY

The phrase **"Science is the poetry of reality"** captures the profound relationship between the empirical and the imaginative aspects of human understanding. Science, at its core, is a systematic pursuit of knowledge about the natural world through observation, experimentation, and analysis. It reveals the intricate beauty and complexity of the universe, much like poetry unveils the depth of human emotions and experiences. This essay explores how science, akin to poetry, reflects the beauty and elegance of reality, enriches our understanding of the world, and inspires awe and wonder.

Science reveals the underlying elegance of nature through its discoveries and theories. Just as poetry uses language to express complex emotions and ideas in a nuanced and often lyrical way, science employs precise and methodical approaches to uncover the hidden patterns and principles governing the universe. For instance, the mathematical elegance of Einstein's theory of relativity or the profound simplicity of Newton's laws of motion mirrors the harmony and rhythm found in poetic expressions. These scientific breakthroughs do not merely solve problems; they reveal a deeper, often awe-inspiring order to the universe.

Science and poetry both share a common goal: to make sense of the world in a way that resonates with our sense of wonder. The natural world, with its diverse ecosystems, cosmic phenomena, and fundamental forces, is a source of endless fascination. Through the lens of science, we observe the intricate designs of fractals in snowflakes, the delicate balance of ecosystems, and the grandeur of celestial bodies. This exploration is akin to a poet's quest to capture the essence of nature's beauty through evocative imagery and metaphor. Both science and poetry offer a window into the marvels of existence, each in its own unique way.

Science, while grounded in empirical evidence and rational analysis, often intersects with the imaginative realm. Scientific theories and models, though based on data and observation, require a degree of creativity and intuition. For example, the concept of dark matter and dark energy, though not directly observable, has been proposed to explain cosmic phenomena. This interplay between empirical data and imaginative reasoning mirrors the way poetry combines tangible experiences with abstract notions to evoke emotion and meaning. Both disciplines challenge and expand our perceptions, pushing the boundaries of our understanding.

One of the most profound impacts of both science and poetry is their ability to inspire awe and wonder. The grandiosity of the cosmos, the complexity of biological systems, and the depth of human emotions all elicit a sense of amazement that transcends ordinary experience. Science provides us with a framework to appreciate the vastness of the universe and the intricacies of life, much like poetry allows us to connect with the human condition on a profound level. Both provoke a sense of wonder that encourages us to look beyond the mundane and appreciate the extraordinary aspects of existence.

Historically, science and poetry have influenced each other in various cultures. Ancient civilizations, such as those of Greece and India, integrated scientific inquiry with philosophical and poetic exploration. Figures like Aristotle and Kalidasa seamlessly blended scientific observation with literary and philosophical insights. This historical interplay highlights how the quest for knowledge and artistic expression are intertwined, each enriching the other and contributing to a deeper understanding of reality.

Science, like poetry, is a testament to humanity's quest to comprehend and appreciate the world around us. It reveals the elegance of natural laws, the beauty of the universe, and the intricate interplay between empirical evidence and imaginative insight. Both disciplines enrich our lives by expanding our understanding and inspiring a sense of wonder. As we continue to explore the frontiers of science, we uncover new dimensions of reality that resonate with the poetic nature of human curiosity and creativity. In this sense, science truly is the poetry of reality, capturing the profound beauty and complexity of the world in ways that both enlighten and inspire.

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