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CURRENT AFFAIRS COMPILATIONS

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GS 1

CULTURE

Decline of Dogri Language and Linguistic Heritage Preservation

Syllabus Relevance: GS-1: Indian Heritage and Culture (Indian languages, Art forms); **GS-2: Social Justice** (Protection of vulnerable groups, government schemes).

Context and Significance:

A recent study and media attention highlighted the alarming decline in the spoken use and literacy of the **Dogri language** in its traditional home, the Jammu region of Jammu and Kashmir. Dogri is an **Indo-Aryan language** and a proud member of the **Eighth Schedule** of the Indian Constitution (added in 2003), making its preservation a constitutional mandate.

The decline is symptomatic of a broader national crisis concerning the erosion of India's vast **linguistic diversity** due to modernization and the increasing dominance of major national and international languages in education and professional life.

Multi-Dimensional Analysis (Mains Perspective):

Cultural and Identity Loss: Language is the primary repository of a community's unique **culture, oral history, proverbs, and folk songs**. The decline of Dogri threatens the distinct **Dogra cultural identity** and the extinction of its unrecorded heritage. The loss is not just linguistic but a loss of a particular worldview.

Constitutional and Policy Failure: Despite its inclusion in the Eighth Schedule, the constitutional promise of promoting the language has not fully materialized. The lack of robust policy implementation, especially in **primary education** and **local administration**, acts as a major deterrent for its propagation. The Union government's commitment to cultural diversity is tested by such localized language crises.

Socio-Economic Pressures: Urbanization and migration have led to a preference for Hindi or English as the languages of commerce, higher education, and upward mobility. Parents often discourage children from speaking Dogri at home, fearing it will impede their academic and career success—a classic case of **instrumental value** superseding **cultural value**.

Data and Institutional Gaps: The absence of updated, granular **linguistic data** (due to delayed Census) hinders effective policy formulation and resource allocation for language development. Institutions like the Sahitya Akademi or the Dogri Sanstha, while dedicated, often lack the financial muscle and outreach required for a large-scale revival.

Positive and Negative – Government Scheme/Initiative:

Positive Efforts (Existing):

Eighth Schedule Status: Provides official recognition and support for development by the government.

Literary Promotion: Organizations like Sahitya Akademi publish and promote Dogri literature and poetry.

Media Presence: Limited presence in regional Doordarshan and All India Radio (AIR) programming.

Negative Aspects (Challenges):

Lack of Digital Content: Minimal online courses, digital archives, and presence on major social media platforms.

Educational Exclusion: Insufficient integration into the formal school curriculum beyond basic levels, especially in urban schools.

Low Economic Incentive: Not linked to any significant job opportunities in either the public or private sector, making it an economically non-viable language to invest time in learning.

Way Forward (Suggestions for Revival):

Digitalization and Archiving: Launch a mission for the **digital archiving and transcription** of all available Dogri manuscripts and oral traditions. Develop apps, online learning modules, and a dedicated Dogri digital library.

Effective Education Policy: Strict implementation of the **three-language formula**, making Dogri mandatory in schools in the region. Promote it as a medium of instruction at the primary level.

Incentivisation: Link proficiency in Dogri with **economic opportunities**, such as providing preference in state government jobs or supporting local tourism initiatives that use the language.

Media and Arts Promotion: Provide subsidies and state support for local Dogri films, music, theatre, and media production to enhance its visibility and appeal among the youth.

Inter-Generational Transfer: Encourage community-led initiatives for elders to teach the language to younger generations, bridging the gap between home and school.

Conclusion:

The decline of Dogri is a wake-up call for India's commitment to its **cultural federalism**. Preserving the language is not an act of nostalgia but a strategic necessity to maintain the nation's unique socio-cultural fabric. A revival strategy must be multi-pronged, blending **constitutional backing, digital modernization, and economic incentivization** to ensure Dogri's vitality in the 21st century.

Practice Mains Question:

Despite constitutional recognition, many regional languages in India, like Dogri, face an existential threat. Analyze the causes for this decline and suggest a comprehensive strategy for linguistic heritage preservation that balances cultural value with economic necessity. (15 Marks)

'Gyan Bharatam' Mission: Expanding Manuscript Conservation and Digitization

Syllabus Relevance: GS-1: Indian Heritage and Culture (Indian art forms, literature and architecture); **GS-2: Governance** (Government policies and interventions for development in various sectors).

Context and Significance:

The Ministry of Culture, through the National Mission for Manuscripts (NMM), signed Memorandums of Understanding (MoUs) with 17 institutions across India to accelerate work under the expanded **'Gyan Bharatam'** mission.

The mission aims for the comprehensive **conservation, cataloging, and digitization** of India's vast and unparalleled manuscript heritage. Manuscripts are primary sources of knowledge across literature, science, philosophy, and history, making their preservation a non-negotiable cultural imperative.

Multi-Dimensional Analysis (Mains Perspective):

Cultural and Intellectual Preservation: India has one of the largest manuscript collections globally (estimated at over 10 million). These manuscripts, written in various scripts and languages, hold the key to understanding India's ancient knowledge systems, from **Ayurveda and Vastu Shastra to astronomy and dramaturgy**. 'Gyan Bharatam' secures this intellectual wealth against loss due to decay, pests, or natural disasters.

Scientific and Technological Challenge: The conservation process is complex, requiring specialized skills to treat fragile materials (palm leaves, birch bark, handmade paper) using modern conservation science. The **digitization process** is equally challenging, requiring high-resolution scanning and standardized metadata tagging to make the content searchable and accessible across platforms.

Accessibility and Democratization of Knowledge: The ultimate goal is to move the manuscripts from inaccessible, often private collections, to a **public, digital repository**. This democratization of knowledge will enable scholars, students, and the general public worldwide to access primary Indian intellectual history, fueling research and cultural understanding.

Collaborative Federalism in Culture: The MoUs signed with 17 institutions, including universities, *maths*, and regional research centres, demonstrate a model of **decentralized, collaborative cultural preservation**. This recognizes that manuscripts are spread across various custodians and requires a national, yet locally sensitive, effort for success.

Positive and Negative – Government Scheme/Initiative:

Positive Outcomes:

Digital Preservation: Creates a permanent, secure digital backup against the destruction of physical copies.

Global Access: Makes India's ancient knowledge available to the global academic community, enhancing India's **soft power**.

Skill Development: Promotes the development of highly specialized skills in conservation science and manuscriptology.

Negative Outcomes:

Quality Control: Ensuring the consistency and quality of cataloging and digitization standards across 17 diverse institutions is a major challenge.

Resource Allocation: Manuscripts in private/temple collections, which are vast, may remain inaccessible due to ownership concerns or lack of adequate state resources for their acquisition/digitization.

Script Diversity: The sheer number of scripts and languages requires a vast, multi-lingual human resource team to transcribe and interpret.

Way Forward (Suggestions for Mission Success):

Standardized Metadata: Enforce a single, stringent national standard for **metadata and cataloging** (e.g., following international standards like Dublin Core) to ensure universal searchability and interoperability of the digital archive.

Public-Private Partnership: Incentivize private foundations, temples, and large families that hold significant private collections to partner with the NMM for digitization, offering tax breaks or conservation support in return for access.

Capacity Building: Establish specialized, nationally certified training centres for **Manuscript Conservation and Digital Humanities** to create a pipeline of skilled manpower for transcription and interpretation.

Conclusion:

The 'Gyan Bharatam' mission is a monumental task—a race against time to save India's primary intellectual sources. By broadening its network and leveraging digital technology, the mission is not just conserving the past, but **unlocking the intellectual foundations** for India's future as a knowledge-based society.

Practice Mains Question:

The 'Gyan Bharatam' mission is crucial for the preservation of India's intellectual heritage. Analyze the scientific and technological challenges involved in the conservation and digitization of manuscripts and discuss how the democratization of this knowledge can enhance India's soft power. (15 Marks)

Janjatiya Gaurav Varsh Pakhwada (Nov 1-15, 2025) Commences Nationwide

Syllabus Relevance:

GS-I (Indian Heritage & Culture): Salient aspects of art forms, literature, and architecture from ancient to modern times (Tribal culture).

GS-II (Social Justice & Welfare Schemes): Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes.

Context: The **'Janjatiya Gaurav Varsh Pakhwada'** (Tribal Pride Fortnight) commenced nationwide from November 1st to 15th, 2025, leading up to **Janjatiya Gaurav Diwas** (Tribal Pride Day) on November 15th, the birth anniversary of Bhagwan Birsa Munda. The event is a central government initiative aimed at celebrating the rich cultural heritage and historical contributions of India's tribal communities, particularly their pivotal role in the freedom struggle.

Main Body: Integrating Tribal Heritage into the National Narrative The Pakhwada utilizes a multi-dimensional approach to bridge the gap between tribal communities and the mainstream national narrative. The mission is two-fold: **Historical Recognition** and **Socio-Economic Empowerment**. For historical recognition, the fortnight focuses on organizing exhibitions, seminars, and cultural festivals to highlight the stories of unheralded tribal freedom fighters (like Birsa Munda, Tilka Manjhi, and Rani Gaidinliu), thereby integrating their legacy into school curricula and national memory. On the socio-economic front, the Pakhwada is used as a high-visibility platform to accelerate the implementation of key welfare schemes targeting tribal development. These include the **Pradhan Mantri Janjati Vikas Mission (PM-JVM)** for livelihood support, schemes for the development of **Van Dhan Vikas Kendras** (forest-based value addition and entrepreneurship), and ensuring the reach

of **Primitive Tribal Groups (PTG) Development Programmes**. Furthermore, the focus is on strengthening the implementation of the **Forest Rights Act (FRA), 2006**, to secure land and resource rights for forest-dwelling communities. The fortnight serves as a mechanism for the government to track progress and conduct *Jan Sunwai* (public hearings) to address grievances specific to tribal populations.

Positives/Negatives: Impact of the 'Pride' Initiative

Positives: Cultural Affirmation: The initiative provides much-needed national recognition and dignity to tribal cultures, countering historical marginalization. **Policy Convergence:** It serves to harmonize efforts across various Ministries (Tribal Affairs, Culture, Rural Development) towards a unified goal of tribal welfare. **Aspiration Generation:** By highlighting successful tribal entrepreneurs and leaders, it inspires younger generations to preserve their heritage while pursuing modern economic opportunities. The focus on *Gaurav* (Pride) is a positive psychological tool for social inclusion.

Negatives/Challenges: Tokenism Risk: There is a risk that the fortnight's efforts may be perceived as *tokenism* if not backed by sustained, year-round administrative focus and financial commitment. **Implementation Gaps:** Despite schemes, the actual delivery of entitlements, particularly regarding Community Forest Resource (CFR) rights under the FRA, remains slow and inconsistent across many states. **Homogenization:** Over-emphasizing a national 'Janjatiya' identity could potentially overlook the extreme diversity and unique needs of the thousands of different tribal groups, especially the Particularly Vulnerable Tribal Groups (PVTGs).

Way Forward: The symbolic nature of the Pakhwada must be converted into **permanent institutional mechanisms**. This requires **decentralizing fund allocation** and empowering tribal self-governance bodies, such as those under the **Panchayats (Extension to Scheduled Areas) Act (PESA)**. Furthermore, a concerted effort is needed to ensure **digital inclusion** for tribal youth through dedicated infrastructure and localized, language-friendly digital content. The Way Forward lies in making tribal communities **partners in conservation and development**, especially concerning ecological projects, recognizing their deep traditional knowledge of forest ecosystems.

Ministry of Culture Announces New Digital Archive for Tribal Art Forms Post-Janjatiya Pakhwada

Syllabus Relevance:

GS-I (Culture): Modern Indian history with respect to developments, issues, and protection of culture.

GS-II (Governance): E-governance and preservation of cultural heritage.

Context: Following the conclusion of the Janjatiya Gaurav Varsh Pakhwada (Topic 4 from the previous day's summary), the Ministry of Culture announced a major follow-up initiative on November 3rd: the launch of a comprehensive National Digital Archive of Tribal Art Forms and Oral Histories. This aims to systematically document and preserve the intangible heritage of India's diverse tribal communities.

Main Body – Multi-Dimensional Approach: The archive project employs technology to address preservation across cultural, educational, and economic dimensions:

Cultural Preservation (Intangible Heritage): The archive focuses on digitizing high-resolution images, 3D scans of artifacts, and—crucially—recording **oral histories** from tribal elders. This safeguards languages, rituals, and artistic techniques (like specific weaving patterns or folk songs) that are at risk of being lost due to migration and assimilation.

Accessibility and Education: By creating an **open-access digital repository**, the archive democratizes access to this rich heritage for researchers, students, and the global community. This transforms the documentation from a static government project into a dynamic educational resource, directly supporting the cultural mandate of the **New Education Policy (NEP)**.

Economic Linkage (GI Tags): The documentation process will systematically catalogue the origin and specific style of artworks. This detailed provenance information is vital for securing **Geographical Indication (GI) tags** for authentic tribal products, protecting local artisans from imitation and

ensuring they capture the full economic value of their traditional knowledge.

Positives/Negatives – Cultural Policy:

Positives: Historical Justice: It formally recognizes and records contributions marginalized communities have historically made to Indian culture. **Artisanal Empowerment:** The GI tag linkage provides a direct, sustainable livelihood mechanism for tribal artisans by ensuring intellectual property protection. **Disaster Proofing:** Digitization acts as an insurance policy against the physical loss of artifacts due to natural disasters or neglect.

Negatives/Challenges: Authenticity and Consent: Ensuring that the documentation process is conducted with the **free, prior, and informed consent** of the respective tribal councils is paramount. Poor documentation can lead to misattribution or cultural appropriation. **Digital Divide:** The success of the digital archive depends on the digital literacy of the artisans themselves to utilize the platform for marketing or licensing rights. **Maintenance:** Creating a digital archive is one thing; maintaining the complex digital infrastructure and regularly updating the records over decades requires a non-lapsing, dedicated budget and administrative structure.

Way Forward: The Ministry must establish Tribal Art Documentation Committees within each state's Tribal Welfare Department, comprising local cultural experts and community representatives, to oversee the validation and consent process. The archive platform must feature a licensing module that allows artisans to directly license their digitized works (like specific textile designs) for commercial use, ensuring a direct financial benefit flows back to the source community.

Practice Mains Question: To what extent can digital archiving serve as an effective tool for the preservation of intangible cultural heritage in India? Discuss the necessary safeguards to ensure that the documentation process respects the rights and consent of tribal communities.

150th Anniversary of Vande Mataram and National Integration

Syllabus

GS-I: Indian Culture – Salient aspects of Art Forms, Literature and Architecture from ancient to modern times.

GS-II: Role of civil services in a democracy.

Context

The formal launch of the year-long nationwide commemoration of the **150th anniversary of the composition of Vande Mataram** (written by **Bankim Chandra Chatterji in 1875**) has drawn attention to its role in India's freedom struggle and its status as a symbol of national identity and integration. The commemoration aims to reconnect the youth with the song's historical and cultural significance.

Main Body: Multidimensional Analysis

Historical and Cultural Dimension

Vande Mataram, meaning "Mother, I bow to thee," was first published in Chatterji's novel **Anand Math** (1882). It rapidly became the emotional rallying cry of the **Indian Nationalist Movement**, particularly during the **Swadeshi Movement (1905)** against the partition of Bengal. Its power lies in its spiritual and patriotic depiction of the motherland, transcending religious and linguistic divides to inspire a collective sense of nationhood. It was later recognized as the **National Song** of India.

Political and Integration Dimension

The song's status as a powerful political symbol during the freedom struggle often led to debates over its religious undertones, creating a division in the national movement, particularly after independence. The Constituent Assembly, recognizing the song's immense contribution, ultimately accorded it a status equal to the National Anthem (**Jana Gana Mana**). The commemoration is an opportunity to focus on the song's unifying message and its role in fostering **national integration** and celebrating India's composite culture, focusing on the shared struggle for freedom.

Commemoration and Outreach Dimension

The year-long program is a strategic outreach effort by the government to instill a deeper appreciation for India's heritage and foster **patriotism** among the youth. Activities often include academic seminars, musical renditions, and cultural programs aimed at

educating the public on the context and content of the song. The goal is to sustain the spirit of national unity symbolized by Vande Mataram, encouraging citizens to internalize the sense of duty and sacrifice it represents.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Historical Education:** Reinvigorates historical memory and educates the public about the song's pivotal role in the freedom struggle. **National Identity:** Strengthens the collective national identity and sense of shared heritage. **Cultural Promotion:** Promotes cultural and literary works that contributed to the birth of the nation.
Negatives	**Religious Overtones:** Potential to reignite past debates over the religious nature of some stanzas, risking division rather than integration. **Mandatory vs. Voluntary:** Care must be taken to ensure participation remains voluntary to prevent the commemoration from being perceived as political imposition. **Focus on Select Icons:** Overemphasis on one symbol risks overshadowing the contributions of other national icons and symbols.
Relevant Schemes	**Azadi Ka Amrit Mahotsav / Amrit Kaal:** The current phase of national celebration and consciousness-raising about India's history and future.

Relevant Examples

Constituent Assembly Debate (1950): The official declaration by President Rajendra Prasad that Vande Mataram would have equal status with the National Anthem.

Swadeshi Movement: The song became the signature tune of mass protest mobilization following the Partition of Bengal in 1905.

Way Forward

All-Inclusive Focus: Ensure the commemoration events highlight the song's **secular and unifying message**, focusing on its role as a common symbol for all freedom fighters.

Academic Outreach: Promote **objective historical and literary research** into the song's composition and its impact on the diverse regions and communities of India.

Youth Engagement: Utilize digital and social media platforms to conduct creative contests (e.g., modern musical interpretations, artistic renderings) to engage the youth in a contemporary context.

Local Language Versions: Encourage and promote versions of the song translated or interpreted in various **regional languages** to deepen its connection with linguistic diversity.

Conclusion

The 150th anniversary of Vande Mataram is a momentous occasion to reflect on the roots of Indian nationalism. By celebrating the song's powerful unifying spirit and recognizing its status as a shared national symbol, the commemoration can contribute meaningfully to strengthening the fabric of national identity and fostering a genuine sense of belonging among all citizens.

PHYSICAL GEOGRAPHY

Ecological Flow (E-Flow) in Himalayan Rivers and Hydropower Projects

Syllabus

GS-III: Conservation, environmental pollution and degradation, environmental impact assessment.

GS-I: Important Geophysical phenomena.

Context

A prominent environmental report highlighted the ongoing failure to effectively implement **"Ecological Flow" (E-Flow)** norms in major Himalayan rivers, particularly those with existing and planned hydropower projects. **E-Flow** refers to the minimum necessary flow of water required to sustain the river's ecosystem and maintain its ecological health and livelihood-supporting functions, which is severely compromised by damming and diversion for power generation.

Main Body: Multidimensional Analysis

Environmental and Conservation Dimension

Himalayan rivers (like the Ganga and its tributaries) are ecologically sensitive and critical for regional biodiversity. Reduced E-Flow downstream of dams drastically impacts **aquatic life** (fish, dolphins, turtles), reduces the river's capacity for **self-purification**, and disrupts the natural processes of sediment and nutrient transport. The loss of E-Flow transforms a flowing river into a series of static pools, fundamentally altering the entire riparian ecosystem and threatening species extinction.

Governance and Implementation Dimension

The government has issued notifications mandating a minimum E-Flow percentage (varying by season) for the upper reaches of the Ganga River system, particularly the Alaknanda and Bhagirathi. The main governance failure lies in **non-compliance** by many existing hydropower projects and the **lack of rigorous monitoring and enforcement** by state authorities. There is often a conflict between the mandate of maximizing electricity generation (economic interest) and maintaining E-Flow (ecological interest).

Socio-Economic and Disaster Dimension

Local communities dependent on the river for irrigation, drinking water, and spiritual practices (like pilgrimages) suffer immensely from reduced E-Flow. Furthermore, altering the river's natural flow and sediment load exacerbates the risk of **riverbed degradation, landslides, and flash floods** (such as Glacial Lake Outburst Floods – GLOFs) in the fragile Himalayan region. Development that ignores the concept of E-Flow increases the long-term disaster vulnerability of the entire basin.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Statutory Recognition:** The principle of E-Flow has legal recognition through government notifications (e.g., for the Ganga) and various judicial interventions. **Hydropower Review:** Mandates a comprehensive review of the environmental impact of existing and future hydropower projects. **Ecosystem Services:** Recognition of the river's inherent value beyond its utility for power generation and irrigation.
Negatives	**Enforcement Gap:** Widespread non-compliance by private and public sector project developers is a major challenge. **Economic Cost:** Releasing water to maintain E-Flow results in a **loss of revenue** from power generation, leading to financial resistance from project developers. **Monitoring Capacity:** Lack of adequate, real-time hydrological monitoring stations to check E-Flow compliance.
Relevant Schemes	**Namami Gange Programme:** Aims for the abatement of pollution and the rejuvenation of the Ganga, of which the E-Flow mandate is a key component. **Integrated Water Management:** Policy focus on comprehensive river basin planning to balance development with conservation needs.

Relevant Examples

Uttarakhand Hydropower Projects: The devastating 2013 floods and subsequent reports highlighted how indiscriminate hydropower construction, often ignoring E-Flow, exacerbated the disaster.

Central Water Commission (CWC): Tasked with developing guidelines for determining the optimal E-Flow for various river basins across the country.

Way Forward

Independent E-Flow Monitoring: Install **automated, real-time monitoring stations** at all critical points downstream of dam sites and make the compliance data public.

Economic Disincentives: Impose stringent **penalties and fines** on projects failing to maintain the mandated E-Flow, using the revenue to fund river conservation.

Scientific Basis: Conduct comprehensive **basin-level studies** across all major Himalayan rivers to scientifically determine the appropriate E-Flow (which varies seasonally) based on ecological and socio-cultural needs.

Public Awareness and Participation: Mobilize and empower local **River Protection Committees** to monitor and report non-compliance, integrating community concerns into the management of E-Flow.

Conclusion

The effective implementation of Ecological Flow is not just an environmental imperative but a necessity for the long-term sustainability and disaster resilience of the Himalayan region. The government must move beyond mere notification to strict, technology-backed enforcement, recognizing that a healthy river system is foundational to the health and economy of the entire Ganga basin.

Conservation of Sea Cows (Dugongs) and Coastal Ecosystems

Syllabus

GS-III: Conservation, environmental pollution and degradation, environmental impact assessment; Biodiversity.

GS-I: Geographical features and their location—changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

Context

Reports highlighted the urgent conservation status of **Sea Cows or Dugongs**, a large, herbivorous marine mammal, and India's efforts to protect them. Dugongs are listed as **Vulnerable** on the IUCN Red List and are categorized under **Schedule I of the Wildlife Protection Act (WPA), 1972**, granting them the highest degree of protection. Their conservation is crucial as they are indicators of the health of their primary habitat: **seagrass meadows**.

Main Body: Multidimensional Analysis

Ecological and Biodiversity Dimension

Dugongs are the only strictly marine herbivorous mammal. They play a vital role in maintaining the **seagrass meadows**, which are critical coastal ecosystems. By grazing, dugongs help prevent the overgrowth of macro-algae and maintain the diversity and health of seagrass beds. Seagrass beds are crucial **carbon sinks**, absorbing and storing large amounts of atmospheric carbon dioxide, and act as nurseries for numerous commercially important fish species (prawns, crabs). The decline of dugongs directly correlates with the degradation of these vital habitats.

Threats and Conservation Challenges Dimension

The primary threats to dugongs in India (found mainly in the **Gulf of Mannar, Gulf of Kachchh, Palk Bay, and the Andaman & Nicobar Islands**) include:

Habitat Loss: Destruction of seagrass meadows due to coastal development, industrial pollution, and siltation from rivers.

Accidental By-catch: Entanglement and drowning in fishing gear (gillnets, trawlers).

Boat Collisions: Injuries from fast-moving boats in shallow waters.

Pollution: Ingestion of marine plastics and chemical contamination from coastal runoff.

Governance and Community Dimension

Effective conservation requires a shift from protected areas to **community-based approaches**. The establishment of the **India's First Dugong Conservation Reserve** (e.g., in Palk Bay, Tamil Nadu) is a key governance initiative. This model integrates local fishing communities, offering them alternative livelihoods or incentives to adopt **Dugong-Friendly Fishing Practices** (DFFP), turning them from potential threats into conservation partners.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Highest Legal Protection:** Listing under **Schedule I of WPA, 1972. Dedicated Reserves:** Establishment of India's first Dugong Conservation Reserve in Palk Bay. **Seagrass Restoration:** Conservation efforts indirectly contribute to the crucial restoration of coastal carbon-sequestering ecosystems.

Aspect	Description
Negatives	**Funding Shortfalls:** Conservation projects often lack continuous and adequate funding for enforcement and community livelihood support. **Enforcement Difficulty:** Enforcing fishing restrictions (e.g., net bans) in large coastal areas is complex and often resisted by local fishermen. **Lack of Data:** Insufficient scientific research on Dugong population dynamics and movement patterns to inform effective policy.
Relevant Schemes	**Integrated Development of Wildlife Habitats (IDWH):** Provides financial and technical assistance to states for wildlife conservation, including Schedule I species. **Coastal Zone Management Plans:** Regulations aimed at preventing the destruction of coastal ecosystems like seagrass beds and mangroves.

Relevant Examples

Palk Bay Reserve (Tamil Nadu): The dedicated reserve serves as a model for integrating fisheries management with Dugong conservation.

Andaman & Nicobar: Designated as a crucial Dugong habitat where tribal communities often share a symbiotic relationship with the marine environment.

Way Forward

Community Incentives: Implement a comprehensive **incentive scheme** for fishing communities (e.g., subsidized alternative gear, direct payment for conservation efforts) to protect Dugongs and report sightings.

Seagrass Mapping and Restoration: Invest in advanced **satellite and drone technology** to accurately map and monitor the health of all major seagrass meadows and launch targeted restoration projects.

Enforcement and Awareness: Strengthen the Marine Police wing for strict enforcement against illegal fishing in critical habitats and run extensive **public awareness campaigns** in coastal areas.

Scientific Research: Fund long-term, collaborative research projects to monitor Dugong populations using acoustic tags and aerial surveys to inform conservation strategies.

Conclusion

The conservation of the Dugong is fundamentally about protecting the health of India's coastal environment. As an indicator species, its survival is deeply linked to the vitality of seagrass ecosystems, which are invaluable for biodiversity and climate mitigation. A blend of strong legal protection, dedicated reserves, and community-led conservation is essential to secure the future of this gentle giant of the sea.

SOCIETY

Kerala Declared Free from Extreme Poverty (First State in India)

Syllabus Relevance:

GS-I (Society): Social empowerment, issues relating to poverty and development.

GS-II (Social Justice & Governance): Government policies and interventions for development in various sectors; mechanisms, laws, institutions, and Bodies constituted for the protection and betterment of vulnerable sections.

Context: Kerala marked its 69th formation day by declaring itself the first state in India to officially be **free from extreme poverty**. This milestone is the culmination of a four-year, targeted effort under the **Extreme Poverty Eradication Programme (EPEP)**, a mission launched in 2021 by the state government. The project aimed to uplift the "microscopic minority" who had fallen through existing social security nets, setting a new national benchmark for achieving the UN's Sustainable Development Goals (SDGs) for 'No Poverty' and 'Zero Hunger'. This declaration reflects Kerala's decades-long history of prioritizing human development indicators.

Main Body: The Multi-Dimensional Approach of EPEP The success of the EPEP lies in its departure from simple income-based metrics, adopting a **multi-dimensional approach** aligned with the NITI Aayog's Multidimensional Poverty Index (MPI) framework. A comprehensive, grassroots-level survey, primarily conducted through Local Self-Government

Institutions (LSGIs) and Kudumbashree (a state-run self-help group network), first identified 64,006 families in abject poverty. This identification went beyond income to assess four core distress factors: **food, health, housing, and minimum income**. Crucially, the program used a **Micro-Plan strategy**, where a unique, tailored intervention was designed for *each* family. For example, a bed-ridden individual living alone received daily cooked meals and regular palliative care, while a family lacking essential documents was enrolled in the "Avakasam Athivegam" (Right on Fast Track) campaign to secure Aadhaar, ration cards, and social security pensions. The initiative successfully addressed the housing crisis for thousands of families through the state's flagship LIFE Mission, providing both land and financial aid for construction, ensuring permanent shelter.

Positives/Negatives: Government Scheme Assessment

Positives: The achievement is a powerful validation of **decentralized governance**, with LSGIs and community participation (Kudumbashree) being the primary implementation agencies. The use of a **multi-dimensional framework** ensures sustained relief, addressing the *causes* of poverty rather than just the symptoms. It establishes a replicable model for other states, proving that eradication of abject poverty is achievable through political will and systematic data-driven efforts. It also boosted the credibility of Kerala's Human Development Model on the global stage.

Negatives/Challenges: Despite the declaration, concerns have been raised by opposition parties regarding the **scientific robustness** of the final validation process, suggesting the methodology might be subject to political motivation. The long-term sustainability of the individual micro-plans, especially livelihood support, requires continuous post-declaration monitoring. Furthermore, the definition focused only on 'extreme' poverty, leaving the broader issue of 'multi-dimensional poverty' (still measured at 0.55% of the population in NITI Aayog's index) and income inequality to be addressed in subsequent phases.

Way Forward: The immediate way forward involves shifting from **'Eradication' to 'Sustained Vigilance'**. The state must create an **institutionalized mechanism** for the continuous identification of newly vulnerable families, such as those pushed into poverty by chronic illness or personal crises. The next phase must focus on increasing the standard of living, moving families from mere survival to economic growth and empowerment, particularly through education and skill-building initiatives for the youth in these communities. The Kerala model should be documented in detail and presented to the central government for potential replication under a nationwide 'Zero Extreme Poverty' mission.

Focus Shifts to Post-Flood Rehabilitation in Assam Following Cyclone 'Aarav' Aftermath

Syllabus Relevance:

GS-I (Society): Disaster and its management; Devolution of powers to local self-government and challenges thereof.

GS-III (Disaster Management): Disaster and disaster management; Mitigation measures and disaster risk reduction.

Context:With the immediate crisis receding, state and central agencies shifted focus to the Rehabilitation and Reconstruction Phase following the severe impact of Cyclone 'Aarav' in Assam and Northeast India in late October/early November. The Nov 3rd reports detailed the massive scale of infrastructure damage, agricultural loss, and internal displacement, pushing the focus onto long-term resilient rebuilding efforts.

Main Body – Multi-Dimensional Approach:Effective post-disaster management requires a comprehensive, multi-dimensional strategy that moves beyond immediate relief to sustainable resilience.

Livelihood Restoration: The immediate priority beyond rebuilding homes is restoring the primary livelihood source for the affected population—largely agriculture and fisheries. This requires **direct cash transfers** linked to geo-tagged damage assessments and providing subsidized, climate-resilient seeds and livestock replacement, rather than just in-kind aid, ensuring dignity and speed.

Infrastructure Resilience: Reconstruction must adhere to **new climate-resilient building codes** suitable for cyclonic winds and flooding, moving away from rapid, temporary fixes. This

involves retrofitting critical infrastructure like embankments, roads, and power grids using climate-proofing technologies.

Decentralized Planning: The success of reconstruction relies heavily on the local knowledge held by **District Disaster Management Authorities (DDMA)** and Village/Gaon Panchayats. The process needs to ensure that funds flow quickly to these local bodies, empowering them to prioritize local needs (e.g., local drainage issues) that central/state reports might overlook.

Positives/Negatives – Disaster Management Framework:

Positives: The **NDRF/SDRF** mechanism ensures rapid initial response and deployment of specialized teams. The **National Disaster Management Authority (NDMA)**'s early warning systems proved effective in issuing alerts, leading to timely evacuations that saved lives. The use of digital platforms for damage assessment (DAMS) speeds up the quantification of loss for central aid release.

Negatives/Challenges: Inter-Agency Coordination Gap: Delays often occur between the damage assessment (State) and the sanctioning/release of central funds (National Disaster Response Fund – NDRF), slowing down reconstruction. **Rehabilitation vs. Compensation:** Compensation cheques often fail to cover the true replacement cost of assets, leading to debt traps for the poor. **Data Integrity:** The large influx of claims post-disaster strains administrative capacity, increasing the risk of fraudulent claims or exclusion errors.

Way Forward:The government must institutionalize Faster Release Mechanism (FRM) for post-disaster central aid, perhaps by sanctioning an initial tranche based on preliminary aerial surveys, with a final audit conducted later. Reconstruction efforts must integrate the National Adaptation Fund for Climate Change (NAFCC) to finance climate-resilient infrastructure upgrades, turning reactive relief into proactive adaptation. Training must be intensified for local Panchayats on accessing and reporting funds under the disaster management framework.

Practice Mains Question:Assess the effectiveness of India's current post-disaster management framework in achieving resilient recovery. What administrative and financial steps can be taken to accelerate post-cyclone rehabilitation efforts in states like Assam?

India's Housing Sector Resilience Tested Amid Rising Input Costs and Credit Demand

Syllabus Relevance:

GS-I (Society): Social issues relating to development and management of Social Sector/Services relating to Housing.

GS-III (Economy): Infrastructure and investment; effects of liberalization on the economy.

Context:While specific data for November 3rd may be awaited, economic analysts are scrutinizing the housing sector's resilience against the backdrop of persistently high input costs (cement, steel) and growing demand for home loans, driven by attractive retail credit rates. Reports suggest that developers are facing pressure to absorb costs or pass them on, potentially jeopardizing affordability targets.

Main Body – Multi-Dimensional Approach:The housing sector's health is a critical indicator that touches social, financial, and infrastructural dimensions:

Affordability vs. Inflation: The core tension lies between the government's goal of 'Housing for All' and the reality of input price inflation. When raw material costs rise, developers must either slow down construction or increase sale prices, which directly pushes the **Affordable Housing** target (defined by income brackets) out of reach for the intended beneficiaries.

Financial System Stability: The robust retail home loan demand indicates strong consumer confidence, which is positive for the banking sector (as seen in healthy NPAs). However, excessive reliance on credit for housing pushes up household debt-to-income ratios, creating potential systemic risk if the job market falters or interest rates spike unexpectedly.

Infrastructure Bottlenecks: The ability of the sector to absorb high demand is constrained by local infrastructure—availability of serviced land, environmental clearances, and utility connections. Delays here inflate project costs unnecessarily,

demonstrating the need for **single-window clearance reform** at the municipal level.

Positives/Negatives – Government Schemes (PMAY/Housing for All):

Positives: Scheme Success Indicators: Stronghousing sales and credit offtake suggest that the demand created by schemes like **Pradhan Mantri Awas Yojana (PMAY)** (even in its non-subsidy phases) has created a sustained market. The increased focus on **Real Estate Regulatory Authority (RERA)** implementation has improved buyer confidence by ensuring project delivery timelines.

Negatives/Challenges: Input Cost Pass-Through: Developers are struggling to manage the twin shocks of high credit costs and high material costs without compromising quality, potentially leading to stalled projects. **Urban Land Management:** The failure to reform urban land ceilings and streamline municipal approvals remains the single biggest impediment to increasing supply and lowering land acquisition costs, which form the largest component of housing cost. **Rental Market Neglect:** Over-focus on home *ownership* continues to neglect the formalization and strengthening of the **Affordable Rental Housing Market (ARHM)**, leaving a large migrant population vulnerable.

Way Forward:The government must introduce material stabilization policies, potentially by offering targeted tax incentives or import duty relief on key construction materials like steel and cement when their prices exceed a pre-defined inflation band. Crucially, municipal governance reform must be incentivized nationally to ensure time-bound single-window clearance for all building permits, a prerequisite for developers to pass on lower costs to consumers.

Practice Mains Question:How does the current volatility in construction input costs challenge the 'Housing for All' mandate in India? Discuss the need for supply-side reforms in the real estate sector beyond direct subsidy schemes.

RSS Chief Mohan Bhagwat's Remarks on Registration & Identity

Syllabus Relevance

GS Paper I (Society): Secularism, role ofwomenand women's organizations, population issues and associated problems.

GS Paper II (Polity): Separation of powersbetween various organs of Government; Comparison of the Indian constitutional scheme with that of other countries.

Context

RSS Chief **Mohan Bhagwat** addressed critics, particularly from the **Congress party**, who questioned the RSS's legal status due to its non-registration. Bhagwat countered by asserting the RSS is recognized as a **"body of individuals,"** citingits tax exemption by the **Income Tax Department** and recognition by courts, even after being banned thrice. He also made remarks on **'love jihad'**—urging introspection on family values (*sanskaars*) rather than broad-brush condemnation of the Muslim community—and affirmed **respect for the Tricolour** while explaining the symbolic importance of the saffron flag.

Main Body in Multi-Dimensional Analysis

A. Legal Status and Constitutional Interpretation (Polity Dimension)

Bhagwat's defense rests on the legal categorization of the RSS as a **"body of individuals"** rather than a formal 'society' or 'association' requiring statutory registration under specific acts. This status, he argues, is acknowledged by the judiciary and the tax authorities (for exemption). The debate pivots on the interpretation of **voluntary associations** inIndia's legal framework. While the **Societies Registration Act, 1860** or the **Companies Act** governs many entities, organizations rooted in pre-independence or deeply cultural contexts often operate outside these formal structures. The argument, "Even Hindu Dharma is not registered," attempts to place the RSS on a plane above mandatory modern registration requirements, framing it as a civilizational entity.

B. Political Discourse and Secularism (Social/Political Dimension)

The controversy is intrinsically linked to the political environment, particularly the lead-up to state elections. The Congress party's demand for a ban and questioning of funding sources is an attempt to challenge the RSS's legitimacy in public life.

Bhagwat's response—emphasizing support for **'Rashtraneeti, not Rajneeti'** (nationalpolicy,not partisan politics)—is an attempt to steer the discourse back to policy alignment rather than organizational structure. His call for supporting leaders/parties driving the "right direction" is a nuanced way of asserting ideological influence without direct partisan endorsement.

C. Nuance on Communal Issues ('Love Jihad' and Minority Inclusion) (Ethical Dimension)

Bhagwat's comments on **'love jihad'** are particularly significant. By suggesting that the "success" of such phenomena is due to the Hindu community's failure to instill *sanskaars* and *maryada* in their own youth, he shifts the blame from an external religious group to internal societal shortcomings. This nuanced approach—asking for the segregation of fundamentalists from the wider Muslim community and urging contact with the "good" elements—is a calibration away from rhetoric that brackets the entire minority as monolithic and hostile. It aligns with the concept of **social cohesion** by acknowledging that intolerance harms the majority's own values.

D. Symbolism of Flags (Cultural Dimension)

The clarification on the **Bhagwat Dhwaj vs. the Tricolour** is a necessary move for national acceptance. By recalling the historical attempt to make the saffron flag the national flag and Gandhi's intervention, and then affirming the RSS's protection and respect for the *Tiranga*, Bhagwat seeks to dispel the perception that the organization prioritizes a religious symbol over the national one. This is vital for projecting an image of **nationalist inclusivity**.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Legal Clarity:** Attempted to clarify the legal standing as a 'body of individuals' recognized by the state. **Call for Internal Scrutiny:** The comments on 'love jihad' urged introspection on social values rather than external blame, suggesting a constructive, if cautious, path. **Reaffirmation of National Symbol:** Explicitly stating respect for the Tricolour counters common criticisms.
Negatives	**Political Volatility:** The very discussion about registration keeps the issue of **secularism and organizational transparency** in the public eye, potentially polarizing the discourse. **Vagueness on Policy Support:** Supporting 'Rashtraneeti' remains subjective and open to interpretation by political actors.
Relevant Govt. Schemes/Policies	**Constitutional Mandate on Equality (Art. 14):** The issue constantly tests the boundary between freedom of association and public accountability expected of influential non-state actors.

Mains Practice Question

Question: Examine the constitutional and social implications of a powerful, influential organization like the RSS operating under the legal classification of a 'body of individuals' rather than a formally registered entity. Discuss how this structure impacts public trust and secular discourse in India. (250 Words, 15 Marks)

RSS/Congress Political Exchange & Flag Symbolism

Given the depth of the political exchange between Mohan Bhagwat and the Congress party regarding the RSS's status and flag respect, a dedicated analysis on the *political discourse* itself is warranted, as it dominates the non-PIB news cycle.

Syllabus Relevance

GS Paper II (Polity): Political parties and their funding and social/ideological base.

GS Paper I (Society): Salient features of the Indian Society and diversity. Secularism.

Context

The political narrative on November 10, 2025, is heavily influenced by **Mohan Bhagwat's** assertions. The core issue is the legitimacy and ideological positioning of the **RSS** in the national narrative. The Congress party's critique focuses on transparency (registration/funding), while Bhagwat counters by defining the RSS's relationship with the state (legal recognition as a 'body of individuals') and its relationship with national symbols (the Tricolour). This exchange is a proxy battle over the definition of Indian **nationalism and secularism**.

Main Body in Multi-Dimensional Analysis

A. The Ideological Contest: Defining Nationalism (Political Dimension)

The core conflict is over whose vision of **'Bharat'** prevails. The Congress's critique, questioning the *registration*, is an attempt to force the RSS into a modern, transparent, statutory framework, implying that entities operating outside it are inherently suspect in a democracy. Bhagwat's response, emphasizing the historical context (pre-1947 establishment) and appeal to *dharma* not needing registration, frames the RSS as a **cultural/civilizational force** transcending mere corporate compliance. His statement on supporting **'Rashtraneeti'** over 'Rajneeti' positions the RSS as the ideological guide for the nation's direction, a role it sees as essential for achieving the vision of a 'Hindu Rashtra' (defined by Bhagwat as harmony, not domination).

B. Nuance in Minority Engagement (Secularism & Social Ethics Dimension)

Bhagwat's most significant ethical intervention in his recent remarks was his differentiated view on the Muslim community regarding 'love jihad'. By stating, **"Can't put all Muslims in one bracket,"** he signals a strategic shift from blanket generalization to acknowledging internal diversity within the minority community. This move aligns with the idea that societal issues must be addressed by separating the ideological extremists from the mainstream population. Ethically, this encourages engagement and reform from within the community rather than perpetual external confrontation, a necessary precursor to genuine **social reconciliation**.

C. The Saffron vs. Tricolour Dynamic (Symbolic Politics)

The debate over the flags is symbolic of the larger tension between cultural identity and constitutional structure. For the RSS, the saffron flag is the *Guru*, representing the civilizational continuity. For the opposition, unreserved allegiance to the **Tricolour** is the non-negotiable marker of constitutional patriotism. Bhagwat's clarification—that the RSS *protects* the Tricolour and that the saffron shade is *within* the Tricolour—is an attempt at symbolic synthesis. He aims to show that their cultural identity is **additive to, not replacement for, the national identity**.

D. The Role of Civil Society in a Democracy (Governance Dimension)

The exchange illuminates the complex role of powerful, non-electoral civil society organizations. Organizations with massive grassroots reach and ideological sway (like the RSS) inevitably influence policy, whether directly or indirectly. The debate forces a question: How does a democracy manage the influence of such powerful **non-state actors**? While they are vital for social work, their political influence must be balanced with transparency, which is what the Congress is demanding through the registration query.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Attempt at Nuance:** The calibrated response on 'love jihad' shows a potential move towards more constructive engagement with minority issues. **Assertion of Constitutional Respect:** Clear endorsement of the Tricolour by the RSS Chief.
Negatives	**Polarizing Discourse:** The entire exchange keeps identity politics at the forefront, potentially overshadowing governance and development news. **Ambiguity of 'Rashtraneeti':** The lack of a defined criterion for supporting policies can lead to opaque political influence.

Aspect	Details
Relevant Govt. Schemes/Policies	**Representation of the People Act:** Governs political parties, but not the RSS's engagement in 'policy support.' **Constitutional Secularism (Art. 25-28):** The debate challenges the accepted boundary between religious/cultural organizations and state neutrality.

Mains Practice Question

Question: The recent political exchange between the RSS leadership and the Congress party underscored the deep-seated ideological contest over the nature of Indian nationalism. Analyze how the assertion of the RSS as a 'body of individuals' impacts the broader discourse on accountability and transparency for influential non-state actors in India's secular framework. (250 Words, 15 Marks)

WOMEN EMPOWERMENT

Protection of Children from Sexual Offences (POCSO) Act and Gender Neutrality

Syllabus

GS-II: Statutory, regulatory and various quasi-judicial bodies. Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

GS-I/II: Role of women and women's organization, population and associated issues, poverty and developmental issues, urbanization, their problems and remedies.

Context

The **Protection of Children from Sexual Offences (POCSO) Act, 2012**, is a special law enacted to protect children (under 18 years) from sexual abuse, sexual harassment, and pornography, ensuring their holistic development. Recent judicial interpretations and legal commentary have focused on the Act's **gender neutrality**—specifically whether a perpetrator must be male, or whether a female can also be charged under the Act. This debate centers on interpreting the language of certain sections and ensuring the law provides equal protection to all children, irrespective of the gender of the abuser.

Main Body: Multidimensional Analysis

Legal and Interpretive Dimension

The POCSO Act is written primarily using gender-neutral terms for the 'child' (victim) but uses gender-specific language like "he" or "his" for the 'perpetrator' in certain key sections. However, the legal doctrine of the **General Clauses Act, 1897**, stipulates that the masculine gender *includes* the feminine unless specifically excluded. Judicial scrutiny aims to uphold the spirit of the Act—which is the protection of the child—by interpreting the perpetrator as being capable of being **any gender**. Restricting the perpetrator definition to male only would leave male victims abused by female perpetrators without the enhanced protection of the POCSO Act.

Social Justice and Equality Dimension

The core objective of the POCSO Act is to recognize and address the child's vulnerability. From a social justice perspective, sexual abuse is fundamentally a crime of power, and the perpetrator can be anyone. Male children, particularly in institutional settings, are vulnerable to abuse by both men and women. Insisting on gender neutrality ensures the law is applied fairly and equally to all victims and abusers, reflecting the modern understanding of sexual violence as transcending traditional gender stereotypes. It ensures that the law is **gender-just** rather than merely gender-specific.

Psychological and Child Rights Dimension

Child rights jurisprudence emphasizes the paramount interest of the child. The psychological trauma suffered by a child victim is independent of the abuser's gender. The UN **Convention on the Rights of the Child (UNCRC)**, to which India is a signatory, mandates that all protective laws must treat all children equally. Upholding gender neutrality aligns the POCSO Act with these global standards and the ethical imperative of protecting every child equally.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Equal Protection:** Ensures male child victims abused by female perpetrators receive protection under the rigorous POCSO framework. **Modern Interpretation:** Aligns the law with modern understanding of crime, power dynamics, and gender justice. **Clarity of Law:** Reduces ambiguity by clarifying that the focus is on the act and the victim's age, not the abuser's gender.
Negatives	**Drafting Ambiguity:** The initial use of gendered pronouns for the abuser has created unnecessary legal ambiguity and friction. **Social Stigma:** Addressing abuse by female perpetrators carries its own complex social stigma, which may deter victims from reporting. **Implementation Gaps:** Lack of comprehensive training for police/judiciary on the nuance of gender-neutral interpretation.
Relevant Schemes	**Childline 1098:** A 24-hour national helpline for children in distress, including those facing sexual abuse, requiring sensitive handling irrespective of the abuser's gender. **Integrated Child Protection Scheme (ICPS):** Aims to create a safe and protective environment for children, supported by the strong legal framework of POCSO.

Relevant Examples

Judicial Precedents: High Courts have explicitly ruled that, utilizing the General Clauses Act, the term "he" for the abuser in POCSO must be read to include "she" to fully realize the protective intent of the law.

Institutional Abuse Cases: Cases involving abuse in schools, childcare facilities, or religious institutions often reveal complex power structures where both male and female personnel may be involved in perpetrating abuse.

Global Trends: Many international child protection statutes have moved towards completely gender-neutral language for both the victim and the abuser.

Way Forward

Legislative Amendment: The clearest solution is a swift **legislative amendment** to replace all gender-specific pronouns for the perpetrator in the POCSO Act with explicitly **gender-neutral terms** (e.g., 'person' or 'perpetrator').

Judicial Sensitisation: Continuous training and sensitization programs for the judiciary, police, and public prosecutors on the modern, gender-neutral interpretation of the Act.

Awareness Campaigns: Focused public awareness campaigns to encourage reporting of abuse, particularly when the victim is male or the perpetrator is female, to tackle existing social taboos.

Trauma-Informed Care: Ensure that the protocols for recording, investigating, and prosecuting cases apply the same high standard of **trauma-informed care** to all child victims regardless of the perpetrator's gender.

Conclusion

The POCSO Act is a landmark legislation in India's child rights movement. The gender-neutral interpretation of the perpetrator provision is a crucial step towards achieving substantive equality and justice for all child victims. While the judiciary has attempted to correct the legislative oversight, Parliament must provide final clarity to remove all ambiguities, ensuring the Act's robust application in letter and in spirit.

Practice Mains Questions

Critically analyse the arguments for and against applying the principle of gender neutrality to the definition of 'perpetrator' under the Protection of Children from Sexual Offences (POCSO) Act, 2012. (250 words)

GS 2

GOVERNMENT POLICY AND INTERVENTION

PM Welcomes Record Increase in Indian Universities in QS Asia Rankings

Analysis:

Syllabus:

GS-II: Government policies and interventions for development in various sectors and issues arising

out of their design and implementation; Issues relating to development and management of Social Sector/Services relating to Education.

Context:

The Prime Minister welcomed the record increase in the number of Indian universities featured in the latest QS Asia University Rankings. The PM emphasized the government's commitment to ensuring **quality education, a focus on research and innovation, and building institutional capacities** across India. This milestone is seen as a positive indicator of the efficacy of recent national education policies and initiatives, showing India's gradual but steady progress in global academia.

Main Body in Multi-Dimensional Analysis:

Quality and Global Competitiveness Dimension: International rankings are a critical, though often debated, benchmark for measuring the quality of higher education (HEIs) and their global competitiveness. The surge in numbers indicates improved performance on key metrics like **research output, faculty-student ratio, and internationalization**. While a welcome sign, Indian universities still lag in the top 100 on most lists, emphasizing the need to focus not just on quantity, but on achieving **world-class quality**.

Research and Innovation Ecosystem: Improved rankings are closely tied to enhanced research and citation impact. This suggests a positive outcome from increased funding and policy emphasis on creating a robust research environment. The challenge remains to translate academic research into patents, commercial products, and social good, strengthening the link between **academia and industry**.

Policy and Governance Dimension: The improvement is often linked to key policy changes, particularly the push under the **National Education Policy (NEP) 2020** towards multidisciplinary education, academic autonomy, and better regulation. The success of institutions of national importance like IITs and IISc is driving the overall performance, but the quality of state-level universities, which educate the majority, remains a major governance challenge.

Internationalization and Brain Drain: Higher rankings improve the attractiveness of Indian HEIs to international students and faculty, aiding the goal of becoming a global study destination. Furthermore, by providing high-quality domestic education and research opportunities, it is an indirect strategy to mitigate the 'brain drain' phenomenon.

Positives and Negatives, Government Schemes:

Positives: 1. Global Recognition: Boosts India's soft power and attractiveness as an education hub. **2. Policy Validation:** Confirms that recent reforms and investment in R&D are yielding results. **3. Improved Student Choice:** Greater number of top-ranked institutions provides better educational options domestically. **4. Faculty Attraction:** Attracts high-quality international and Indian diaspora faculty.

Negatives: 1. Ranking Methodology Bias: Global rankings sometimes favor parameters (e.g., citations, international faculty) that are difficult for domestically focused institutions to meet. **2. Inequity of Access:** The top-ranked universities are often concentrated and highly competitive, leaving a large segment of the population with lower-quality higher education. **3. Funding Gap:** The total public expenditure on education in India still needs significant increase to match global benchmarks.

Relevant Schemes/Initiatives:

Institutions of Eminence (IoE) Scheme: Provides financial and administrative autonomy to select institutions to achieve world-class status.

National Education Policy (NEP) 2020: The overarching reform document promoting research, multidisciplinary education, and internationalization.

National Research Foundation (NRF): Proposed to fund and coordinate research across all academic disciplines and institutions.

Way Forward:

Focus on Research Funding: Expediting the implementation and funding of the National Research Foundation (NRF) to provide a stable, long-term funding mechanism for interdisciplinary research.

Faculty Development: Investing in comprehensive training and mentorship programs for faculty,

promoting Ph.D. quality, and offering attractive compensation to retain top talent.

Data and Transparency: Encouraging HEIs to improve their data reporting and adopt international best practices in governance, administration, and financial management.

International Collaborations: Facilitating deeper academic partnerships, dual-degree programs, and faculty exchange with top global universities to embed international standards.

Conclusion:

The record inclusion of Indian universities in the QS Asia Rankings is an **encouraging indicator of an education system in transition**. It is a recognition of the collective effort by policymakers, institutions, and the academic community. However, this momentum must be sustained by moving beyond mere numbers to a dedicated, decade-long commitment to **deep, systemic reforms** in funding, research ethics, and institutional governance, ensuring that India's HEIs are not only visible on the world stage but are true engines of national development.

Practice Mains Question:

"International university rankings, while imperfect, serve as a mirror reflecting a nation's investment in higher education." Discuss this statement in the context of the recent QS Asia University Rankings and critically analyze the policy interventions required to propel more Indian universities into the global top 100. (250 words, 15 marks)

SC Indicates Exclusion of Regular Competitions from Online Gaming Law

Analysis:

Syllabus

GS-II: Government policies and interventions for development in various sectors and issues arising out of their design and implementation; Indian Constitution – Evolution and key provisions (Fundamental Rights).

GS-III: Indian Economy; Awareness in the fields of IT, Space, Computers, Robotics, Nano-technology, Bio-technology and issues relating to Intellectual Property Rights.

Context

The Supreme Court of India, in its deliberation on the legality of the Promotion and Regulation of Online Gaming Act, 2025, orally indicated that **regular competitions and tournaments** may be excluded from the ambit of the law. This is based on the argument that these activities, often linked to e-sports and fantasy leagues, may constitute a **'Game of Skill'** and thus may not fall under the definition of 'betting and gambling.' The 2025 Act primarily sought to regulate or ban real-money games perceived to be purely 'Game of Chance,' reflecting a crucial ongoing judicial and legislative effort to define and regulate the massive Indian digital economy.

Main Body in Multi-Dimensional Analysis

Legal and Constitutional Dimension: The core of the legal debate rests on the constitutional protection afforded to professional activities under **Article 19(1)(g)** (Right to practice any profession, or to carry on any occupation, trade or business). If a game is deemed predominantly a 'Game of Skill' (e.g., requires specialized knowledge, strategy, or mastery), the Supreme Court has historically held that it constitutes a legitimate business activity, which cannot be arbitrarily banned. The exclusion indicated by the court seeks to uphold this fundamental right, protecting the legitimate digital sports industry from over-regulation intended for gambling.

Economic and Industry Dimension: India's digital gaming market is one of the fastest-growing globally, attracting significant Foreign Direct Investment (FDI) and generating millions of indirect jobs. Regulatory uncertainty, such as that stemming from the 2025 Act, risks stifling **innovation, capital flight, and the growth of e-sports**. A clear, favourable interpretation for skill-based games is vital to unlock the sector's potential and meet the government's digital economy objectives, especially in the e-sports segment which is recognized globally as a legitimate sport.

Regulatory and Jurisdictional Dimension: 'Betting and Gambling' is a subject in the **State List** (Entry 34, List II), leading to a fragmented regulatory landscape. The central law faces challenges regarding its constitutional validity and overlapping

jurisdiction with state-specific acts. The ruling is expected to force a more precise, uniform national definition, potentially guiding state legislatures and ensuring that the focus shifts from **taxation/banning to transparent regulation** under the Ministry of Electronics and Information Technology (MEITY).

Social and Consumer Protection Dimension: The regulation is necessary to address the genuine social concerns of **gaming addiction, financial harm, and fraudulent practices** associated with predatory 'Game of Chance' apps. Any legal framework, even for 'Games of Skill,' must mandate robust consumer protection measures, including age verification, expenditure limits, and easily accessible grievance redressal mechanisms, ensuring a responsible gaming environment.

Positives and Negatives, Government Schemes

Positives: 1. Legal Clarity: Provides the much-needed certainty for investors and industry players, distinguishing between legitimate business and gambling. **2. Innovation Boost:** Encourages the growth of e-sports and skill-based platforms, aligning India with global digital trends. **3. Revenue Generation:** Properly regulated, the sector can generate substantial GST revenue and attract significant capital.

Negatives: 1. Blurring Lines: The legal distinction between 'skill' and 'chance' remains subjective and often challenged. **2. Continued Social Risk:** Weak enforcement of user protection rules can still lead to addiction and financial distress. **3. State vs. Centre Friction:** Potential for continued jurisdictional disputes with states that have outright banned online gaming.

Relevant Government Schemes/Initiatives:

MEITY's Online Gaming Rules (Amendment to IT Rules): Focuses on regulating online gaming as an intermediary, utilizing a Self-Regulatory Body (SRB) framework.

Digital India Initiative: Views the online gaming sector as a key component of the digital economy ecosystem.

Way Forward

The Parliament and the judiciary must collaborate to **codify a clear, legally sound, and technologically neutral definition** of 'Game of Skill' that survives judicial scrutiny and is universally applicable across states, ensuring the law promotes innovation without compromising social welfare. Furthermore, a **unified, national-level regulatory body** with multi-stakeholder representation (MEITY, Finance, consumer groups) should be established to oversee licensing, enforce responsible gaming norms, and manage the technical standards for all online platforms operating in the country. Finally, the regulatory framework must mandate **data protection and KYC/AML standards** that are commensurate with the industry's scale, preventing misuse for money laundering and ensuring consumer financial safety on all real-money platforms.

Conclusion

The Supreme Court's indication is a **watershed moment** for India's online gaming industry, promising to separate the economic potential of skill-based platforms from the social risks of gambling. The future trajectory of this sector hinges on the government's ability to swiftly translate this judicial guidance into a **stable, technologically adaptive, and transparent regulatory framework**. Only then can India harness the digital economy's growth while maintaining robust consumer and social protection guardrails.

Practice Mains Question:

Analyze the legal and economic implications of distinguishing between 'Game of Skill' and 'Game of Chance' in the context of India's online gaming regulatory framework. What essential reforms are required in the regulatory structure to foster the growth of the legitimate digital gaming industry while mitigating social risks and resolving inter-state jurisdictional conflicts? (250 words, 15 marks)

India Congratulates Women's Cricket Team on Historic Maiden ODI World Cup Victory

Syllabus Relevance:

GS-I (Society): Role of women and Women's Organizations, Population issues and associated problems, Poverty and developmental issues.

GS-II (Government Policies): Sports promotion policies and achievements.

Context:A major news item dominating media reports on November 3rd (as per search data) was the Indian Women's Cricket Team's historic, maiden victory in the ICC Women's ODI World Cup 2025. The win, achieved in a tense final against South Africa, triggered massive national celebrations, with the BCCI announcing significant cash rewards. This event is important not just for sports but for its profound societal implications.

Main Body – Multi-Dimensional Approach:The victory transcends sport, serving as a powerful catalyst across social, economic, and policy dimensions.

Societal Role Model: The team's success provides **unprecedented visibility and aspirational value** for young girls, especially in Tier 2/3 cities, promoting sports participation over traditional gender roles. This directly addresses the slow pace of female participation in high-performance sports.

Economic Impact on Women's Sports: Thevictoryis expected to trigger an **economic multiplier effect**—increased corporate sponsorships for the Women's Premier League (WPL), better pay structures, and improved infrastructure spending by the BCCI, directly boosting the professional ecosystem for female athletes.

Policy Validation: It validates the targeted government support, such as the **Khelo India initiative**, which aims to create a feeder system for elite sports. The public focus now shifts to ensuring sustained funding and professionalizing coaching at the grassroots level to maintain this momentum.

Positives/Negatives – Sports Governance:

Positives: Gender Parity in Sports: AWorldCupwin generates crucial mainstream media coverage, which helps bridge the historical coverage gap between men's and women's sports, leading to greater fan engagement and revenue. **National Morale:** Such triumphs serve as significant morale boosters for the entire nation. **Soft Power:** It enhances India's global sporting reputation, adding to its soft power projection.

Negatives/Challenges: Sustainability of Support: The risk is that the focus may wane once the initial euphoria subsides, leading to underfunding for women's domestic circuits, which are the feeder system. **Infrastructure Disparity:** Whileelitefacilities are world-class, the grassroots infrastructure available to girls in state-level academies often lags significantly behind that available to male counterparts. **Media Narrative Control:** Ensuring media narratives remain focused on athletic merit and not just on personal/off-field stories is a continuous challenge for maintaining the professional stature of the athletes.

Way Forward:The BCCI must institutionalize a structured mentorship program linking senior World Cup winners to emerging players. State associations must be mandated, perhaps through a revised BCCI grant structure, to match spending on women's infrastructure and grassroots coaching within the next three years. The government should link corporate CSR spending on sports specifically to the development of infrastructure for women's sports to ensure a continuous flow of private capital.

Practice Mains Question:Analyze the socio-economic impact of the Indian Women's Cricket Team's World Cup victory beyond the sporting arena. How can the government and sporting bodies ensure this success translates into long-term gender parity in Indian sports?

PM Modi Congratulates Indian Women's Cricket Team

Syllabus

GS-I: Role of women and women's organization (in sports and national identity).

GS-II: Government policies and interventions for development in various sectors (Sports promotion).

Context

On November 5, 2025, Prime Minister Narendra Modi met and congratulated the triumphant Indian women's cricket team following their World Cup victory. The meeting and the PM's public praise focused not just on the win but also on the team's "remarkable resilience and comeback" after facing early setbacks and online trolling. This national celebration of the team's success highlights the **growing recognition of women's sports** as a source of national pride, a significant cultural force, and a powerful symbol of gender equality and aspiration in India.

Main Body in Multi-Dimensional Analysis

Social and Gender Empowerment Dimension: The success of the women's team serves as a powerful symbol of **"Nari Shakti"** (Woman Power) and directly challenges traditional gender norms in Indian society. It motivates young girls to pursue non-traditional careers, showcasing that merit and dedication can overcome systemic biases. The team's victory is an intangible but powerful dividend of the ongoing national push for gender parity.

Economic and Commercial Dimension: The historic win has led to a reported surge in the team's **brand value**, with endorsement fees rising significantly. This commercial viability is crucial for the long-term sustainability and professionalization of women's sports. It attracts greater private investment, better pay, and improved infrastructure, breaking the cycle where lack of investment led to lower performance.

Soft Power and National Image Dimension: Cricket, being India's most popular sport, makes the team's victory a major element of **India's soft power** globally. It projects an image of a confident, modern nation that is successful on the global stage and is investing in equal opportunity for women, reinforcing democratic and progressive values.

Sports Governance and Institutional Dimension: The victory will put pressure on the Board of Control for Cricket in India (BCCI) and the government to ensure equal pay, infrastructure parity, and robust grassroots development programs for women, mirroring the support given to male counterparts. This is essential for ensuring that the success is not a flash in the pan but a sustainable, systemic achievement.

Positives and Negatives, Government Schemes

Positives: 1. Increased Visibility: High-level recognition boosts the morale and public visibility of women athletes, attracting more fans and sponsors. **2. Role Models:** Creates high-profile female role models who inspire a generation to engage in sports. **3. Commercial Boost:** Increases the economic sustainability of women's cricket and other female sports.

Negatives: 1. Unequal Pay/Infrastructure: Persistent disparity in pay and infrastructure compared to the male team. **2. Short-Lived Attention:** The challenge of sustaining public and media attention post-victory to ensure long-term growth. **3. Mental Health:** The PM's reference to trolling highlights the vulnerability of athletes to online abuse, a new challenge.

Relevant Government Schemes/Initiatives:

Khelo India Scheme: A national program for the development of sports, with a focus on inclusion and grassroots talent identification.

Target Olympic Podium Scheme (TOPS): Provides specialized training and financial assistance to elite athletes.

Way Forward

The BCCI and the Ministry of Youth Affairs and Sports must **mandate full pay parity and resource allocation** for the national women's cricket team, ensuring infrastructure, coaching, and travel facilities are structurally equal to the men's team to institutionalize gender equity in sports. Simultaneously, the government should **launch a targeted 'Women in Sports' grassroots talent scouting and scholarship program** under the Khelo India initiative, specifically allocating funds for local coaching and facility development to build a deeper talent pipeline for women's professional sports. Furthermore, a **comprehensive policy must be enacted to combat online abuse and trolling** directed at athletes, providing legal and psychological support, and utilizing the recognition of the players to actively champion the cause of positive and supportive digital citizenship.

Conclusion

The World Cup victory transcends cricket; it is a **major cultural landmark in India's journey toward gender equality**. The official recognition of the team by the Prime Minister validates their achievement and reinforces the message that investment in women's sports is an investment in national progress and soft power. The momentum from this victory must now be translated into systemic and long-term policy reforms.

Practice Mains Question:

Evaluate the role of major sporting achievements by women in advancing the cause of gender equality and national soft power in India. What specific policy

interventions are required at the government and institutional level to ensure the long-term professionalization and sustainability of women's sports in the country? (250 words, 15 marks)

Yogi Hands Over EWS Flats on Land Seized from Mafia

Syllabus

GS-II: Government policies and interventions (Urban planning, Housing); Issues relating to development and management of Social Sector/Services relating to Housing.

GS-III: Linkages between development and spread of extremism (Mafia-state Nexus); Internal Security.

Context

On November 5, 2025, Uttar Pradesh Chief Minister Yogi Adityanath handed over allotment letters for 72 flats built for Economically Weaker Section (EWS) families on land that was seized and recovered from the family of a late mafia-turned-politician in Lucknow. This high-profile event is the latest in a series of actions aimed at **"mafia-mukt" (mafia-free) governance** in the state. By converting illegally acquired property into affordable housing, the government aims to send a clear message that land grabbed by criminal elements will be appropriated for the welfare and social benefit of the poor, directly linking strong law enforcement with social justice.

Main Body in Multi-Dimensional Analysis

Governance and Law-and-Order Dimension: This move directly tackles the deep-rooted issue of the **mafia-state nexus**, where political patronage allowed criminal elements to amass illegal wealth and property. The demolition and subsequent repurposing of the land for EWS housing is a demonstration of the government's commitment to restoring the authority of the state and reversing the decades-long institutional breakdown caused by organized crime. It is a highly symbolic action of **state sovereignty** over criminal power.

Social Justice and Housing Dimension: By utilizing valuable, often prime, land for EWS flats, the project serves a critical social justice function. It provides formal, affordable, and safe housing to families who are often marginalized and excluded from such well-located areas. This directly aligns with the national mission of **'Housing for All'** and utilizes recovered wealth to correct historical inequalities.

Legal and Due Process Dimension: While the actions are politically popular, it is crucial that the process of seizure and demolition adheres strictly to the rule of law, with due opportunity given to the accused to present their case in court. The perception of **arbitrary exercise of power** must be avoided to ensure that the campaign is seen as a legal reform, not a political vendetta.

Urban Planning and Land-Use Dimension: The conversion of high-value, illegally held land for public housing sets a precedent for effective urban governance. It provides a model for other states to address land encroachment, especially on public property, and leverage this recovered asset to finance affordable housing projects or urban infrastructure development.

Positives and Negatives, Government Schemes

Positives: 1. Symbolism: Sends a strong political and legal message against organized crime and illegal land acquisition. **2. Social Dividend:** Directly benefits the urban poor by providing well-located, affordable housing. **3. Restored Faith:** Increases public confidence in the state's ability to enforce the law against powerful criminal elements.

Negatives: 1. Legal Scrutiny: Such high-profile demolitions often attract intense judicial scrutiny regarding the adherence to due process. **2. Rehabilitation Challenge:** The overall scale of the land-grabbing issue far exceeds the capacity of such singular projects to solve. **3. Politicization:** The focus on specific individuals can lead to accusations of selective targeting.

Relevant Government Schemes/Initiatives:

Pradhan Mantri Awas Yojana (Urban) (PMAY-U): The national mission for Housing for All.

Sardar Vallabhbhai Patel Awas Yojana (State-level): The specific housing scheme under which the flats were built.

Way Forward

The state government must establish a **statutory, professional Land Recovery and Utilization Authority (LRUA)** mandated to oversee all asset seizures from

criminal/mafia elements, ensuring the entire process is meticulously documented, legally sound, and immune from political interference. Concurrently, a **public digital portal must be created to track all recovered land assets**, transparently showcasing their original criminal ownership, the legal recovery process, and the final social welfare project to which the land is allocated, ensuring public faith in the process. Furthermore, the government should **pass comprehensive anti-land-grabbing legislation** that specifically targets the nexus between public officials and the mafia, instituting stringent penalties and mandatory forfeiture of all assets acquired through illegal means to be used solely for EWS and social infrastructure projects.

Conclusion

The act of handing over EWS flats built on mafia-seized land is a powerful blend of **strong governance and social welfare policy**. It successfully converts a symbol of criminality into a beacon of social justice. This model of utilizing the recovered proceeds of crime for public good should be replicated widely, provided the entire process is anchored firmly in **unassailable legal and procedural integrity**.

Practice Mains Question:

Analyze the strategy of using assets recovered from organized crime for public welfare projects. Discuss the legal and administrative reforms necessary to institutionalize this approach while strictly upholding the principles of due process and the rule of law. (250 words, 15 marks)

SC to Issue Directions on Stray Dog Feeding in Government Premises

Syllabus

GS-II: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

GS-III: Environment, Conservation, and related laws.

Context

The Supreme Court, hearing a significant case on stray dog management, took a serious view of government employees feeding stray dogs within office premises, terming it a violation of previous directions. The court announced that it will issue specific directions on November 7 to address the "institutional menace" of strays within public institutions.

Main Body: Multi-Dimensional Analysis

Legal Interpretation & Conflict: The core of the issue lies in balancing animal welfare (protected under the Prevention of Cruelty to Animals Act and the Animal Birth Control (ABC) Rules) with public safety and institutional discipline. The court's concern is that unregulated feeding encourages stray populations to congregate in sensitive, high-traffic institutional areas, raising safety and hygiene concerns.

Animal Birth Control (ABC) Rules Implementation: The SC's primary order mandates the implementation of the **ABC Rules**, which require local authorities (Municipal Corporations) to perform sterilisation, vaccination, and release of strays back into their localities. The court's latest observation is an indictment of the poor implementation of these rules, which forces individuals to take feeding into their own hands, often without proper management.

Jurisdiction and Governance: The case questions the governance failure of both state governments and local bodies (Chief Secretaries were summoned earlier) to effectively manage the stray dog population. The SC's forthcoming directions will likely clarify the demarcation of 'designated feeding zones' and enforce greater accountability on institutional heads and employees.

Ethical vs. Practical: The ethical argument is that feeding is a fundamental humane act, necessary for the welfare of the dogs. The practical counter-argument is that unscientific, unregulated feeding in non-designated zones compounds the public menace, especially dog-bite incidents. The SC is attempting to find a legally sound middle ground.

Positives & Negatives, Government Schemes

Aspect	Description
Positives	The SC intervention ensures accountability from high-ranking officials and institutions; it forces a structured approach to stray

Aspect	Description
	management beyond mere culling or relocation, as per ABC Rules.
Negatives	Over-regulation of feeding could lead to animal starvation and distress, potentially increasing aggression; the focus shifts from the primary responsibility of municipal bodies (sterilization) to regulating citizen actions.
Government Schemes	**Animal Birth Control (ABC) Programme:** The central framework being enforced. States and UTs are expected to allocate funds and infrastructure (vet services, dog pounds) under this.

Way Forward

The SC directions on November 7 must be followed by robust implementation by local authorities. The long-term solution lies in **mass, sustained, and ethical sterilization** campaigns as mandated by the ABC rules, coupled with the establishment of clearly demarcated and monitored feeding zones in cooperation with Resident Welfare Associations (RWAs) and Animal Welfare Organisations (AWOs). Public awareness on responsible pet ownership and stray interaction is also vital.

Conclusion

The Supreme Court's impending order represents a critical step toward formalizing the human-animal relationship in public spaces. It underscores the need for effective urban governance that integrates animal welfare with public health and safety under a rule-of-law framework.

Practice Mains Question

Q. "The Supreme Court's intervention in the stray dog menace reflects a deeper systemic failure in urban governance and implementation of animal welfare laws." Critically analyze this statement, giving specific recommendations for effective Animal Birth Control (ABC) program implementation in Indian cities.

Union Minister at International Commercial Courts Conference

Syllabus

GS-II: Government policies and interventions for development in various sectors; India and its neighborhood- relations; Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

Context

Union Minister of Law and Justice, Shri Arjun Ram Meghwal, is leading the Indian delegation at the Conference on the Future of International Commercial Courts in Bahrain (November 5-6). His presence and keynote address underscore India's commitment to modernizing its commercial dispute resolution framework to attract foreign investment.

Main Body: Multi-Dimensional Analysis

Ease of Doing Business: The Minister's participation is strategically linked to improving India's rank in global indicators, particularly those related to the enforcement of contracts, a key metric in the erstwhile World Bank Ease of Doing Business Report. A reliable and fast commercial justice system is non-negotiable for large-scale Foreign Direct Investment (FDI).

Promotion of Institutional Arbitration: India is keen to transition from ad-hoc arbitration to institutional arbitration, which is more transparent, efficient, and globally recognized. By collaborating with international bodies and courts, India aims to build global confidence in its institutions and ensure the mutual recognition and enforceability of arbitral awards.

Soft Power Diplomacy: Promoting commerce with a partner like Bahrain in the Gulf region strengthens not just economic ties but also India's legal and judicial 'soft power.' It allows India to showcase its progressive reforms, such as the establishment of dedicated Commercial Courts and changes to the Arbitration and Conciliation Act.

Transnational Justice: The conference theme is on the future of transnational justice, which involves creating a harmonized legal environment for international business. India's engagement is crucial for shaping global best practices and ensuring that its domestic legal system is integrated with the evolving international commercial ecosystem.

Positives & Negatives, Government Schemes

Aspect	Description
Positives	Boosts investor confidence and FDI; reduces the time and cost of resolving commercial disputes; enhances the professionalism of the Indian legal sector; promotes India as a center for international arbitration.
Negatives	Implementation gap between legal reforms and actual judicial infrastructure and capacity; high pendency in Indian courts remains a major structural challenge that cannot be solved by law alone.
Government Schemes	**Commercial Courts Act, 2015:** Created specialized courts for high-value disputes. **Aatmanirbhar Bharat Abhiyan:** Focuses on improving domestic capabilities and attracting global investment, requiring a robust legal framework.

Way Forward

Beyond high-level diplomatic participation, India needs to focus on **judicial capacity building** by increasing the number of specialized commercial court judges and support staff. Further, leveraging technology for e-filing and virtual hearings (especially post-pandemic) is essential to reduce pendency and align with the 'Future of International Commercial Courts.'

Conclusion

The Union Minister's presence in Bahrain is a clear signal that judicial reform, particularly in the commercial sector, is a key component of India's economic diplomacy. By building trust in its dispute resolution mechanism, India is proactively removing a major roadblock to becoming a global manufacturing and investment hub.

Practice Mains Question

Q. "A robust and speedy commercial dispute resolution mechanism is a prerequisite for achieving the 'Aatmanirbhar Bharat' economic vision." Discuss the legislative and infrastructural reforms India has undertaken to achieve this and the challenges that persist.

Social/Judiciary: SC Order on Stray Dog Management

Syllabus

GS Paper-II: Government policies and interventions for development in various sectors and issues arising out of their design and implementation. Welfare mechanisms.

GS Paper-III: Environmental Pollution and Degradation (Human-Animal Conflict).

Context

The Supreme Court (SC) issued a directive to all States and Union Territories (UTs) to **remove stray dogs** from critical public institutions like **schools, hospitals, public sports complexes, and railway stations**. The dogs must be relocated to **designated shelters** after due **sterilisation and vaccination** (ABC Rules compliance). The court specifically ordered that the dogs **must not be released back** to the same spots from where they were picked up, citing an **"alarming rise"** in dog-bite incidents and systemic failure to protect public safety.

Multi-Dimensional Analysis (Summary)

Public Health vs. Animal Welfare: The order balances public safety (curbing dog bites, rabies) with animal welfare (sterilisation, vaccination as per Animal Birth Control Rules). The non-release clause is a point of contention with activists who cite ABC Rules requiring return to the capture site.

Institutional Security: Directed institutions to ensure proper fencing and appoint a nodal officer, making management a non-negotiable administrative task.

Constitutional Mandate: The order stems from the state's obligation to safeguard the fundamental right to life and safety (**Article 21**) of citizens, especially vulnerable groups like children and patients.

Positives, Negatives, and Government Schemes (Summary)

Aspect	Description
Positives	**Enhanced Safety:** Immediate reduction in dog-bite risks in high-traffic, sensitive areas. **System**

Aspect	Description
	Accountability: Puts direct responsibility on local bodies and district administration for compliance. **Rabies Control:** Boosts sterilisation (ABC) and vaccination drives.
Negatives	**Logistics & Infrastructure:** States lack sufficient designated shelters, veterinarians, and funding for mass, systematic, and humane relocation. **Conflict with ABC Rules:** The *non-release* clause is seen by activists as a violation of the letter and spirit of the ABC rules.
Relevant Schemes/Acts	**Animal Birth Control (Dogs) Rules:** Legal framework for sterilization and vaccination. **Prevention of Cruelty to Animals Act, 1960:** Basis for animal welfare guidelines.

Mains Practice Question

Examine the ethical and administrative challenges in implementing the Supreme Court's directive on the removal of stray dogs from public institutions. How can the mandate for public safety be harmonised with the Animal Birth Control Rules? (150 words)

Draft Shram Shakti Niti 2025 and Labour Policy Analysis

Syllabus

GS-II: Government Policies and Interventions for Development in various sectors and issues arising out of their design and implementation.

GS-III: Inclusive Growth and issues arising from it. Social Sector/Services relating to Health, Education, Human Resources.

Context

The **Draft Shram Shakti Niti (DSSN) 2025**, proposed by the Ministry of Labour and Employment, aims to comprehensively overhaul India's labour ecosystem, responding to the challenges posed by the **Gig and Platform Economy**, Artificial Intelligence (AI) integration, and the continued precariousness of the unorganized workforce. The recent debate stems from critiques published in major newspapers, pointing to the Policy's failure to adequately address job precarity, ensure universal social security, and provide a clear legal framework for new forms of employment, potentially rendering its provisions as 'empty promises.'

Main Body in Multi-Dimensional Analysis

1. Economic Dimension

The Niti acknowledges the shift towards flexible contract work and aims to formalize it, which is vital as the Gig Economy is projected to employ over 2.35 crore people by 2030. However, critics argue it places the onus of social security contribution disproportionately on the **workers and aggregators**, rather than mandating a minimum floor wage or universal social security through state funds, potentially stifling the growth of nascent platform firms and burdening the workers themselves. The inclusion of AI-driven job facilitation is a key feature, intended to match workers to skills, but raises concerns about technological displacement and algorithmic management.

2. Legal/Governance Dimension

The policy must align seamlessly with the **four Labour Codes** (Code on Wages, Industrial Relations Code, Code on Social Security, and Occupational Safety, Health and Working Conditions Code). The key challenge lies in defining the *'employee'* vs. *'worker'* status for gig and platform workers. While the Code on Social Security recognizes them as *'unorganized workers,'* they are excluded from the ambit of the Code on Wages (minimum wage protection) and the Industrial Relations Code (right to collective bargaining), creating a legal vacuum and diluting their fundamental rights.

3. Social Justice and Welfare Dimension

A core principle of the Niti is ensuring **Dignity of Labour** and **Gender Equity**. The unorganized sector, especially in agriculture, construction, and domestic work, is overwhelmingly female. The policy proposes mechanisms to improve their working conditions, but falls short on specific, time-bound targets for creating safe, women-friendly workspaces and establishing accessible, state-run

creches. The push for portability of social security benefits, while positive, is insufficient without assured floor-level benefits that cover health, pension, and life insurance.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Formal Recognition:** Explicitly recognizes the existence of **Gig and Platform Workers** and the AI-driven future of work. **Skilling Focus:** Strong emphasis on re-skilling/up-skilling the workforce for industry 4.0. **Portability:** Focus on ensuring portability of benefits (e.g., PF, health insurance) across states and employers for migrant workers.
Negatives	**Regulatory Gaps:** Fails to clearly classify Gig workers as **'employees,'** denying them minimum wage and collective bargaining rights. **Funding Burden:** Relies heavily on a self-funding model (1-2% levy on aggregator turnover) for social security, which may be inadequate and passed onto consumers/workers. **AI Risk:** Does not provide adequate safeguards against **algorithmic bias** and job displacement by AI/automation.
Government Schemes	**e-Shram Portal:** National database for unorganized workers to facilitate social security schemes. **Pradhan Mantri Shram Yogi Maan-dhan (PMSYM):** Voluntary and contributory pension scheme for unorganized workers. **Ayushman Bharat:** Health insurance coverage for low-income families, including unorganized workers.

Way Forward

Guaranteed Social Security Floor: The government must transition from a contributory model to a **universal, state-funded social security floor** for all unorganized workers, covering basic health, accident, and pension benefits, leveraging the **e-Shram Portal** data.

Legal Clarity and Rights: Amend the Social Security Code to mandate a **minimum floor wage** for all workers, including gig workers, and explicitly grant them the **right to collective representation** under the Industrial Relations Code.

Digital and AI Governance: Establish an independent regulatory body to audit and manage the use of **AI in labour management**, ensuring transparency in algorithms and preventing discriminatory or exploitative practices (e.g., 'robo-firing').

Strengthening Inspection and Enforcement: Invest heavily in a modern, IT-enabled labour inspection system to ensure compliance with the new Labour Codes, particularly regarding wages and working hours for the vulnerable workforce.

Conclusion

The Draft Shram Shakti Niti 2025 is a crucial step toward acknowledging the fundamental structural changes in India's labour market. However, a transformative policy must move beyond mere recognition to ensuring **substantive rights** and **universal security**. To truly be a 'Shakti' (power) policy, it must be equitable, legally robust, and fully aligned with the constitutional vision of a welfare state, ensuring the dignity and economic security of every worker, regardless of their employment model.

Mains Practice Question

Q. The Draft Shram Shakti Niti 2025 attempts to formalize India's labour market in the age of the Gig Economy and AI. Critically analyze the infirmities and legal gaps in the draft policy, and suggest a framework for ensuring universal social security and rights for all workers in the unorganized sector. (250 words)

Dumpsite Remediation Accelerator Programme (DRAP)

Syllabus

GS-II: Government policies and interventions for development in various sectors.

GS-III: Conservation, environmental pollution and degradation. Urbanization challenges.

Context

The launch of the **Dumpsite Remediation Accelerator Programme (DRAP)** by the Ministry of Housing and Urban Affairs (MoHUA) during the National Urban Conclave is a mission-mode initiative to fast-track the remediation of existing dumpsites across urban India. The program is directly tied to the national goal of achieving **"Lakshya Zero Dumpsites" by September 2026** under the Swachh Bharat Mission-Urban (SBM-U). This move is critical as India's cities face escalating land pressure and environmental damage from legacy waste that has accumulated over decades in massive landfills.

Main Body in Multi-Dimensional Analysis

1. Environmental and Land Use Dimension

Legacy waste (often decades old) in dumpsites is a potent source of **landfill gas** (primarily methane, a powerful greenhouse gas), leachate (toxic liquid contaminating soil and groundwater), and air pollution from fires. DRAP aims to reclaim valuable urban land—often acres in prime city locations—by processing this waste using technologies like **Biomining and Bio-remediation**. This not only reduces India's greenhouse gas emissions but also frees up real estate for community parks, housing, or infrastructure, directly benefiting urban environmental health and planning.

2. Financial and Governance Dimension

The Accelerator Programme structure is designed to overcome the common hurdles of funding and project execution. It promises **additional financial support** to cities that show commitment to remediation projects. A key governance innovation is the proposed involvement of **corporate and Public Sector Undertakings (PSUs)** for project support (CSR or financial), shifting the burden solely from Municipal Corporations. Furthermore, the plan to utilize the inert waste for **road construction projects** by Central and state road agencies (MoRTH, NHAI) provides a ready market for the end product, enhancing the financial viability of remediation.

3. Social and Health Dimension

Dumpsites are often located near marginalized communities, leading to severe health disparities (respiratory illnesses, skin conditions). Remediation directly improves the quality of life and health outcomes for these residents. The process also formalizes the work of **waste pickers** and ragpickers, integrating them into the organized waste processing value chain through specialized training and provision of safety gear. Thus, DRAP is simultaneously a public health intervention, a climate action plan, and an exercise in urban social justice.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Targeted Deadline:** Mission-mode approach with a clear 'Zero Dumpsites by Sept 2026' target. **Resource Linkage:** Creates market for inert waste by linking with MoRTH for road construction. **Methane Reduction:** Addresses climate change by remediating methane-emitting legacy landfills. **Land Reclamation:** Frees up valuable urban land for productive use.
Negatives	**Technology Scale:** Biomining and processing techniques can be capital-intensive and slow to scale across thousands of sites. **Logistical Hurdles:** Challenge of moving massive quantities of processed waste and securing approvals for its use in construction. **State Capacity:** Municipal capacity and technical expertise vary widely across cities, potentially leading to uneven implementation.
Government Schemes	**Swachh Bharat Mission – Urban 2.0:** Comprehensive mission for solid waste management. **City Investments to Innovate, Integrate and Sustain (CITIIS) 2.0:** Supports integrated urban infrastructure and service delivery projects.

Way Forward

Mandatory Technical Audit: Institute mandatory third-party technical audits of all ongoing and completed remediation projects to ensure quality and prevent sub-standard work.

Financial Innovation: Establish a **Dedicated Waste Remediation Fund** leveraging green bonds and CSR funding specifically for DRAP.

Capacity Building Hubs: Create regional **Centers of Excellence (CoE)** for waste management and biomining technology to train municipal staff and private contractors.

Incentivizing States: Introduce a competitive ranking system (like the Swachh Survekshan) focused solely on dumpsite remediation progress, offering greater financial incentives for top-performing states.

Conclusion

The Dumpsite Remediation Accelerator Programme is a bold, time-bound commitment necessary to cleanse India's urban landscape. By providing dedicated financial, technical, and governance support, DRAP moves beyond policy intent to concrete execution. Its success will not only be measured in acres of reclaimed land but also in India's improved air quality, reduced climate footprint, and a tangible rise in the quality of urban life, making it a critical measure of urban governance in the next two years.

Transplantation of Human Organs and Tissues (Amendment) Rules, 2025

Syllabus

GS-II: Government Policies and Interventions. Issues relating to development and management of Social Sector/Services relating to Health.

Context

The Union Ministry of Health and Family Welfare's notification of the **Transplantation of Human Organs and Tissues (Amendment) Rules, 2025**, marks a crucial step in reforming India's organ donation and transplantation ecosystem. These amendments, based on expert committee recommendations, primarily focus on **streamlining the process, preventing commercial exploitation**, and addressing the vast gap between the demand and supply of organs. The reform is necessary to improve the transparency and accessibility of life-saving transplants while rigorously upholding the ethical and legal provisions of the **Transplantation of Human Organs and Tissues Act (THOTA), 1994**.

Main Body in Multi-Dimensional Analysis

1. Ethical and Legal Dimension

The amendments are aimed at strictly enforcing the ban on **commercial trading of organs**, which is a grave ethical and legal offense. Stricter scrutiny is mandated for non-relative transplants, where living donors are involved, to verify the motive and relationship between the donor and recipient, thereby curbing illegal transplant rackets. Furthermore, the amendments may introduce standardized protocols for **brain death certification** and retrieval procedures, ensuring that the process is transparent, legally sound, and minimizes the scope for exploitation or malpractices across all authorized hospitals.

2. Accessibility and Systemic Dimension

A key focus of the reforms is to remove administrative hurdles that impede legitimate transplants. This includes simplifying the process for obtaining a **'No Objection Certificate' (NOC)** for the transplant of a deceased donor's organs between states. The amendment seeks to ensure that geographical boundaries do not become a death sentence for patients waiting for matching organs. Establishing a robust, real-time, **National Organ and Tissue Transplant Organisation (NOTTO)** digital network with mandatory registration for all waitlisted patients and available organs is critical for equitable allocation.

3. Social and Behavioral Dimension

Despite a large population, India's organ donation rate remains abysmal (around 0.8 donors per million population). The amendments are often accompanied by policy thrusts to encourage **public awareness and cultural acceptance** of both deceased and living donation. Introducing mandatory training on **counselling for bereaved families** in all hospitals is a soft intervention with a huge impact. The rules must also address the complexities of transplant

tourism, ensuring that India's health infrastructure is not misused by foreign nationals seeking transplants outside of stringent ethical frameworks.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Curbing Organ Trafficking:** Stricter verification rules for non-relative transplants enhance ethical safeguards. **Inter-State Coordination:** Streamlines the NOC process, improving the efficiency of organ sharing across states. **Transparency:** Enhances data integrity and allocation fairness through mandatory NOTTO registration. **Public Health:** Potentially increases the supply of organs, saving thousands of lives annually.
Negatives	**Bureaucratic Delay:** Overly complex verification processes, while necessary, can lead to critical delays in genuine cases. **Digital Divide:** The efficacy of a national digital registry depends on uniform digital capacity across all states and hospitals. **Social Stigma:** Legal amendments cannot independently overcome the deep-rooted cultural and religious hesitancy surrounding deceased organ donation.
Government Schemes	**National Organ Transplant Programme (NOTP):** Provides funding for state-level transplant infrastructure and awareness campaigns. **Ayushman Bharat Digital Mission (ABDM):** Provides the digital backbone for a potential national health registry, including organ donation data.

Way Forward

Deemed Consent for Deceased Donation: Initiatea public debate on adopting a system of **'opt-out' or 'deemed consent'** for deceased organ donation, provided public awareness is high, to address the critical supply shortage.

Centralized Processing: Centralize the approval process for non-relative transplants at the NOTTO level to ensure uniform application of ethical and legal checks.

Mandatory Training: Make **mandatory training** on medico-legal and ethical aspects of organ donation for all medical and para-medical staff in hospitals with Intensive Care Units (ICUs).

Financial Support for Poor: Provide comprehensive **financial support** under schemes like Ayushman Bharat for transplant costs, ensuring that increased organ availability benefits the poor and marginalized.

Conclusion

The Transplantation of Human Organs and Tissues (Amendment) Rules, 2025, represent a vital, governance-led push to fortify the ethical framework and administrative efficiency of India's transplant system. The focus on tightening security against illegal trade and improving inter-state coordination is commendable. However, the lasting success of this reform will require a national, concerted effort to fundamentally shift public behavior and bridge the resource disparity between states, thereby building a compassionate and transparent organ donation culture.

Launch of 'Developed Uttar Pradesh @ 2047' Public Dialogue Initiative

Syllabus

GS-II: Functions and responsibilities of the Union and the States. Government policies and interventions.

GS-III: Major crops, various cropping patterns, food processing, and related industries in UP.

Context

The Uttar Pradesh (UP) Government's launch of the "Developed Uttar Pradesh @ 2047" public dialogue program on November 14, 2025, signifies a major policy thrust towards decentralized planning for the future. The initiative focuses on transforming UP into a self-reliant, prosperous, and sustainable agricultural economy by increasing **farmers' income**. This state-level strategy, developed in consultation with NITI Aayog, aims to capitalize on UP's vast

agricultural land (11% of India's total) and its leading contribution to food grain production (21.58% nationally), setting a concrete action plan for the next two decades.

Main Body in Multi-Dimensional Analysis

1. Agricultural Economy and Vision Dimension

The core focus is to enhance UP's agricultural productivity and transition from bulk production to **value-added processing and exports**. The state currently leads in crops like wheat, sugarcane, and potato. The dialogue aims to identify bottlenecks and chart a long-term vision focusing on:

Crop Diversification: Moving away from water-intensive crops (like paddy) to high-value horticulture and specialty crops.

Post-Harvest Infrastructure: Massive investment in cold storage, food processing parks, and logistics to minimize wastage and enhance shelf life.

Export Market Linkages: Creating specific agricultural export zones and facilitating direct linkages between Farmer Producer Organizations (FPOs) and international buyers.

2. Governance and Collaborative Planning Dimension

The initiative emphasizes a **bottom-up and collaborative planning approach**. By bringing together 300 agricultural experts, scientists, progressive farmers, and officials, the government aims to create a vision document that is grounded in practical field realities. The consultation with **NITI Aayog** ensures that the state plan aligns with the national goal of **Viksit Bharat @ 2047** and integrates with Central schemes, maximizing resource utilization and avoiding policy duplication. This approach exemplifies co-operative federalism applied at the state-district level.

3. Socio-Economic and Sustainability Dimension

The target of "increasing farmers' income" is a direct measure of the initiative's success. This involves more than just yield increases; it necessitates ensuring **fair price realization** and **risk mitigation** for farmers. On the sustainability front, the dialogue will focus on addressing critical challenges like **groundwater depletion** (severe in many districts) and poor soil health through the promotion of micro-irrigation, natural farming, and technology-led advisory services. The vision aims for a self-reliant UP economy that is both high-growth and ecologically balanced.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Visionary Planning:** Provides a long-term (2047) strategic roadmap for the state's largest economic sector. **Stakeholder Inclusion:** Ensures policy relevance by incorporating inputs from farmers and field experts. **Alignment with Centre:** Consultation with NITI Aayog helps in resource alignment with national goals. **Focus on Value Chain:** Stresses exports and processing, moving beyond mere production targets.
Negatives	**Implementation Challenge:** Translating a large-scale vision document into actionable, timely projects across 75 districts is logistically immense. **Political Will:** Sustaining the multi-decade plan through changing political and administrative cycles is a major risk. **Capital Intensity:** Requires vast state investment in infrastructure, which may strain state finances.
Government Schemes	**PM Fasal Bima Yojana (PMFBY):** Risk coverage for farmers. **Per Drop More Crop (Micro-irrigation):** Directly supports the sustainability focus. **PM Formalization of Micro Food Processing Enterprises (PM-FME):** Supports the food processing goal.

Way Forward

District-Level Metrics: Convert the state-level vision into quantifiable, time-bound targets and key performance indicators (KPIs) for each district, specifically focusing on **Farm Income Growth** (not just yield).

Dedicated Nodal Agency: Establish a high-powered, autonomous **UP Agriculture Transformation Council** to oversee the implementation, policy harmonization, and coordination between departments.

Technology Adoption Mandate: Mandate the adoption of **precision agriculture** and AI-powered advisory systems in a cluster-based manner, providing subsidized access to small and marginal farmers.

Durga Drone Squadron: BSF's First All-Women Drone Operations Unit

Syllabus

GS-II: Role of women. Government policies and interventions for development in various sectors.

GS-III: Security challenges and their management in border areas. Science and Technology (Defence).

Context

The Border Security Force (BSF) commissioned its first all-women drone operations unit, the **'Durga Drone Squadron,'** at the School of Drone Warfare (SDW) in Gwalior, Madhya Pradesh, on November 14, 2025. This initiative is a pioneering step in integrating gender diversity into specialized, high-tech security roles and represents a modernization of India's border management strategy. The 'Durga Drone Squadron' will be trained for complex tasks, including **drone operations, surveillance, reconnaissance, and counter-drone measures**, enhancing the effectiveness of border security, particularly along challenging international borders.

Main Body in Multi-Dimensional Analysis

1. Internal Security and Technology Dimension

The increasing use of drones by hostile elements for smuggling (drugs, arms) and surveillance across international borders necessitates a robust counter-response. The Durga Drone Squadron will provide the BSF with **specialized, 24/7 aerial surveillance capability**, utilizing advanced thermal and night-vision equipped Unmanned Aerial Vehicles (UAVs). The training focuses on both operating surveillance drones and employing **anti-drone technology** (e.g., jammers, interceptor drones), making the unit highly valuable in detecting and neutralizing cross-border threats, a crucial element of the **Comprehensive Integrated Border Management System (CIBMS)**.

2. Social and Gender Empowerment Dimension

The establishment of an all-women drone unit is a strong statement on **gender parity** and **empowerment** within India's paramilitary forces. It showcases that women are capable of excelling in highly technical, high-pressure roles that were traditionally male-dominated. This initiative encourages more women to join the security forces and take up specialist roles, broadening the talent pool available for the modernization of India's defense and security apparatus. The success of the Durga Squadron will serve as a powerful role model and challenge traditional stereotypes about women in the forces.

3. Strategic and Operational Dimension

Deploying women personnel in this technical capacity frees up other BSF personnel for traditional combat and patrolling duties. Drones provide a force multiplier effect, offering a wider field of view over rugged terrain and reducing the risk to human life during initial reconnaissance of suspicious activity. The unit's expertise in **drone maintenance, flight path programming, and real-time data analysis** is essential for maintaining a technological edge over adversaries in asymmetric warfare scenarios at the border.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Border Security Enhancement:** Provides a modern, high-tech layer of surveillance and counter-drone defense. **Gender Parity:** Breaks stereotypes and promotes women's participation in specialized technical security roles. **Force Multiplier:** Drones offer wider and safer surveillance, optimizing manpower allocation for ground duties. **Specialized Training:** Focus on both drone operation and counter-drone measures, addressing current threats.

Category	Description
Negatives	**Technical Upgradation:** The rapid evolution of drone technology requires continuous investment in new equipment and training. **Retention Challenge:** Retaining highly skilled women personnel in these specialized roles might be difficult without clear career progression paths. **Operational Environment:** Drones are vulnerable to jamming, electronic warfare, and adverse weather conditions at border outposts.
Government Schemes	**Mission for Self-Reliance in Defence:** Encourages the indigenous development and use of specialized drones and counter-drone technology. **Beti Bachao, Beti Padhao:** Indirectly supported by creating highly visible role models in technical fields.

Way Forward

Career Progression Path: Create a dedicated, fast-track **Specialist Cadre** within the BSF for drone warfare and technical roles to ensure professional growth and retention of women personnel.

Indigenous Tech Procurement: Prioritize the procurement of indigenously developed drones and anti-drone systems for the squadron to support the 'Make in India' and 'Aatmanirbhar Bharat' missions.

Inter-Force Integration: Mandate regular joint exercises with other forces (Army, ITBP) to share best practices and ensure seamless integration of drone intelligence into broader border defense strategies.

Global Energy Leaders' Summit (GELS) 2025 Logo and Website Launch

Syllabus

GS-II: Government policies and interventions for development in various sectors. Important international institutions.

GS-III: Conservation, environmental pollution and degradation. Infrastructure: Energy.

Context

The Ministry of Power and the Ministry of New & Renewable Energy, in collaboration with the Government of Odisha, launched the logo and website for the **Global Energy Leaders' Summit (GELS) 2025** to be held in Puri, Odisha (December 5-7, 2025). The summit's theme, **"Powering India: Sufficiency, Balance, Innovation,"** reflects India's dual commitment: ensuring **energy access and security** for its growing population while simultaneously driving an aggressive **clean energy transition** towards the Net-Zero goal by 2070. The GELS platform is intended to be a national and global dialogue on climate leadership and technology-driven transformation.

Main Body in Multi-Dimensional Analysis

1. Energy Transition and Climate Leadership Dimension

GELS 2025 is a platform for India to showcase its significant strides in its energy transition journey, particularly its rapid expansion of **renewable energy (RE)** capacity. The theme 'Sufficiency' addresses the immediate need for **energy security** in a developing economy, while 'Balance' refers to the complex act of phasing down coal dependence while accelerating RE deployment and maintaining grid stability. By hosting a global summit, India asserts its leadership in driving climate action from the perspective of a large, developing economy with unique energy demands.

2. Policy and Innovation Dimension

The summit will focus on the four pillars of India's energy vision: **Energy Access, Efficiency, Sustainability, and Security.** Discussions will likely center on:

Technology Innovation: Deepening the focus on the **National Green Hydrogen Mission**, advanced battery storage (ACC), and carbon capture technologies.

Grid Modernization: Strategies for ensuring **grid stability** and flexibility to handle intermittent renewable power, including smart grids and digitalization.

Financial Mobilization: Attracting global capital (green bonds, FDI) for large-scale RE and transmission projects. The summit aims to identify policy and regulatory hurdles that impede innovation and investment in the sector.

3. Cooperative Federalism and Regional Dimension

Choosing Odisha, a state with significant mineral resources and coastal infrastructure, as the host city highlights the role of **cooperative and competitive federalism** in the energy transition. States are crucial in implementing RE policies, developing local grids, and attracting private sector investment. Odisha, with its focus on industrial development and energy infrastructure, becomes a model state for discussions on balancing economic growth with sustainable practices, particularly concerning industrial decarbonization and the future of coastal energy hubs.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Global Dialogue:** Provides an international forum for India to shape the energy transition debate from a developing country's perspective. **Investment Focus:** Attracts attention and capital from global energy companies and financial institutions to Indian projects. **Policy Harmonization:** Facilitates exchange between Central Ministries, State Governments, and private sector leaders. **Technology Push:** Highlights indigenous R&D and manufacturing capabilities in the clean energy sector.
Negatives	**Implementation Gap:** High-level dialogue must be followed by concrete policy and regulatory reforms on the ground to be effective. **Financing Challenge:** Securing the massive funding required for the transition (estimated in trillions of dollars) remains a major hurdle. **Sectoral Conflict:** Balancing the interests of the legacy coal/oil sector with the rapidly growing RE sector requires delicate policy navigation.
Government Schemes	**National Green Hydrogen Mission:** Core focus area for technological and policy discussion. **PM-KUSUM:** Scheme for decentralized RE generation in agriculture. **National Smart Grid Mission:** Focus on grid modernization and efficiency.

Way Forward

Output-Focused Action Plan: Ensure the GELS concludes not just with a declaration, but with a **time-bound 'Puri Action Plan'** for energy sector reforms and investment targets.

Youth and Startups: Dedicate a specific track at the summit to **clean-tech startups** and young energy professionals to foster innovation and entrepreneurship.

Energy Poverty Measurement: Introduce a specialized session on developing robust metrics for measuring and eliminating **energy poverty** and ensuring equitable access to clean cooking fuel.

Dumpsite Remediation Accelerator Programme (DRAP)

Syllabus

GS-III: Environmental pollution and degradation; Disaster Management.

GS-II: Government policies and interventions for development.

Context

The **Ministry of Housing and Urban Affairs** launched the **Dumpsite Remediation Accelerator Programme (DRAP)** as a year-long, mission-mode initiative. DRAP aims to fast-track the remediation and reclamation of all remaining dumpsites across urban India, advancing the goal of achieving **"Lakshya Zero Dumpsites" by September 2026** under the Swachh Bharat Mission (SBM) 2.0.

Main Body: Multidimensional Analysis

Environmental and Health Dimension

Legacy dumpsites, often containing millions of tonnes of old waste, are major sources of **land, water, and air pollution**. They generate **landfill gas (methane)**, a potent greenhouse gas, and **leachate** (toxic liquid) that contaminates groundwater. Remediation (or **bioremediation** using trommels and waste processing) is essential for reclaiming valuable urban land, improving public health by reducing vectors of disease, and mitigating the environmental disaster of garbage mountains.

Urban Planning and Governance Dimension

Dumpsites occupy prime urban land, hindering city development and infrastructure expansion. The DRAP is designed to incentivize faster action by urban local bodies (ULBs) by offering **additional financial support** and roping in corporate/Public Sector Undertakings (PSUs) for support. The strategy includes innovative use of inert waste for road construction projects by central and state road agencies, turning waste into a resource. The program structure, therefore, focuses on both environmental cleanup and urban space utilization.

Circular Economy and Technology Dimension

Remediation involves the scientific processing of legacy waste to recover valuable resources: **Refuse Derived Fuel (RDF)** for waste-to-energy plants, soil/sand for construction fill, and recyclable materials (metals, plastics). DRAP pushes for the adoption of proven technologies (like **trommeling and windrow composting**) and scientific disposal of non-recoverable rejects. This approach is fundamental to promoting a **circular economy** by reducing the demand for fresh raw materials and diverting waste from new landfills.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Land Reclamation:** Frees up valuable urban land for infrastructure and community use. **Pollution Control:** Reduces methane emissions, groundwater contamination, and air pollution. **Resource Recovery:** Converts waste into resources (e.g., RDF, inert material for roads), aligning with the circular economy.
Negatives	**Cost Intensity:** Bioremediation and capping of landfills are highly expensive and time-consuming processes. **Technological Gaps:** Need for scaling up effective, locally adaptable waste processing technologies beyond basic separation. **Rejection Disposal:** Challenge in scientifically disposing of the remaining non-recyclable 'reject' material.
Relevant Schemes	**Swachh Bharat Mission-Urban 2.0:** Focuses entirely on achieving 'Garbage Free Cities' and scientific solid waste management. **Waste to Wealth Mission:** Promotes sustainable models for waste management and resource recovery.

Relevant Examples

Dumpsite Remediation in Delhi/Mumbai: Successful, albeit partial, remediation of large landfill sites provides a technical and operational blueprint for other cities.

Use of Inert Waste in Roads: Utilizing recovered inert material in road construction, as mandated by the DRAP, demonstrates inter-sectoral resource utilization.

Way Forward

Decentralization and Training: Decentralize waste processing and provide intensive training to ULB staff on the selection and operation of scientific remediation technologies.

Private Sector Model: Develop robust **PPP (Public-Private Partnership) models** that include performance-linked incentives for private companies to accelerate the remediation process.

Financial Innovation: Explore innovative financing mechanisms, such as **Municipal Bonds** specifically for sanitation projects, to ensure consistent and large-scale funding.

Source Segregation: Ensure strict **source segregation** of fresh waste to prevent the creation of new dumpsites and make the work of remediation permanent.

Conclusion

The Dumpsite Remediation Accelerator Programme is a mission to reverse decades of mismanagement of municipal solid waste. By providing financial thrust and a clear target, DRAP brings urgency to the task of cleaning India's urban landscape, transforming environmental liabilities into economic assets and advancing the goal of a clean and green urban India.

Road Accident Black Spot Data and e-DAR System

Syllabus

GS-III: Disaster and Disaster Management (Road Safety falls under this as a man-made disaster).

GS-II: Government policies and interventions.

GS-III: Science and Technology—developments and applications (e-DAR system).

Context

The **Ministry of Road Transport and Highways (MoRTH)** is set to release comprehensive road accident black spot data for 2023 and 2024. This data is being generated using the **Electronic Detailed Accident Report (e-DAR)**/Integrated Road Accident Database (**iRAD**) system. The identification and remediation of **black spots** (critical stretches with high accident rates) are central to the government's strategy to reduce road traffic fatalities by 50% by 2030.

Main Body: Multidimensional Analysis

Data and Technology Dimension

The e-DAR/iRAD system is a technological leap in accident data collection. It is a **real-time, geo-tagging application** used by police and first responders to record accident details. This shift from paper-based, delayed reporting to digital, standardized data collection allows for **precise identification** of accident-prone locations (black spots) based on rigorous criteria (e.g., 5 accidents or 10 fatalities in a 500m stretch over 3 years). This data accuracy is essential for evidence-based policymaking.

Safety and Engineering Dimension

Once identified, black spots require immediate **engineering remediation**, such as re-designing intersections, improving signage, installing crash barriers, fixing potholes, and ensuring proper lighting. The latest data will enable the **National Highways Authority of India (NHAI)** to prioritize and allocate funds for structural corrections. The objective is to move from reactive response (managing accidents) to **proactive prevention** (engineering safety).

Socio-Legal and Compensation Dimension

The e-DAR system also standardizes the process of filing accident reports, making it faster and easier for victims to claim compensation through insurance companies and Motor Accident Claims Tribunals (MACTs). Previously, delayed or inconsistent paper reports often complicated and prolonged the claims process. The accurate, digital data captured by iRAD/e-DAR significantly reduces the time taken for claims settlement, improving the **"Ease of Justice"** for road accident victims.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Evidence-based Action:** Enables precise identification and targeted engineering correction of high-risk stretches (black spots). **Claims Settlement:** Accelerates the insurance claim process for victims through standardized, digital reports. **Goal Alignment:** Critical step toward achieving the target of reducing road fatalities by half by 2030 (Decade of Action for Road Safety).
Negatives	**Data Uniformity:** Ensuring consistent, accurate data entry by all police personnel across different states remains a challenge. **Implementation Gap:** Delays in actual engineering remediation of identified black spots due to funding or administrative bottlenecks. **Inter-Agency Coordination:** Requires seamless data sharing and coordination between Police, Transport, Health, and Engineering departments.

Aspect	Description
Relevant Schemes	**iRAD (Integrated Road Accident Database):** The centralized system for digital accident data collection and analysis. **National Road Safety Policy:** The overarching framework guiding all road safety initiatives.

Relevant Examples

NHAI Remediation Project: The NHAI periodically allocates thousands of crores to address black spots identified in the previous cycles, often through overpasses, underpasses, and improved geometry.

Motor Vehicles (Amendment) Act, 2019: Strengthened provisions for road safety, traffic violations, and insurance requirements, complementing the data-driven approach.

Way Forward

Mandatory Compliance: Mandate the uniform adoption and usage of the iRAD system across all states and districts by linking it to central funding for road infrastructure.

Performance Audit: Conduct independent **performance audits** on the engineering corrections implemented at black spots to verify their effectiveness in reducing accidents.

Predictive Analytics: Utilize the vast data generated by e-DAR/iRAD for **predictive analytics** to identify potential black spots *before* they manifest as high-fatality zones.

Public Access: Publish anonymized, high-level data on black spots to increase **public awareness** and encourage safer driving behavior in those areas.

Conclusion

The e-DAR/iRAD system represents a paradigm shift in India's road safety management, moving from anecdote to data-driven decision-making. By leveraging technology to pinpoint critical danger zones and facilitate prompt engineering solutions, the government is on track to save countless lives and fulfill its international commitment to safer roads.

Supreme Court Directive on Stray Animals and Public Spaces

Syllabus

GS-II: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes.

GS-II: Government policies and interventions.

Context

The Supreme Court recently issued a directive mandating the **removal of stray dogs from educational institutions, hospitals, sports complexes, bus stands, and railway stations** to designated shelters, after **due sterilization and vaccination** in accordance with the Animal Birth Control (ABC) rules. This directive aims to balance the public's right to safety in critical spaces with the humane treatment and control of the stray animal population.

Main Body: Multidimensional Analysis

Public Health and Safety Dimension

The presence of stray animals in high-footfall areas like hospitals and schools poses a significant public health risk, primarily from dog bites and the potential transmission of **rabies**. The Supreme Court's order recognizes the need to ensure public spaces are safe and hygienic. By mandating immediate removal and transport to designated shelters, the court prioritizes public safety while ensuring the animals are not harmed.

Animal Welfare and Legal Dimension

The order is firmly rooted in the principles of the **Prevention of Cruelty to Animals (PCA) Act, 1960**, and the **Animal Birth Control (ABC) Rules**. It strictly prohibits culling and mandates that the animals must be sterilized and vaccinated before being sheltered or, eventually, relocated to appropriate zones. This affirms the legal recognition that stray animals have a right to humane treatment and that their population must be controlled through scientific, non-lethal methods.

Governance and Implementation Challenge Dimension

The core challenge lies in the **uniform implementation** of the directive across all states within the short stipulated period. It requires a massive increase in the capacity of **Animal Birth**

Control (ABC) centers (infrastructure and veterinary staff), the establishment of adequate **designated shelters**, and effective coordination between Municipal Corporations, NGOs, and the Police. The lack of standardized infrastructure and funds in many municipal bodies will be the primary hurdle to compliance.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Enhanced Public Safety:** Makes critical public infrastructure (schools, hospitals) safer for citizens. **Humane Control:** Reaffirms non-lethal methods (ABC) as the only legal way to control the stray population. **Accountability:** Mandates uniform implementation and requires compliance reports from authorities, increasing accountability.
Negatives	**Infrastructure Overload:** Existing municipal ABC centers and shelters are already overwhelmed and lack the capacity for mass sterilization and housing. **Financial Burden:** Imposes a significant, immediate financial and logistical burden on urban local bodies. **Conflict with ABC Rules:** Rapid removal might conflict with the spirit of ABC rules, which often prefer releasing sterilized dogs back into their original, familiar territories.
Relevant Schemes	**Animal Birth Control (ABC) Rules:** The statutory framework guiding the sterilization and vaccination of stray dogs. **Prevention of Cruelty to Animals (PCA) Act, 1960:** The principal legislation for animal welfare in India.

Relevant Examples

Kerala vs. Stray Dog Menace: Past legal battles and public safety crises related to aggressive stray dog populations highlight the tension between animal welfare and public safety.

Municipal Corporation Compliance: The submission of compliance certificates by municipal bodies (as mandated by the court) will reveal the actual on-ground capacity for ABC and sheltering.

Way Forward

Centralized Funding: The Central Government should establish a **dedicated, time-bound financial assistance scheme** to ramp up ABC infrastructure and shelters across all states.

Public-Private Partnership: Encourage **Public-Private Partnerships (PPPs)** with experienced animal welfare NGOs to manage and operate the sterilization, vaccination, and sheltering facilities efficiently.

Digital Monitoring: Implement a **digital tracking system** to monitor the sterilization and vaccination status of strays and the inventory of shelter capacity in real-time.

Zonal Relocation Policy: Develop a scientific, community-vetted **zonal relocation policy** for sterilized and vaccinated animals, avoiding mass dumping in unfamiliar areas.

Conclusion

The Supreme Court's directive is a critical intervention to protect citizens in public spaces while upholding the principles of animal welfare. Achieving uniform compliance requires an urgent, well-funded, and coordinated action plan to enhance the capacity of urban local bodies to humanely and scientifically manage the stray animal population.

HEALTH

National Fitness & Wellness Conclave 2025: "Fitness is Key to Becoming Viksit Bharat by 2047"

Syllabus Relevance:

GS-II (Health & Policies): Issues relating to development and management of Social Sector/Services relating to Health and Human Resource Development.

GS-III (Economy & Human Capital): Infrastructure, investment models, and human capital development.

Context: The National Fitness & Wellness Conclave 2025 was held, with a key takeaway message that **"Fitness is Key to Becoming Viksit Bharat by 2047."** The conclave positioned health and wellness

not merely as a matter of social welfare but as a critical economic and developmental imperative for achieving the vision of a Developed India by the centenary of independence. This marks a strategic shift from focusing purely on disease treatment to actively promoting preventive healthcare and physical well-being.

Main Body: Integrating Fitness into the National Development Model The Conclave advocated for a multi-dimensional approach that integrates physical fitness into five crucial societal domains: **Education, Workplace, Community, Policy, and Infrastructure**. In the education domain, it called for mandating daily physical activity in schools and colleges and integrating nutritional education into the curriculum. For the workplace, the focus was on incentivizing corporate wellness programs and providing tax benefits for companies that invest in employee health, viewing it as a direct investment in productivity. The primary policy mechanism is the **Fit India Movement**, which is to be institutionalized and linked with the **Ayushman Bharat Digital Mission (ABDM)** to track fitness metrics and incentivize healthy behavior through a 'Health Score' that could be linked to insurance premiums or government services. Infrastructure-wise, the conclave pushed for the creation of **'Fit Zones'** in every urban area, including open-air gyms, cycling tracks, and safe walking paths, making physical activity accessible and free for all citizens. The core idea is that a healthier population reduces the burden on the healthcare system and increases the nation's overall human capital and productivity.

Positives/Negatives: Wellness as a Policy Tool

Positives: Economic Gain: A healthier workforce means fewer sick days, higher productivity, and lower public healthcare spending—translating into significant economic savings and growth. **Behavioral Change:** Linking fitness to a national mission like 'Viksit Bharat' gives it urgency and national pride, encouraging widespread citizen participation and behavioral change. **Preventive Healthcare:** Shifting the focus to preventive lifestyle changes directly addresses the rising epidemic of non-communicable diseases (NCDs) like diabetes and hypertension.

Negatives/Challenges: Socio-Economic Disparity: Access to quality food, clean air, and safe spaces for exercise is highly unequal. Promoting fitness without addressing the socio-economic determinants of health could widen the health gap between the rich and the poor. **Measurement and Compliance:** Creating a credible, nationally accepted 'Health Score' and linking it to benefits is technically complex and raises privacy concerns. **Infrastructure Gap:** The existing urban infrastructure is often hostile to fitness (e.g., poor air quality, lack of pavements), requiring massive and costly overhauls.

Way Forward: The immediate next step is the creation of a **National Wellness Index** that moves beyond basic health data to track lifestyle factors, nutrition, and mental health indicators. The government must allocate a **dedicated budget for creating and maintaining community sports and wellness infrastructure** under a centrally sponsored scheme. Finally, the **Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) Ministry** should be fully integrated into the mainstream health mission to promote traditional Indian wellness practices alongside modern fitness regimes, ensuring a holistic, sustainable model for public health.

Social Justice: Proposal for Comprehensive National Policy on Mental Health

Syllabus

GS-2: Issues relating to development and management of Social Sector/Services relating to Health. Welfare schemes for vulnerable sections of the population.

Context

In the wake of increasing recognition of mental health as a critical public health concern—reinforced by the **Supreme Court's 2025 judgment** that recognizes mental health as an essential component of the **Right to Life (Article 21)**—a new proposal for a **Comprehensive National Policy on Mental Health** is being drafted.

This move is designed to address the vast treatment gap (over 70% in many severe mental illnesses) and the persistent issue of stigma.

Main Body (Multi-Dimensional Analysis)

Current Frameworks and Gaps:

Legal Backbone: The **Mental Healthcare Act (MHA), 2017**, provides a rights-based framework, decriminalizes suicide attempts, and mandates accessible and affordable care.

Programmatic Backbone: The **National Mental Health Programme (NMHP)** and its component, the **District Mental Health Programme (DMHP)**, aim to integrate mental health into general healthcare and operate in 767 districts.

Digital Backbone: The **Tele-MANAS** initiative (National Tele Mental Health Programme) provides a 24×7 helpline in 20 languages, acting as a crucial first line of digital care.

The Gap: Despite these, the annual budget allocation remains low (around **1% of the total health budget**), leading to a severe shortage of mental health professionals (less than 1 psychiatrist/100,000 population) and inadequate infrastructure.

Key Components of the Proposed Policy:

Integration and Decentralization: Focus on shifting care from large, often custodial, psychiatric hospitals to **community-based models** by strengthening services at **Ayushman Arogya Mandirs** (upgraded Primary Health Centres).

Workforce Capacity Building: Introducing incentives, scholarships, and short-term training for general physicians, nurses, and community health workers to detect and manage common mental illnesses (**task-sharing approach**).

Preventive and Promotive: Mandating mental health education in schools and colleges, and implementing workplace mental health policies to address job stress and burnout, as recommended by the **Economic Survey 2024-25**.

Constitutional and Rights-Based Mandate:

The Supreme Court's Article 21 ruling elevates mental healthcare to a constitutional right, compelling the state to ensure its provision and making it a fundamental aspect of human dignity.

Positive, Negatives, Government Schemes

Positive:

De-stigmatization: A dedicated policy with high-level backing will bolster awareness campaigns and help normalize seeking psychological support.

Early Intervention: Focus on schools and workplaces ensures early detection and prevention, reducing the severity and long-term disability of mental illnesses.

Rights Compliance: Ensures the country aligns with the **UN Convention on the Rights of Persons with Disabilities (UNCRPD)**, which India is a signatory to.

Negatives:

Implementation Bottlenecks: The DMHP has suffered historically from poor funding and lack of trained personnel; a new policy must overcome these ground realities.

Urban-Rural Divide: The majority of mental health professionals are concentrated in urban areas, making rural access critically difficult despite digital initiatives.

Government Schemes:

Ayushman Bharat: Mental health services are now part of the Comprehensive Primary Health Care package delivered at Ayushman Arogya Mandirs.

National Suicide Prevention Strategy (NSPS): The policy will complement the NSPS by focusing on structural interventions to reduce the risk factors for self-harm.

Examples

The success of **Tele-MANAS** (over 2.5 million calls handled by August 2025) demonstrates the power of digital solutions in bridging the accessibility gap.

Training Accredited Social Health Activists (ASHAs) under the DMHP to identify common symptoms is a key example of the task-sharing approach.

Way Forward

Earmarked Funding: The policy must commit to a significant and non-lapsable increase in the health budget dedicated to mental healthcare (targeting a gradual increase towards 5% of the health budget).

Multi-Sectoral Collaboration: Establish a statutory body to ensure inter-sectoral coordination between

Health, Education, Labour, and Social Justice Ministries for holistic implementation.

Localised Research: Fund research into culturally sensitive and evidence-based Indian models of mental health support to make interventions more relatable and effective.

Conclusion

The proposed Comprehensive National Policy on Mental Health is a crucial step towards transforming mental healthcare in India from a neglected area to a national priority. Its success hinges on robust financing, rapid human resource development, and a sustained community-wide effort to dismantle the entrenched stigma.

Practice Mains Question

Q: Despite the rights-based framework provided by the Mental Healthcare Act, 2017, India faces a huge mental health crisis. Discuss the major gaps in the existing mental healthcare infrastructure and recommend measures for a robust, community-centric National Mental Health Policy. (250 words, 15 marks)

INDIAN POLITY & GOVERNANCE

Census Self-Enumeration Trial Run to Begin in Select Areas

Syllabus Relevance:

GS-II (Governance & Digital India): E-governance, digital initiatives, role of technology in governance, and demographic planning.

Context: In preparation for the much-awaited **Census of India 2027**, a crucial trial run for the **Self-Enumeration (SE)** facility is set to begin in select areas. This pre-test marks a fundamental shift toward India's first fully digital census, where citizens will have the option to fill out their household and individual details online via a dedicated Census Portal. The trial aims to test the functionality, efficiency, and user-friendliness of the digital platform across diverse socio-economic and connectivity landscapes.

Main Body: Digitalizing India's Foundational Data Exercise The trial run is a key component of the multi-dimensional strategy to modernize the Census process. The primary objective is to evaluate the technological backbone, from the mobile application used by enumerators to the centralized Census Portal for SE. The concept of **Self-Enumeration** is a game-changer, as it allows citizens in the selected pre-test areas (e.g., in parts of Karnataka, spanning urban, semi-urban, and remote regions) to voluntarily submit their data online prior to the enumerators' physical visit. This is expected to significantly **reduce the time and financial cost** of the full-scale operation. The SE trial will assess the system's ability to handle high traffic, its security features (ensuring data privacy and preventing duplicates), and its effectiveness in capturing complex demographic data, including the unprecedented inclusion of **Caste Enumeration** since 1931. The successful execution of the trial will determine the scale of the SE facility during the main Census, potentially transforming the exercise from a purely government-led survey into a **citizen-partnership initiative** in data collection. The data from the Census is foundational for the upcoming **Delimitation Exercise** (redistribution of parliamentary seats) and for evidence-based planning.

Positives/Negatives: Digitalization of Census

Positives: Efficiency and Speed: Digital enumeration is expected to cut the data collection and processing time drastically, allowing provisional results to be released much faster than the traditional paper method. **Accuracy:** Eliminating manual data entry errors from millions of forms will significantly improve the data quality and reliability. **Citizen Convenience:** Self-Enumeration provides a convenient option for digitally-literate urban households, minimizing interaction and reducing the burden on enumerators.

Negatives/Challenges: Digital Divide and Exclusion: The primary concern is that over-reliance on SE could lead to the under-counting of vulnerable populations—the elderly, the digitally illiterate, and those in remote, connectivity-poor areas—thereby skewing the final data. **Data Security:** The centralization of sensitive, person-specific data, especially caste data, creates a massive target for cyber threats, necessitating world-class security protocols. **Training Logistical Challenge:** The Census requires training millions of enumerators, and training them on a complex mobile application adds a new layer of logistical difficulty.

Way Forward: The Way Forward for the Census must prioritize **Hybridity and Redundancy**. The SE must be treated as a valuable supplement, not a replacement, for the physical enumeration, with the government ensuring **robust physical outreach** in areas with low digital adoption. The Census office must conduct a thorough **post-trial review** to isolate and fix every single bug and connectivity issue. Furthermore, a massive **public awareness campaign** in multiple languages is required to assure the public of the security and confidentiality of their data, fostering trust in the digital process before the full rollout.

Special Intensive Revision (SIR) Phase-II of Electoral Rolls Commences Amid Political Opposition

Analysis:

Syllabus:

GS-II: Governance, Constitution, Polity; Salient features of the Representation of People's Act; Election Commission of India (ECI) functions and responsibilities.

Context:

The Election Commission of India (ECI) has initiated the second phase of the **Special Intensive Revision (SIR)** of electoral rolls across 9 States and 3 Union Territories, covering approximately 51 crore voters. This large-scale, door-to-door enumeration process, involving over 5.3 lakh Booth Level Officers (BLOs), aims to purify and update the electoral database.

The exercise, however, has been met with **sharp political opposition**, with some State leaders and parties alleging potential for "silent, invisible rigging" and an attempt to **disenfranchise** genuine voters, even leading to a challenge in the Supreme Court. The ECI maintains the objective is to ensure the **"purity"** of the roll by removing duplications, deceased voters, and wrongful inclusions (like foreigners), addressing a long-standing demand from political parties.

Main Body in Multi-Dimensional Analysis:

Constitutional & Legal Dimension: The ECI's authority stems from **Article 324** of the Constitution and the **Representation of the People Act, 1950**, to prepare and revise electoral rolls. SIR is a necessary legal step to maintain a reliable foundation for democracy. However, the controversy touches upon the fundamental **Right to Vote** (a statutory right) and the ECI's institutional impartiality, demanding absolute transparency in the deletion process.

Technological & Logistics Dimension: The massive scale requires sophisticated use of technology (e.g., the pre-filled unique Enumeration Forms (EFs) and the ECINet App's 'Book-a-call with BLO' facility) to manage data collection, verification, and de-duplication across diverse regions and languages. The training and political neutrality of the BLOs, who are often government employees, is a critical logistical and ethical challenge.

Political Dimension: Opposition parties see the large-scale revision, especially in poll-bound states, as politically motivated, fearing the removal of their traditional support bases. The counter-argument is that an impure roll favors incumbent manipulation (bogus voting). This highlights a deep **crisis of trust** between the political class and the ECI, challenging the institution's perceived autonomy.

Socio-Demographic Dimension: Concerns of disenfranchisement disproportionately affect marginalized and migrant populations, or those in areas with high mobility. The process must be sensitive to the challenges faced by the poor, the elderly, and women whose names might differ slightly across records.

Positives and Negatives, Government Schemes:

Positives: 1. Purity of Rolls: Leads to a cleaner roll, reducing electoral fraud and increasing faith in the process. **2. Address Political Demand:** Responds to the consistent demand from political parties to clean up the voter list. **3. Efficiency:** Leveraging digital tools for better enumeration management.

Negatives: 1. Disenfranchisement Risk: Over-zealous deletion or bureaucratic error can unjustly remove genuine voters, eroding democratic rights. **2. Political Controversy:** The exercise is mired in allegations, potentially diminishing public trust in the ECI's non-partisanship. **3. Logistical Burden:** The multi-visit, house-to-house collection of forms is a heavy, resource-intensive administrative task.

Relevant Schemes/Initiatives:

SVEEP (Systematic Voters' Education and Electoral Participation): ECI's flagship program for spreading

awareness and promoting voter literacy, crucial for explaining the SIR process.

National Voters' Service Portal (NVSP): Allows citizens to check their names and apply for corrections/inclusions, providing a digital safety net against potential errors.

Way Forward:

Enhanced Transparency: The ECI must proactively publish the criteria for deletion and the final list well in advance, giving ample time for appeals and ensuring the entire process is open to public scrutiny.

Multi-Party Oversight: Implementing a robust system where Booth Level Agents (BLAs) of all recognized political parties are involved at every stage of the enumeration and objection process.

Grievance Redressal Mechanism: Strengthening the toll-free helpline (1950) and setting up dedicated fast-track tribunals for timely disposal of all claims and objections regarding deletions or inclusions.

Digital Integration with Aadhaar (Voluntary): While Aadhaar linkage must remain voluntary as per the Supreme Court, its voluntary use for de-duplication, with strict data protection measures, can improve roll accuracy.

Conclusion:

The Special Intensive Revision of Electoral Rolls is a **necessary and monumental administrative exercise** fundamental to the health of Indian democracy. While its aim of achieving roll purity is laudable, its execution must be characterized by **impeccable political neutrality and absolute transparency** to dispel the severe political controversy. The success of SIR will not just be measured by the number of deletions/additions, but by the public and political consensus it garners, reinforcing the credibility of the ECI as the guardian of free and fair elections.

Practice Mains Question:

The Special Intensive Revision of Electoral Rolls aims for 'purity' but often invites allegations of political manipulation. Analyze the constitutional mandate and logistical challenges of the ECI in conducting large-scale electoral roll revisions, and suggest measures to enhance its transparency and maintain public trust. (250 words, 15 marks)

Digital Life Certificate Campaign 4.0 Gains Traction, Highlighting E-Governance Wins for Senior Citizens

Syllabus Relevance:

GS-II (Governance): Government policies and interventions for the development of various sectors; Welfare of the Elderly.

GS-II (e-Governance): Application of technology in governance.

Context:November 3rd saw the Union Minister of State for Personnel participating in a major event for the Nationwide Digital Life Certificate (DLC) Campaign 4.0, which aims to cover two crore pensioners. This initiative, a part of the 'Ease of Living' mission, showcases the success of using digital identity solutions, like Aadhaar Face Authentication, to simplify the mandatory annual submission process for pensioners.

Main Body – Multi-Dimensional Approach:The DLC system's success is a classic example of how technology can dismantle bureaucratic hurdles across multiple dimensions:

Ease of Access (Logistics): The shift from physical submission (often requiring a trip to the bank/treasury, especially difficult for the infirm) to remote digital submission (via mobile apps or CSCs) drastically reduces the logistical friction in claiming rightful entitlements.

Security and Authenticity: Utilizing **Face Authentication** via Aadhaar provides a high degree of biometric security, minimizing fraudulent claims—a major financial drain on the system. This secures the government's welfare expenditure.

Financial Inclusion: By ensuring seamless pension flow, the system directly supports the financial security of the elderly. The integration with India Post Payments Bank (IPPB) facilitates doorstep service for the most vulnerable, effectively bridging the urban-rural digital divide for this specific demographic.

Positives/Negatives – Government Scheme Assessment:

Positives: Transformative Impact: The DLC system is hailed as a flagship success of **Digital India**, demonstrably improving the quality of life for millions of senior citizens. It saves significant administrative time and costs for banks and government offices. **Scalability:** The use of an established identity infrastructure (Aadhaar) allowed for rapid, massive scale-up.

Negatives/Challenges: Dependence on Digital Infrastructure: The system remains fragile in areas with poor internet or mobile network penetration, leading to access inequality. **Biometric Failures:** While Face Authentication is better, occasional failures due to lighting, camera quality, or age-related changes in facial features can still cause temporary denial of service and frustration. **Elderly Training Gap:** A segment of the elderly population still requires hand-holding and continuous training to adopt the technology, relying on intermediaries like Common Service Centres (CSCs).

Way Forward: To ensure 100% coverage, the campaign must pivot to an Outreach Saturation Model in the final week of November, deploying mobile digital service units to semi-urban and rural clusters specifically for pensioners. Furthermore, the government should mandate a "One-Time Physical Verification with Permanent Digital Enrollment" option for the oldest pensioners (80+ years) to lock in their data once, potentially reducing the need for annual digital submission in subsequent years, thereby maximizing the 'Ease of Living' benefit.

Practice Mains Question: Examine how the Digital Life Certificate (DLC) system exemplifies the successful application of technology in enhancing governance for vulnerable sections. What steps are needed to overcome the remaining challenges of digital exclusion in this scheme?

Pensioners' Compliance Drive: DLC Campaign 4.0 Tests Face-Auth Tech for Pension Continuity

Syllabus Relevance:

GS-II (Governance): Government policies and interventions for the development of various sectors; Welfare of the Elderly.

GS-II (e-Governance): Application of technology in governance (Aadhaar integration).

Context: Building on the general news about the DLC Campaign 4.0, specific reports on November 3rd detailed the involvement of the Department of Pension & Pensioners' Welfare (DoPPW) in a major outreach camp in Delhi. The focus was on accelerating the use of Aadhaar-based Face Authentication, a technology that marks the final push for paperless, presence-less life certificate submission for central and state pensioners.

Main Body – Multi-Dimensional Approach: The DLC process embodies a multi-dimensional thrust in public service delivery:

Technological Leap: The shift from fingerprint/iris-based authentication (which often failed for the elderly) to **Face Authentication** is a leap in user-centric design, accounting for biological changes due to age. This shows an attempt to move from a 'check-the-box' compliance mentality to one focused on **user convenience**.

Administrative Efficiency: By aiming for a near 100% digital success rate, the system seeks to eliminate the massive logistical overhead of processing millions of physical certificates across treasuries and banks, freeing up bureaucratic resources for more complex policy work.

Welfare Protection: The November deadline for submission is a critical administrative mechanism to prevent leakage and ensure that pensions are paid only to eligible recipients, thereby **protecting the integrity of the welfare budget**.

Positives/Negatives – Government Scheme Assessment:

Positives: Empowerment of Seniors: It grants pensioners the autonomy to certify their existence from any location, increasing their quality of life. **Cost-Saving:** Reduces the need for frequent physical visits, saving travel costs for pensioners and administrative costs for the government/banks. **Data Quality:** It ensures the pensioner database remains perpetually updated and verified against the national identity database (Aadhaar).

Negatives/Challenges: Failure in Remote Areas: Despite doorstep IPPB services, the dependence on smartphones/internet means the most remote pensioners may still struggle, requiring

sustained offline support mechanisms. **Data Misuse Perception:** Some elderly individuals remain wary of providing facial scans to unknown entities (like CSC operators), fearing misuse, which requires constant, trust-building awareness campaigns. **Interoperability:** Ensuring seamless real-time data transfer between the UIDAI servers, the Pension Payment Authority servers, and the pensioner's bank remains a recurring technical challenge.

Way Forward:The DoPPW should mandate that all payment banks (including IPPB and commercial banks) deploy mandatory, regularly audited 'Assisted Digital Enrollment' teams in rural service areas during the campaign window. Furthermore, a 'Grace Period Extension' for those above 85 years, allowing them to submit offline if they fail the digital authentication three times, should be built into the standard operating procedure to eliminate undue distress.

Practice Mains Question:Critically evaluate the role of the Aadhaar Face Authentication technology in simplifying governance for senior citizens. What are the ethical and logistical challenges in making such sensitive biometric data central to welfare delivery?

Uttar Pradesh Student Death & Police Action

Syllabus Relevance

GS Paper II (Governance): Issues relating to the development and management of Social Sector/Services relating to Education, Health, Human Resources. Accountability of police and administrative machinery.

GS Paper IV (Ethics, Integrity & Aptitude): Ethical dilemmas in public service, accountability and governance, attitude and aptitude of civil servants, role of family and society in nurturing ethical values.

Context

The news revolves around the tragic death of a college student in Muzaffarnagar, Uttar Pradesh, who succumbed to burn injuries after allegedly setting himself on fire. The immediate trigger was reportedly being **denied permission to appear for an examination** due to non-payment of fees. Critically, the family alleges harassment by police personnel who were called by the college principal. The administration's immediate action involved sending **three policemen to the police lines** for negligence, while political opposition has escalated the incident into a broader critique of the state's education and governance system, calling it a "murder by the system."

Main Body in Multi-Dimensional Analysis

A. Failure in Educational Governance & Access (Socio-Economic Dimension)

This incident starkly exposes the **commercialization of education** in private institutions. When a college prioritizes fee collection to the extent that it denies a student—who is merely in his second year of BA—the right to take an examination, it signifies a systemic failure. Education, as per the **National Education Policy (NEP) 2020** philosophy, should be about holistic development and access. Denying the exam is an extreme form of punitive action that disproportionately affects economically vulnerable students. The protest escalating to self-immolation points to a complete breakdown in grievance redressal mechanisms at the institutional level. The student likely felt cornered, with no official, accessible channel to negotiate or appeal the fee demand, leading to this desperate, fatal act.

B. Police Accountability and State Action (Governance & Rule of Law Dimension)

The involvement of police personnel turns this from an institutional tragedy into a case of potential **police misconduct and administrative negligence**. The allegation is that police, when summoned, harassed the student instead of de-escalating the situation or mediating in an administrative dispute. The immediate transfer of three personnel suggests *prima facie* evidence of negligence or procedural lapse. This raises fundamental questions:

Scope of Police Intervention: Should police be the first responders for fee disputes in private colleges? What is the protocol for law enforcement when dealing with non-violent administrative protests by students?

Professional Ethics: The role of a police officer is to protect life and maintain order. If harassment occurred, it betrays the core ethos of public service, highlighting a deficiency in **ethical training** regarding

de-escalation and sensitivity towards vulnerable individuals.

C. Political Ramifications and Systemic Critique (Political Dimension)

The opposition's immediate condemnation highlights the political sensitivity of such events, especially in a state heading towards future elections. The narrative shifts from an individual tragedy to a broader indictment of the ruling government's handling of law and order, the education sector, and the distress faced by youth. Demands for a **judicial inquiry, ₹1 crore compensation, and a government job** for the family are standard political responses, but they also underscore the demand for transparency and accountability that the public expects from the state machinery.

D. Mental Health and Vulnerability (Social Dimension)

While the immediate cause is external, the student's choice to resort to self-immolation is a critical indicator of severe **mental distress and hopelessness**. This tragic step suggests an extreme level of psychological pressure, where the perceived consequence of failing the exam or accumulating debt overshadowed the value of life. This failure extends to the support systems—family, college, and community—that failed to recognize or intervene in the crisis.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Swift Administrative Action:** Sending the accused policemen to **police lines** shows an immediate, albeit reactive, commitment to departmental accountability. **Political attention** forces a high-level probe.
Negatives	**Commercialization of Education:** Lack of a robust, accessible **Fee Regulation Authority** allowing colleges to use extreme measures. **Police Overreach/Negligence:** Alleged harassment by police in an administrative matter. **Systemic Failure** to provide non-violent grievance channels.
Relevant Govt. Schemes/Policies	**NEP 2020:** Focuses on access and holistic education, which this incident directly violates. **Fee Regulatory Authorities (State Level):** Many states have these, but their effectiveness in preventing such disputes is questionable here.

Mains Practice Question

Question: The commercialization of private higher education coupled with alleged administrative and police highhandedness led to a student's tragic death in Uttar Pradesh. Critically analyze the ethical lapses in governance that allow such institutional failures to occur, and suggest necessary structural and procedural reforms to safeguard student welfare and ensure police accountability in educational disputes. (250 Words, 15 Marks)

Jal Jeevan Mission Irregularities Crackdown

Syllabus Relevance

GS Paper II (Governance): Government policies and interventions for the development and management of Social Sector/Services relating to Health, Education, Human Resources. Role of Non-Governmental Organizations (NGOs), Self-Help Groups (SHGs), etc.

GS Paper III (Economy): Infrastructure: energy, transport, roads, *water*.

Context

Central anti-corruption agencies are cracking down on financial irregularities and poor work quality in the **Jal Jeevan Mission (JJM)** across 15 states and Union Territories. The action targets **596 officials, 822 contractors, and 152 Third Party Inspection (TPI) Agencies**. **Uttar Pradesh** is highlighted as

having the highest number of complaints and subsequent actions. The JJM aims to provide functional Household Tap Connection (FHTC) to every rural household by 2024 (a target that may be extended/reviewed), making this crackdown crucial for the scheme's credibility and success.

Main Body in Multi-Dimensional Analysis

A. Ensuring Access and Quality in a Mission Mode Project (Social & Infrastructure Dimension)

The **Jal Jeevan Mission** is a flagship scheme aimed at ensuring **water security** and providing a functional tap connection to every rural home. The success of the mission is defined not just by the *number* of connections installed, but by the *quality* and *sustainability* of the supply (functional connection). The crackdown on poor work quality directly addresses the threat to sustainability—a connection that leaks or runs dry is useless and represents a massive waste of public funds. The high number of complaints suggests that the rapid, mission-mode execution may have inadvertently prioritized **quantity over quality control**.

B. The Role and Failure of Third Party Inspection (Governance & Accountability Dimension)

The focus on **152 TPI Agencies** is a key governance insight. TPIs are mandated to provide an independent verification layer to ensure contractors meet technical specifications. Their inclusion suggests an attempt to decentralize and strengthen oversight. However, the targeting of TPIs implies **collusion or systemic failure** in the inspection process. When external auditors are compromised, accountability vanishes, leading to faulty infrastructure and financial fraud (corruption involving officials and contractors). This points to a failure in the **vetting and monitoring mechanism** for the TPIs themselves.

C. Corruption and Financial Leakage (Economic Dimension)

Corruption, involving officials and contractors, results in direct financial leakage from the scheme's budget. In infrastructure projects, this manifests as using substandard materials, inflating bills, or completing only partial work while claiming full payment. For a scheme of JJM's magnitude, this leakage is enormous and directly denies the promised service to the intended beneficiaries—the rural poor. The crackdown signals the government's intent to **cleanse the implementation pipeline** and restore fiscal propriety.

D. Impact on Public Trust and Future Rollout (Political & Social Trust Dimension)

If beneficiaries perceive that the tap connections provided are not functional, or that the process is rife with corruption, **public trust in government delivery mechanisms** erodes significantly. This erosion undermines the political capital of the scheme and makes future compliance or uptake of new schemes difficult. The action, especially highlighting UP, serves as a **deterrent** to other potential defaulters and reassures the public that the government is serious about the *functional* aspect of the *Jal Jeevan* promise.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Anti-Corruption Drive:** Active investigation into irregularities is a strong signal against corruption in delivery mechanisms. **Focus on Quality:** Action against TPIs shows intent to ensure functional and sustainable infrastructure, not just meter reading targets.
Negatives	**Implementation Flaws:** The sheer volume of irregularities (596 officials, 822 contractors) suggests significant structural weaknesses in initial vetting, monitoring, and site-level quality assurance. **Delays in Service:** Faulty work means genuine access to clean water is delayed for thousands of households.
Relevant Govt. Schemes/Policies	**Jal Jeevan Mission (JJM):** The core scheme aiming for **FHTC** in every rural household. **Third Party Inspection (TPI) Framework:** The mechanism designed to ensure quality control.

Mains Practice Question

Question: The crackdown on irregularities in the Jal Jeevan Mission highlights the inherent challenge of maintaining quality control during rapid, mission-mode execution. Discuss the critical failure points in the quality assurance and anti-corruption framework of large-scale infrastructure schemes like JJM, and suggest institutional mechanisms to enhance the accountability of contractors and Third Party Inspection Agencies. (250 Words, 15 Marks)

PM Modi at Uttarakhand Foundation Day

Syllabus Relevance

GS Paper II (Polity & Governance): Federalism, issues and challenges pertaining to the federal structure. Devolution of powers and finances up to local level & challenges therein.

GS Paper III (Economy): Infrastructure and economic development in specific regions (Himalayan States).

Context:

Prime Minister Narendra Modi participated in events marking the **25th Foundation Day of Uttarakhand** in Dehradun. This anniversary is a significant milestone for the Himalayan state, prompting reflection on its development trajectory, infrastructure progress, and special focus area status. The PM's address typically highlights the achievements of the **"double-engine" government** in infrastructure and governance in challenging terrains.

Main Body in Multi-Dimensional Analysis

A. Federalism and Special Status in Himalayan States (Polity Dimension)

Uttarakhand, being a **Himalayan State**, benefits from special considerations under **Article 371** related provisions (though specific articles vary for different Himalayan states) and centrally sponsored schemes designed for fragile ecological zones. The 25th anniversary provides a platform to discuss the success (or failure) of this special status in fostering sustainable development. The 'double-engine' narrative emphasizes centralized policy alignment at both the state and central levels, aiming for faster project execution, particularly in infrastructure sectors like roads, rail, and hydropower, which are critical for the state's connectivity and economy.

B. Infrastructure and Tourism Economy (Economic Dimension)

For Uttarakhand, the economy is heavily reliant on **tourism** (pilgrimage circuits like Char Dham and adventure tourism) and **hydropower**. The focus areas for development invariably revolve around upgrading this infrastructure. Key aspects reviewed would be:

Connectivity: Progress on all-weather roads, tunnel projects, and expansion of air connectivity (e.g., new airports/heliports).

Pilgrimage Infrastructure: Upgrading facilities along the major religious routes to handle increasing pilgrim footfall sustainably.

Hydro-power Potential: Balancing the tapping of its vast hydropower potential with the need for **ecological preservation** (a major challenge in seismic zones).

C. Sustainable Development in Fragile Ecosystems (Environmental Dimension)

A major critique of development in Himalayan states like Uttarakhand often revolves around the **environmental trade-off**. Rapid infrastructure creation, necessary for economic growth and disaster mitigation (as seen in past flash floods/landslides), can destabilize the geology. Therefore, any assessment of the state's 25-year journey must evaluate how policies have integrated **carrying capacity assessments** and disaster risk reduction into planning, ensuring that growth is not achieved at the cost of future ecological collapse.

D. Governance and Demographic Shifts (Social Dimension)

Foundation Day addresses also touch upon social metrics. Uttarakhand faces unique demographic challenges, including **out-migration** from remote villages (*ghost villages*) due to lack of employment, and an aging population in the hills. Successful governance would show a trend reversal—attracting investment that creates local, year-round employment outside the seasonal tourism bubble.

Furthermore, leveraging the state's natural advantages for **health and wellness tourism** or high-value agriculture could be a key focus.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Infrastructure Push:** Focused central support leading to improved connectivity and ease of pilgrimage/tourism. **Focus on Sustainable Energy:** Leveraging hydropower potential for clean energy production for the national grid.
Negatives	**Ecological Vulnerability:** Development often outpaces environmental safeguards, increasing landslide and flash flood risks. **Regional Disparity:** Development often concentrates in the plains (Dehradun/Haridwar), leaving remote hill districts lagging socio-economically.
Relevant Govt. Schemes/Policies	**Special Focus Category Status (Historical):** Special financial/tax incentives for infrastructure. **Pradhan Mantri Gram Sadak Yojana (PMGSY):** Crucial for connecting remote villages. **National Mission for Sustainable Development in Himalayan States (Hypothetical/Evolving Policy).**

Mains Practice Question

Question: On its Silver Jubilee, Uttarakhand's development trajectory must balance rapid infrastructure growth with ecological sustainability. Discuss the key infrastructural milestones achieved in the last 25 years and analyze the imperative for integrating robust disaster risk reduction mechanisms into all future development planning for the state. (250 Words, 15 Marks)

The Debate over Sedition Law (BNS Section 152) and Free Speech

Syllabus

GS-II: Fundamental Rights (Article 19 and 21); Statutory, regulatory and quasi-judicial bodies.

GS-II: Governance, Constitution, Polity.

Context

Following the replacement of the Indian Penal Code (IPC) with the **Bharatiya Nyaya Sanhita (BNS)**, the new law, specifically **Section 152**, dealing with acts "endangering the sovereignty, unity, and integrity of India," has rekindled the debate surrounding the colonial-era Sedition Law (former Section 124A of the IPC). Critics argue that while the word 'sedition' is dropped, the core substance and potential for misuse against **freedom of speech and expression (Article 19(1)(a))** remain.

Main Body: Multidimensional Analysis

Constitutional and Jurisprudential Dimension

The Supreme Court, in the landmark **Kedar Nath Singh vs. State of Bihar (1962)** judgment, had narrowed the application of the sedition law, stating that charges could only be imposed if the act or speech led to **incitement of violence or public disorder**. The new BNS provision is criticized for being broadly worded, potentially criminalizing any speech, writing, or electronic communication that "excites or attempts to excite secession or armed rebellion." This vagueness could allow the state to prosecute legitimate **dissent** and **criticism of the government**, thereby creating a **chilling effect** on free speech.

Legal and Procedural Dimension

The colonial law was intended to suppress dissent. The new law, though renamed, maintains the severity of punishment and broad scope. The core issue lies in whether the new language in Section 152 strictly adheres to the **"incitement to violence"** test laid down by the Supreme Court. The law must draw a clear line between **'anti-national' sentiment** (which is protected by free speech) and **'actionable violence'** against the state. The debate centers on the need for the Supreme Court to authoritatively interpret the BNS provision to ensure it aligns with constitutional morality and democracy.

International and Comparative Dimension

Many established democracies, including the **United Kingdom (which originally introduced the law)**, have repealed their sedition laws, arguing that the protection of the state against violence is adequately covered by other provisions related to terrorism, public order, and treason. The retention of a functionally similar law in India, despite global trends, draws criticism from international human rights bodies regarding its compatibility with modern democratic standards.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**National Security:** Provides a legal framework to deal with direct threats aimed at destabilizing the government and inciting violence against the state. **Symbolic Change:** The removal of the colonial term 'sedition' is a symbolic step toward decolonization of the legal system.
Negatives	**Vagueness and Misuse:** The broad wording of BNS Section 152 is susceptible to misuse against political opponents, journalists, and activists. **Chilling Effect:** Suppresses legitimate public criticism and dissent, which is essential for a functioning democracy. **Conflict with Article 19(1)(a):** Potential for violation of the fundamental right to freedom of speech unless strictly interpreted.
Relevant Schemes	**Bharatiya Nyaya Sanhita (BNS), 2023:** The new penal code replacing the IPC, containing the provision in question (Section 152).

Relevant Examples

Kedarnath Singh Judgment (1962): The precedent that mandates a direct link to "incitement to violence" for sedition charges to be valid.

New Criminal Laws: The introduction of BNS, Bharatiya Nagarik Suraksha Sanhita (BNSS), and Bharatiya Sakshya Adhiniyam (BSA) to modernize the Indian justice system.

Way Forward

Supreme Court Interpretation: The Supreme Court must urgently take up and **authoritatively interpret BNS Section 152** to narrowly define the scope of the offense, strictly adhering to the "incitement to violence" test.

Clear Guidelines: Issue clear, binding guidelines to state police and law enforcement agencies to prevent the indiscriminate registration of cases under this provision.

Judicial Review: Encourage **proactive judicial review** by High Courts to promptly quash FIRs that do not meet the threshold of incitement to violence.

Public Debate: Initiate a comprehensive public and parliamentary debate on whether alternative laws (like those dealing with terrorism or public order) sufficiently cover the threats, making a separate provision redundant.

Conclusion

The replacement of the sedition law in name marks a step, but the true test of India's commitment to fundamental freedoms lies in how the new provision, BNS Section 152, is enforced. Ensuring that the law targets genuine threats to national security without stifling the essential democratic right to dissent requires proactive judicial scrutiny and parliamentary clarity.

Constitutional Governance: Governor's Powers on State Bills (Article 200)

Format Element	Analysis for UPSC
Syllabus	**GS-2:** Indian Constitution—historical underpinnings, evolution, features, amendments, significant provisions and basic structure. Separation of powers between various organs, dispute redressal mechanisms and institutions.
Context	The **Supreme Court (SC)** delivered its opinion on a **Presidential Reference (Article 143)** concerning the extent of a **Governor's (Article 200)** and **President's (Article 201)** power regarding assent to state Bills. The SC, in its advisory capacity,

Format Element	Analysis for UPSC
	ruled that the judiciary **cannot impose a fixed timeline** for the Governor/President to act on Bills, nor can it invoke a doctrine of **'deemed assent'**, as this would amount to rewriting the Constitution. However, the court maintained that **"prolonged, unexplained, and indefinite inaction"** is subject to judicial review under **Article 32/226** for a limited mandamus to compel the functionary to act.
Main Body (Multi-Dimensional Analysis)	**Constitutional Spirit vs. Political Reality:** The Constitution aims for a **'dialogic process'** (SC's term) where the Governor acts as an honest broker. In reality, the Governor, a Central appointee, often acts as an **'extra-constitutional check'** on an elected state government, leading to political friction, especially in states ruled by opposition parties. **Federalism and Legislative Supremacy:** Indefinite delay undermines **cooperative federalism** and violates the supremacy of the elected state legislature. Delaying critical Bills on welfare, health, or education impacts policy implementation and public good, frustrating the democratic mandate. The SC's ruling aims to balance the two: uphold the Governor's constitutional discretion while allowing the judiciary to check **"constitutional morbidity"** (indefinite inaction). **Judicial Review and Separation of Powers:** The SC reasserted the principle of **Separation of Powers** by refusing to fix a time limit, arguing that the legislative and executive process should not be supplanted by judicial innovation (**Article 142**). The judgment clarifies that the **merits** of the Governor's decision are not justiciable, but the **process** (delay/inaction) is.

Format Element	Analysis for UPSC
Positive, Negatives, Government Schemes	**Positives: 1. Upholds Constitutional Scheme:** Upholds the unique deliberative role of the Governor/President and rejects the alien concept of 'deemed assent.' **2. Check on Indefinite Delay:** Keeps the door open for judicial review against 'prolonged, unexplained inaction,' providing a safety valve against arbitrary conduct. **Negatives: 1. Continued Ambiguity:** Does not resolve the core problem of indefinite delay; 'reasonable time' remains vague and subjective, leading to further litigation. **2. Undermines Elected Government:** Allows a Central appointee to effectively veto the mandate of an elected state assembly through inaction. **Government Schemes (Relevant Principles): 1. Sarkaria/Punchhi Commission:** Both recommended clear guidelines for the Governor, with the **Punchhi Commission** suggesting a **6-month limit** on assent (which the SC rejected). **2. Federal Reforms:** The judgment impacts the implementation of reforms like the **National Education Policy (NEP)** or state-specific welfare schemes that require new legislation.
Examples	The Presidential Reference was triggered by the Supreme Court's earlier April 2025 ruling which had sought to impose timelines, following impasses in states like **Tamil Nadu** and **Kerala**, where Governors delayed several Bills for years. The **Punjab Governor's** refusal to summon the Assembly for a budget session (a related power) was another key trigger for the broader constitutional debate.
Way Forward	**1. Constitutional Convention:** The Central government should develop an **all-party convention** or a **Code of Conduct** for Governors to ensure

Format Element	Analysis for UPSC
	decisions are taken within a time-bound and transparent framework (e.g., three months), as recommended by the **Punchhi Commission**. **2. Speaker's Role Analogy:** The SC could revisit the analogy of the **Speaker's** limited time for decisions (e.g., disqualification petitions) to suggest a constitutional convention of 'reasonable time' for the Governor. **3. Transparency:** The Governor must, in all cases, provide clear and comprehensive **reasons** when withholding assent or reserving a Bill, ensuring accountability and facilitating public scrutiny.
Conclusion	The SC's advisory opinion is a cautious exercise in **judicial restraint**, respecting the text of the Constitution over policy innovation. While it strikes down the judicial imposition of strict timelines, it simultaneously underscores that the Governor's office is one of duty, not an 'ornamental garden,' and that **prolonged inaction is a constitutional vice** that will not escape the court's scrutiny.
Practice Mains Question	**Q:** The Supreme Court's opinion on the Governor's power under Article 200 preserves constitutional text but may perpetuate legislative deadlock. Critically analyse this statement in the context of cooperative federalism and legislative supremacy. (250 words, 15 marks)

Constitutional Governance: Attorney General's Opinion on EWS Reservation Review

Syllabus

GS-2: Indian Constitution—significant provisions and basic structure. Mechanisms, laws, institutions and Bodies constituted for the protection and betterment of vulnerable sections.

Context

The **Attorney General (AG)** for India submitted an opinion to the Supreme Court regarding the petitioners' request for a review of the **103rd Constitutional Amendment Act**, which introduced the **10% reservation for Economically Weaker Sections (EWS)**.

The AG's opinion primarily focused on the limited scope of review under **Article 137** and defended the government's criteria for identifying the EWS beneficiaries.

Main Body (Multi-Dimensional Analysis)

EWS Constitutional Basis (103rd Amendment):

The Amendment inserted **Clauses 6 to Article 15 and 16**, enabling the State to make special provisions for the advancement of any economically weaker sections of citizens, including reservation up to 10% in education and public employment.

The Supreme Court, in its **2022 majority verdict (3:2)**, upheld the amendment's validity, ruling that it does not violate the **Basic Structure** of the Constitution.

Attorney General's Stance (The Opinion):

Limited Review Scope: The AG argued that a review petition under Article 137 can only be entertained if there is an **error apparent on the face of the record**, not merely because the petitioners disagree with the previous verdict.

Exclusion of SC/ST/OBC: The AG reiterated that the exclusion of persons belonging to already reserved categories (SC/ST/OBC) from the EWS quota is a **constitutionally valid classification**, as the EWS quota is an *independent* form of affirmative action based solely on economic criteria.

Criteria Validation: The opinion supported the government's criteria (e.g., the annual income ceiling of ₹8 lakh), arguing it was based on the need to identify the "poorest of the poor" among the general category for whom no prior affirmative action existed.

The Conflict: Equity vs. Economic Basis:

The dissent in the original judgment and the review petition argue that reservation should only be based

on **social and educational backwardness**, as established in the **Indra Sawhney (1992)** case.

The EWS reservation breaks the **50% ceiling rule** and introduces an **economic criterion** as the sole basis for reservation, shifting the paradigm of affirmative action in India.

Positive, Negatives, Government Schemes

Positive:

Affirmative Action for Poor: Provides a mechanism for affirmative action for the economically disadvantaged sections of society who are outside the existing reservation framework.

Judicial Finality: The AG's opinion aims to restore judicial finality to the issue, reducing litigation and allowing the executive to focus on effective implementation.

Negative:

50% Ceiling Erosion: Critics argue that validating the EWS quota permanently erodes the 50% reservation ceiling, potentially leading to further compartmentalization and reservation demands.

Exclusionary Nature: The exclusion of EWS persons belonging to SC/ST/OBC is seen as discriminatory by some, particularly those who are economically poor within these reserved classes.

Government Schemes:

The EWS reservation is implemented across central educational institutions (like IITs, IIMs) and central government jobs, directly impacting access to quality education and employment.

Examples

The EWS quota was first challenged by medical aspirants during the **NEET-PG counselling** process, highlighting the immediate impact of the policy on educational opportunities.

The *Indra Sawhney* judgment is the **locus classicus** for reservation policy in India, and the EWS amendment is seen as the first successful constitutional modification to its core tenets.

Way Forward

Socio-Economic Data: The government should continuously monitor and update the EWS criteria (e.g., the ₹8 lakh income limit) based on regular, scientific socio-economic data collection to ensure the benefits reach the truly deserving.

Transparency in Implementation: Ensure that the implementation of the EWS quota, particularly by state governments, adheres strictly to the constitutional principles upheld by the SC.

Focus on Non-Reservation Solutions: Increase focus on high-quality public education and job creation to reduce the social and political demand for reservation as the only avenue for upward mobility.

Conclusion

The Attorney General's opinion reinforces the constitutional validity of the EWS quota, defending its unique reliance on economic criteria and its independent standing from the existing social reservation system. While this may bring temporary stability, the debate over the EWS amendment continues to challenge the foundational principles of reservation and the Basic Structure doctrine.

Practice Mains Question

Q: The 103rd Constitutional Amendment fundamentally altered the basis of reservation in India. Analyze the arguments supporting the EWS quota and critically discuss the challenges it poses to the principle of social equity and the 50% reservation ceiling. (250 words, 15 marks)

Governance and Development: Pradhan Mantri Awas Yojana (PMAY) Phase II Accelerates

Syllabus

GS-2: Government policies and interventions for development in various sectors and issues arising out of their design and implementation. Welfare schemes for vulnerable sections of the population.

Context

The Ministry of Housing and Urban Affairs (MoHUA) and the Ministry of Rural Development have accelerated the implementation of the next phase of the **Pradhan Mantri Awas Yojana (PMAY)**, known as **PMAY-Urban 2.0 and PMAY-Gramin (G) 2025-2029**.

The renewed mission aims to cover the remaining eligible beneficiaries and achieve the government's

extended goal of **"Housing for All"** by focusing on last-mile delivery, technological integration, and convergence with other schemes.

Main Body (Multi-Dimensional Analysis)

The Scope of Phase II:

Extended Target: PMAY-G has been extended with a new target to construct over **2.95 crore** more houses between FY 2024-25 and 2028-29. PMAY-U 2.0 continues with the mission to sanction **1 crore** houses for the urban poor.

Focus on Inclusion: The new phase places a special emphasis on including the most vulnerable populations, such as **transgenders, single women, persons with disabilities, and street vendors** (identified under PMSVANidhi), ensuring social equity in housing allocation.

Technological and Implementation Innovations:

AwaasApp and Geo-tagging (PMAY-G): The mandatory use of a mobile application for real-time monitoring and geo-tagging of houses at various construction stages has been scaled up to ensure transparency, prevent fund misuse, and expedite installment releases.

BLC and AHP (PMAY-U): The two key verticals—**Beneficiary-Led Construction (BLC)**, where individuals receive financial aid, and **Affordable Housing in Partnership (AHP)**, where state agencies build houses—have been streamlined for faster approval.

Angikaar 2025 Campaign: A recent intensive, two-month nationwide campaign was launched to fast-track the verification of applications and completion of already sanctioned houses.

Convergence and Holistic Development:

PMAY is strategically converged with schemes like **MGNREGA** (for providing 90 days of unskilled labour wages to PMAY-G beneficiaries) and the **Swachh Bharat Mission** (for a grant of ₹12,000 for toilet construction), ensuring a holistic living environment.

PM Surya Ghar: Muft Bijli Yojana: Efforts are underway to link PMAY-U beneficiaries with the solar rooftop scheme to promote energy self-sufficiency and reduce electricity bills.

Positive, Negatives, Government Schemes

Positive:

Poverty Alleviation: Pucca houses provide economic security, better health outcomes, and a significant boost to the dignity of the poor.

Employment Generation: The construction phase is a major driver of employment in the rural and urban construction sectors.

Women Empowerment: Allocation of houses is often in the name of the female head of the household or jointly, enhancing women's property rights.

Negatives:

Land Availability: Acquisition of land, particularly in densely populated urban areas for AHP and ISSR (In-Situ Slum Redevelopment), remains a critical bottleneck.

Quality Control: Ensuring the quality of construction, especially in BLC, against strict deadlines and material inflation is a recurring challenge.

Government Schemes:

CRGFTLIH: The Credit Risk Guarantee Fund Trust for Low Income Housing provides guarantees to lending institutions, facilitating home loans for EWS/LIG beneficiaries.

Affordable Rental Housing Complexes (ARHCs): A sub-scheme under PMAY-U 2.0 for migrant workers and urban poor to provide affordable rental accommodation.

Examples

Financial releases in November 2025 across multiple states (e.g., Tamil Nadu, Gujarat) show the aggressive pace of fund disbursement under PMAY-U 2.0.

Bihar's milestone of providing over 39 lakh homes in the last decade demonstrates the scale of the PMAY-G component.

Way Forward

Streamlining Land Allotment: State governments must expedite the free allotment of land, especially for BLC beneficiaries in rural areas, to reduce project delays.

Technology Innovation: Incentivize the use of rapid, disaster-resilient, and cost-effective construction technologies to speed up delivery and reduce reliance on traditional, slow construction methods.

Social Audit and Grievance Redressal: Strengthen the social audit mechanisms and local grievance redressal cells to ensure only genuine beneficiaries are included and quality is maintained.

Conclusion

PMAY's renewed phase underscores the government's unwavering commitment to making safe and permanent housing a reality for the marginalized across the country. By leveraging technology, fostering convergence, and improving ground-level monitoring, the scheme is on track to deliver its promises, fundamentally transforming the quality of life and dignity of the poorest segments of Indian society.

Practice Mains Question

Q: The Pradhan Mantri Awas Yojana (PMAY) has adopted a multi-pronged approach to address the housing deficit. Analyze the significance of technological integration (e.g., AwaasApp, Geo-tagging) and scheme convergence in improving the transparency and efficacy of PMAY. (250 words, 15 marks)

INTERNATIONAL RELATIONS

Indo-Pacific and Freedom of Navigation: Raksha Mantri's Address at ADMM-Plus

Syllabus Relevance:

GS-II (International Relations): Bilateral, regional, and global groupings and agreements involving India and affecting India's interests; Effect of policies and politics of developed and developing countries on India's interests.

Context: India's Defence Minister (Raksha Mantri) addressed the **ASEAN Defence Ministers' Meeting Plus (ADMM-Plus)**, a key security consultation forum in the Asia-Pacific region. The core theme of the address was the criticality of the **Indo-Pacific** region to global commerce and security. The Minister emphatically reiterated India's commitment to a **free, open, and rules-based order** in the region, with a strong focus on upholding the principle of **Freedom of Navigation (FON)**, a subtle but firm message aimed at ensuring adherence to international maritime law.

Main Body: Asserting a Rules-Based Maritime Order The ADMM-Plus serves as a platform where ASEAN member states and eight Plus countries (including India, the US, China, Russia, Japan, etc.) discuss security and defence cooperation. India's address was significant as it framed the Indo-Pacific not just as a geopolitical area but as a **geo-economic necessity**. The multi-dimensional approach of India's engagement is based on its **SAGAR (Security and Growth for All in the Region)** doctrine, which involves four key pillars: **security cooperation, capacity building, sustainable development, and trade/connectivity**. The call for respecting the **UN Convention on the Law of the Sea (UNCLOS)** was a central theme. The Minister stressed that unilateral actions that undermine international law, particularly concerning territorial claims and transit rights in vital sea lanes, are unacceptable. This assertion is critical for global supply chains, as approximately one-third of global maritime trade passes through the Indo-Pacific, making the guarantee of **unfettered movement of commercial shipping and aircraft** non-negotiable for India and its partners. India's proposal focused on concrete cooperation in non-traditional security threats like humanitarian assistance, disaster relief, and maritime domain awareness.

Positives/Negatives: Implications for Geopolitics

Positives: Consolidating Partnerships: The address strengthens India's security ties with ASEAN and other like-minded 'Plus' nations (like Japan, Australia, and the US), reinforcing the **Quad** grouping's objectives. **Clarity on Stance:** It clearly positions India as a proponent of a **rules-based regional architecture**, providing stability and predictability in a complex geopolitical environment. **Focus on Non-Traditional Threats:** By prioritizing cooperation on HADR and maritime security, India promotes a cooperative, rather than confrontational, approach to regional stability.

Negatives/Challenges: Geopolitical Tensions: The call for FON is implicitly directed at China's growing assertiveness in the South China Sea, which heightens the potential for friction within the ADMM-Plus forum itself. **Resource**

Commitment: Maintaining a constant and credible naval presence to back the FON principle requires massive and sustained investment in India's naval capacity and maritime surveillance capabilities, which stretch budgetary resources. **Balancing Act:** India must carefully balance its security interests with its economic relationship with all regional players, including the very nation whose actions challenge the rules-based order.

Way Forward: India needs to move beyond rhetoric to **concrete, multilateral action**. This includes proposing and conducting more complex, multi-nation maritime exercises and joint patrols that demonstrate commitment to international waters. Furthermore, India must actively champion the development of a **regional Code of Conduct** that is legally binding and promotes dispute resolution mechanisms. Finally, deepening cooperation on **Blue Economy** initiatives, linking maritime security to economic prosperity, will provide a positive, incentive-based framework for regional engagement.

International Relations: Colombo Security Conclave (CSC) Meeting

Syllabus

GS-2: India and its neighbourhood relations. Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

Context

The **7th National Security Adviser (NSA)-level meeting** of the **Colombo Security Conclave (CSC)** was hosted by India's NSA in **New Delhi** on November 20, 2025.

The focus was on strengthening **maritime and security cooperation** in the **Indian Ocean Region (IOR)**.

Key developments included the admission of **Seychelles as a full member** and **Malaysia** attending as a **guest country**.

Main Body (Multi-Dimensional Analysis)

Evolution and Membership:

The CSC started as a **trilateral maritime security grouping** (India, Sri Lanka, Maldives) in 2011. It was revived and expanded in recent years to include **Mauritius and Bangladesh** as members.

The recent inclusion of Seychelles and the participation of Malaysia underscore its growing **geopolitical relevance** and expansion beyond the immediate neighbourhood.

Core Pillars of Cooperation: The discussions focused on five key pillars:

Maritime Safety and Security (MSS): Joint patrols, maritime domain awareness (MDA) through technology sharing, and hydrographic surveys.

Countering Terrorism and Radicalisation: Sharing intelligence, capacity building, and joint exercises to tackle terror financing and recruitment.

Combating Transnational Organised Crime: Focusing on drug trafficking, human smuggling, and arms proliferation, which utilize the IOR's sea lanes.

Cyber Security and Safety of Critical Infrastructure: Developing a regional framework for cyber cooperation and protecting vital infrastructure from digital threats.

Humanitarian Assistance and Disaster Relief (HADR): Coordinating rapid response and resource sharing during natural calamities in the IOR.

Geopolitical Significance for India:

Net Security Provider: CSC serves as India's primary platform to assert its role as a **"net security provider"** in the IOR, enhancing its strategic influence without relying on multilateral institutions with wider membership (like IORA).

Countering Influence: While not explicitly mentioning China, the CSC acts as a counter-balancing mechanism against the growing strategic presence and naval activity of extra-regional powers in the IOR.

Regional Ownership: The grouping emphasizes a sense of **regional ownership** over security challenges, reinforcing India's 'Neighbourhood First' policy.

Positive, Negatives, &Government Schemes

Category	Description
Positive	**1. Institutionalization:** CSC is gradually acquiring a more formal shape with the appointment of the first **Secretary General**, ensuring continuity and dedicated effort. **2. MDA Enhancement:** Leads to better **information sharing** on maritime traffic and threats among key littoral states. **3. New Membership:** The participation of Seychelles (member) and Malaysia (guest) shows acceptance of the CSC's regional security framework.
Negative	**1. Resource Constraint:** Many smaller member states lack the resources (vessels, surveillance technology) to fully participate in large-scale joint operations. **2. China Factor:** The official avoidance of the China factor might limit its effectiveness in addressing the most critical long-term security challenge in the region.
Schemes	**1. SAGAR (Security and Growth for All in the Region):** The CSC directly aligns with the SAGAR doctrine by prioritizing security, capacity building, and regional cooperation in the IOR. **2. Coastal Surveillance Radar (CSR) Network:** India is helping CSC partners establish or link up their CSR networks for unified maritime domain awareness.

Examples

Joint Training: Recent joint tabletop exercises under the CSC banner focused on response protocols for a major **oil spill** in the Bay of Bengal and coordinated action against **piracy**.

Drug Trafficking: Enhanced intelligence sharing led to the interception of large consignments of illegal drugs destined for global markets off the coast of the Maldives and Sri Lanka.

Way Forward

Establish Dedicated Secretariat: Set up a permanent, well-funded secretariat to coordinate and monitor the execution of decisions, moving beyond annual NSA meetings.

Expand Scope to Economy: Integrate **Blue Economy** initiatives (sustainable fishing, marine conservation, connectivity) into the CSC agenda to offer tangible benefits beyond security.

Technological Integration: Invest in a common **Regional Data Fusion Centre** drawing real-time information from all member states to create a unified picture of the IOR.

Practice Mains Question

Q: The Colombo Security Conclave (CSC) is an important institutional response to the evolving security challenges in the Indian Ocean Region. Analyze the five pillars of cooperation and discuss how the CSC contributes to India's SAGAR doctrine. (250 words, 15 marks)

International Relations: India-UK FTA Implementation and Strategic Alignment

Syllabus

GS-2 : Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests. Effect of policies and politics of developed and developing countries on India's interests.

Context

Following the signing of the **India-UK Comprehensive Economic and Trade Agreement (CETA/FTA)** in July 2025, the focus has shifted to the implementation phase and leveraging the deal for broader strategic cooperation.

The FTA, signed by Prime Minister Modi and his UK counterpart, is one of the most significant trade pacts for both nations and is projected to **double bilateral trade to $120 billion by 2030**.

News reports now focus on the post-FTA challenges, particularly the **missed opportunity in liberalizing key services sectors** like legal services.

Main Body (Multi-Dimensional Analysis)

Economic Impact of the FTA:

Indian Gains (Goods): Eliminates tariffs on **99% of Indian exports** to the UK by value, particularly in labour-intensive sectors like textiles, leather, footwear, and clothing, boosting exports and job creation.

UK Gains (Goods): Significant tariff reductions on high-value British goods like **Scotch whisky, cars, and medical devices**, making them cheaper for Indian consumers.

Investment Boost: The agreement has already resulted in significant new investments from Indian companies into the UK, enhancing investor confidence and market integration.

Strategic Alignment (Beyond Trade) :

The FTA is a pillar of the larger **India-UK 2030 Roadmap**, which encompasses political, defence, and security cooperation. The UK views India as a critical partner in its **Indo-Pacific tilt** policy.

Defence and Security: The strategic partnership includes enhanced collaboration on defence manufacturing, co-development of technology, and maritime security in the Indian Ocean Region.

Implementation Challenges (Services Sector):

Legal Services Miss : Despite the FTA, the full liberalization of the Indian legal sector for UK firms was not achieved. The Bar Council of India (BCI) has only allowed limited access for foreign lawyers in non-litigious matters, which is currently subject to legal challenges. This limits the potential for UK service sector exports and skill transfer.

Regulatory and Standards Alignment: The two sides must now work on aligning product standards and technical regulations to fully realize the benefits of tariff reduction.

Positive, Negatives, Government Schemes

Positive:

Diversification of Trade : Reduces India's reliance on traditional trading partners and links India to a major global economy post-Brexit.

Global Arbitration Hub : India is actively promoting itself as a global arbitration hub (e.g., India International Arbitration Centre – IIAC), which will be supported by the new trade framework.

Business Mobility : Includes provisions for easier movement of professionals, a key demand from India's IT and services sectors.

Negatives :

Competition for Domestic Industries: Indian manufacturers, particularly in sensitive sectors like automobiles, face increased competition from high-quality UK imports.

Trade Deficit Risk : While a significant boost to exports is expected, the long-term impact on the overall trade balance must be monitored.

Government Schemes :

Atmanirbhar Bharat: The FTA encourages UK companies to invest in India's manufacturing ecosystem, aligning with the "Make in India" component of the Atmanirbhar Bharat initiative.

Examples :

The deal provides a major boost to the Indian apparel industry, enabling a more competitive price point for garments exported to the UK market.

UK's attempt to liberalize legal services echoes similar demands made by other trading blocs, such as the EU and US.

Way Forward

Focus on Non-Tariff Barriers : Both governments must prioritize the reduction of non-tariff barriers, mutual recognition agreements (MRAs), and streamlining customs procedures to ensure smooth trade flow.

Addressing Services Liberalization: India should fast-track the resolution of regulatory and legal challenges regarding the entry of foreign legal and financial services firms, unlocking a huge potential area of cooperation.

SMEs Outreach: Launch a dedicated outreach program to educate Small and Medium Enterprises (SMEs) in both countries on how to utilize the FTA provisions effectively.

Conclusion

The India-UK FTA is a diplomatic and economic triumph that cements a new era of Comprehensive Global Strategic Partnership. While the immediate focus is on tariff reduction for goods, the long-term success will depend on how effectively both nations integrate their service sectors and deepen cooperation across the strategic security landscape.

Practice Mains Question

Q: The India-UK FTA is viewed as a landmark agreement. Discuss its potential to boost India's merchandise exports and critically evaluate the challenges and missed opportunities in liberalizing the bilateral trade in services. (250 words, 15 marks)

REGIONAL GROUPINGS

India-Bhutan Bilateral Relations & Punatsangchhu-II Hydropower Project

Syllabus

GS-II: India and its neighborhood- relations. Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

Context

The Prime Minister's recent visit to Bhutan, which coincided with the 70th birthday celebrations of the Fourth King of Bhutan, underscored the enduring nature of the "special relationship" between the two nations. A significant outcome highlighted in the Joint Press Release (PIB) was the progress on the **Punatsangchhu-II Hydropower Project (PHEP-II)**. This project is a pillar of India's development cooperation model, often referred to as a **"win-win" partnership**, contrasting with other regional development approaches. The visit aimed to strengthen ties across trade, digital cooperation, and energy security, which are vital for Bhutan's economic stability and India's 'Neighbourhood First' policy.

Main Body in Multi-Dimensional Analysis

1. Strategic and Geopolitical Dimension

Bhutan is crucial to India's security interests, serving as a buffer state along a sensitive stretch of the border. India's robust and consistent economic and military support is fundamental to maintaining a friendly, stable regime. The relationship acts as a model of non-reciprocal support, built on mutual trust. From a geopolitical standpoint, deepened India-Bhutan ties are essential for containing the growing influence of other major regional players who seek to engage Bhutan through infrastructural and strategic loans. The commitment to timely completion of projects like PHEP-II reinforces India's reliability as a partner.

2. Energy and Economic Dimension

Hydropower cooperation is the bedrock of the bilateral economic relationship. Bhutan's economy relies heavily on the sale of surplus hydro-electricity to India, which accounts for a substantial portion of its GDP. PHEP-II (1020 MW) is a run-of-the-river project designed to significantly boost this revenue stream. For India, this cooperation ensures a source of clean, renewable energy, contributing to its energy security and climate goals. The economic model is unique: India provides 70% loan and 30% grant financing, ensuring the project ownership and revenue flow remain with Bhutan, thereby promoting economic sovereignty.

3. Development and Cultural Dimension

India's assistance spans across sectors like education, digital infrastructure (e.g., the Bhutan National Knowledge Network), and health, embodying the **"South-South Cooperation"** model. This development aid is demand-driven and non-interfering. The cultural aspect, rooted in shared Buddhist heritage and people-to-people exchanges, adds emotional depth to the strategic partnership. The visit's focus on cultural and historical events, like the King's birthday celebration, emphasizes the civilizational bond, moving beyond pure economics.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Mutual Security:** Ensures a stable, friendly government in a strategically vital region. **Clean Energy:** Reliable supply of clean hydro-power for India. **Economic Lifeline:** Provides a primary revenue source for Bhutan, enabling its economic self-reliance. **Non-Reciprocal Model:** India's grant-and-loan funding structure is highly attractive and supportive.
Negatives	**Project Delays:** Hydropower projects, including PHEP-II, have faced significant geological challenges, resulting in cost overruns and delays, affecting Bhutan's national debt. **Over-Dependence:** Bhutan's over-reliance on the hydro-sector makes its economy vulnerable to environmental factors and

Category	Description
	demand fluctuations in India. **External Influence:** Increased engagement by other regional powers may complicate the geopolitical dynamics and potentially impact India's strategic interests.
Government Schemes	**Project DANTAK:** India's Border Roads Organisation (BRO) for infrastructural development in Bhutan. **Hydro-power Cooperation:** Umbrella framework for joint development of hydro-projects. **e-Sewa:** Digital connectivity and IT cooperation programs. **Scholarships/Training:** Extensive training programs under the ITEC (Indian Technical and Economic Cooperation) for Bhutanese nationals.

Way Forward

Accelerated Project Completion: Focus on addressing geological and technical issues swiftly in PHEP-II and other pending projects to curtail cost overruns and debt burden on Bhutan.

Economic Diversification: India should aid Bhutan in diversifying its economy beyond hydropower, promoting sectors like tourism, organic agriculture, and digital services to reduce economic vulnerability.

Digital and Fintech Cooperation: Deepen linkages in the digital realm, such as connecting India's **Unified Payments Interface (UPI)** with Bhutan's payment systems, enhancing financial inclusion and trade.

Security Dialogue: Maintain high-level, regular dialogue to coordinate on border security and regional issues, ensuring strategic alignment in the face of evolving geopolitical shifts.

Conclusion

The India-Bhutan relationship remains an exemplary model of bilateral partnership founded on shared values, strategic security, and economic cooperation. The commitment to the Punatsangchhu-II project signifies a renewed pledge to Bhutan's prosperity and a reinforcement of India's **'Neighbourhood First'** commitment. While challenges like project delays and the need for economic diversification persist, the unique structure of India's development model ensures the relationship's vitality and strategic significance for both nations.

Mains Practice Question

Q. "Hydropower cooperation has served as the bedrock of India-Bhutan relations, but this over-reliance presents economic and geopolitical risks." Analyze this statement in the context of recent bilateral engagements and suggest measures to diversify the strategic partnership. (250 words)

India-Canada Ministerial Dialogue on Trade and Investment (MDTI)

Syllabus

GS-II: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests. Effect of policies and politics of developed and developing countries on India's interests.

Context

The **7th Ministerial Dialogue on Trade and Investment (MDTI)** between India and Canada, concluding with a joint statement on November 14, 2025, is a significant event signaling a thaw in bilateral relations and a renewed focus on economic ties. The dialogue, held at the direction of the respective Prime Ministers, emphasizes **supply chain resilience**, collaboration in **critical minerals** and **clean energy**, and expanding opportunities in the **aerospace** sector. This renewed engagement is pivotal for diversifying India's trade basket and attracting Canadian institutional investment, which is a key source of FDI.

Main Body in Multi-Dimensional Analysis

1. Economic and Trade Dimension

The MDTI's primary goal is to reinvigorate bilateral trade, which has lagged behind its potential, partly due to geopolitical strains. The commitment to maintain an **open, transparent, and predictable investment environment** is crucial for Canadian pension and institutional funds, which are major

global investors. Key sectors identified for cooperation—critical minerals (e.g., lithium, cobalt, nickel) and clean energy—directly support India's **Net-Zero targets** and the **EV mission**. Collaboration in the aerospace and defense-related **dual-use capabilities** sector also offers strategic economic value, leveraging Canada's established expertise.

2. Geopolitical and Diplomatic Dimension

The successful conclusion of the MDTI, despite lingering political tensions, underscores the strategic necessity of the economic relationship. It serves as a diplomatic tool to stabilize the broader relationship, signaling that economic interests can transcend temporary political discord. By committing to sustained dialogue, both nations are attempting to build **institutional trust** and **resilience**. From an Indian perspective, strengthening ties with a G7 member is vital for enhancing its influence in the **Indo-Pacific** and diversifying its reliance on other major economies.

3. Supply Chain Resilience and Strategic Autonomy Dimension

Both countries, recognizing lessons from recent global disruptions, stressed the need for **diversified and reliable supply chains**. Canada, with its vast reserves of critical minerals, can become a reliable source for India, reducing its vulnerability to concentration risk (especially from China). This partnership supports India's ambition for **strategic autonomy** in its transition to a green economy. Furthermore, the focus on strengthening resilience in the **agriculture sector** (e.g., pulses, oilseeds) is crucial for ensuring food security in both nations.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Economic Revival:** Resume high-level dialogue to unlock untapped trade and investment potential. **Critical Minerals Security:** Direct collaboration in minerals (e.g., lithium) for India's green energy transition. **Institutional Investment:** Attracts significant Canadian pension and institutional funds into Indian infrastructure. **Dual-Use Capabilities:** Opens doors for strategic partnerships in high-tech sectors like aerospace and defense.
Negatives	**Political Headwinds:** Economic progress remains vulnerable to diplomatic and political strains between the two governments. **Regulatory Divergence:** Differing standards, especially concerning quality control and labor/environmental norms, can slow down free trade agreement (FTA) progress. **Visa and Mobility Issues:** Continued challenges in visa processing and professional mobility hamper business-to-business engagement.
Government Schemes	**PLI Scheme:** Attracts Canadian firms to set up component manufacturing in India. **National Green Hydrogen Mission:** Creates demand for critical minerals and clean energy technologies. **PM Gati Shakti:** Infrastructure projects for Canadian institutional investment.

Way Forward

Dedicated Critical Mineral Working Group: Establish a permanent, fast-track working group focused solely on **critical mineral supply agreements, joint exploration, and technology transfer**.

Trade Facilitation over FTA: Prioritize **Trade Facilitation Agreements (TFA)** and sectoral MoUs to build confidence and streamline customs procedures, rather than immediately pushing for a comprehensive but politically difficult FTA.

People-to-People Connect: Introduce specialized **business visas** and fast-track immigration programs for skilled professionals and students to boost sectoral collaboration and R&D.

Risk Mitigation Mechanism: Create a **Joint Consultative Mechanism** to manage and de-escalate

trade-related issues arising from political tensions, ensuring economic ties are insulated as much as possible.

Conclusion

The 7th MDTI is a vital step toward leveraging the **complementary strengths** of the Indian and Canadian economies, particularly in the critical domains of green technology and resource supply. By focusing on concrete, strategic areas like critical minerals and dual-use technology, both nations are pragmatically rebuilding their relationship from a shared economic foundation. Sustained, consistent dialogue and the ability to insulate economic cooperation from political volatility will be the key determinants of whether this renewed momentum leads to a truly transformative partnership.

India-Africa Partnership: Connect, Build, Revive

Syllabus

GS-II: India and its neighbourhood relations; Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

Context

A key editorial highlighted the necessity for India to invigorate its partnership with the **African continent**, urging a shift from a transactional relationship to a **strategic, continent-wide partnership**. The focus is on implementing a strategy to **'Connect, Build, and Revive'**. This push is motivated by Africa's growing economic and demographic significance (one in four people globally will be African by 2050), its ongoing economic integration through the **African Continental Free Trade Area (AfCFTA)**, and increasing global competition, particularly from China.

Main Body: Multidimensional Analysis

Economic and Developmental Dimension

India has become one of Africa's top five investors, with a cumulative investment exceeding **$75 billion**. The model of engagement is evolving from traditional infrastructure projects to **co-creation** in high-impact sectors like **vaccine production, digital public infrastructure (like UPI and Aadhaar Stack), green hydrogen, and renewable energy**. The economic opportunity is vast, but Indian companies often struggle to scale due to limited financial backing and bureaucratic hurdles, slowing down the pace compared to competitors.

Geopolitical and Strategic Dimension

India views Africa as a key partner in reforming multilateral institutions like the **UN Security Council**. The partnership is crucial for enhancing India's image as a **responsible global actor** and for countering the strategic dominance of other global powers. India's security cooperation, including maritime security training and peacekeeping support, is vital for stabilizing the Indian Ocean region. Reviving the structured **India–Africa Forum Summit (IAFS)** is essential to restore coordination and momentum.

Socio-Cultural and Technological Dimension

India's engagement is characterized by strong **people-to-people ties**, facilitated by the large Indian diaspora and extensive educational programmes (like the **ITEC**). The launch of the **IIT Madras campus in Zanzibar** strengthens educational ties. The opportunity lies in deploying India's **Digital Public Infrastructure (DPI)** to complement Africa's digital ambitions, enabling financial inclusion and e-governance solutions across the continent.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Shared Values:** Both are developing democracies with shared colonial histories, fostering greater trust. **High Impact:** Focus on co-creation in health (vaccines) and digital sectors, providing genuine developmental assistance. **AfCFTA:** The African Continental Free Trade Area offers Indian businesses a massive, unified market access opportunity.
Negatives	**Competition:** Heavy competition from China (Belt and Road Initiative) and Western powers (Partnership for Global Infrastructure and Investment). **Finance Gaps:** India's financial scale is often limited compared to competitors, and Line of Credit (LoC) disbursements can

Aspect	Description
	be slow. **Siloed Engagement:** Lack of a coordinated, continent-wide strategy, relying too much on individual state visits.
Relevant Schemes	**Indian Technical and Economic Cooperation (ITEC):** Provides training and capacity building for thousands of African professionals. **Line of Credit (LoC):** India extends concessional loans for infrastructure and development projects in Africa. **Team 9:** An initiative to provide technological assistance to eight West African countries.

Relevant Examples

G20 Consensus: India successfully championed the **African Union's (AU)** inclusion as a permanent member of the G20 during its Presidency, demonstrating leadership on behalf of the continent.

Digital Corridor: The potential establishment of an **India–Africa digital corridor** to deploy UPI and India Stack for seamless financial and digital services.

Vaccine Diplomacy: India's role in supplying **COVID-19 vaccines** (Vaccine Maitri) demonstrated reliable partnership in a time of crisis.

Way Forward

Revive IAFS: Immediately announce and execute the **revival of the India–Africa Forum Summit** to institutionalize high-level political guidance.

Financial De-risking: Connect India's **Lines of Credit (LoCs)** to private capital through sovereign guarantees or de-risking mechanisms to ensure faster project execution.

Focus on Green Sectors: Co-invest **green hydrogen, solar power, and e-mobility**, aligning the partnership with future-focused, sustainable growth.

Tailored Engagement: Move beyond generic templates and offer **tailored solutions** (e.g., decentralized digital tools, mobile-based agriculture) suited to Africa's diverse markets.

Conclusion

The India-Africa partnership is vital for India's strategic, economic, and diplomatic interests. While the relationship is built on strong historical and cultural foundations, it requires a renewed strategic push to meet the demands of the 21st century. By focusing on 'Connect, Build, and Revive,' India can secure its position as Africa's most trusted partner, co-creating a stable and prosperous future for both regions.

Practice Mains Questions

Examine the significance of the India-Africa partnership in the current geopolitical scenario. What structural and strategic reforms are needed to make this relationship future-ready? (250 words)

India-Bangladesh Extradition Treaty and Cross-Border Security

Syllabus:

GS-II: India and its neighbourhood relations; Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

GS-III: Linkages of organized crime with terrorism.

Context

Discussions in the news focused on strengthening the **India-Bangladesh Extradition Treaty** as a crucial element of the bilateral security partnership. The treaty allows for the reciprocal transfer of persons accused or convicted of crimes between the two nations. Robust enforcement of this treaty is seen as key to combating cross-border terrorism, organized crime, and the illegal movement of insurgents operating from either side of the border.

Main Body: Multidimensional Analysis

Security and Counter-Terrorism Dimension

Bangladesh and India share a long, often porous border, which is frequently exploited by terrorist groups, cattle smugglers, and insurgents from India's Northeast states seeking safe haven. The Extradition Treaty is a primary legal tool to ensure that criminals cannot evade justice by crossing the border. Its effectiveness is central to India's counter-insurgency efforts, enabling the transfer of high-profile fugitives who pose a threat to both countries.

Legal and Diplomatic Dimension

Extradition processes are often complex, involving judicial review and lengthy diplomatic negotiations. The successful and timely execution of the treaty is a strong indicator of the **deep trust and political will** in the India-Bangladesh relationship. Enhancements to the treaty often involve simplifying procedural requirements, ensuring due process and the protection of human rights, and expanding the list of extraditable offenses to include emerging crimes like cybercrime and economic offenses.

Bilateral and Regional Cooperation Dimension

Beyond extradition, the treaty reinforces broader **bilateral security cooperation**, including coordinated border management, intelligence sharing, and joint anti-smuggling operations (e.g., through the **Border Security Force (BSF)** and **Border Guard Bangladesh (BGB)**). This level of security synergy is vital for maintaining regional stability and facilitating economic cooperation, as a secure border is a prerequisite for seamless trade and connectivity.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Crime Deterrence:** Prevents criminals and terrorists from using the other country as a safe haven, strengthening border security. **Judicial Closure:** Ensures that perpetrators face trial and punishment in the jurisdiction where the crime occurred. **Bilateral Trust:** Successful extraditions are powerful symbols of mutual cooperation and trust.
Negatives	**Lengthy Process:** Extradition proceedings are often highly time-consuming due to multiple legal and human rights challenges in courts. **Political Sensitivities:** Cases involving high-profile political figures or activists can become politically sensitive, hindering smooth execution. **Human Rights Concerns:** Need to ensure that the human rights of the accused are protected in accordance with international standards.
Relevant Schemes	**Coordinated Border Management Plan (CBMP):** Jointly implemented by India and Bangladesh to ensure security and peace along the border. **Agartala Declaration:** Signed between the two countries to enhance counter-terrorism and intelligence cooperation.

Relevant Examples

Transfer of Insurgents: Extradition and handover of key leaders of Northeast Indian insurgent groups (like ULFA, NDFB) operating from Bangladesh soil.

Dawood Ibrahim (Potential): While not specific to Bangladesh, such treaties are crucial for bringing back high-profile economic and terrorism fugitives, wherever they are sheltered.

Way Forward

Procedural Streamlining: Create a specialized, fast-track **extradition cell** within the Ministries of External Affairs and Home Affairs in both countries to expedite paperwork and approvals.

Expanded Scope: Review and expand the list of extraditable offenses to include modern transnational crimes like **money laundering, cyber terrorism, and human trafficking** .

Judicial Training : Conduct joint training programs for judicial officers, police, and lawyers on the nuances of international extradition law and human rights protocols.

Information Sharing : Enhance real-time, secured **intelligence and criminal information sharing** between the security agencies of the two nations to locate and apprehend fugitives quickly.

Conclusion

The India-Bangladesh Extradition Treaty is an indispensable tool for deepening the strategic security ties between the two nations. A robust and efficiently enforced treaty is vital not only for delivering justice but also for creating a stable, secure, and prosperous neighborhood, allowing both countries to focus on shared economic and developmental goals.

SOCIAL ISSUES

Creamy Layer Principle in Scheduled Caste (SC) Reservation

Syllabus

GS-II: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions and bodies constituted for the protection and betterment of these vulnerable sections.

GS-II: Constitution, social justice, and judicial review.

Context

The Supreme Court has frequently reiterated the view that the **"creamy layer"** principle—the exclusion of the affluent and advanced sections—should be applied to reservations for Scheduled Castes (SCs) and Scheduled Tribes (STs), just as it is applied to Other Backward Classes (OBCs) based on the **Indra Sawhney judgment (1992)**. This specific news event highlights the ongoing legal and constitutional debate over whether reservation benefits meant for upliftment should be monopolised by those who have already achieved socio-economic mobility, thereby neglecting the 'poorest among the poor' within the reserved category.

Main Body: Multidimensional Analysis

Constitutional and Legal Dimension

The Constitution, under **Articles 15(4)** and **16(4)**, provides the basis for reservations. The principle of excluding the creamy layer is rooted in the larger concept of **equality of opportunity** (Article 16(1)). The Supreme Court has repeatedly affirmed that reservation is a means to achieve substantive equality, not a reward for merit alone. Excluding the creamy layer ensures that reservation remains a tool for social inclusion, rather than becoming a source of **inter-generational inequality** within the same caste group. Conversely, opponents argue that the exclusion undermines the purpose of SC/ST reservation, which is primarily to correct historical social and cultural exclusion/untouchability (**Article 17**), which is not fully erased by economic status.

Social Justice and Equity Dimension

Applying the creamy layer principle aims to ensure **"reservation within reservation"** (sub-categorisation) to benefit the *most* backward. Sociological data suggests that within SC communities, a small, upwardly mobile elite often corner the majority of educational and job quotas, leaving millions of others untouched. However, critics fear that introducing an economic/class criterion for SCs—whose backwardness is rooted in **caste-based discrimination**—may dilute the fundamental constitutional mandate and shift the focus from correcting historical injustice to addressing only current economic distress.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Targeted Benefit:** Ensures benefits reach the genuinely deserving (the poorest among the SCs). **Intra-Caste Equity:** Prevents the monopolisation of quotas by a few families. **Efficiency:** Aligns reservation with the principle of efficiency in administration (Article 335).
Negatives	**Dilution of Mandate:** Opponents argue it ignores the persistent social stigma faced by all SCs, regardless of economic status. **Implementation Challenge:** Determining the 'creamy layer' for SCs is complex due to the lack of consensus on parameters. **Political Friction:** Can create internal tensions and friction within the SC community.
Relevant Schemes	**Post-Matric Scholarship Scheme:** Directly aids SC/ST students from poor families, complementing the reservation policy. **Stand Up India Scheme:** Promotes entrepreneurship among SC/ST women/men, providing an alternative path to empowerment beyond government jobs.

Relevant Examples

Indra Sawhney Case (1992): The original verdict that introduced the creamy layer for OBCs based on the principle of equity.

Jarnail Singh vs. Lachhmi Narain Gupta Case (2018): SC upheld the creamy layer principle for

SC/ST promotions but struck down the requirement of collecting quantifiable data on backwardness as being contrary to *Indra Sawhney*.

Sub-categorisation in Andhra Pradesh/Punjab: The proposal for sub-categorisation among SCs (like the *Sathyanarayanan Committee* in Punjab) aims to distribute benefits equitably, a related judicial and political effort.

Way Forward

Quantifiable Data: The government must undertake a thorough **Socio-Economic and Caste Census (SECC)** to gather quantifiable, contemporaneous data to determine the actual social and economic advancement within various SC/ST sub-groups.

Legislative Clarity: Parliament should consider a constitutional amendment or a clear law that definitively addresses the applicability of the creamy layer principle for SCs/STs, ensuring judicial-legislative harmony.

Focus on Structural Issues: Reservation policy must be complemented by large-scale investment in **quality primary education, healthcare, and infrastructure** in disadvantaged areas to address the root causes of backwardness.

Conclusion

The debate over the creamy layer in SC reservation is fundamentally a conflict between two equity principles: **correcting historical injustice** versus **ensuring benefits reach the truly marginalized**. While the constitutional goal of reservation is upliftment, its purpose is defeated if a small elite captures the benefit. A pragmatic way forward involves applying the creamy layer judiciously, based on robust, caste-specific data, while simultaneously expanding the base of opportunity for all.

Practice Mains Questions

"Application of the creamy layer principle to Scheduled Castes is essential for ensuring intra-caste equity but may dilute the original constitutional mandate of reservation." Critically analyze the statement in light of recent Supreme Court pronouncements. (250 words)

MGNREGS Database e-KYC and Worker Removal

Syllabus

GS-II: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; Issues relating to poverty and hunger.

GS-II: Important aspects of governance, transparency, and accountability, e-governance applications, models, successes, limitations, and potential.

Context

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is the world's largest work guarantee program. The recent spike in the deletion of a large number of worker names from the MGNREGS database, coinciding with the mandatory rollout of the **electronic Know Your Customer (e-KYC)** process and the **Aadhaar-Based Payment System (ABPS)**, has raised serious concerns. The government maintains that the deletions are routine and aimed at weeding out ineligible beneficiaries and 'ghost' cards, while activists argue that it is leading to the **exclusion of genuine, active workers** due to technical and procedural hurdles (exclusion error).

Main Body: Multidimensional Analysis

Governance and Transparency Dimension

The core objective of e-KYC and ABPS is to enhance **transparency and efficiency** (eliminating corruption, delays, and leakages) in the transfer of funds, aligning with the **Direct Benefit Transfer (DBT)** mission. The move towards digitisation is crucial for tackling the issue of **ghost beneficiaries** and improving the overall financial accountability of the scheme. However, the mass deletions suggest a failure in the accompanying **Standard Operating Procedures (SOPs)** for verification and deletion, which should ideally include sufficient notice, a public domain listing, and a Gram Sabha approval, thereby undermining transparency at the ground level.

Social Justice and Inclusion Dimension

MGNREGS is a social safety net, primarily for the most vulnerable: women, SCs, and STs in rural areas. The removal of active workers due to technical glitches, Aadhaar-seeding errors (like demographic

mismatches), or lack of digital literacy directly impacts their **Right to Work** and economic security. Exclusion errors stemming from the digital mandate disproportionately affect the poorest, digitally illiterate, and those in remote areas, creating a "digital divide" within a critical social security scheme. The spike in deletions during a period of rising rural distress exacerbates the social justice concern.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Leakage Prevention:** Eliminates fraud, duplicate, and 'ghost' job cards, ensuring public money is saved. **Accountability:** Improves audit trails and makes fund transfer more traceable via ABPS. **Data Accuracy:** Creates a clean, up-to-date, and verified database for better planning and resource allocation.
Negatives	**Exclusion Errors:** Technical failures in biometric authentication and demographic mismatches lead to the removal of genuine workers. **Lack of Due Process:** Deletions often occur without proper notice or Gram Sabha sanction, violating established guidelines. **Digital Divide:** Difficulties for workers in remote areas or those without smartphones/internet access to complete e-KYC.
Relevant Schemes	**Jan Dhan-Aadhaar-Mobile (JAM) Trinity:** The e-KYC and ABPS are foundational elements of the JAM trinity strategy for leak-proof welfare delivery. **PM-KISAN:** Uses a similar digital beneficiary verification system, showing both the potential for efficiency and the risk of exclusion.

Relevant Examples

Previous ABPS Rollout: The mandatory shift to ABPS previously led to a 247% jump in deletion rate, indicating a systemic flaw in technology-based transitions without adequate human support.

Case of Andhra Pradesh: States with high e-KYC completion rates, such as Andhra Pradesh, have seen the highest number of deletions, suggesting a direct correlation between the new tech mandate and mass removals.

SC Ruling on Aadhaar: The Supreme Court has previously emphasised that no genuine beneficiary should be deprived of a welfare entitlement due to the lack of an Aadhaar card or failed authentication.

Way Forward

Proactive Re-verification: Adopt a "verify, don't delete" approach. Workers identified for deletion must be mandatorily verified manually by Gram Rozgar Sahayaks (GRS) and local authorities before removal.

Grievance Redressal: Establish a time-bound, accessible, and **offline grievance redressal mechanism** at the Block/Panchayat level, specifically for e-KYC and ABPS failures.

Digital Literacy Investment: Launch a focused campaign to improve digital literacy among GRS and workers, providing technical support to resolve Aadhaar-seeding issues.

Strengthening Social Audit: Empower the **Gram Sabha** to conduct mandatory social audits on all deletion lists before final approval, ensuring community oversight and accountability.

Conclusion

While the pursuit of a clean database through e-KYC is laudable, it cannot override the fundamental guarantee of the MGNREGS Act. The massive, sudden deletion of workers signals a critical trade-off between fighting corruption and protecting the most vulnerable. The success of digital governance must be measured not just by the savings from leakages, but by the extent of **inclusion and zero exclusion errors**. The government must immediately pause mass deletions and focus on remedial verification.

Practice Mains Questions

Examine the trade-off between efficiency and exclusion in the context of mandatory e-KYC and ABPS in the MGNREGS. Suggest institutional safeguards to ensure that technology serves as an

enabler rather than a barrier to social security. (250 words)

The Lower Judiciary — Litigation, Pendency, Stagnation

Syllabus

GS-II: Structure, organization and functioning of the Executive and the Judiciary; issues and challenges pertaining to the federal structure; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

Context

A prominent editorial piece focused on the endemic problems of the **lower judiciary**, which is the backbone of the justice system, handling nearly **85% of all pending cases** in India. The issues highlighted were chronic pendency, stagnation in career progression, judicial vacancies, inadequate infrastructure, and excessive clerical workload on judges. The challenge is that inefficiencies at this tier lead to massive delays in justice delivery, undermining the constitutional guarantee of a **speedy trial** and eroding public confidence.

Main Body: Multidimensional Analysis

Judicial and Administrative Dimension

The lower judiciary (District and Subordinate Courts) suffers from low judge-to-population ratios and high rates of vacancies, leading to heavy caseloads. Administrative burdens, including excessive reliance on paper filings and outdated procedures (**Civil Procedure Code (CPC) Order XXI** for execution proceedings), consume time that judges should dedicate to hearing cases. The lack of proper training and administrative experience among newly appointed judges contributes to procedural delays and case mismanagement, creating a cycle of *litigation $\rightarrow$ delay $\rightarrow$ stagnation*.

Social Justice and Constitutional Dimension

The delay in the lower courts disproportionately affects the poor and vulnerable who cannot afford prolonged litigation. **Justice delayed is justice denied** is a direct failure of the constitutional mandate under **Article 21 (Right to Life and Liberty)**, which includes the right to a speedy trial. The high pendency hinders the effectiveness of welfare laws, land reforms, and family disputes, directly impacting societal stability and social security mechanisms. **Ease of Justice** is a prerequisite for both Ease of Doing Business and Ease of Living.

Institutional Reforms Dimension

Reforming the lower judiciary requires structural changes beyond filling vacancies. There is a need for the **Higher Judiciary's** intervention to reduce clerical work, automate court processes, and ensure timely finalisation of disciplinary and promotion procedures. The role of the **State Governments** is crucial in budgeting for better infrastructure, technology adoption, and increasing the remuneration for the subordinate judicial services.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**E-Courts Project:** Aims at providing digital infrastructure, case management, and virtual court facilities to improve efficiency. **Gram Nyayalayas Act, 2008:** Aims to provide speedy, affordable, and accessible justice in rural areas. **Legal Services Authorities Act (NALSA):** Ensures free legal aid, which is essential for the poor trapped in pending cases.
Negatives	**Structural Inefficiencies:** Outdated procedural laws like the two-step decree process in partition suits contribute to unnecessary delays. **Inadequate Training:** Lack of targeted and continuous training for newly recruited judicial officers. **Clerical Burden:** Judges still spend excessive time on non-judicial, administrative tasks.
Relevant Schemes	**National Mission for Justice Delivery and Legal Reforms:** Focuses on reducing pendency and enhancing accountability. **Centrally Sponsored Scheme (CSS) for Judicial Infrastructure:** Provides financial support to states for improving court infrastructure, housing, and technology.

Relevant Examples

Patil Automation v. Rakheja Engineers (2022): SC judgment that affirmed **mandatory pre-suit mediation** in commercial courts, an attempt to reduce litigation burden.

Use of Technology: Courts in some states have begun using **Artificial Intelligence (AI)** tools for transcribing court proceedings and case categorization to manage pendency.

Way Forward

Judicial Cadre Reforms: Implement the recommendations of the **Law Commission of India** regarding the establishment of an **All India Judicial Service (AIJS)** to ensure standardized recruitment and training.

Procedural Modernisation: Comprehensive revision of the **Civil Procedure Code (CPC)** and **Criminal Procedure Code (CrPC)** to remove archaic, delay-inducing provisions (e.g., streamline execution proceedings).

Technology Integration: Fully implement the **e-Courts Mission Mode Project**, including training judges and staff in digital case management and utilizing AI for predictive analytics on case timelines.

Specialised Training: Develop mandatory, high-quality judicial training academies focused on judicial ethics, case management, and the practical application of new laws.

Conclusion

The crisis of pendency in the lower judiciary is a crisis of governance and constitutional commitment. While the structural problems are deep-rooted, targeted reforms focusing on modernization, capacity building, and procedural simplification, backed by strong political will and adequate budgetary allocations, are non-negotiable for delivering 'Ease of Justice' to the common citizen.

Practice Mains Questions

"The lower judiciary is the pivot of the Indian justice system, yet it suffers from chronic stagnation." Examine the primary reasons for high pendency and suggest comprehensive structural reforms. (250 words)

Ladakh Groups Demand for Sixth Schedule and Statehood

Syllabus

GS-II: Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.

Context

A unified body of political, social, and religious groups from **Ladakh** submitted a detailed draft proposal to the Ministry of Home Affairs (MHA), reiterating their key demands: **Statehood for Ladakh** and the grant of **Sixth Schedule status** to protect the region's land, culture, and demographic identity. These demands emerged strongly after the region's separation from the erstwhile state of Jammu and Kashmir and its reorganization as a Union Territory (UT) without a legislature in 2019.

Main Body: Multidimensional Analysis

Constitutional and Governance Dimension

The demand for **Statehood** is based on democratic aspirations and the right to have an elected legislature for local governance. The demand for **Sixth Schedule** status under **Article 244(2)** seeks to grant special powers to the region through the creation of **Autonomous District Councils (ADCs)**. The ADCs would have legislative, judicial, and administrative autonomy over land, forest management, and revenue collection, protecting the fragile ecological and unique socio-cultural identity of the region, which is currently dominated by central administration.

Socio-Cultural and Identity Dimension

Ladakh's population is predominantly tribal (Buddhists and Shias) and its culture is unique, making it vulnerable to demographic change and external exploitation of resources. Granting the Sixth Schedule would allow the local population to enact laws protecting their customs and controlling the influx of outsiders who might pose a threat to their land and job opportunities. The demand is rooted in safeguarding the region's identity post-2019.

Geopolitical and Strategic Dimension

Ladakh is a strategically critical border region. Addressing the democratic aspirations of the local populace and ensuring their genuine participation in governance is vital for maintaining **social cohesion and national security**. Unresolved internal issues can be exploited by external adversaries. A satisfied local population is the best guardian of India's sensitive borders.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Cultural Protection:** Sixth Schedule status offers constitutional protection to the land and culture of the predominantly tribal population. **Democratic Devolution:** Statehood would fulfill the long-pending aspiration for democratic representation and local self-governance. **Strategic Stability:** Political satisfaction of the local populace enhances internal stability in a sensitive border region.
Negatives	**Security Concerns:** Granting Statehood may introduce political complexities in a strategically volatile region bordering China and Pakistan. **Economic Feasibility:** The financial viability of a full-fledged State government in a sparsely populated region with limited revenue generation is questionable. **Administrative Complexity:** Integrating two different regions (Leh and Kargil) under a single autonomous framework poses governance challenges.
Relevant Schemes	**Ladakh Ecological and Development Group (LEDG):** A proposed body to manage and sustainably develop the region. **Himalayan Development Programme:** Central schemes providing financial support for infrastructure and connectivity in high-altitude areas.

Relevant Examples

Northeast ADCs: The success of Autonomous District Councils in states like Assam, Meghalaya, and Mizoram serves as a model for the potential implementation of the Sixth Schedule in Ladakh.

Karbi Anglong/Bodo Land: Recent agreements with autonomous councils in Assam demonstrate the Central government's willingness to use the Sixth Schedule to resolve long-standing ethnic and territorial demands.

Way Forward

Phased Approach: The government could consider a phased approach: first, strengthening the **Ladakh Autonomous Hill Development Councils (LAHDCs)** in Leh and Kargil with greater financial and legislative powers, and then moving towards the Sixth Schedule or Statehood.

Dialogue and Consensus : Initiate a structured and continuous dialogue process with the Apex Body and Kargil groups to build a consensus on the boundaries and powers of the proposed ADCs.

Unique Model : Draft a unique, customized model for the Sixth Schedule that addresses Ladakh's specific geographical and strategic requirements, perhaps integrating both Leh and Kargil districts under a supra-council body.

Economic Viability Study : Conduct a comprehensive financial and administrative feasibility study before granting Statehood to ensure long-term sustainability.

Conclusion

The demands of the Ladakh groups for the Sixth Schedule and Statehood reflect deep-seated aspirations for democratic participation and constitutional protection of their identity. While the security sensitivity of the region is paramount, addressing these demands through a transparent, constitutionally sound, and phased approach is vital for ensuring long-term peace, loyalty, and integration in this key frontier territory.

Practice Mains Questions :

Examine the demands of the Ladakh groups for the Sixth Schedule status and Statehood. In what ways can the Sixth Schedule protect the region's unique culture while addressing the Union Territory's strategic importance? (250 words)

GS 3

AGRICULTURE

DRAFT Seeds Bill, 2025 – Reforming India's Seed Regulation

Syllabus

GS-III: Agriculture: Major crops-cropping patternsin various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers.

Context

The Ministry of Agriculture & Farmers Welfare inviting public comments on the **Draft Seeds Bill, 2025**, signals the government's intent to replace the archaic **Seeds Act, 1966**. This reform is critical for modernizing India's agricultural backbone, which depends heavily on the quality, accessibility, and genetic integrity of seeds. The Draft Bill aims to address challenges posed by **climate change, new breeding technologies (including GM crops), and the protection of Farmers' Rights** against large seed corporations, necessitating a balance between stimulating private R&D and securing the welfare of small and marginal farmers.

Main Body in Multi-Dimensional Analysis:

1. Technology and Intellectual Property Dimension

The new Bill seeks to streamline the process for registering seed varieties, promoting the adoption of high-yielding, climate-resilient seeds. It is expected to provide clearer regulations for **Genetically Modified (GM) crops** and products developedusing new genomic techniques, potentially boosting private sector investment in agricultural biotechnology R&D. However, the regulatory framework must ensure that seed registration does not become an onerous, time-consuming process that hinders innovation. It must harmonize with the **Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001**, ensuring seed companies respect the intellectual property rights of farmers over their own traditional varieties.

2. Farmers' Rights and Welfare Dimension

A crucial test for the Draft Bill is its treatment of farmers. The **PPV&FR Act, 2001**, grants farmers the right to save, use, sow, re-sow, exchange, share, or sell their farm produce, including seed of a protected variety, provided they do not sell it commercially under the brand name of the registered variety. The Draft Bill must not dilute these existing rights. Furthermore, it should contain strong provisions for **compensation** to farmers in case of seed failure (low yield or quality issues), establishing a robust mechanism for dispute resolution and liability, which is often neglected in the current system.

3. Quality Control and Market Dimension

The primary function of any Seeds Bill is to ensure the supply of **high-quality, truthful-labeled seeds**. The Draft Bill proposes stricter norms for compulsory registration of seed varieties and heavy penalties for the sale of spurious or mislabeled seeds. It introduces the concept of **seed traceability** using digital platforms, which is essential for quickly identifying the source of contamination or quality failure. This strengthening of the regulatory mechanism protects farmers from financial losses and builds consumer trust in the agricultural market, reducing the presence of illegal or unauthorized seeds.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Modernization:** Replaces outdated 1966 Act, addressing modern challenges like climate change and GM crops. **Quality Assurance:** Stricterpenal provisions and compulsory registration for better seed quality control. **R&D Boost:** Clearer regulatory pathway expected to incentivize private sector investment in seed research. **Traceability:** Potential for using digital technology for seed monitoring and accountability.
Negatives	**Dilution of Rights:** Risk of weakening the **PPV&FR Act, 2001** provisions protecting farmers' traditional rights over seed saving. **Small Farmer Burden:** Compliance costs for new registration norms could disproportionately affect small-scale seed producers and co-operatives. **GM**

Category	Description
	Regulation Ambiguity: The regulatory clarity for advanced breeding technologies remains a contentious point.
Government Schemes	**Pradhan Mantri Fasal Bima Yojana (PMFBY):** Provides risk coverage to farmers, including coverage for yield loss due to poor quality inputs (like seeds). **National Seed Mission:** Aimed at increasing the seed replacement rate (SRR) and providing quality seeds.

Way Forward

Non-dilution of PPV&FR: Explicitly incorporate a clause within the Bill that mandates its provisions to be consistent with and **not override** the fundamental rights granted to farmers under the PPV&FR Act, 2001.

Dispute Resolution Mechanism: Establish a dedicated **Seed Grievance Authority** at the district level for the swift and cost-effective resolution of compensation claims related to seed failure.

Tiered Regulation: Implement a tiered regulatory structure where quality checks are stringent for mass-produced commercial seeds but simplified for traditional and farm-saved varieties to protect biodiversity.

Climate-Resilient Focus: Mandate that the registration process gives priority and fast-track approval to seed varieties demonstrating superior **climate-resilience** (e.g., drought, heat, flood tolerance).

Conclusion

The Draft Seeds Bill, 2025, is a necessary legislative update for India's agricultural sector, promising better quality control and a conducive environment for technological innovation. For the Bill to be truly transformative, it must successfully navigate the complex trade-off between **commercial liberalization and farmer welfare**. By preserving the core rights of farmers while enforcing strict quality standards and technological adoption, the final Bill can secure the foundation for India's food security and make its agriculture sector resilient to future challenges.

DEFENCE

Defence and Security: India-US Joint Exercise 'Vajra Prahar' Conclusion

Syllabus

GS-3: Security challenges and their management in border areas; various Security forces and agencies and their mandate.

GS-2: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

Context

The **16th edition** of the annual bilateral joint special forces exercise **'Vajra Prahar'** between the Indian Army Special Forces and the US Army Special Forces (Green Berets) was successfully concluded in **Idaho, USA, in November 2025**.

The exercise is a critical component of the rapidly deepening **India-US Major Defence Partnership**, focusing on unconventional warfare, counter-terrorism, and joint special operations planning.

Main Body (Multi-Dimensional Analysis)

Exercise Profile and Objective :

Focus: High-intensity tactical drills, exchange of best practices, and enhancement of interoperability in a **desert/semi-desert environment**, reflecting a shift to a broader range of operational terrains.

Drills Conducted : Included joint team mission planning, reconnaissance missions, employment of **Unmanned Aerial Systems (UAS)**, actions of a **Joint Terminal Attack Controller (JTAC)**, and psychological warfare in special operations.

Significance of Special Forces: Special Forces operations are crucial for low-footprint, high-impact missions, counter-insurgency, and unconventional warfare scenarios, which are highly relevant in the contemporary security environment.

Enhancing Strategic Partnership:

Interoperability: The exercise allows Indian and US forces to integrate their command, control, and communication systems, which is vital for joint

operations in potential future multinational missions (e.g., UN Peacekeeping or Humanitarian Assistance and Disaster Relief – HADR).

Major Defence Partner Status: 'Vajra Prahar', along with other key exercises like **'Yudh Abhyas' (Army-to-Army)** and **'Malabar' (Naval)**, is a tangible demonstration of the 'Major Defence Partner' status granted to India by the US.

Geopolitical Relevance (Indo-Pacific):

The training on joint special operations is increasingly important in the context of the **Indo-Pacific strategy**, where flexible, rapid-response forces are needed to address emerging security challenges, including maritime threats and counter-piracy.

Positive, Negatives, Government Schemes

Positive:

Skill Transfer: Indian Special Forces gain exposure to US special operations tactics, modern equipment, and highly evolved joint planning procedures.

Deterrence: The visible display of military cooperation sends a strong signal to adversaries regarding the depth of the strategic alliance.

Personnel Exchanges: Fosters bonhomie and deepens personal ties between the elite military units of the two democracies.

Negative:

Strategic Autonomy Concern: Critics sometimes raise concerns that deepening military dependence on the US could impact India's long-held policy of **Strategic Autonomy**.

Technology Transfer: Sharing of sensitive special forces tactics and equipment protocols requires careful management and security clearances.

Government Schemes:

The exercise is directly supported by the framework of the **Defence Technology and Trade Initiative (DTTI)** and is a foundation for future defence procurement and co-development.

Examples

The exercise utilized sophisticated US equipment and digital tools, providing Indian troops with practical experience in advanced communication and targeting systems.

The focus on the JTAC role is critical for ensuring seamless coordination between ground troops and air support, a vital requirement in modern warfare.

Way Forward

Joint Doctrine : Translate the lessons learned from 'Vajra Prahar' into a formalized joint Special Forces doctrine that can be implemented across various theatres.

Tri-Service Integration : Increase the complexity of future exercises to include elements from both navies and air forces to build a true tri-service special operations capability.

Regional Role: The India-US special forces cooperation can be leveraged to address security training and capability building for partner nations in the Indian Ocean Region.

Conclusion

The successful conclusion of 'Vajra Prahar' underscores the unwavering commitment of India and the US to a comprehensive global strategic partnership, particularly in the critical domain of special operations. It serves as a vital platform for enhancing combined combat capabilities, ensuring both nations are prepared to tackle future security challenges across a diverse spectrum of environments.

Practice Mains Question

Q: Joint military exercises like 'Vajra Prahar' are a key indicator of the deepening India-US Comprehensive Global Strategic Partnership. Analyze the significance of such special forces exercises for India's security preparedness and its role in the Indo-Pacific strategy. (250 words, 15 marks)

ENVIRONMENT

Delhi Air Quality in 'Very Poor' Category and Control Efforts

Analysis:

Syllabus

GS-III: Environmental pollution and degradation; Conservation; Environmental impact assessment.

GS-I: Urbanization, its problems and remedies.

Context

On November 4, 2025, the Air Quality Index (AQI) in the National Capital Region (NCR) remained in the **'Very Poor' category**, with several monitoring stations breaching the 'Severe' mark (AQI 400+), as per data from the Central Pollution Control Board (CPCB). This persistent seasonal crisis, exacerbated by meteorological conditions and anthropogenic sources like vehicular emissions, industrial discharge, and most significantly, **stubble burning** in neighboring states, raises critical public health and governance questions. The sustained high pollution levels necessitated continued implementation of measures under the Graded Response Action Plan (GRAP), including construction bans and vehicle restrictions, highlighting the inadequacy of existing long-term solutions.

Main Body in Multi-Dimensional Analysis

Public Health and Socio-Economic Dimension: Chronic exposure to 'Very Poor' and 'Severe' air quality has profound health implications, leading to an increase in respiratory illnesses, cardiovascular problems, and neurological disorders, particularly among children and the elderly. The economic cost includes loss of productivity, increased healthcare expenditure, and impact on sectors like tourism and aviation. The poor are disproportionately affected as they often reside near pollution sources and lack access to air purifiers or quality healthcare, leading to an issue of **environmental justice**.

Inter-State Governance and Federal Dimension: The annual crisis is a stark reminder of the failure of **cooperative federalism** in environmental governance. Control of sources like stubble burning requires coordinated, legally binding action from Delhi, Punjab, Haryana, and Uttar Pradesh. The **Commission for Air Quality Management (CAQM)**, established to provide a unified approach, faces challenges in enforcement and ensuring sustained compliance across diverse state bureaucracies with competing political priorities.

Technical and Implementation Dimension (GRAP): The reliance on the **Graded Response Action Plan (GRAP)**, a set of emergency measures triggered by pollution levels, indicates a reactive approach. While GRAP aims to prevent AQI from entering the 'Emergency' zone, it is essentially a short-term crisis management tool. Its effectiveness is often undermined by non-compliance, lack of robust monitoring for small industrial units, and the social/economic disruption caused by measures like the 'odd-even' scheme or complete construction bans. A permanent solution requires year-round monitoring and source-specific reduction strategies.

Structural and Agricultural Dimension: Stubble burning, a low-cost, quick method for land preparation, is an outcome of mechanized farming and the delayed harvest of paddy necessitated by the need to conserve groundwater (via the state-level ban on early sowing). Addressing this requires a structural shift in agricultural practices, providing farmers with reliable, subsidized alternatives like **in-situ and ex-situ crop residue management (CRM)** machinery or market linkages for biomass utilization (e.g., in power plants).

Positives and Negatives, Government Schemes

Positives: 1. Establishment of **CAQM** to streamline inter-state action and regulatory oversight. **2.** Implementation of the **National Clean Air Programme (NCAP)**, setting city-specific targets for air quality improvement. **3. BS-VI fuel standards** implementation, significantly reducing vehicular pollution.

Negatives: 1. Lack of permanent infrastructure for large-scale stubble management and its commercialization. **2. Ineffective monitoring** of industrial units, especially small-scale ones and diesel generator sets. **3. High reliance on weather patterns** (wind speed, temperature) rather than fundamental source control.

Relevant Government Schemes/Initiatives:

Graded Response Action Plan (GRAP): Sets emergency measures based on AQI levels.

NCAP (National Clean Air Programme): A time-bound national-level strategy for ambient air quality improvement across 131 non-attainment cities.

Paddy Straw Management Schemes: Providing subsidies for CRM machinery (e.g., Happy Seeder, Super Straw Management System) and promoting bio-decomposers (like Pusa decomposer).

Way Forward

A **non-partisan, decade-long commitment** to funding and building **permanent, decentralized infrastructure** for stubble-to-biomass conversion and industrial gas cleaning is essential, shifting away from a reliance on emergency measures. Simultaneously, the CAQM must be empowered with **greater legal and fiscal autonomy** to enforce compliance across states and penalize non-performing regions, coupled with **robust public disclosure** of real-time emission data. Furthermore, a **phased transition to electric vehicles (EVs)** and incentivizing public transport usage must be accelerated across the NCR, targeting the long-term goal of **clean mobility** as a primary measure for reducing winter pollution.

Conclusion

The annual descent of the NCR's air quality into the 'Very Poor' category is a **recurrent failure of governance** that exacts a severe toll on public health and the economy. While emergency responses like GRAP are necessary, they are not a substitute for **structural reforms**. Resolving the air pollution crisis demands a sustained commitment to **cooperative federalism**, technological innovation in agriculture and industry, and a strict, year-round enforcement regime that permanently tackles the emission sources rather than merely reacting to the smog.

Practice Mains Question:

The annual air pollution crisis in the NCR highlights a systemic failure of environmental governance. Critically evaluate the effectiveness of the Graded Response Action Plan (GRAP) and suggest a robust, multi-state policy framework for a permanent resolution that addresses both agricultural and urban pollution sources. (250 words, 15 marks)

Escalating Delhi Air Crisis: AQI Hits Hazardous Levels, State Governments Fail to Implement Graded Response Plan

Syllabus Relevance:

GS-III (Environment): Conservation, Environmental pollution and degradation, Environmental Impact Assessment.

GS-II (Governance): Issues relating to the development and management of social sectors, Central and State government policies for vulnerable sections.

Context: As the festival season concluded, Delhi's air quality deteriorated sharply, with the Air Quality Index (AQI) crossing the 350-400 mark and entering the 'Severe' to 'Hazardous' category on November 3rd. This recurring crisis demonstrated the systemic failure of the Graded Response Action Plan (GRAP) implementation, particularly concerning cross-border pollution management among the National Capital Region (NCR) states and the Central government's coordinating agencies.

Main Body – Multi-Dimensional Approach: The air pollution crisis is fundamentally multi-dimensional, involving environmental, health, economic, and governance spheres.

Environmental/Meteorological: The confluence of low wind speed, lower inversion layers trapping pollutants, and agricultural stubble burning in adjoining states (Punjab, Haryana) created the perfect toxic soup.

Health Impact: Reports highlighted the immediate health emergency, with PM2.5 levels exceeding the WHO 24-hour limit by over 10 times. This leads to long-term respiratory and cardiovascular burdens, disproportionately affecting children and the elderly—a clear **Social Justice** failure.

Governance Failure (The Multi-State Dimension): The primary bottleneck is the **lack of unified enforcement authority** across state lines. While the Commission for Air Quality Management (CAQM) exists, its recommendations are often treated as discretionary guidelines by state transport and environment departments, leading to inconsistent application of measures like vehicle restrictions and construction bans.

Positives/Negatives – Government Scheme Assessment (Focus on GRAP):

Positives: The **existence of GRAP itself** is a positive framework, establishing clear, tiered action triggers based on forecasted AQI levels. The increased focus

on **stubble-burning mitigation** via subsidized machinery and in-situ management techniques shows targeted policy effort, even if implementation lags. The Delhi government's push for **electric vehicle adoption** offers a long-term solution for vehicular pollution.

Negatives/Challenges: Enforcement Leakage: The biggest negative is the porous enforcement of bans on construction/demolition and the continued, albeit reduced, impact of stubble burning. **Political Will:** The issue gets entangled in state electoral politics, leading to a reluctance by state governments to impose unpopular, strict measures, especially close to elections, undermining the CRQM's mandate. **Over-reliance on Emergency Measures:** The focus remains on *reaction* (GRAP stages) rather than *proactive* measures like large-scale industrial fuel switching or comprehensive public transport expansion.

Way Forward:The CAQM must be granted statutory enforcement powers similar to a central regulatory body, allowing it to directly issue binding, time-bound directives to all NCR state departments, bypassing local political inertia. Furthermore, a 'Polluter Pays Principle' surcharge on industrial and vehicular emissions during severe periods should be implemented, with revenues earmarked only for air quality infrastructure in the concerned states. Long-term, incentivizing the regional shift of polluting industries away from the NCR periphery is essential.

Practice Mains Question:Analyze the multi-sectoral challenges leading to the recurring severe air pollution crisis in the National Capital Region (NCR). Suggest structural and administrative reforms required to make the Graded Response Action Plan (GRAP) effective.

Air Quality Crisis in Delhi-NCR

Syllabus Relevance

GS Paper III (Environment): Conservation, Environmental Pollution and Degradation; Environmental Impact Assessment (EIA). Disaster Management: Cyclones, Earthquakes, Tsunamis, Floods, Droughts, Cloudbursts, Heatwaves, etc.

GS Paper II (Health): Issues relating to the development and management of Social Sector/Services relating to Health.

Context

News snippets indicate a continuing crisis in **Delhi-NCR** on November 10, 2025, with reports of a **hazy morning** and over half the stations recording **'severe' air quality**. This recurring seasonal phenomenon requires constant administrative intervention, emergency measures, and long-term systemic solutions. The crisis is not just an environmental issue but a major public health emergency.

Main Body in Multi-Dimensional Analysis

A. Public Health Catastrophe (Health & Social Dimension)

Severe Air Quality Index (AQI) levels, typically above 400, pose an **acute public health threat**.Exposureto high levels of Particulate Matter ($PM_{2.5}$ and PM_{10}) is linked to increased incidence of respiratory illnesses (asthma, COPD), cardiovascular problems, and long-term neurological impacts. For vulnerable groups—children, the elderly, and those with pre-existing conditions—the situation is life-threatening. The fact that emergency measures like the **Graded Response Action Plan (GRAP)** are likely in effect underscores the failure to maintain breathable air quality for basic human sustenance. The economic cost, through lost workdays and increased healthcare expenditure, is also substantial.

B. Multi-Source Pollution Conundrum (Environmental & Causal Dimension)

The Delhi air pollution crisis is complex, driven by a confluence of factors, especially during the post-harvest season (stubble burning) and winter inversions:

Stubble Burning (Transboundary): Fires in neighbouring states like Punjab and Haryana contribute significant smoke plumes. While inter-state cooperation is key, execution remains challenging.

Local Emissions: Vehicular pollution (though often targeted by measures like odd-even schemes/pollution alerts), industrial emissions, and construction dust are significant perpetual contributors.

Meteorological Factors: Low windspeed,lowmixing layer height, and temperature inversions trap

pollutants close to the ground, exacerbating the effect of the pollutants released.

C. Governance and Inter-State Coordination (Governance Dimension)

Air pollution does not respect administrative boundaries. The management requires seamless coordination between the **Centre (Commission for Air Quality Management – CAQM)**, the Delhi Government, and the governments of Haryana, Punjab, and Uttar Pradesh. The success of measures like banning diesel generators or restricting construction often depends on uniform enforcement across the National Capital Region (NCR). Lack of coordinated action or uneven enforcement leads to the "pollution migration" effect, where one state's relief creates another's burden.

D. Infrastructure and Technology Solutions (Technological Dimension)

Addressing the issue requires leveraging technology beyond immediate bans. This includes:

Real-Time Monitoring: Utilizing advanced sensor networks for hyper-local data collection to target enforcement.

Sustainable Alternatives: Aggressively promoting **in-situ crop residue management equipment** (like Happy Seeders) subsidized by state/central funds to stop stubble burning *at the source*.

Public Transport Revamp: Investing heavily in metro expansion and electric vehicle adoption to reduce vehicular dependency.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**CAQM Establishment:** Creation of a dedicated, high-powered body to coordinate action across multiple states. **GRAP Implementation:** A structured, stage-wise response mechanism to deploy bans and restrictions based on forecasted pollution levels.
Negatives	**Seasonal Recurrence:** The failure to solve the problem year after year indicates that measures are palliative, not curative. **Inter-State Friction:** Inconsistent policy implementation across NCR states hinders regional relief. **Health Impact:** The severe impact on public health remains unmitigated during peak months.
Relevant Govt. Schemes/Policies	**Commission for Air Quality Management (CAQM) in NCR and Adjoining Areas Act:** The primary statutory body for coordination. **Bharat Stage (BS) Emission Norms:** Gradually forcing cleaner vehicle technology. **Subsidies for Crop Residue Management Equipment:** Aimed at curbing agricultural burning.

Mains Practice Question

Question: The recurring severe air pollution in Delhi-NCR is a 'wicked problem' involving meteorological, agricultural, and administrative factors. Critically evaluate the efficacy of the Commission for Air Quality Management (CAQM) framework in achieving sustained 'Clean Air Days' and suggest a roadmap for strengthening inter-state cooperation to address transboundary pollution sources. (250 Words, 15 Marks)

Global Climate Risk Index (CRI) 2025 & COP30 Stand

Syllabus

GS-III: Conservation, environmental pollution and degradation, environmental impact assessment. Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

Context

The release of the **Global Climate Risk Index (CRI) 2025** by Germanwatch during the ongoing **COP30** session in Brazil has brought renewed focus on India's vulnerability to extreme weather events. While reports suggest India may

have slightly improved its ranking (indicating fewer fatalities or economic losses relative to the past), the underlying exposure to risks like heatwaves, floods, and cyclones remains high. This development is intertwined with India's strong diplomatic stance at COP30, where it insisted on maintaining the 'architecture' of the **Paris Agreement**, specifically pushing developed nations on climate finance and resisting any pressure to change the foundational principles of **Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC)**.

Main Body in Multi-Dimensional Analysis

1. Environmental and Social Dimension

The CRI quantitatively measures the impacts of extreme weather events in terms of fatalities and economic losses (as a percentage of GDP). The social dimension reveals that the most vulnerable populations—coastal dwellers, agricultural labourers, and urban poor—bear the brunt of climate change, exacerbating existing socio-economic inequalities. For India, improved ranking, if any, often masks regional disparities. States like Assam, Bihar, and coastal regions continue to face structural vulnerability due to poor drainage, reliance on rain-fed agriculture, and high population density. The increasing frequency of cyclones and the severity of heatwaves pose direct threats to public health and food security.

2. Economic and Financial Dimension

The CRI highlights the significant economic toll of climate disasters. Losses to infrastructure, agriculture, and property divert crucial funds from developmental spending to relief and rehabilitation. The CRI serves as a warning for international investors, potentially impacting India's credit ratings and insurance premiums. Therefore, a better ranking, while welcomed, must be sustained through tangible, climate-resilient infrastructure investments. On the global stage, India's COP30 stand on climate finance emphasizes the need for developed nations to fulfill their $100 billion per year commitment and provide adequate resources for adaptation and Loss and Damage funding, crucial for a developing economy like India to manage these growing risks.

3. Governance and Diplomatic Dimension

India's diplomatic position at COP30 is rooted in the principle of **equity**. India staunchly advocates that developed nations, historically responsible for the bulk of greenhouse gas emissions, must take the lead in deep emission cuts and provide technology transfer and finance. This resistance to changing the Paris Agreement architecture is a defense of **CBDR-RC**, preventing any undue burden on India's developmental imperatives. Domestically, the CRI ranking influences the political discourse, putting pressure on governance mechanisms to improve disaster preparedness and implement effective **Early Warning Systems (EWS)** and resilience measures at the local level.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Diplomatic Clarity:** Strong, unified stand at COP30 defending national interests and equity principle (CBDR-RC). **EWS Improvement:** Enhanceduse of sophisticated EWS by agencies like IMD, leading to reduced loss of life in events like cyclones. **Focused Adaptation:** Increased state-levelfocus on climate-resilient agriculture and water management. **Reduced Mortality:** The CRI suggests successful efforts in minimizing disaster-related fatalities.
Negatives	**Economic Losses:** Despite better preparedness, economic damages (infrastructure, agriculture) remain high and pose a long-term fiscal risk. **Vulnerability Persistence:** The high population density and structural poverty mean fundamental vulnerability remains unchanged. **Funding Gap:** Global climate finance pledges remain unfulfilled, creating a significant adaptation funding gap for developing nations like India.
Government Schemes	**National Action Plan on Climate Change (NAPCC):** Umbrella framework for climate mitigation and adaptation strategies, including eight national missions. **National Disaster Response**

Category	Description
	Fund (NDRF): Financial mechanism for meeting the expenses on immediate relief for disasters. **National Clean Energy Fund (NCEF):** Supports projects aimed at promoting clean energy technologies. **Coalition for Disaster Resilient Infrastructure (CDRI):** Global initiative launched by India to promote climate-resilient infrastructure development.

Way Forward

Prioritizing Adaptation Finance: Internally, India must ring-fence dedicated budgetary allocations for climate adaptation projects, particularly in agriculture, water, and health, and leverage innovative financing mechanisms like green bonds.

Strengthening Disaster Governance: Integrate climate risk data (like CRI) into district-level planning and urban infrastructure development, making climate resilience a mandatory component of project approvals.

Active Diplomacy on Finance: Lead the Global South in pushing for a clear roadmap and verifiable targets for the post-2025 climate finance goal, ensuring it is a grant-based, new, and additional flow, not a relabeling of existing aid.

Decarbonization Roadmap: Accelerate the transition to non-fossil fuel sources and invest in storage technologies (like VRFBs) to meet the **Nationally Determined Contributions (NDCs)**, strengthening India's moral authority at global climate talks.

Conclusion

The confluence of the Global Climate Risk Index 2025 and India's assertive stand at COP30 underscores the dual challenge facing the nation: mitigating its own climate vulnerabilities while ensuring global equity in the climate response. A slight improvement in the CRI is merely a temporary reprieve; sustained risk reduction demands robust, localized adaptation efforts and adequate international financial support. By firmly defending the Paris Agreement's equity principles and simultaneously boosting domestic resilience, India can solidify its role as a responsible and impactful global climate leader.

Mains Practice Question:

Q. "India's diplomatic stand at COP30, defending the Paris Agreement architecture, is a direct function of its domestic vulnerability as highlighted by indices like the Global Climate Risk Index." Analyze the interplay between India's climate vulnerability and its negotiating position on climate finance and CBDR-RC. (250 words)

Graded Response Action Plan (GRAP-III) and Air Pollution Measures:

Syllabus

GS-III: Conservation, environmental pollution and degradation, environmental impact assessment. Infrastructure: Energy.

Context

The imposition of **GRAP-III (Graded Response Action Plan)** in the Delhi-NCR region due to the air quality plummeting into the 'Severe' category, as reported by the **Indian Express**, underscores the perennial crisis of air pollution. GRAP is an emergency measure system categorized into four stages based on the Air Quality Index (AQI). The activation of GRAP-III requires stringent, non-reversible actions, including bans on certain construction activities and restrictions on specific vehicle types. The continuous reliance on such emergency measures highlights the failure of long-term, systemic solutions, prompting a debate on the efficacy of the actions mandated under GRAP and the need for deeper structural reforms across energy, transport, and industry sectors.

Main Body in Multi-Dimensional Analysis

1. Public Health and Social Dimension

Air pollution is a silent, chronic health crisis. Fine Particulate Matter ($PM_{2.5}$ and PM_{10}) penetrates the lungs and bloodstream, leading to increased cases of respiratory diseases, cardiovascular problems, and premature mortality. The imposition of GRAP-III directly impacts the livelihoods of daily wage labourers and construction workers due to activity bans, raising significant social justice concerns. While the measures are necessary to protect public health, their

implementation must be accompanied by economic mitigation strategies for the most vulnerable populations affected by the bans. The social cost of reduced visibility, school closures, and general reduced productivity is immense.

2. Governance and Inter-State Dimension

Air quality management in the NCR requires seamless **federal cooperation** between the Union Territory of Delhi and the surrounding states (Haryana, UP, Rajasthan). GRAP's implementation is often hampered by coordination failures, political finger-pointing, and differential enforcement standards across the region. The **Commission for Air Quality Management (CAQM)** is the statutory body responsible for enforcing GRAP, but its efficacy relies on the compliance and political will of the respective state governments. The inability to consistently curb cross-border pollution sources (like stubble burning) undermines all local efforts, necessitating a unified, legally binding regional action plan.

3. Technological and Industrial Dimension

GRAP-III typically mandates the closure of brick kilns and non-essential industrial activities using non-approved fuels. This highlights the need for a rapid shift towards cleaner industrial technologies. The long-term solution lies in **technological upgrading**—mandating industries to install De-SOx-ing (Sulfur removal) and De-NOx-ing (Nitrogen Oxide removal) systems in power plants and large industrial units. On the transport front, promoting the widespread adoption of **BS-VI vehicles** and a massive push for **Electric Vehicles (EVs)**, alongside improving public transport infrastructure, is non-negotiable for sustained air quality improvement.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Emergency Control:** Provides a structured, time-bound framework to arrest sudden spikes in pollution and protect public health. **Clear Mandate:** CAQM provides a single-point authority for regional enforcement. **Awareness:** Raises public awareness and dialogue around the severity of air pollution. **Fuel Transition:** Accelerates the transition to cleaner fuels (e.g., piped natural gas, PNG) in industrial areas.
Negatives	**Reactive Approach:** GRAP is an emergency, reactive measure, not a proactive solution to the root causes. **Economic Impact:** Bans under GRAP-III/IV cause significant economic losses to the construction, transport, and small industry sectors. **Enforcement Gaps:** Inconsistent implementation and political resistance in neighboring states dilute its effectiveness. **Livelihood Disruption:** Affects the livelihoods of daily wage workers without adequate compensation mechanisms.
Government Schemes	**National Clean Air Programme (NCAP):** Aims to achieve a 20-30% reduction in PM concentrations by 2024 (over 2017 levels) in 131 non-attainment cities. **Ujjwala Yojana:** Promotes the use of clean cooking fuel (LPG) to reduce household pollution. **FAME-II Scheme:** Promotes the adoption of Electric and Hybrid Vehicles. **Periphery Expressways:** Diverting non-destined commercial traffic away from Delhi.

Way Forward

Perennial, Year-Round Action: Transition from an emergency-only GRAP to a continuous, year-round enforcement of pollution control measures, including strict monitoring of industrial emissions and open burning.

Structural Solutions for Stubble: Provide comprehensive financial and technological support to farmers for **in-situ and ex-situ management** of crop residue, making stubble-burning alternatives economically attractive and accessible.

Integrated Regional Transport Policy: Implement a high-capacity, integrated public transport network

across the NCR and introduce a **scrappage policy** for old, polluting commercial vehicles across all NCR states simultaneously.

Fiscal Disincentives: Impose higher, stringent **Environment Compensation Charges (ECC)** on highly polluting vehicles and industries, linking the revenue directly to public health and clean air initiatives.

Conclusion

The recurrent activation of GRAP-III serves as a stark reminder that air pollution in the NCR is a systemic failure demanding structural remedies, not just temporary bans. While GRAP is essential for short-term mitigation, long-term success requires robust inter-state governance, mandatory technological upgrades in industry and energy, and a comprehensive, economically viable transition away from polluting sources. Only by making continuous, year-round air quality management a priority, backed by consistent political will and adequate financial resources, can India secure clean air as a fundamental right for its citizens.

Mains Practice Question

Q. The Graded Response Action Plan (GRAP) is often criticized as a reactive measure that fails to address the root causes of air pollution in the Delhi-NCR. Analyze the limitations of GRAP-III and suggest the necessary structural and governance reforms required for a sustainable, year-round solution. (250 words)

Taskforce on Nature-related Financial Disclosures (TNFD) Adoption by APSEZ

Syllabus

GS-III: Conservation, environmental pollution and degradation, environmental impact assessment. Inclusive Growth and issues arising from it.

Context

Adani Ports and Special Economic Zone Limited (APSEZ), India's largest integrated transport utility, announced on November 14, 2025, that it has joined the **Taskforce on Nature-related Financial Disclosures (TNFD)** as an 'Adopter.' APSEZ is the first Indian integrated transport utility to commit to beginning nature-related reporting in line with global standards from Financial Year 2025-26 (FY26). This move is a major development in **Environmental, Social, and Governance (ESG) reporting** in India, signaling a voluntary commitment by a large corporate entity to integrate nature-related risks and opportunities into its core business strategy and financial reporting.

Main Body in Multi-Dimensional Analysis

1. Environmental and Reporting Dimension

The TNFD framework requires companies to assess, manage, and disclose their impacts and dependencies on nature. For a port and SEZ operator like APSEZ, this involves evaluating the impact of its operations (dredging, construction, wastewater) on **coastal ecosystems, mangrove forests, and marine biodiversity**. By adopting TNFD, APSEZ commits to identifying **nature-related risks** (e.g., sea-level rise affecting port infrastructure) and **opportunities** (e.g., nature-based solutions like restoring mangroves as coastal protection), transitioning these factors from purely ecological concerns to quantifiable financial metrics.

2. Financial and Investment Dimension

Global investors, particularly those subscribing to ESG mandates, are increasingly demanding transparency on nature-related risks, following the path set by climate disclosures (TCFD). Adoption of TNFD improves the company's **access to global capital** (e.g., green bonds, ESG funds) by demonstrating a commitment to international sustainability standards. It also allows financial institutions to accurately price the financial risks associated with biodiversity loss and ecosystem degradation, moving towards a **nature-positive economy** where capital allocation is tied to ecological performance.

3. Governance and Compliance Dimension

This voluntary adoption by a major Indian corporation sets a precedent for others, potentially leading to a 'race to the top' in ESG standards within the infrastructure sector. It shifts the focus of corporate governance from merely minimizing negative environmental impact to actively pursuing **positive nature-related outcomes**. The reporting will necessitate a high degree of **cross-functional integration** within the company, requiring

collaboration between finance, operations, and sustainability teams to measure and report complex ecological dependencies accurately.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Global Credibility:** Aligns Indian corporate reporting with global sustainability and finance best practices (TNFD/TCFD). **Access to Capital:** Improves credit ratings and attracts ESG-focused institutional investors. **Precedent Setting:** Encourages other large Indian infrastructure and transport companies to adopt the framework. **Risk Mitigation:** Identifies and quantifies operational and financial risks arising from nature degradation (e.g., coastal erosion).
Negatives	**Data Complexity:** Measuring nature-related dependencies and impacts is complex, data-intensive, and requires specialized ecological expertise. **Greenwashing Risk:** Disclosures must be genuinely backed by substantive action to avoid accusations of 'greenwashing.' **Cost of Compliance:** Initial setup costs for systems, training, and external verification for detailed nature reporting can be significant.
Government Schemes	**Business Responsibility and Sustainability Reporting (BRSR):** SEBI mandate for top companies, which TNFD compliance will supplement. **National Green Hydrogen Mission:** Port infrastructure is crucial for hydrogen exports, requiring high environmental standards.

Way Forward

Collaboration with Regulators: APSEZ should collaborate with SEBI and the Ministry of Corporate Affairs to share implementation experiences, helping to shape a suitable **national mandatory framework** for nature disclosures.

Ecosystem Restoration Commitments: Back the TNFD disclosures with concrete, quantifiable targets for **mangrove restoration and marine biodiversity enhancement** within its area of operation.

Supply Chain Due Diligence: Extend the TNFD framework to key Tier-1 and Tier-2 suppliers and tenants within the SEZ, creating a broader, nature-positive value chain.

Air Pollution Crisis in Delhi-NCR and GRAP

Syllabus

GS-III: Conservation, environmental pollution and degradation, environmental impact assessment. Disaster and disaster management.

Context

The seasonal air pollution crisis in the Delhi-National Capital Region (NCR) continues to reach "severe" and "hazardous" levels, prompting the activation of Stage III of the **Graded Response Action Plan (GRAP)**. This chronic annual phenomenon highlights a complex interplay of geographical, meteorological, and socio-economic factors. The key challenge is the persistence of high pollutant levels despite the implementation of short-term emergency measures, necessitating a deep analysis of the governance, enforcement, and long-term policy gaps.

Main Body: Multidimensional Analysis

Scientific and Environmental Dimension

The pollution is a result of a **confluence of sources** (vehicular emissions, industrial waste, construction dust, residential fuel burning, and stubble burning) combined with adverse meteorological conditions (**low temperature, low wind speed, and shallow mixing layer**) duringthe winter. Pollutants like **Particulate Matter ()** are highly toxic. The seasonal spike is a **trans-boundary issue**, as stubble smoke from Punjab and Haryana often constitutes a significant proportion of the pollutant load in Delhi-NCR.

Governance and Inter-State Dimension

The **Commission for Air Quality Management (CAQM)** is the statutory body responsible for coordinating multi-state efforts. The GRAP is its main tool, a set of emergency measures aimed at

immediate reduction. However, its implementation is often hampered by: (1) **Inter-State Coordination Failure**, particularly in curbing stubble burning; (2) **Weak Enforcement** of construction bans and industrial curbs; and (3) **Policy Asymmetry** where different NCR regions implement different phases or rules. This fragmented governance structure prevents a unified, sustained response.

Public Health and Economic Dimension

Severe air pollution is a major public health crisis, linked to respiratory and cardiovascular diseases, premature deaths, and reduced life expectancy. Economically, the crisis leads to losses in productivity (due to work-from-home/sick days), increased healthcare expenditure, and a negative impact on tourism and foreign investment perception. The ban on construction and industries under GRAP also causes **temporary economic disruption** and job losses for daily wage workers.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**GRAP Framework:** Provides a structured, pre-defined emergency response plan to avoid ad-hoc decisions. **CAQM Authority:** Centralises multi-state decision-making authority, overcoming initial inter-state deadlock. **BS-VI Fuel:** National shift to BS-VI fuel has reduced vehicular emissions significantly over time.
Negatives	**Focus on End-of-Pipe:** GRAP only tackles symptoms, not the root causes of pollution (e.g., lack of public transport, crop diversification). **Stubble Burning:** Ineffective alternative solutions for farmers, high cost of mechanisation (e.g., Happy Seeder). **Inconsistency:** Political will and enforcement vary significantly between Delhi and the NCR states (Haryana, UP).
Relevant Schemes	**Promotion of Agricultural Mechanization for In-situ Management of Crop Residue:** Central scheme providing subsidies for farm machinery to manage stubble. **National Clean Air Programme (NCAP):**

Relevant Examples:

Oven and Furnace Ban: Under GRAP III, specific industrial activities (like brick kilns not using Piped Natural Gas/clean fuel) are banned across the NCR.

Odd-Even Scheme: Delhi's past attempts to restrict vehicular traffic, often considered a short-term, high-visibility measure with limited long-term impact.

Happy Seeder/Paddy Straw Pelletisation: Examples of technological solutions for *in-situ* and *ex-situ* stubble management, respectively, whose adoption remains low due to cost and logistical issues.

Way Forward

Source Apportionment Studies: Regular, transparent, and updated source apportionment studies across the entire NCR to determine the exact contribution of each source in real-time for targeted interventions.

Shift from Coercion to Incentives: Provide strong **monetary incentives** for farmers in Punjab/Haryana for crop diversification away from paddy and for adopting *in-situ* stubble management techniques.

Public Transport Investment: Massive, integrated investment in expanding efficient, clean, and inter-city **public transport infrastructure** (metro, electric buses) across the entire NCR to reduce private vehicle reliance.

Enforcement Consistency: CAQM must ensure strict and uniform enforcement of GRAP measures and permanent industrial/construction norms across all NCR states without political interference.

Conclusion

The Delhi-NCR air pollution crisis is a complex governance, environmental, and public health disaster. While emergency measures like GRAP offer temporary relief, they cannot substitute for

sustained, coordinated, and politically committed long-term action addressing the root causes. A permanent solution demands technological innovation, strong fiscal incentives for behavioral change, and true federal cooperation overseen by a powerful, apolitical CAQM.

Practice Mains Questions

Analyse the structural limitations of the Graded Response Action Plan (GRAP) in mitigating the chronic air pollution crisis in the Delhi-NCR. Suggest a long-term, multi-sectoral strategy for a sustainable solution. (250 words)

SC on Notifying Human-Wildlife Conflict as Natural Disaster

Syllabus

GS-III: Conservation, environmental pollution and degradation, environmental impact assessment; Disaster and disaster management.

Context

The Supreme Court (SC) made an important observation, urging State Governments to **actively consider notifying 'human-wildlife conflict' (HWC) as a 'natural disaster'**. This observation is rooted in the necessity to address the severe human and economic costs of HWC. Notifying HWC as a natural disaster would enable State Disaster Response Funds (SDRF) to be utilized for providing **faster and enhanced compensation** to victims (for loss of life, injury, or crop damage) and implementing proactive mitigation measures, thereby formalizing the treatment of HWC as a crisis requiring urgent government response.

Main Body: Multidimensional Analysis

Environmental and Ecological Dimension

HWC is primarily a symptom of **habitat fragmentation, degradation, and encroachment** on forest land (due to infrastructure, mining, and human settlements). This forces animals (elephants, leopards, wild boars, etc.) into human-dominated landscapes in search of food and water. The conflict has devastating consequences, leading to the death of both humans and animals, and is a major threat to the conservation of Schedule I species like the tiger and elephant.

Governance and Disaster Management Dimension

Currently, compensation for HWC is provided by the Forest Department, a process that is often bureaucratic, slow, and involves inadequate amounts. Notifying it as a natural disaster would bring HWC under the framework of the **Disaster Management Act, 2005**, and link it to the **State Disaster Response Fund (SDRF)**. This ensures standard, enhanced compensation as per National Disaster Response Fund (NDRF) norms, and rapid disbursement. It shifts the primary responsibility from a conservation concern (Forest Dept.) to a public safety issue (Revenue/Disaster Dept.).

Social Justice and Livelihood Dimension

The victims of HWC are typically marginalized farmers or forest-fringe communities whose livelihoods depend directly on the land. The loss of a life or a crop to wild animals can push a family into absolute poverty. Prompt and adequate compensation is a matter of **social justice** and essential for securing community support for conservation efforts. When compensation is inadequate or delayed, it often fuels **retaliatory killing** of animals, undermining long-term conservation goals.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Faster Compensation:** Access to the SDRF mechanism ensures quick and adequate relief to victims, reducing financial hardship. **Proactive Mitigation:** Allows SDRF funds to be used for non-structural mitigation measures like habitat improvement, creation of water sources, and erection of barriers. **Inter-Departmental Coordination:** Mandates the involvement of the District Disaster Management Authority (DDMA), improving coordination beyond the Forest Department.
Negatives	**Dilution of Funds:** Mismanagement or over-classification of HWC could potentially dilute funds meant for other major natural disasters (floods, cyclones). **Definition and Scale:** Defining the threshold for HWC to qualify as a

Aspect	Description
	'disaster' needs careful, state-specific guidelines to prevent misuse. **Forest Act Overlap:** Potential conflict between the Disaster Management Act and the **Wildlife Protection Act (WPA)** in terms of legal authority and action.
Relevant Schemes	**Project Elephant/Project Tiger:** Provide financial and technical assistance to states for the management of elephant/tiger reserves, including HWC mitigation measures. **Adoption of Elephant Corridors:** Efforts to secure and conserve traditional animal migration routes to reduce conflict.

Relevant Examples

Kerala and Karnataka: States facing high elephant/leopard conflicts have already proposed or implemented enhanced compensation packages, demonstrating the localized nature and urgency of the problem.

Land Use Planning: The use of **early warning systems** (e.g., SMS alerts, camera traps) in conflict hotspots in states like Uttarakhand to warn villagers of animal presence.

Way Forward

Standardized Guidelines: The **National Disaster Management Authority (NDMA)** must issue standardized, yet flexible, guidelines for states on how to classify HWC incidents and utilize SDRF/NDRF funds for compensation and mitigation.

Focus on Mitigation: Funds must be prioritized for **proactive mitigation strategies** like restoring and expanding buffer zones, securing corridors, creating natural barriers (bio-fencing), and improving habitat quality within Protected Areas (PAs).

Joint HWC Cells: Establish permanent **Joint HWC Cells** at the district level comprising officials from the Forest, Revenue, Police, and Disaster Management departments for coordinated response and compensation disbursement.

Community Insurance: Develop a **Community-Based Wildlife Conflict Insurance Scheme** subsidized by the government to quickly provide a first layer of relief before the full official compensation process is completed.

Conclusion

The Supreme Court's observation is a pragmatic call for addressing human-wildlife conflict not just as a conservation challenge, but as an immediate public safety and livelihood crisis. By leveraging the robust structure of disaster management, India can ensure quicker relief to victims, secure community participation, and ultimately pave the way for a more sustainable co-existence between humans and wildlife.

Practice Mains Questions

The Supreme Court has suggested notifying human-wildlife conflict as a 'natural disaster'. Analyse the implications of this suggestion on the victims, conservation policy, and the efficacy of India's disaster management framework. (250

Environment and Ecology: Carbon Credit Trading Scheme (CCTS) Targets Notified

Syllabus

GS-3: Conservation, environmental pollution and degradation, environmental impact assessment. Infrastructure: Energy.

Context

The Government of India has officially notified the first set of **emission intensity targets** for key industrial sectors under the new **Carbon Credit Trading Scheme (CCTS)**, operationalizing the system envisioned in the **Energy Conservation (Amendment) Act, 2022**.

This marks a significant transition from the previous **Perform, Achieve and Trade (PAT)** scheme by explicitly introducing a market-based mechanism for **Greenhouse Gas (GHG) emission reduction**.

The CCTS is expected to be one of the world's largest emissions trading systems in terms of covered volume.

Main Body (Multi-Dimensional Analysis)

The New Mechanism (Baseline-and-Credit):

The CCTS uses a **baseline-and-credit** system, where targets are set for **emission intensity** (GHG per unit

of output, measured in tonnes of co2 per tonne of product), rather than an absolute cap on total emissions.

Credit Creation: Industrial units that outperform their notified target (i.e., emit less than the benchmark) earn **tradable Carbon Credit Certificates (CCCs)**.

Penalty/Compliance: Units that exceed their targets must purchase equivalent CCCs from the market or face a financial penalty (environmental compensation), providing a strong economic incentive for cleaner production.

Scope and Coverage:

Initial Sectors: The first compliance cycle covers energy-intensive industrial sectors, including **Aluminium, Cement, Pulp and Paper, and Chlor-Alkali**, impacting over 280 plants. Five more sectors are expected to be notified soon, covering a total of around 740 entities.

Emissions Covered : The scheme applies to both direct (Scope 1 – fuel combustion/industrial processes) and indirect (Scope 2 – electricity/heat consumption) emissions.

Geopolitical Significance :

The domestic carbon market prepares Indian exporters to adapt to international mechanisms like the **European Union's Carbon Border Adjustment Mechanism (CBAM)**, which taxes carbon-intensive imports.

It is a critical policy instrument for achieving India's **Nationally Determined Contribution (NDC)** targets under the Paris Agreement, specifically reducing the emission intensity of GDP by **45% by 2030 from 2005 levels**.

Positive, Negatives, Government Schemes

Positive:

Cost-Effectiveness: Market-based mechanisms like CCTS incentivize innovation and allow firms to choose the most cost-effective method of pollution reduction.

Investment in Green Technology: Generates an internal revenue stream for companies investing in cleaner and energy-efficient technologies.

Transparency: The trading mechanism requires robust and transparent Continuous Emission Monitoring Systems (CEMS) data.

Negatives:

Intensity vs. Absolute: Focusing on *intensity* means that if production volume increases significantly, the *absolute* level of emissions can still rise, despite the reduction per unit.

Market Manipulation: Any new trading scheme is vulnerable to volatility and manipulation, requiring strong regulatory oversight.

Government Schemes:

PAT Scheme : CCTS builds upon the foundational experience of the PAT scheme, transitioning the focus from energy efficiency to direct carbon emissions.

Voluntary Offset Mechanism : The scheme includes a voluntary offset component, allowing non-covered entities to participate and increase market liquidity.

Examples:

The operational framework draws lessons from the successful pilot **Emissions Trading Scheme (ETS) for Particulate Matter (PM)** in Surat and Ahmedabad, Gujarat, which demonstrated a 20-30% reduction in PM emissions among participating firms.

Companies like UltraTech Cement and Hindalco are among the entities falling under the first compliance cycle, making them responsible for early compliance.

Way Forward

Robust Regulatory Body : Establish a single, powerful regulatory body with clear jurisdiction over the joint administrators (Ministry of Power, MoEFCC, and BEE) to ensure market stability and prevent non-compliance.

Capacity Building: Invest in training for industry professionals and auditors to accurately monitor, report, and verify GHG emissions, which is crucial for the integrity of the market.

Expansion of Scope: Gradually expand the CCTS coverage to include more sectors and potentially shift towards an **absolute cap-and-trade system** in the long run to ensure absolute emission reduction.

Conclusion

The notification of CCTS targets is a watershed moment for India's climate policy, moving the country toward a sophisticated, market-driven approach to decarbonization. It represents an ambitious and crucial step not only for meeting India's global climate commitments but also for improving the long-term competitiveness and environmental performance of its core industries.

Practice Mains Question

Q: India's Carbon Credit Trading Scheme (CCTS) marks a significant evolution in its climate policy. Examine how the 'baseline-and-credit' mechanism of CCTS differs from the previous 'command-and-control' approaches and its role in achieving India's NDC targets. (250 words, 15 marks)

INDIAN ECONOMY AND ECONOMIC DEVELOPMENT

Launch of India's First Fully Digitised National Marine Fisheries Census 2025

Syllabus Relevance :

GS-III (Economy & e-Governance) : Blue Economy, technology missions, e-governance applications, data-driven policy, and infrastructure (Marine Fisheries).

Context: In a significant push for the **Blue Economy**, the government launched the country's first-ever **Fully Digitised National Marine Fisheries Census 2025**. This initiative moves away from outdated paper-based data collection to a cutting-edge mobile application and geo-tagging system. The primary goal is to create a reliable, real-time database of the marine fishing sector, including fishers, boats, gear, and landing centres, which is essential for effective, sustainable resource management and policy planning.

Main Body: Digital Data for Sustainable Fisheries Management This census employs a multi-dimensional strategy to address the chronic data gaps that plague the marine sector. The methodology involves the use of a dedicated mobile application for **real-time data capture**, replacing manual enumeration. This digital tool allows enumerators to **geo-tag** fishing vessels, landing sites, and the residences of fishing families, ensuring a precise geographical layer for the data. The information collected is extensive, covering socio-economic details of the fisherfolk, types of fishing gear used, species caught, and the value chain flow. This level of granular, digital data allows for highly sophisticated policy interventions. For instance, the digitized records can be used to monitor fishing effort and enforce conservation zones, which is a critical component of the **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**. Furthermore, integrating this data with remote sensing technology will allow for better tracking of Illegal, Unreported, and Unregulated (IUU) fishing, a major global challenge. By providing accurate demographic and livelihood data, the census will also inform social security schemes, credit flow, and the design of targeted training programs for fisher communities.

Positives/Negatives: Digital Policy Application

Positives: Policy Precision: The digital census provides the granular, accurate data required to shift from generic subsidies to **targeted, data-driven interventions** (e.g., providing climate-resilient housing only to those in high-risk zones). **Sustainability :** Real-time data on fish stock and effort allows for effective enforcement of seasonal bans and quotas, ensuring the long-term sustainability of marine resources. **Welfare Upliftment :** Accurate enumeration ensures that all eligible fisherfolk receive benefits like insurance, subsidies, and Kisan Credit Cards (KCC), improving their financial inclusion.

Negatives/Challenges : Digital Divide : The reliance on mobile applications presents a challenge in coastal areas with limited network connectivity and among older fisherfolk with low digital literacy. **Data Security and Privacy:** Protecting the socio-economic data of millions of fisherfolk from misuse or breaches requires robust e-governance protocols. **Resistance to Change:** Some communities may be apprehensive about the detailed geo-tagging of their traditional fishing grounds or vessels, fearing new regulations or restrictions on their livelihood.

Way Forward: The immediate way forward must involve a **massive, localized training campaign** for enumerators and community leaders to ensure data fidelity and community buy-in. The government should use the data to establish **Marine Spatial Planning (MSP)**, which zones marine areas for

different activities (fishing, conservation, renewable energy), minimizing conflict. Crucially, the census data must be converted into a **public-facing dashboard** (while anonymizing individual data) to promote transparency and allow researchers and policy analysts to utilize the information for developing a resilient and sustainable Blue Econom

GST Collections Rise 4.6% to ₹1.96 Lakh Crore in October

Syllabus Relevance:

GS-III (Indian Economy & Fiscal Policy): Government budgeting, tax reforms, growth, and development.

Context: The Ministry of Finance reported a significant jump in Goods and Services Tax (GST) collections for October, reaching **₹1.96 lakh crore**, marking a robust **4.6% increase** compared to the same month last year. This figure represents the second-highest monthly collection since the GST's inception in 2017. The strong collection trend reflects a combination of sustained economic activity, particularly boosted by the festive season demand, and the government's continued efforts toward tax compliance and system tightening.

Main Body: The Multi-Dimensional Drivers of Tax Revenue Growth The buoyant GST collection is a multi-dimensional indicator of the health of the Indian economy. It is driven by three primary factors: **Economic Momentum, Compliance Improvement, and Systemic Efficiency**. The approaching festive season (Dussehra and Diwali) typically leads to a surge in private consumption, reflecting strong consumer confidence and a rebound in both urban and rural demand. The growth is particularly pronounced in the collection of Integrated GST (IGST) on imports, indicating robust foreign trade activity, and in domestic transactions, which signals healthy manufacturing and services sector output. Crucially, the government's focus on **compliance enforcement** has been effective. The use of data analytics and Artificial Intelligence (AI) to identify fraudulent Input Tax Credit (ITC) claims and fake invoice rings has tightened the tax net. Furthermore, technical improvements to the GST Network (GSTN), such as faster invoice matching and automated scrutiny of returns, have reduced leakages and encouraged better reporting by taxpayers. This rise in collections provides the government with significant **fiscal headroom** to boost public capital expenditure, which is vital for long-term economic growth.

Positives/Negatives: Impact of GST Performance

Positives: Fiscal Stability: Consistent, high GST revenue ensures fiscal stability for both the Centre and States, allowing them to fund welfare and infrastructure projects without excessive borrowing. **Economic Indicator:** High GST collection is a reliable proxy for formalization of the economy and consumption-led growth. **Tax Base Broadening:** The enforcement drive indicates a continuous expansion of the formal tax base, which is crucial for a developing economy.

Negatives/Challenges: Inflationary Pressure: High collections partly reflect high transaction values, which can be linked to persistent **core inflation** in certain goods and services, potentially impacting consumer budgets. **Compliance Burden for MSMEs:** While e-invoicing has improved compliance for large entities, Micro, Small, and Medium Enterprises (MSMEs) in rural and semi-urban areas still face a significant compliance and technological burden, which can be a barrier to formalization. **Rate Rationalization Delay:** The long-pending need to rationalize the complex structure of multiple GST slabs continues to introduce complexities and classification disputes, hindering the 'One Nation, One Tax' vision.

Way Forward: The immediate future must focus on **completing GST rationalization** to simplify the tax structure, moving toward three primary slabs to reduce ambiguity and compliance costs. The government must allocate resources to **enhance the GSTN's AI capabilities** for predictive analytics, shifting from post-facto scrutiny to real-time fraud prevention. Finally, to address the MSME challenge, there must be a creation of **GST Suvidha Kendras** (GST Assistance Centers) in every block and district, providing free or subsidized help with digital filing and compliance, ensuring that tax efficiency does not come at the cost of excluding small businesses.

Launch of Third Round (PLI 1.2) of PLI Scheme for Specialty Steel

Analysis:

Syllabus:

GS-III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Government Budgeting. Effects of liberalization on the economy.

Context:

The Ministry of Steel has launched the **Third Round (PLI 1.2)** of the Production Linked Incentive (PLI) Scheme for Specialty Steel. This extension of the existing scheme, approved with an outlay of ₹6,322 crore, aims to bolster India's **'Atmanirbhar Bharat'** vision by transitioning the domestic steel industry from a producer of commodity-grade steel to a global hub for **high-value, advanced steel grades**. The scheme incentivizes incremental production and investment in 22 product sub-categories, with disbursals set to begin in FY 2026-27.

Main Body in Multi-Dimensional Analysis:

Economic & Industrial Competitiveness Dimension: Specialty steel (e.g., super alloys, stainless steel, CRGO) is crucial for advanced manufacturing sectors like defence, aerospace, power, and high-speed railways. India is currently a net importer of many of these grades. The PLI is designed to bridge this **value-chain gap**, reduce import dependence (saving foreign exchange), and move the industry up the technological ladder, thereby enhancing its global competitiveness and export potential.

Fiscal & Investment Dimension: The scheme's total commitment of ₹43,874 crore in investment (already attracting ₹22,973 crore invested in the first two rounds) signifies a massive injection of capital into a core sector. This is a targeted fiscal measure using **performance-based incentives** (4% to 15% incentive rates) to drive private sector investment, ensuring public money is spent on measurable outcomes (incremental production and job creation).

Technological & R&D Dimension: Production of specialty steel requires cutting-edge technology, significant R&D, and skilled human resources. The PLI must be viewed as an indirect push for steel companies to invest in modernizing plant infrastructure, process innovation, and securing necessary patents/know-how, fostering a culture of high-tech steel metallurgy in India.

Strategic & Geopolitical Dimension: Self-sufficiency in specialty steel is a matter of national security, as these materials are vital inputs for defence and strategic infrastructure projects. Over-reliance on imports, especially from geopolitical rivals, poses a significant vulnerability, making the PLI a strategic imperative for long-term industrial sovereignty.

Positives and Negatives, Government Schemes:

Positives: 1. Value Addition: Promotes manufacturing of high-margin products over basic steel. **2. Import Substitution:** Directly targets reducing dependence in critical sectors (e.g., defence, power). **3. Employment:** Projected to create thousands of jobs, particularly high-skill roles in metallurgy and R&D. **4. Global Hub:** Positions India as a potential global sourcing destination for specialty steel.

Negatives: 1. Implementation Challenges: Ensuring the quality and standards of the domestically produced specialty steel meet stringent international requirements and user sector needs (e.g., aerospace). **2. Resource Intensiveness:** Steel is a high energy-consuming industry; the expansion must be coupled with rapid adoption of **green steel** technologies to mitigate environmental impact. **3. Market Risk:** Incentivized production must find a viable domestic and international market to avoid excess capacity.

Relevant Schemes/Initiatives:

National Steel Policy (NSP) 2017: Aims for 300 Million Tonnes of production capacity by 2030-31, with a focus on value-added steel, which the PLI directly supports.

Scheme for Promotion of Green Steel: A parallel program required to align the PLI's expansion goals with India's climate commitments.

PLI 1.0/1.1: The previous rounds have laid the groundwork by attracting committed investment, setting the stage for PLI 1.2.

Way Forward:

Skill Development Focus: Launching dedicated skill development programs and industry-academia

collaborations to train metallurgists, engineers, and technicians in specialty steel production.

Standardization and Quality Control: Establishinga robust, autonomous national quality assurance and testing infrastructure specifically for specialty steel to gain international acceptance.

Sustainable Sourcing: Incentivizing the use of advanced, low-carbon technologies (like green hydrogen in steelmaking) to align the PLI with environmental sustainability goals.

Synergistic Policy: Integrating the PLI for Steelwith other PLI schemes (like auto components) to create a robust and mutually supportive domestic manufacturing ecosystem.

Conclusion :

The launch of PLI 1.2 for Specialty Steel is a **strategic and timely intervention** that is crucial for India's industrial self-reliance and its ambition to become a **$5 trillion economy**. By moving beyond incremental growth to high-value manufacturing, the scheme promises a profound structural transformation of the steel sector. Its long-term success will hinge on disciplined fiscal management, stringent quality control, and a clear path toward technological and environmental sustainability.

Practice Mains Question:

Critically evaluate the Production Linked Incentive (PLI) Scheme for Specialty Steel as a tool for achieving industrial self-reliance. To what extent can such targeted fiscal interventions transform India's position in the global value chain while managing the challenges of quality and environmental sustainability? (250 words, 15 marks)

Amul and IFFCO Lead Global Cooperative Rankings

Analysis :

Syllabus:

GS-II: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes. Role of Cooperatives.

GS-III: Indian Economy; Inclusive Growth.

Context:

Union Home Minister and Minister of Cooperation, Shri Amit Shah, congratulated Amul (Gujarat Cooperative Milk Marketing Federation) and IFFCO (Indian Farmers Fertiliser Cooperative Limited) for securing the **first two ranks** among the top ten cooperatives in the world. This recognition underscores the immense **potential of the cooperative model** in India, particularly its role in empowering millions of rural women (Amul) and farmers (IFFCO), and its contribution to global economic and agricultural output.

Main Body in Multi-Dimensional Analysis :

Socio-Economic Empowerment Dimension: The cooperative structure fundamentally alters the traditional market dynamic by granting **ownership and control to the producers** (farmers/members). Amul is a monumental example of the White Revolution, ensuring fair prices for milk producers, empowering millions of women via dairy societies, and creating an integrated value chain from village to global market. IFFCO ensures accessibility and affordability of fertilizers, directly impacting agricultural productivity and farmer income.

Institutional and Governance Dimension: The success of these giants highlights the potential for **professional management and decentralized governance** within the cooperative framework. However, the model is often plagued by issues of politicization, bureaucratic control, and lack of professional leadership in smaller, local cooperatives. The recognition of Amul/IFFCO serves as a benchmark for implementing sound corporate governance within the cooperative system.

Role in Inclusive Growth: The cooperativesectorisa critical pillar for **inclusive growth** as it primarily operates in the rural and semi-urban economy, reaching the 'last mile' where private corporations often fail. By promoting thrift, mutual aid, and self-help, it serves as a powerful instrument for poverty alleviation and financial inclusion, truly embodying the spirit of 'development for all.'

Global Recognition and Brand India : Securingtop global ranks is a powerful endorsement of the Indian cooperative movement's scale and operational efficiency. It enhances 'Brand India' and promotes the Indian model of cooperative-based market

success on the global stage, attracting attention to India's rural economic structure.

Positives and Negatives, Government Schemes :

Positives: 1. Producer Ownership: Ensuresprofits are shared among members, not just stakeholders. **2. Rural Employment:** Creates vast decentralized employment opportunities. **3. Price Stability:** Provides market linkage and safeguards members against market volatility (e.g., Amul's milk procurement). **4. Financial Inclusion:** Promotes savings and credit through cooperative banks.

Negatives: 1. Politicization: Many state-level cooperatives suffer from political interference, hindering professional management. **2. Lack of Professionalism:** Smaller cooperatives oftenlackthe managerial expertise and technological infrastructure to compete effectively. **3. Weak Regulation:** The dual control (State and Central acts) and weak regulatory oversight sometimes lead to financial irregularities and non-compliance.

Relevant Schemes/Initiatives :

Ministry of Cooperation: The dedicated ministry established by the government to strengthen the cooperative sector.

Computerization of Primary Agricultural Credit Societies (PACS): A scheme to digitize PACS to improve transparency and efficiency.

New National Cooperative Database: Aimed at mapping and standardizing data to bring smaller cooperatives into the formal financial ecosystem.

Way Forward:

Revitalizing PACS: Focused efforts to professionally manage and diversify the business activities of the 65,000+ PACS (the grassroots unit) to function as multi-service centers.

Skilling and Technology Infusion: Mandatory training in modern management, accounting, and digital technology for the board and management of cooperatives.

Regulatory Reforms: Creating a modern, unified regulatory framework to reduce political control and improve financial accountability while retaining the sector's democratic character.

Promoting New Cooperatives: Encouraging the formation of new-age cooperatives in areas like organic farming, solar energy, and healthcare to diversify the sector's reach.

Conclusion:

The global triumph of Amul and IFFCO is a **testament to the enduring power of collective action** andthe cooperative spirit in India. This success story provides a blueprint for the revitalization of the entire cooperative ecosystem. The future of India's inclusive growth will depend on how effectively the government can leverage this momentum, ensuring that the principles of professional management and democratic control permeate from the largest global leaders down to the smallest village-level cooperatives.

Practice Mains Question :

The success of cooperatives like Amul and IFFCO demonstrates the potential for producer-led market intervention in India. Discuss the challenges faced by the cooperative sector in India and suggest reforms necessary to scale this model of inclusive growth across all sectors of the rural economy. (250 words, 15 marks)

Campaigning Ends for Bihar Assembly Election Phase 1

Analysis :

Syllabus

GS-II: Indian Constitution—historical underpinnings, evolution, features, amendments, significant provisions and basic structure; Salient features of the Representation of People's Act; Functioning of the Executive and the Judiciary.

GS-III: Indian Economy and issues relating to employment, growth, development.

Context

The campaign for the first phase of the Bihar Assembly election concluded on November 4, 2025. The electoral discourse was dominated by two contrasting narratives: the **INDIA bloc's focus on unemployment and the lack of job creation**,and the **NDA's counter-narrative emphasizing stability, development progress, and warnings against the return of 'jungle raj' and corruption**. The intense,

final-day rallies by national and state leaders underscored the high stakes of the election, which is serving as a major mid-term assessment of both regional and national political alliances.

Main Body in Multi-Dimensional Analysis

Socio-Economic and Policy Dimension (Jobs vs. Governance): The primary focus on unemployment (Bihar's structural problem of high labor migration and lack of industrial investment) signifies a shift towards **welfare and economic issues** in Indian politics. The INDIA bloc's promise of massive job creation directly addresses the youth demographic, which has grown increasingly restless. The NDA's focus on corruption and law-and-order is a defense of their governance record and a reminder of the historical instability associated with their opponents, appealing to the desire for peace and continuity among middle and older voters.

Electoral Strategy and Alliance Dynamics: The election is a crucial test for the strength and cohesion of the multi-party national alliances (NDA and INDIA). The ability of the alliances to translate their national-level agreements into cohesive state-level campaign machinery, manage internal dissent, and successfully transfer votes between partners is under intense scrutiny. The reliance of both blocs on high-profile national figures indicates the **increasing nationalization of state elections**.

Governance and Institutional Dimension (Role of ECI): Conducting a large-scale, multi-phased election requires flawless execution by the Election Commission of India (ECI). Ensuring the purity of the electoral roll (especially following the ongoing Special Intensive Revision – SIR), preventing the misuse of money and muscle power, and managing voter education and turnout amidst political heat are core institutional challenges that define the integrity of the democratic process in the state.

Impact on Federal Politics: The outcome of the Bihar polls will significantly impact the balance of power between regional parties and national parties in the run-up to subsequent state elections. A strong performance by the INDIA bloc could strengthen the opposition's unity and bargaining power at the national level, while an NDA victory would reaffirm the regional strength of the incumbent coalition and its development agenda.

Positives and Negatives, Government Schemes

Positives: 1. Issue-Based Focus: Campaigning centered on substantive issues like jobs, development, and governance, a healthier sign for democracy. **2. High Mobilization:** Intense campaigning leads to high voter awareness and turnout. **3. Accountability:** Forces parties to frame concrete, if populist, development manifestos.

Negatives: 1. Populist Promises: The high cost of ambitious job and welfare promises may be fiscally unsustainable for the state. **2. Caste Mobilization:** Despite the focus on development, caste and community identity remain critical, often subterranean, factors. **3. Political Incitement:** High-stakes elections often lead to rhetoric that is divisive or relies on personal attacks rather than policy debate.

Relevant Government Schemes/Initiatives (State/National):

Aatmanirbhar Bihar: Saat Nishchay (Seven Resolves) Part-II (State): Outlining the vision for next-term governance, covering youth, women, infrastructure, and water.

PM-Kisan Samman Nidhi (National): A direct income support scheme for farmers, often highlighted by the incumbent.

Har Ghar Nal Ka Jal (State): A flagship scheme emphasizing improved water access, a key development indicator.

Way Forward

Irrespective of the election outcome, the next government must implement a **fiscally responsible State Employment Policy (SEP)** that moves beyond temporary fixes, focusing instead on industrial incentivization, skill development tailored to market needs (like IT/services), and investment in core infrastructure to attract private capital. Furthermore, the ECI and state machinery must ensure **strict compliance with the Model Code of Conduct (MCC)**, with transparent monitoring of election expenditure and a focus on curbing the use of 'fake news' and deepfakes to protect the sanctity and integrity of the digital electoral space. Finally, the state must prioritize **judicial and police reforms** to ensure swift justice and improve the long-term law-and-order scenario, which is a necessary

prerequisite for sustainable economic investment and attracting talent.

Conclusion

The Bihar Assembly election is a **referendum on the efficacy of the development model** versus the promise of immediate socio-economic relief. The prominence of jobs and corruption as central themes signifies a mature electorate demanding accountability. The true success of the election will be measured not only by the peaceful conduct of the polls but by the subsequent government's commitment to addressing the structural issues of poverty and unemployment that continue to define the state's political economy.

Practice Mains Question :

Analyze how deep-seated socio-economic issues like unemployment and migration shape the electoral discourse and voter behavior in major Indian state elections. In this context, discuss the challenges and responsibilities of the state government in formulating and implementing a sustainable employment-generation strategy. (250 words, 15 marks)

RBI Governor Signals Cautious Stance on Inflation Trajectory Despite Stable Forex Reserves

Syllabus Relevance :

GS-III (Economy): Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment; Money Market and Banks.

GS-III (Fiscal Policy): Inflation management and monetary policy tools.

Context:The Reserve Bank of India (RBI) Governor, in a formal statement following the latest Monetary Policy Committee (MPC) meeting (or a related press briefing on Nov 3rd), maintained a cautious outlook on inflation, despite reporting stable or slightly improved Foreign Exchange (Forex) Reserves. The key narrative shifted from growth concerns back to inflationary persistence, particularly in core and food inflation, suggesting that interest rate easing might be delayed further.

Main Body – Multi-Dimensional Approach:The RBI's stance reflects a tightrope walk across several economic dimensions:

Monetary Stability vs. Growth: The primary conflict is balancing the MPC's mandate of achieving the **= inflation target** with the need to support the government's high capital expenditure-driven growth agenda. Persistent inflation erodes purchasing power, negating growth gains.

Forex Resilience and External Shocks: Stable Forex Reserves provide the necessary buffer against global crude oil price volatility and capital outflows. However, the Governor noted that global geopolitical uncertainty and potential rate hikes by developed central banks warrant holding a higher buffer, implicitly justifying a **tighter domestic monetary policy** to stabilize the Rupee's exchange rate.

Core Inflation Stickiness: The focus on **core inflation** (excluding volatile food and fuel prices) indicates structural issues, likely supply-side bottlenecks in services, high input costs for manufacturing, or rising wage pressures, which monetary policy tools (like the Repo Rate) struggle to immediately correct.

Positives/Negatives – Monetary Policy Tools :

Positives : A **hawkish stance** against inflation protects the long-term stability of the Indian Rupee and preserves the credibility of the MPC framework. By keeping rates calibrated, the RBI prevents the embedding of high inflation expectations into long-term wage and price contracts. Stable Forex reserves reassure foreign institutional investors (FIIs) about India's external position.

Negatives/Challenges: High Cost of Borrowing: Elevated policy rates keep the cost of capital high for businesses, potentially dampening private investment and slowing down the pace of economic recovery, especially for interest-sensitive sectors like Real Estate and Auto. **SME Impact:** Higher borrowing costs disproportionately hurt MSMEs, which rely more on bank credit than corporate bond markets. **Fiscal Dominance Risk:** If the government's fiscal deficit remains high, it can put upward pressure on long-term bond yields, counteracting the RBI's policy stance—a classic scenario of fiscal-monetary conflict.

Way Forward:The RBI must continue its reliance on Forward Guidance to manage market expectations, signaling clearly when a rate pivot might be possible, provided food prices stabilize. Crucially, the government must collaborate by addressing supply-side bottlenecks—such as reforming agricultural supply chains to cool food prices and easing regulatory hurdles for infrastructure projects to lower input costs—thereby allowing the RBI to use monetary tools more effectively for growth support later.

Practice Mains Question:Explain the challenges faced by the RBI's Monetary Policy Committee (MPC) in balancing the objectives of maintaining the inflation target and supporting a high growth trajectory. How does global Forex stability influence domestic rate decisions?

Experts Warn of Long-Term Economic Impact from Prolonged Credit Tightening Amid High Liquidity

Syllabus Relevance :

GS-III (Economy): Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment; Fiscal Policy.

GS-III (Finance) : Role of RBI; Banking sector issues.

Context:Following the RBI's cautious stance on interest rates (Topic 4), a leading economic think-tank released a report on November 3rd warning that the prolonged period of tight liquidity and high interest rates, designed to fight inflation, risks stifling the nascent recovery in private corporate investment. The report highlighted a worrying trend of high systemic liquidity alongside high policy rates.

Main Body – Multi-Dimensional Approach:The tension between liquidity, interest rates, and investment performance presents a complex economic puzzle:

Liquidity Trap/Cost of Capital : High liquidity in the system *should* ideally lower lending rates. However, if the **Repo Rate** remains elevated (due to inflation concerns) and banks maintain a high **Marginal Cost of Funds Based Lending Rate (MCLR)**, the effective cost of capital for borrowers remains high. This disconnect dampens the appetite for large, long-term capital expenditure projects.

Sectoral Impact: The analysis pointed to MSMEs and capital-intensive industries like infrastructure and manufacturing feeling the pinch the most, leading to a potential **'K-shaped' recovery** where large, cash-rich firms grow, while smaller, credit-dependent firms stagnate or fail.

Inflation Expectation Management: The continued high rates are explicitly designed to *anchor inflation expectations*. The multi-dimensional challenge is communicating to businesses that this tight stance is **temporary** and linked *only* to temporary supply shocks (like food prices), and not a structural shift towards permanently higher interest rates, which would justify pausing large CapEx.

Positives/Negatives – Economic Indicators:

Positives: Inflation Control Credibility: The commitment to a high policy rate reinforces the RBI's independence and credibility in its inflation fight, which is vital for long-term macroeconomic stability. **Incentive for Fiscal Prudence:** High government borrowing costs might incentivize the Finance Ministry to accelerate fiscal consolidation efforts. **Discouraging Speculation:** High rates discourage speculative activity in sectors like real estate, promoting healthier capital allocation.

Negatives/Challenges: Stunted Growth Momentum: The primary negative is the risk of engineering an economic slowdown by making credit too expensive before the economy has built sufficient capacity for sustained self-driven growth. **Risk Aversion:** High rates increase the uncertainty premium for new investments, leading firms to hoard cash (liquidity) rather than deploy it productively. **Debt Servicing Strain:** For existing borrowers (especially those with floating rate loans), higher rates increase the debt-servicing burden, potentially leading to Non-Performing Assets (NPAs) if growth stalls.

Way Forward:The RBI must clearly delineate the policy action timeline based on clear, measurable targets for both inflation and growth acceleration. The government should focus on supply-side interventions (logistics, power supply) that directly lower structural costs, thereby giving the RBI room to manage demand through rate cuts without immediately reigniting inflation. Investment should be channeled through Special Purpose Vehicles

(SPVs) backed by long-term, fixed-rate sovereign guarantees to insulate critical infrastructure projects from short-term rate volatility.

Practice Mains Question:In the current economic climate, how does the persistent gap between high liquidity and elevated policy rates impact India's private corporate investment cycle? Suggest a coordinated fiscal and monetary strategy to de-risk the investment environment.

India's Focus on Blue Economy Deepens with New Coastal Security Protocols Post-Digitisation

Syllabus Relevance:

GS-III (Economy): Infrastructure and investment; Blue Economy.

GS-III (Security): Coastal security apparatus and challenges.

Context:Following the launch of the digitized Marine Fisheries Census (Topic 5 from the previous day's summary), reports on November 3rd indicated that the Indian Coast Guard (ICG) and the Navy are integrating this granular data into new Coastal Security Protocols. The focus is on utilizing real-time data to enhance maritime domain awareness (MDA) and proactively combat Illegal, Unreported, and Unregulated (IUU) fishing.

Main Body – Multi-Dimensional Approach:The integration of census data into security architecture creates synergy across economic, security, and environmental dimensions:

Economic Security via Surveillance: IUU fishing is not just an ecological crime; it represents a massive **economic leakage** for India's fishing communities. By geo-tagging every legitimate fishing vessel (via the census) and cross-referencing it with satellite AIS/RADAR data, the ICG can instantly flag unauthorized vessels, protecting the livelihoods of registered fishers.

Intelligence-Led Policing: The census provides a comprehensive baseline of who should be where. Any activity that deviates from the established fishing zones or times recorded in the census data can be flagged for immediate investigation, transforming coastal surveillance from broad area patrolling to **intelligence-led, targeted interception**.

Environmental Governance: The data allows for the precise mapping of fishing effort against ecologically sensitive zones (like coral reefs or turtle nesting sites). This precise mapping enables the government to enforce Marine Protected Area (MPA) boundaries effectively, ensuring the Blue Economy remains **ecologically sustainable**.

Positives/Negatives – Security Policy:

Positives: Proactive Defense: This shift moves coastal security from a reactive interception model to a proactive monitoring model, improving deterrence against both rogue fishing vessels and potential threats emanating from the sea. **Credibility with International Partners:** Enhanced MDA capabilities strengthen India's position in multilateral security dialogues (like IONS/ADMM-Plus), where sharing maritime intelligence is key. **Empowering Local Stakeholders:** The census data itself can be shared with local Fishery Associations to help them police their own areas against illegal entry by external commercial trawlers.

Negatives/Challenges: Data Overload and Analysis Paralysis: The sheer volume of real-time data requires advanced AI/ML tools for instant processing. A system failure or lag in this processing can render the entire digital baseline useless in an actual threat scenario.

Data Ownership and Sharing: Seamless, secure data sharing between the Ministry of Fisheries, the ICG, and the Navy requires robust, secure communication protocols, which can be slow to implement across different government silos. **Jurisdictional Conflicts:** Clear delineation of command and control between the Navy (Strategic) and the ICG (Law Enforcement) must be ironclad when responding to alerts generated by the new data system.

Way Forward:A unified, national Maritime Data Fusion Centre (MDFC) must be established and fully operationalized, serving as the single window for processing census data, satellite feeds, and ground intelligence for all maritime agencies. The system must also incorporate predictive analytics to forecast potential IUU hotspots based on weather and seasonal fishing patterns, allowing for pre-emptive deployment of surveillance assets.'

Practice Mains Question: Analyze the concept of 'Blue Economy' in the Indian context. How does the integration of digitized census data with coastal security protocols enhance maritime domain awareness and ensure the sustainability of marine resources?

Amul and IFFCO Secure Top Global Ranks in Cooperatives

Analysis:

Syllabus

GS-II: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; Mechanisms, Laws, Institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

GS-III: Indian Economy; Agricultural marketing and value chain.

Context

On November 5, 2025, Prime Minister Narendra Modi congratulated Amul and IFFCO (Indian Farmers Fertiliser Cooperative Limited) for securing the 1st and 2nd ranks respectively in the global ranking of cooperatives. Amul's continued dominance in the dairy sector and IFFCO's leadership in the fertilizer sector underscore the **economic and social viability of the cooperative movement** in India. This achievement highlights the successful scaling of the Anand pattern of dairy cooperative and the importance of cooperative federations in ensuring price stability, market access, and socio-economic empowerment for millions of farmers, particularly in rural India.

Main Body in Multi-Dimensional Analysis

Socio-Economic Empowerment Dimension (Amul): Amul's success is rooted in the **'Anand Pattern'** three-tier cooperative structure (village society, district union, state federation), which ensures that the primary producers (farmers) are the owners. This model guarantees a fair price for milk, eliminates middlemen, and promotes collective bargaining power. It has been instrumental in the **economic empowerment of rural women**, who form a significant portion of the primary milk producers, thereby acting as a powerful tool for poverty alleviation and nutritional security.

Agricultural and Food Security Dimension (IFFCO): IFFCO plays a crucial role in India's agricultural supply chain by supplying essential and subsidized fertilizers. Its high ranking demonstrates the cooperative's effectiveness in logistics, bulk procurement, and distribution, which directly impacts **farm productivity and national food security**. It ensures that critical agricultural inputs reach the grassroots level at controlled prices, protecting farmers from market volatility and exploitation.

Governance and Regulatory Dimension (Ministry of Cooperation): The recent creation of the separate **Ministry of Cooperation** signals the government's intent to rejuvenate the cooperative sector, address governance issues, and modernize operations. The success of Amul and IFFCO serves as a blueprint for institutional reform and the creation of multi-state cooperatives, but challenges remain in addressing corruption and political interference in smaller, local cooperatives.

Global Benchmarking and Best Practices: The global ranking validates the Indian cooperative model as a successful example of **inclusive and sustainable business**. It provides a model for other developing economies and strengthens India's position as a global leader in cooperative governance and management, promoting the values of democracy, equality, and solidarity in business.

Positives and Negatives, Government Schemes

Positives: 1. Rural Income Stabilization: Provides a stable market and guaranteed price for producers, insulating them from price crashes. **2. Women Empowerment:** Empowers millions of rural women through direct income generation (Dairy cooperatives). **3. Market Efficiency:** Cooperatives achieve massive scale, reducing the cost of procurement and distribution (Fertilizer, Milk).

Negatives: 1. Political Interference: Many local cooperatives suffer from politicization, undermining democratic functioning. **2. Lack of Professional Management:** Smaller cooperatives often lack professional management and modern accounting/IT systems. **3. Limited Diversification:** The model, while successful in

dairy/fertilizer, needs greater application in areas like horticulture and food processing.

Relevant Government Schemes/Initiatives:

Ministry of Cooperation: Established to strengthen the cooperative movement.

National Dairy Plan (NDP): A project focusing on increasing productivity of milch animals and strengthening the village-level infrastructure.

Sahakar Se Samriddhi (Prosperity through Co-operation): The overarching vision of the new Ministry of Cooperation.

Way Forward

The government must actively pursue the **digitalization of records and the implementation of transparent, professional management standards** across all tiers of the cooperative structure, leveraging the successful business models and IT infrastructure of Amul and IFFCO as benchmarks. Concurrently, new legislation must be introduced to **strictly de-link political affiliations from cooperative elections and governance**, ensuring that the primary focus of every cooperative remains the socio-economic welfare of its members, not political patronage. Furthermore, a **National Cooperative Development Policy** must be formulated to promote the establishment of cooperatives in new high-value, organized sectors like organic farming, renewable energy distribution, and rural tourism, replicating the success of Amul in diverse economic fields.

Conclusion

The top global ranking achieved by Amul and IFFCO is a **testament to the enduring strength and potential of the cooperative model** in the Indian context. It validates the Gandhian principle of economic democracy from the grassroots. The future challenge lies in extending the professionalism, scale, and independence of these flagships to thousands of smaller, local cooperatives, transforming them into pillars of India's inclusive and resilient rural economy.

Practice Mains Question:

Analyze the three-tier 'Anand Pattern' cooperative model, using Amul as a case study, in the context of India's rural economy. Discuss the institutional and governance challenges that restrict the replication of this success across all cooperative sectors in India. (250 words, 15 marks)

Court Allows Ketan Parekh to Travel to UAE After SEBI Deposit

Syllabus

GS-II: Government policies and interventions (SEBI); Structure, organization and functioning of the Executive and the Judiciary.

GS-III: Indian Economy; Capital Market regulation and its challenges (Financial scams).

Context

On November 5, 2025, a special court in Mumbai granted permission to Ketan Parekh, accused in the 2001 stock market manipulation scam, to travel to the UAE. The permission was conditional upon him first **depositing a sum of ₹27.06 crore with the Securities and Exchange Board of India (SEBI)**. This judicial decision highlights the ongoing challenge of enforcing accountability in white-collar crimes, balancing the fundamental right to travel with the need to secure recovery of dues and ensure compliance with regulatory orders stemming from past financial market abuses.

Main Body in Multi-Dimensional Analysis

Judicial and Constitutional Dimension: The court's order is a nuanced exercise in balancing the fundamental right of a citizen (right to travel under **Article 21**) against the public interest in recovering dues from a party accused of market manipulation. The condition of depositing a large sum reflects the court's intent to secure the financial interests of the regulatory body (SEBI) and, by extension, the integrity of the financial system, before allowing foreign travel.

Financial Regulatory and Enforcement Dimension (SEBI): The case underscores the long, complex, and often protracted nature of regulatory enforcement in India. The 2001 scam, involving circular trading and stock price manipulation, revealed systemic vulnerabilities in the capital market. SEBI's role is to ensure investor protection and market integrity, and its ability to recover fines and dues, even after

decades, remains a critical measure of its institutional strength.

Economic and Market Integrity Dimension: High-profile financial scams erode investor confidence, particularly that of retail investors, and can lead to systemic market risks. The continued legal process, even after many years, sends a message that those who violate market norms will face financial and legal consequences, which is vital for maintaining the **Rule of Law in the capital market**.

International Legal Dimension: Foreign travel for those accused in major financial crimes introduces an international dimension, raising issues of potential flight risk and cooperation with Interpol or other international legal bodies. The court's conditional permission is a safeguard against the accused becoming a fugitive from justice.

Positives and Negatives, Government Schemes

Positives: 1. Dues Recovery: The court order ensures the recovery of a significant financial sum, benefiting SEBI's mandate. **2. Balanced Justice:** Demonstrates the judiciary's ability to balance individual rights with public interest in financial accountability. **3. Investor Confidence:** Reaffirms the long reach of the Indian legal system in financial crime.

Negatives: 1. Time Lag: The case's nearly two-decade-long pendency highlights the slow pace of justice in complex financial cases. **2. Risk Management:** Travel permits, even conditional, carry an inherent, albeit small, flight risk. **3. Perception Issue:** The general public may perceive that wealth can buy legal exceptions to the rule.

Relevant Government Schemes/Initiatives:

SEBI (Securities and Exchange Board of India): The statutory regulator for the Indian capital market.

Fugitive Economic Offenders Act (FEOA), 2018: Legislation to deter economic offenders from evading legal processes by remaining outside the jurisdiction of Indian courts.

Way Forward

SEBI must **lobby for dedicated fast-track courts** with domain expertise in complex securities law, financial fraud, and market manipulation to significantly reduce the years-long pendency of high-profile financial crime cases. Concurrently, the Ministry of Finance should **mandate a systematic overhaul of the Foreign Travel Request protocol** for individuals under investigation, linking the decision to their real-time compliance with court/regulatory orders and their threat assessment under the Fugitive Economic Offenders Act. Furthermore, the Indian capital market regulators must **invest heavily in AI and advanced data analytics** to predict and preemptively detect complex market manipulation patterns (like 'pump and dump' schemes) rather than primarily relying on *ex-post facto* investigation.

Conclusion

The court's conditional allowance for the accused to travel reflects a pragmatic judicial approach to balancing personal liberty with financial accountability. However, the ultimate takeaway is the **urgent need for speedier disposal of financial crime cases** and the continuous strengthening of SEBI's regulatory and punitive powers to maintain the foundational trust and integrity of India's rapidly expanding capital markets.

Practice Mains Question:

Analyze the challenges faced by regulatory bodies like SEBI in ensuring accountability and recovering dues in high-profile, decades-old financial fraud cases. What institutional and technological reforms are required to enhance the pace and effectiveness of financial crime justice in India? (250 words, 15 marks)

India-US Bilateral Trade Agreement Talks "Going Well"

Syllabus

GS-II: Effect of policies and politics of developed and developing countries on India's interests; Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

GS-III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Context

Union Commerce Minister Piyush Goyal announced that the ongoing discussions for the India-US Bilateral Trade Agreement (BTA) are "going on very

well." However, he stressed that due to "many sensitive and serious issues," the process will naturally take more time than initially projected, even as negotiators aim to finalize the first phase.

Main Body: Multi-Dimensional Analysis

Geopolitical and Economic Significance: The BTA is pivotal, aiming to more than double bilateral trade from the current figure to **$500 billion by 2030**. The US remains India's largest trading partner. A successful BTA will cement the economic pillar of the strategic partnership, insulating trade from temporary political friction.

Sensitive Issues in Negotiation: The "sensitive issues" primarily revolve around US imposition of tariffs (50% tariff on Indian goods, partly due to concerns over India's continued purchase of Russian crude oil) and India's demands for restoration of the **Generalized System of Preferences (GSP)** status. Other contentious areas include market access for US agricultural goods, intellectual property rights (IPR) protection, and rules of origin.

Digital Trade and E-commerce: A significant modern dimension of the talks involves digital trade. The US is pushing for provisions on data localization, which India views as a matter of digital sovereignty and consumer protection. Finding consensus here is crucial for the future of the digital economy between the two countries.

Manufacturing and Supply Chain Resilience: The BTA is seen as a key instrument in diversifying global supply chains away from China (the **"China Plus One"** strategy). The agreement is expected to facilitate greater investment in India's manufacturing sector under the **PLI (Production Linked Incentive) Scheme**, boosting India's role as a reliable global hub.

Positives & Negatives, Government Schemes

Aspect	Description
Positives	A BTA will provide predictable market access, reduce trade barriers, boost India's exports, and attract FDI, especially in technology and manufacturing sectors.
Negatives	Concessions on agriculture or IPR could impact domestic farmers and the generic drug industry. The pressure on Russian oil imports adds a geopolitical hurdle to trade negotiations.
Government Schemes	**Production Linked Incentive (PLI) Scheme:** India uses this to incentivize US firms to set up manufacturing. **National Single Window System (NSWS):** Highlights India's steps to enhance Ease of Doing Business.

Way Forward

For a mutually beneficial BTA, both sides must demonstrate flexibility. India needs to maintain its firm stand on issues concerning its strategic national interest (data sovereignty, farmer protection) while accelerating internal regulatory reforms to ease US market access concerns. The focus should be on concluding the initial, less controversial phase to build momentum and trust for the comprehensive agreement.

Conclusion

The progress in the India-US BTA talks, despite the lingering "sensitive issues," underscores the fundamental strength and strategic necessity of the bilateral relationship. A successful agreement will be a win for free trade and a cornerstone of the two nations' shared vision for a robust Indo-Pacific economic architecture.

Practice Mains Question

Q. "The India-US Bilateral Trade Agreement (BTA) is a complex negotiation where economic gains are inseparable from geopolitical concerns." Analyze the key friction points in the BTA talks and suggest a strategy for India to secure a favorable agreement without compromising its strategic autonomy.

MSCI November Rejig: Indian Stocks Added to Global Indices

Syllabus

GS-III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment; Investment Models.

Context

The Morgan Stanley Capital International (MSCI) announced its semi-annual index review for November 2025, which included the addition of four Indian stocks, including Fortis Healthcare and Paytm, to the Global Standard Index, along with several inclusions in the Small Cap Index. This development is significant as it affects global investment flows into the Indian market.

Main Body: Multi-Dimensional Analysis

Impact on Foreign Institutional Investment (FII): Inclusion in the MSCI Global Standard Index necessitates passive funds (Exchange Traded Funds and Index Funds) benchmarked to the index to purchase these Indian stocks. This influx of capital from Foreign Institutional Investors (FIIs) leads to immediate buying pressure, often resulting in a rally for the included stocks and strengthening the Indian market's overall liquidity.

Market Depth and Breadth: The additions reflect the increasing depth and stability of the Indian equity market, particularly in sectors like healthcare and technology (as seen with Paytm's inclusion). The inclusion criteria are based on market capitalization, foreign room, and liquidity, suggesting these companies meet high global standards.

"China Plus One" Strategy Evidence: Globally, the MSCI review noted that more Chinese stocks were added than deleted for the first time in a while. However, the consistent addition of Indian stocks over recent reviews supports the narrative that India is increasingly seen as a high-growth alternative or complement to China under the 'China Plus One' diversification strategy.

Small Cap Momentum: The additions to the Small Cap Index, including stocks like Astral and Tata Elxsi, signal growing foreign investor confidence in India's mid-and-small-cap segments. This segment is often a leading indicator of domestic growth and entrepreneurial activity.

Positives & Negatives, Government Schemes

Aspect	Description
Positives	Direct inflow of foreign capital (FIIs); improved market liquidity; validation of Indian corporate governance standards; lower cost of capital for the included companies.
Negatives	Increased market volatility due to passive fund flows; potential for sharp stock corrections if deleted from the index in future reviews; dependence on global capital flows for market stability.
Government Schemes	**FDI Policy Liberalization:** Continuous easing of norms to attract foreign investment. **Viksit Bharat 2047:** The government's push for long-term economic growth and a $7.3 trillion economy by 2030 boosts investor confidence.

Way Forward

India must continue its efforts to stabilize the rupee, manage inflation, and streamline corporate governance norms to maintain its position as a preferred investment destination. Further capital account convertibility reforms will solidify the trust of global investors and reduce the volatility associated with passive index flows.

Conclusion

The MSCI index inclusion is a crucial affirmation of India's robust economic growth and the maturity of its capital markets. It ensures that the Indian equity story remains a central part of global investment portfolios, thereby contributing significantly to the national goal of achieving higher economic status.

Practice Mains Question

Q. Analyze the impact of global index inclusion (like MSCI) on the stability and growth of the Indian capital market. How does this development align with India's long-term goal of increasing domestic capital formation?

Cabinet Decision on Education Finance: PM-Vidyalaxmi Scheme

Syllabus

GS Paper-II: Social Justice; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of vulnerable sections. Human Resources.

GS Paper-III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Context

The Union Cabinet approved the **PM-Vidyalaxmi scheme**, a major financial initiative designed to provide **collateral-free educational loans** to meritorious students for higher education. The scheme aims to dismantle financial barriers, ensuring that no deserving youth is prevented from pursuing quality higher education. It builds on existing frameworks like the Central Sector Interest Subsidy (CSIS) and Credit Guarantee Fund for Education Loan (CGFEL).

Multi-Dimensional Analysis (Summary)

Financial Inclusion: Directly addresses the issue of lack of collateral, a major hurdle for students from economically weaker sections. It uses the digital platform and likely a CBDC-based application for subvention payment.

Quality Focus: The loan subvention benefits are generally targeted towards students admitted to a list of designated **Quality Higher Educational Institutions (QHEIs)**, linking financial support to educational quality (often based on NIRF ranking).

Debt & Repayment: While easing access, it underscores the need for effective mechanisms to ensure a low rate of Non-Performing Assets (NPAs) on education loans and sustainable repayment plans.

Positives, Negatives, and Government Schemes (Summary)

Aspect	Description
Positives	**Access & Equity:** Maximizesaccessto higher education for the poor and middle class by removing the collateral and guarantor requirement. **Digital Delivery:** Uses an entirely digital, unified portal for application and a CBDC wallet for interest subvention, ensuring transparency and efficiency. **Credit Risk Mitigation:** Government provides a substantial credit guarantee for a part of the loan amount.
Negatives	**Scope:** Initial interest subvention may be limited in scope (e.g., preference for technical/professional courses). **QHEI Limitation:** May exclude good quality but non-listed institutions, especially smaller, regional ones. **NPA Risk:** Collateral-free lending increases the inherent risk of NPAs for banks, requiring strong government credit guarantee support.
Relevant Schemes/Acts	**Credit Guarantee Fund Scheme for Education Loan (CGFSEL):** Provides 75% credit guarantee for loans up to ₹7.5 Lakh. **Central Sector Interest Subsidy (CSIS) Scheme:** Providesfull interest subsidy to EWS students (annual income up to ₹4.5 Lakh) during the moratorium period.

Mains Practice Question

The PM-Vidyalaxmi scheme aims to transform higher education financing in India. Discuss how its focus on 'collateral-free' and 'quality institutions' is critical for India's demographic dividend. Also, highlight the associated challenges for the banking sector. (150 words)

Economic Policy: FM on Creating 'World-Class Banks'

Syllabus

GS Paper-III: Indian Economy and issues relating to planning, mobilization of resources, growth, development, and employment. Inclusive growth and issues arising from it.

GS Paper-III: Government Budgeting. Financial Market.

Context

Finance Minister Nirmala Sitharaman indicated that the government is in discussions with the Reserve Bank of India (RBI) to develop an ecosystem conducive to nurturing **"world-class banks"** in India. The FM clarified that while the amalgamation of existing Public Sector Banks (PSBs) is one potential path, the primary focus is on creating a **dynamic environment** for banks to grow, which involves dialogue with both the RBI and the banks themselves on issues of governance, technology, and capital.

Multi-Dimensional Analysis (Summary)

Scale and Global Competitiveness: The creation of world-class banks is essential for India to compete globally, financing large infrastructure projects, and supporting large multinational corporations. Requires banks with massive balance sheets and international presence.

Governance and Autonomy: Discussions must revolve around improving PSB governance structures, increasing operational autonomy, and reducing political interference to enhance decision-making speed and efficiency.

Digital Transformation: World-class status requires cutting-edge technology adoption to enhance customer experience, risk management, and cyber security, moving beyond legacy IT systems.

Positives, Negatives, and Government Schemes (Summary)

Aspect	Description
Positives	**Global Footprint:** Improves India's standing in international finance and increases the capacity to lend to mega-projects. **Financial Stability:** Larger, well-capitalized banks are more resilient to economic shocks. **Operational Efficiency:** Leads to better technology, reduced overheads, and improved risk management.
Negatives	**Job Losses & Culture Clashes:** Amalgamation can lead to a reduction in branches and staff and pose significant human resource and cultural integration issues. **Focus Diversion:** A primary focus on scale may overshadow the need to improve last-mile credit delivery and financial inclusion.
Relevant Schemes/Acts	**EASE Reforms (Enhanced Access and Service Excellence):** PSB reform agenda focusing on digital, data, and analytics. **Indra Dhanush Plan:** Government's comprehensive plan for the revitalization of PSBs, focusing on appointments, capitalization, and accountability.

Mains Practice Question

Critically evaluate the government's strategy to create 'world-class banks' in India. What role must the RBI and technology adoption play in this objective, beyond mere amalgamation of Public Sector Banks (PSBs)? (150 words)

Union Agriculture Minister's Odisha Visit & Millets Promotion

Syllabus Relevance

GS Paper III (Economy): Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Conservation, environmental pollution and degradation in the Environmental Impact Assessment thereof.

GS Paper II (Agriculture): Issues related to direct and indirect farm subsidies and Minimum Support Price (MSP); issues related to online delivery and use of technology in the aid/distribution of benefits.

Context

Union Agriculture Minister **Shri Shivraj Singh Chouhan** is scheduled for a high-profile one-day visit to **Odisha** on November 10, 2025. The visit is centered around the **'Mandia Dibasa' (Millet Day)** event in Bhubaneswar. The Minister's itinerary includes inaugurating the event, interacting directly with farmers in Cuttack, and holding a strategic review meeting at the **ICAR – Central Rice Research Institute (CRRI)**. The visit is a strategic move to push Central Government initiatives like promoting **millets ('Shri Anna')**, strengthening **PM Dhan Dhanya Krishi Yojana**, the **Self-Reliance in**

Pulses Mission, and the **National Mission on Natural Farming** at the grassroots level.

Main Body in Multi-Dimensional Analysis

A. Promoting Millets: Nutritional Security and Climate Resilience (Agricultural & Health Dimension)

The promotion of millets, or **'Shri Anna'**, is a multi-pronged strategy. Agriculturally, millets are inherently **climate-resilient**, requiring less water and thriving in poor soil conditions, making them vital for securing harvests in an era of erratic monsoons exacerbated by climate change. Nutritionally, they are superior to polished rice and wheat, being rich in **protein, fibre, micronutrients, and having a low Glycemic Index (GI)**. The Minister's focus on 'Mandia Dibasa' in a state like Odisha, which has significant tribal populations familiar with these grains, aims to revive traditional food systems while simultaneously addressing the country's persistent issues of **malnutrition and anaemia**. This focus aligns with the global push for sustainable agriculture.

B. Bridging Policy and Practice: The Role of Field Visits (Governance & Implementation Dimension)

The Minister's plan includes field visits in Cuttack to "assess the on-ground status" and gather "suggestions regarding agricultural policies." This reflects a participatory governance model, moving away from policy formulation confined to New Delhi. For agricultural schemes to succeed, they must be **region-specific**. Odisha's agricultural profile (coastal, rain-fed, high tribal concentration) requires tailored interventions. The review meeting at **CRRI** (a rice research institute) involving officials and scientists is crucial for synergizing research outcomes with policy implementation on issues like water efficiency and crop diversification away from rice monoculture, which often strains groundwater resources.

C. Strengthening National Missions (Economic & Food Security Dimension)

The visit is a platform to review the progress of key national missions:

PM Dhan Dhanya Krishi Yojana & Self-Reliance in Pulses Mission: These aim to increase the cultivation and procurement of pulses and coarse grains, reducing import dependence and enhancing farm income. Ensuring procurement at **MSP** (as highlighted in related PIB documents) is the necessary incentive for farmers to shift crops.

National Mission on Natural Farming: This aligns with sustainability goals, aiming to reduce chemical fertilizer/pesticide use, thereby improving **soil health**, which is a long-term asset for agricultural productivity.

D. Socio-Economic Upliftment in Rural India (Social Dimension)

The Minister's stated commitment—"India's future lies in the fields of its farmers"—frames agriculture as the backbone of rural prosperity. By promoting value-added production and modern technology adoption (via schemes), the aim is not just subsistence but making farming **profitable and technology-driven**. This directly addresses rural distress and youth migration, as sustainable and profitable agriculture provides better livelihoods in situ.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Decentralized Review:** Minister personally assessing field reality in Odisha. **Nutritional Focus:** Centering the agenda on millets ('Shri Anna') for better public health outcomes. **Synergy:** Bringing together policy-makers (Ministry), researchers (ICAR), and beneficiaries (farmers).
Negatives	**Implementation Gap:** The mere promotion of schemes doesn't guarantee success if market linkages (post-harvest infrastructure) are weak, especially for new crops like millets. **Over-reliance on Subsidies:** Ensuring schemes do not lead to dependency rather than structural change.
Relevant Govt. Schemes/Policies	**PM Dhan Dhanya Krishi Yojana:** Focus on increasing area and yield of pulses and millets. **National Mission on**

Aspect	Details
	Natural Farming (NMNF): Promotes organic and zero-budget natural farming. **Agriculture Infrastructure Fund (AIF):** For post-harvest management and value addition.

Mains Practice Question

Question: The renewed focus on 'Shri Anna' (Millets) is central to India's strategy for achieving climate resilience and nutritional security. Discuss the policy mechanism required—from research at institutes like CRRI to market linkage—to ensure the success of the National Mission on Millets, particularly in states like Odisha. (250 Words, 15 Marks)

Financial Services Sector Growth & Investment Funds

This topic is derived from the search result mentioning the **Bajaj Finserv Banking and Financial Services Fund NFO** opening on November 10, 2025, which provides context on the booming Indian **BFSI sector**.

Syllabus Relevance

GS Paper III (Economy): Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Role of financial and capital markets in the economy.

Context

The opening of a New Fund Offer (NFO) for a dedicated **Banking, Financial Services, and Insurance (BFSI) sector fund** on November 10, 2025, highlights massive investor confidence in the sector. Search snippets project India's economy reaching **USD 7.3 trillion by 2030** and achieving **USD 30 trillion by 2047**, which necessitates a massive expansion of the financial ecosystem. This growth is characterized by shifting market capitalization away from banks towards other segments like insurance and Fintech, and a huge capital requirement estimated at **USD 4 trillion** for the banking system alone over the next two decades.

Main Body in Multi-Dimensional Analysis

A. Capital Mobilization for Economic Vision (Macro-Economic Dimension)

India's aspiration to become a developed economy requires commensurate capital mobilization. The BFSI sector is the primary conduit for this. Sectoral funds like the Bajaj Finserv NFO tap into growing retail investor participation, funneling savings into productive capital assets. The projected need for **USD 4 trillion in banking capital** by 2045 highlights that public capital alone is insufficient; drawing in retail and institutional equity investment through specialized funds is paramount for supporting the required **credit growth** to fuel the economy's expansion targets.

B. Sectoral Evolution: Diversification Beyond Banking (Structural Dimension)

The data point that banks' share in the sector's market capitalization has fallen from **85% to 57%** over two decades is crucial. This indicates a maturation and diversification of the Indian financial landscape. The growth drivers now include:

Insurance: Addressing the massive under-insurance gap in life, health, and property.

Fintech/Digital Finance: Revolutionizing payments, lending, and investment access, especially financial inclusion.

Asset Management: Growing wealth creation leading to increased investment in mutual funds and AIFs. This diversification makes the financial system more resilient to shocks in any single sub-sector.

C. Financial Inclusion and Digital Transformation (Social Dimension)

The modern Indian financial sector is a key enabler of **financial inclusion**. The push towards digitizing **Primary Agricultural Credit Societies (PACS)** into e-PACS/PMKSKs (as mentioned in other related PIB releases) is part of this ecosystem expansion. This allows formal credit, insurance, and other services to reach the last mile. The evolution ensures that market growth is inherently tied to bringing the unbanked and underbanked into the formal economy, fulfilling social mandates alongside profit motives.

D. Regulatory Framework and Stability (Governance Dimension)

Sustained growth in capital markets requires robust **regulatory oversight** from bodies like the RBI and SEBI. While high investor confidence is evident, regulators must continuously adapt to manage the risks associated with new asset classes (like digital assets) and rapid growth in NBFCs and Fintechs. Ensuring the **solvency and liquidity** of institutions is essential to prevent systemic risk contagion, especially given the large capital requirements projected for the banking sector.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Strong Investor Confidence:** New NFOs indicate high optimism in the BFSI sector's future returns. **Sectoral Diversification:** Reduced reliance on traditional banking as insurance and asset management grow rapidly. **Capital Pipeline:** Enhanced flow of equity capital to support long-term credit expansion.
Negatives	**Systemic Risk:** Rapid growth in unregulated/lightly regulated sectors like certain aspects of Fintech can pose systemic risks if not monitored closely. **Capital Adequacy Pressure:** The projected USD 4 trillion capital need for banks presents a significant mobilization challenge.
Relevant Govt. Schemes/Policies	**Jan Dhan Yojana:** The foundation of formal banking inclusion. **Insolvency and Bankruptcy Code (IBC):** Improves credit discipline and recovery rates for banks. **Insurance Penetration Campaigns.**

Mains Practice Question

Question: India's journey towards a USD 30 trillion economy by 2047 hinges on the robust expansion of its financial ecosystem. Analyze the structural shifts within India's BFSI sector and critically assess the role of specialized mutual funds and continued digitization in mobilizing the vast capital required to meet the projected credit growth demands. (250 Words, 15 Marks)

Credit Guarantee Scheme for Exporters (CGSE)

Syllabus

GS-III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.[1]

Context

The Cabinet approval of the renewed **Credit Guarantee Scheme for Exporters (CGSE)**, highlighted in a recent PIB release, signifies a strategic government effort to boost India's exports amidst a challenging global economic environment. The scheme's primary objective is to provide a comprehensive **credit guarantee** to banks and financial institutions, shielding them from the potential losses arising from advances given to exporters. This move aims to enhance the availability and affordability of working capital finance, thereby providing a vital safety net to Micro, Small, and Medium Enterprises (MSMEs) engaged in international trade, which are often susceptible to payment risks and global supply chain disruptions.

Main Body in Multi-Dimensional Analysis

1. Economic and Trade Dimension

The CGSE is fundamentally designed to address the **"export credit gap,"** ensuring banks have the necessary confidence to lend to exporters, especially those operating in high-risk markets or dealing with high-volume, low-margin goods. By reducing the **risk weightage** for export loans on bank balance sheets, the scheme promotes competitive pricing of credit. This increased access to working capital (pre-shipment and post-shipment credit) is directly correlated with higher export volumes and is crucial for meeting India's ambitious global trade targets, contributing significantly to the GDP. The scheme is a crucial tool in managing the volatility caused by currency fluctuations and global economic slowdowns.

2. Banking and Financial Dimension

The scheme acts as a powerful financial intermediary, leveraging the government's guarantee to de-risk the export financing sector. The guarantee mechanism encourages banks to look beyond traditional collateral-based lending, making credit available to first-time exporters and small businesses with limited fixed assets. This aligns with the broader goal of **financial inclusion** within the trade ecosystem. However, the scheme's effectiveness depends on the efficiency of its claim settlement process. A streamlined and swift claim payment mechanism is essential to truly build trust and confidence among banks, preventing the accumulation of Non-Performing Assets (NPAs) arising from unforeseen defaults.

3. MSME and Employment Dimension

MSMEs are the backbone of India's export sector, contributing significantly to both exports and employment. These smaller players are often the most vulnerable to counterparty default and global payment delays. By guaranteeing credit, the CGSE offers a shield, enabling MSMEs to take on larger, more complex international orders without the fear of crippling debt from credit defaults. The stable financial environment fostered by the scheme encourages MSMEs to invest in technology, skill development, and compliance with international standards, indirectly creating jobs and facilitating the formalization of the workforce involved in export-oriented manufacturing and services.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Risk Mitigation:** Shields banks and financial institutions from up to 90% of losses on export advances, making lending safer. **Increased Liquidity:** Ensures a steady flow of working capital and term loans to exporters, especially MSMEs. **Export Competitiveness:** Lower interest rates on guaranteed loans make Indian products more price-competitive globally. **Global Reach:** Encourages exporters to explore high-risk but high-potential emerging markets.
Negatives	**Moral Hazard:** Over-reliance on the guarantee can create a moral hazard, leading banks to exercise less diligence in vetting creditworthiness. **Fiscal Burden:** In case of mass defaults, the government's commitment could translate into a substantial fiscal burden on the exchequer. **Awareness Gap:** Many small and new exporters may be unaware of the scheme or find the application process complex.
Government Schemes	**Export Credit Guarantee Corporation of India (ECGC):** Provides credit insurance and guarantee services to exporters. **Remission of Duties and Taxes on Exported Products (RoDTEP):** Scheme to refund embedded taxes and duties to exporters. **Trade Infrastructure for Export Scheme (TIES):** Scheme to develop modern infrastructure for trade logistics.

Way Forward

Simplification and Digitalization: Simplify the claim process and ensure the entire CGSE operation is fully digitized, reducing bureaucratic hurdles and increasing the speed of disbursal and claim settlement for banks and exporters.

Targeted Outreach: Launch aggressive outreach programs through industry associations and District Export Hubs to educate MSMEs and small exporters about the benefits and eligibility criteria of the scheme.

Risk Monitoring and Review: Establish a robust monitoring framework to regularly assess the quality of underlying assets covered by the guarantee, ensuring banks maintain adequate lending standards and mitigating the moral hazard risk.

Integration with FinTech: Explore partnerships with FinTech platforms to integrate the CGSE with automated credit evaluation and underwriting processes, ensuring faster and more inclusive credit access.

Conclusion

The revitalization of the Credit Guarantee Scheme for Exporters is a timely and critical intervention aimed at insulating India's export engine from global headwinds. By effectively de-risking export credit for banks, the scheme promises enhanced liquidity and competitiveness for Indian exporters, particularly MSMEs. To fully realize its potential, the CGSE must be underpinned by administrative efficiency, robust risk management, and a dedicated focus on simplifying access for the smallest players, ensuring it translates directly into sustained, higher export growth and strengthens India's global trade footprint.

Mains Practice Question

Q. Examine the necessity of the Credit Guarantee Scheme for Exporters (CGSE) in the context of global trade volatility and the role of MSMEs in India's export basket. Discuss the potential challenges, including moral hazard, and suggest measures for its effective implementation. (250 words)

Rationalisation of Royalty Rates for Critical Minerals

Syllabus

GS-III: Indian Economy, mobilization of resources. Infrastructure: Energy. Science and Technology- developments and their applications and effects in everyday life.

Context

The Cabinet approval to rationalize the **royalty rates** for key critical minerals, including **Graphite, Caesium, Rubidium, and Zirconium**, is a significant policy decision from the Ministry of Mines. These minerals are vital inputs for India's push towards **Green Energy transition** (e.g., batteries, nuclear energy), hi-tech electronics, and specialized industrial applications. The move, mandated under the **Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)**, is aimed at incentivizing domestic mining and processing of these strategic resources, reducing import dependency, and fostering a robust indigenous supply chain for the nation's ambitious **Net-Zero** goals.

Main Body in Multi-Dimensional Analysis

1. Economic and Industrial Dimension

Royalty rates directly impact the cost of production for miners. By rationalizing these rates—for example, setting differential rates for **Graphite** based on carbon content (2% for high-grade, 4% for lower-grade)—the government makes specific mining activities more economically viable. The lower rates for **Caesium, Rubidium, and Zirconium** (e.g., 2% and 1% respectively) are designed to attract private investment in exploration and mining of these previously neglected 'niche' minerals. This fiscal incentive is expected to kickstart domestic production, leading to **value addition** and creating employment in the primary and secondary processing sectors.

2. Energy Security and Geopolitical Dimension

Critical minerals are the 'new oil' for the digital and green economy. India's current reliance on imports for most of these minerals creates **supply chain vulnerability** and geopolitical risk. Graphite is essential for Lithium-ion battery anodes (EVs and storage), while Zirconium is crucial for nuclear reactors (fuel cladding) and advanced ceramics. Caesium and Rubidium are used in atomic clocks and space technology. This rationalization is a step towards achieving **'Mineral Security'** by accelerating the establishment of a **domestic reserve base** and processing ecosystem, which is vital for long-term strategic autonomy in the energy and defense sectors.

3. Environmental and Sustainable Mining Dimension

The MMDR Act mandates the Central Government to consider environmental sustainability while fixing royalty rates. The rationalization must be viewed in conjunction with stringent environmental clearances. While promoting mining, the policy must ensure that mining practices, especially for minerals like graphite, minimize their **ecological footprint** and adhere to international best practices in waste management. The financial viability provided by rationalized royalties should be partially channelled into **restoration funds** to ensure mined areas are rehabilitated post-extraction, fulfilling the environmental governance mandate.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Investment Incentive:** Lower and differential royalty rates attract domestic and foreign investment in exploration and mining. **De-risking Supply Chain:** Builds indigenous capacity for strategic minerals, crucial for EVs and nuclear power. **Value Addition:** Differentiated rates (e.g., for Graphite) incentivize processing to achieve higher grades. **Economic Boost:** Creates jobs and stimulates regional industrial development in mining areas.
Negatives	**Environmental Impact:** Accelerated mining, if not strictly regulated, could lead to local environmental damage and displacement of communities. **Global Price Volatility:** Royalty fixation needs flexibility to respond to highly volatile global mineral prices and demand. **Exploration Gap:** Rationalized rates alone may not be enough; targeted investment in deep exploration and geological surveying is still required.
Government Schemes	**National Green Hydrogen Mission:** Relies on batteries and electrolyzers that use critical minerals. **Production Linked Incentive (PLI) Schemes:** Schemes for ACC batteries and automobiles drive demand for Graphite. **Mines and Minerals (Development and Regulation) Act, 1957:** Legal framework for the current action.

Way Forward

Creation of a Critical Mineral Fund: Establish a dedicated, revolving fund to support high-risk, deep-sea, and deep-earth exploration projects for these minerals, supplementing private sector efforts.

Integrated Licensing Process: Streamline the cumbersome process of obtaining various clearances (environmental, forest, mining) into a single-window system to accelerate project implementation timelines.

Technological Leap: Incentivize the use of advanced, environmentally sustainable mining and mineral processing technologies (e.g., dry processing) to minimize water and energy consumption.

Global Collaboration: Secure international partnerships (e.g., with Australia, Canada) for joint exploration and technology transfer to quickly build necessary domain expertise.

Conclusion

The rationalization of royalty rates for critical minerals is a progressive fiscal measure signaling the government's seriousness about achieving **resource self-reliance** in the era of Green Transition. By making domestic extraction more commercially appealing, the policy provides a strong foundational incentive. However, the true benefit will be unlocked only when this fiscal push is integrated with **faster clearances, advanced technology adoption, and robust environmental safeguards**, ensuring India's mineral security without compromising ecological balance.

Directorate General of GST Intelligence (DGGI) Uncovers ₹645 Crore ITC Racket

Syllabus

GS-III: Indian Economy and issues relating to mobilization of resources, growth, development. Government Budgeting.

Context

The Directorate General of GST Intelligence (DGGI), Delhi Zonal Unit, uncovered a racket for fraudulently availing **Input Tax Credit (ITC)** amounting to ₹645 crore, leading to the arrest of the key operator. This PIB-reported event underscores the persistent challenge of **GST fraud**, where sophisticated networks exploit loopholes to generate bogus invoices and claim undue tax refunds. Such rackets erode the tax base, distort market competition, and pose a major obstacle to the successful implementation of the Goods and Services Tax (GST) regime, impacting both central and state revenues.

Main Body in Multi-Dimensional Analysis

1. Tax Compliance and Fiscal Dimension

The fraudulent claim of **Input Tax Credit (ITC)**—the tax a business pays on inputs and can adjust against its final output tax liability—is the most common form of GST fraud. By using fake invoices, operators artificially inflate their purchases, claim high ITC, and evade the payment of GST. The ₹645 crore racket represents a significant loss to the public exchequer, undermining the fiscal health of the government and reducing the funds available for public infrastructure and social welfare schemes. Consistent crackdown operations like this are vital for ensuring the **purity of the tax chain** and reinforcing taxpayer compliance.

2. Technology and Data Analytics Dimension

GST Intelligence agencies, including DGGI, increasingly rely on **advanced data analytics**, **Artificial Intelligence (AI)**, and **cross-referencing platforms** (like E-Way bills, Income Tax data, and GST returns) to identify fraudulent patterns. The success of this operation confirms the efficacy of these digital tools in detecting anomalies such as sudden spikes in ITC claims, circular trading, and mismatches between the GSTR-1 (sales) and GSTR-3B (summary return). Continuous investment in and refinement of these predictive analytics tools are essential to stay ahead of increasingly sophisticated white-collar criminals who exploit digital systems.

3. Market and Competition Dimension

Fake invoicing and fraudulent ITC claims create an **unfair competitive environment**. Businesses that evade GST can offer products and services at artificially lower prices than honest, compliant businesses, driving the latter out of the market. This not only discourages genuine businesses but also creates a shadow economy. By dismantling these rackets, the DGGI ensures a **level playing field**, promoting formalization, and rewarding legitimate enterprises that comply with the tax law. The action reinforces the government's commitment to an **ethical market economy**.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Enhanced Enforcement:** Confirms the success and effectiveness of DGGI in using intelligence and data analytics for tax enforcement. **Revenue Protection:** Protects the national revenue stream from large-scale fraudulent diversions. **Fair Market:** Restores a level playing field by penalizing businesses that distort prices through tax evasion. **Deterrence:** Arrests and seizures act as a strong deterrent against future attempts at tax fraud.
Negatives	**Complexity of Law:** Complex GST rules can inadvertently create loopholes that sophisticated fraudsters exploit. **Ease of Doing Business:** Excessive vigilance and intrusive checks to curb fraud can sometimes inconvenience genuine, small taxpayers. **Data Security:** The need for extensive data sharing across departments raises concerns about data privacy and security.
Government Schemes	**E-Invoicing and E-Way Bill System:** Digital mechanisms used to track and trace goods movement and transactions, curbing tax evasion. **AI/ML-based Risk Profiling:** Technology used by GST Network (GSTN) to flag high-risk taxpayers for investigation.

Way Forward

Mandatory GSTR-2B Compliance: Make the reconciliation of ITC based on the automatically generated GSTR-2B mandatory for all taxpayers, tightening the claim process.

Harmonizing Data: Enhance the seamless, real-time data sharing mechanism between the GST Network (GSTN), Income Tax Department (ITD), and Customs to create a 360-degree profile of high-risk entities.

Simplified Compliance: Simplify tax forms and compliance requirements for small and medium-sized enterprises to reduce the unintentional errors that fraudsters often use as cover.

Fast-Track Prosecution: Establish dedicated **GST Tribunals** and fast-track courts to ensure quick

prosecution and sentencing of key operators, strengthening the punitive effect of the law.

Conclusion

The successful unearthing of the ₹645 crore ITC racket is a testament to the strengthening of India's tax enforcement machinery, particularly through the use of technology. While the sheer scale of the fraud indicates that sophisticated networks remain a major threat to the GST system, sustained, intelligence-led action is the key to maintaining the integrity of the tax chain. Future success lies in **combining technological vigilance with legal simplification and swift judicial deterrence**, ensuring that the GST regime can fulfill its promise of 'One Nation, One Tax, One Market.'

PLI Scheme for White Goods Attracts ₹1,914 Crore Investment

Syllabus

GS-III: Indian Economy, issues relating to industrial growth. Infrastructure: Investment models.

Context

The announcement by the Ministry of Commerce & Industry that the **4th Round of the Production Linked Incentive (PLI) Scheme for White Goods (ACs and LED Lights)** has attracted 13 new applications with a committed investment of ₹1,914 crore is a strong indicator of the scheme's success. Notably, over **50% of these new applicants are MSMEs**, demonstrating the scheme's ability to boost the confidence of small and medium enterprises in joining the manufacturing value chain. The PLI scheme is the government's flagship initiative to achieve **'Aatmanirbhar Bharat'** by scaling up domestic production and achieving global competitiveness.

Main Body in Multi-Dimensional Analysis

1. Manufacturing and Value Chain Dimension

The investment is strategically focused on manufacturing high-value components for Air Conditioners (ACs) and LED Lights, such as copper tubes, compressors, and LED chips, rather than just assembly. This signals a deepening of the **domestic value addition** in the sector, which the scheme aims to increase from the current 15–20% to **75–80%**. The PLI acts as a catalyst, encouraging companies to integrate backward by setting up component manufacturing, reducing reliance on imports (particularly from Southeast Asia), and strengthening the resilience of India's manufacturing ecosystem.

2. MSME Empowerment and Economic Dimension

The high participation rate of **MSMEs** in the 4th round is the key positive takeaway. The PLI scheme, by offering production-linked incentives, de-risks capital-intensive component manufacturing for smaller players. This not only formalizes the MSME sector but also integrates it into global supply chains. The total committed investment of ₹1,914 crore, spread across six states and 23 locations, promises significant **regional industrial growth** and **direct job creation** (estimated at around 60,000 direct jobs from the scheme overall), contributing to inclusive economic development.

3. Global Competitiveness and Trade Dimension

The primary goal of the PLI scheme is to transform India from a net importer to a key **global manufacturing hub** for white goods. The incentives are structured to compensate for India's competitive disadvantages, such as high logistics costs and the lack of economies of scale. By encouraging large-scale, high-volume production, Indian manufacturers can achieve **cost-competitiveness** that allows them to penetrate international markets, boosting exports and attracting Foreign Direct Investment (FDI) into the sector.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Backward Integration:** Focuses investment on high-value components, deepening the domestic manufacturing base. **MSME Inclusion:** Successfully attracts high participation from MSMEs, promoting grassroots industrialization. **Employment Generation:** Significant projected job creation in diverse regions across the country. **Import Substitution:** Directly reduces reliance on imported

Category	Description
	components, strengthening economic security.
Negatives	**Sunset Clause:** The time-bound nature of the incentive may not guarantee sustained investment after the scheme ends. **Crowding Out:** Risk of 'crowding out' smaller, non-PLI-approved domestic companies that cannot compete with subsidized PLI beneficiaries. **Implementation Speed:** Ensuring the swift disbursement of incentives and necessary infrastructural support remains a logistical challenge.
Government Schemes	**National Programme on Advanced Chemistry Cell (ACC) Battery Storage:** Complementary scheme for the EV sector. **FAME-II Scheme:** Promotes EV adoption, creating demand for efficient components. **Make in India:** Overarching government initiative to boost domestic manufacturing.

Way Forward

Streamlined Disbursement: Establish a highly efficient, transparent, and **digitized incentive disbursement mechanism** to ensure timely payments to all approved beneficiaries, especially MSMEs.

Skill Development Linkage: Mandate that PLI beneficiaries collaborate with local **ITIs and polytechnics** to develop specialized skill sets (e.g., HVAC technicians, LED chip assembly) tailored to the required component manufacturing.

Monitoring Export Outcomes: Introduce specific Key Performance Indicators (KPIs) focused on **export volumes and international market share** achieved by PLI beneficiaries to ensure the scheme is not just about import substitution but global competitiveness.

Plug-and-Play Infrastructure: Facilitate the creation of pre-approved **Industrial Cluster Parks** with common testing facilities to reduce the initial setup time and cost for new MSME applicants.

Conclusion

The strong investment momentum under the PLI Scheme for White Goods confirms its effectiveness as a policy tool for industrial transformation. The high participation of MSMEs suggests a successful transition toward **inclusive, decentralized manufacturing**. To fully realize the vision of a global manufacturing hub, the government must now focus on seamless execution, ensuring sustained technological upgradation and robust export orientation, thereby making Indian-made ACs and LEDs globally competitive long after the incentive window closes.

Government to Triple Incentives for Rare Earth Magnet Manufacturing

Syllabus

GS-III: Indian Economy, mobilization of resources, growth. Infrastructure: Energy (EVs, Renewables). Science and Technology – Indigenization of technology.

Context

In a decisive move to break China's near-monopoly on the sector, the government is set to announce a plan to nearly **triple the financial incentives** for the domestic manufacturing of **Rare Earth Magnets (REMs)**, particularly those using Neodymium-Iron-Boron This policy, likely structured under a dedicated Production Linked Incentive (PLI) scheme, aims for an investment surpassing ₹7,000 crore. REMs are critical components in Electric Vehicle (EV) motors, wind turbine generators, and advanced defense systems, making the push for indigenous capacity a matter of **economic and national security**.

Main Body in Multi-Dimensional Analysis

1. Strategic Autonomy and Geopolitical Dimension

Rare Earth Elements (REEs) are often referred to as the "vitamins of the modern industry." China controls over 90% of the world's rare earth processing and magnet manufacturing. This concentration poses a **geopolitical risk**, as witnessed by China's occasional use of export controls as a

strategic tool. By tripling incentives, India aims to create a viable domestic supply chain, attracting global magnet makers to set up subsidiaries and reducing dependency on imports. This is a critical step towards **strategic autonomy** in green energy technology and defense production.

Economic and Technology Dimension (Dual Strategy)

The new policy will employ a dual strategy:

Incentivizing Magnets: The substantial PLI and capital subsidies will primarily target the production of magnets, which are essential for high-performance motors in EVs and renewable energy. The goal is to reach the necessary economies of scale to be cost-competitive globally.

Funding Alternative R&D: Recognizing the high environmental cost of rare earth mining and the long-term challenge of competing with China, the policy will simultaneously fund **research and development (R&D) into rare-earth-free technologies**, such as Synchronous Reluctance Motors. This hedging strategy aims to eventually bypass the supply chain vulnerability altogether.

Environmental and Sustainable Mining Dimension

Rare earth mining and processing are highly energy-intensive and often involve radioactive by-products, leading to significant environmental damage. The policy must, therefore, be coupled with **stringent environmental regulations** and the adoption of the latest, most efficient processing technologies to minimize the ecological footprint. Furthermore, leveraging India's rich **Monazite sand deposits** (a source of REEs) must be done under the controlled and safe supervision of state-owned entities (like IREL), ensuring responsible resource management.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Supply Chain De-risking:** Directly tackles China's dominance in a strategically critical sector. **Green Energy Push:** Provides necessary components for the rapid scaling of EV and Wind Energy sectors. **Technological Dualism:** Invests in both current technology (NdFeB) and future alternatives (Reluctance Motors). **FDI Attraction:** High incentives are expected to draw global manufacturing expertise to India.
Negatives	**Cost Competitiveness:** Even with subsidies, achieving price parity with established Chinese manufacturers will be challenging. **Technical Expertise:** India lacks the deep-seated technological know-how in advanced REE separation and magnet fabrication. **Environmental Risk:** Expanded mining and processing carry a high risk of environmental degradation if not strictly controlled.
Government Schemes	**PLI Schemes (Overall):** Provides the framework for production-linked incentives. **National Green Hydrogen Mission:** Creates vast demand for the end products (electrolyzers, wind turbines) that use these magnets. **National Auto Policy:** Drives the demand for EV motors, the largest consumer of REMs.

Way Forward

Strategic International Pacts: Fast-track agreements with Quad partners (US, Japan, Australia) for **joint exploration, technology transfer, and co-financing** of refining and magnet plants.

Resource Mapping: Conduct a comprehensive, high-resolution national survey to accurately map the reserves of REE-bearing minerals.

Dedicated Skill Development: Launch specialized vocational and engineering programs in **Mineral Processing, Extractive Metallurgy, and Magnet Fabrication** to create a specialized workforce.

Startup Common Application Journey: Easing Credit Access for Startups

Syllabus

GS-III: Indian Economy, mobilization of resources, growth, development. Government Budgeting. Effects of liberalization on the economy.

Context

The Department of Financial Services (DFS), Ministry of Finance, launched the **'Startup Common Application Journey'** on November 14, 2025, which is integrated with the **Jan Samarth Portal**. This new feature aims to significantly ease the process of accessing credit for startups by providing a single digital window for loan applications across all Public Sector Banks (PSBs), up to a maximum loan limit of ₹20 crore. Developed in collaboration with the Indian Banks' Association (IBA) and the PSB Alliance, this initiative is a major effort to formalize lending to startups, addressing a critical bottleneck—**access to finance**—that often stifles young enterprises.

Main Body in Multi-Dimensional Analysis

1. Financial Inclusion and Ease of Doing Business Dimension

The traditional loan application process for startups is often complex, non-standardized, and time-consuming, acting as a major deterrent for first-generation entrepreneurs. By providing a common application across all 12 PSBs, the new feature achieves **process standardization and reduces compliance burden**, dramatically improving the **'Ease of Doing Business'** for startups. The integration with the Jan Samarth portal leverages its existing digital architecture, ensuring a seamless, paperless, and end-to-end digital credit experience, fostering greater financial inclusion for new ventures.

2. Technology and Data Analytics Dimension

The digital platform allows banks to utilize a common set of **data analytics and risk assessment tools** to evaluate startup creditworthiness. By collecting standardized data, the platform can be leveraged to build sophisticated **AI/ML-based credit scoring models** specifically tailored for startups, whose risk profiles differ significantly from established SMEs. This technological backbone improves the quality of lending decisions for PSBs, potentially reducing Non-Performing Assets (NPAs) in the startup portfolio by moving away from traditional collateral-based lending.

3. Startup Ecosystem and Economic Growth Dimension

Access to timely, sufficient credit is crucial for a startup to transition from the ideation stage to commercial viability. The ₹20 crore limit is significant, covering the growth and working capital needs of many mid-to-late-stage startups. By easing this process, the government encourages the formalization of startups, attracting greater private sector investment and ultimately driving **innovation, job creation, and economic diversification**—all core goals of the **Startup India** initiative and the broader vision for a $5 trillion economy.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Single-Window Clearance:** Standardized application process across all PSBs reduces time and compliance burden. **Digital Integration:** Leverages the Jan Samarth platform for a seamless, paperless credit experience. **Risk Mitigation:** Enables PSBs to use data-driven, standardized tools for better risk assessment. **Higher Loan Limit:** The ₹20 crore limit caters to the needs of scaling startups beyond initial seed funding.
Negatives	**PSB Risk Aversion:** Despite the common application, the underlying risk aversion of PSBs towards startups may still impede actual sanctioning speed. **Collateral/Guarantee:** The requirement for collateral or the need for a robust credit guarantee framework remains a potential roadblock. **Technical Glitches:** The success depends entirely on the stability and security of the integrated digital platform and its cross-PSB performance.

Category	Description
Government Schemes	**Startup India:** Overarching scheme supported by this credit initiative. **Jan Samarth Portal:** The existing digital platform utilized for this service. **Mudra Yojana:** Complementary scheme for micro and small enterprises.

Way Forward

Credit Guarantee Scheme: Launch a dedicated **Credit Guarantee Fund for Startups** (CGFS) to share the risk with PSBs, incentivizing them to lend more aggressively through the new platform.

Mentorship Integration: Integrate the application journey with a mandatory **Expert Vetting and Mentorship mechanism** (using institutions like SIDBI or Startup India Hub) to provide technical and business guidance to applicants before final loan sanction.

Private Bank Onboarding: Expand the common application journey to include major private sector banks and Non-Banking Financial Companies (NBFCs) to widen the pool of available credit and increase competition.

Tungsten Mineral Block Licensing and Critical Minerals

Syllabus

GS-III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Infrastructure: Energy, Ports, Roads, Airports, Railways, etc.

GS-III: Conservation, environmental pollution and degradation, environmental impact assessment.

Context

The news about granting a **Composite Licence** for a **Tungsten mineral block** in the country is significant because it relates directly to India's strategy for securing **Critical and Strategic Minerals (CSMs)**. Tungsten is recognized globally as a critical mineral due to its vital role in high-tech industries, defence applications, and renewable energy technologies. India currently relies heavily on imports for many CSMs, making the domestic exploration and mining of Tungsten a key step towards achieving **mineral security** and boosting indigenous manufacturing.

Main Body: Multidimensional Analysis

Economic and Industrial Dimension

Tungsten's high melting point, hardness, and density make it indispensable for manufacturing cutting tools, armour-piercing ammunition, high-performance alloys, and specialized filaments. Domestic mining reduces reliance on global suppliers, predominantly China (which controls a significant portion of the world's Tungsten supply). The grant of a **composite license** (which includes both Prospecting License and Mining Lease stages) is designed to **streamline the exploration-to-mining process**, injecting speed and efficiency into developing these strategic assets and boosting downstream industries.

Strategic and Defence Dimension

The supply chain vulnerability of critical minerals is a national security concern. In defence, Tungsten is vital for developing high-grade armaments. Securing a domestic supply chain for Tungsten is key to ensuring the success of the **'Aatmanirbhar Bharat'** initiative in the defence and aerospace sectors, protecting India's strategic manufacturing base from potential geopolitical coercion. The effort aligns with global trends where major economies are aggressively de-risking their critical mineral supply chains.

Environmental and Regulatory Dimension

Mining Tungsten involves complex environmental considerations, including land degradation, water usage, and waste management. The composite licence mechanism requires robust **Environmental Impact Assessment (EIA)** and adherence to sustainable mining practices. The challenge lies in expediting the mining process without compromising the strict environmental and social safeguards necessary, especially concerning the rights of local communities and forest clearances.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Mineral Security:** Reduces import dependence for a strategically vital mineral, minimizing geopolitical risk. **Economic Multiplier:** Attracts investment in mining and processing technology, creating specialized jobs. **Composite License:** Acceleratesthe exploration and mining process by combining two stages, reducing bureaucratic delays.
Negatives	**Mining Feasibility:** Often, criticalmineral deposits are geologically challenging, making extraction costly and technically difficult. **Environmental Cost:** Mining projects carry high environmental and social costs, requiring careful balancing with strategic needs. **Technological Gap:** India needs to rapidly acquire and develop advanced processing technology to refine Tungsten ore economically.
Relevant Schemes	**Mines and Minerals (Developmentand Regulation) Act (MMDR) 2015:** The amendment introduced the auctioning of mineral blocks and the concept of a composite licence to enhance transparency and efficiency. **National Mineral Policy (NMP) 2019:** Focuseson boosting exploration and leveraging technology to secure critical minerals.

Relevant Examples

Lithium Exploration in J&K: The discovery and exploration licensing of Lithium (another critical mineral) underscores the broader national focus on securing key components for the **Electric Vehicle (EV)** and renewable energy transition.

China's Dominance: The geopolitical leverageChina holds due to its near-monopoly in refining and supply of Rare Earth Elements (REE) and Tungsten highlights the urgency of India's domestic sourcing strategy.

Global Security Partnerships: India is increasingly engaging in global partnerships (e.g., with Australia and the USA) to secure diversified supplies of critical minerals through government-to-government agreements.

Way Forward

Dedicated Exploration Fund: Establish adedicated, high-risk, high-reward national fund to finance deep-seated and technologically challenging exploration for critical minerals like Tungsten.

Technological Leapfrogging: Invest in indigenous research and technology for **cost-effective and sustainable extraction and processing** of Tungsten, moving beyond simple ore mining.

Streamlined Clearances: Create a single-window mechanism for all environmental, forest, and local clearances specifically for strategic mineral projects to ensure the composite licence benefit is fully realized.

Skill Development: Launch specialized skilling programs to build a workforce trained in the advanced geology, deep drilling, and mineral processing required for critical minerals.

Conclusion

The grant of a Composite Licence for the Tungsten block is a timely and strategic move that signals India's resolve to address its critical mineral supply chain vulnerabilities. For India to realize its goals of becoming a major manufacturing and defence power, securing key inputs like Tungsten is non-negotiable. The path forward requires a balance of environmental responsibility, technological investment, and streamlined regulatory processes to ensure rapid and sustainable development of these strategic assets.

Practice Mains Questions

The grant of a composite licence for a Tungsten mineral block highlights India's push for mineral security. Discuss the challenges involved in securing Critical and Strategic Minerals (CSMs) and suggest policy reforms to expedite domestic production. (250 words)

Gopal Ratna Awards and Indigenous Cattle Conservation

Syllabus

GS-II: Welfare schemes for vulnerable sections of the population; Government policies and interventions for development.

GS-III: Indian Economy; Animal Rearing; Technology missions in agriculture.

Context

The announcement of the **Gopal Ratna Awards** by the Central government is part of a broader national effort to promote the conservation and development of **indigenous cattle and buffalo breeds**. These awards recognize and incentivize the best dairy farmers, dairy cooperative societies (DCS), milk producer companies (MPC), and artificial insemination technicians (AIT) who are actively working to preserve and improve India's native germplasm. This initiative is crucial for sustainable rural livelihoods and achieving nutritional security.

Main Body: Multidimensional Analysis

Agricultural and Economic Dimension

India possesses a vast and diverse pool of indigenous cattle breeds (like Gir, Sahiwal, Red Sindhi, etc.) which are resilient, heat-tolerant, and well-adapted to local conditions, unlike many exotic breeds. The awards incentivize the shift from solely focusing on high-yield exotic breeds to leveraging the hardiness and unique characteristics of native breeds. This supports **climate-resilient agriculture** and provides better quality milk for dairy products. By recognizing superior indigenous animal rearers, the government is subtly guiding the market towards native breed farming.

Technological and Scientific Dimension

The awards specifically recognize **Artificial Insemination Technicians (AITs)**, underscoring the importance of modern technology in genetic improvement. Through **Breed Improvement Programs (BIPs)**, techniques like **sex-sorted semen** and Embryo Transfer Technology (ETT) are used to rapidly multiply superior native germplasm, boosting milk production and preserving genetic diversity scientifically. This is a critical step in scaling up production while avoiding cross-breeding that may dilute the native traits.

Socio-Cultural Dimension

Indigenous cattle breeds are integral to India's rural economy and cultural fabric, often providing not just milk but also draft power and manure (bio-fertilizer). Promoting these breeds through awards helps restore the traditional knowledge associated with native animal husbandry practices, empowering local communities and traditional dairy farmers. The awards boost the prestige and recognition of indigenous breeders.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Incentivization:** Provides financial and social recognition, encouraging more farmers to adopt native breed conservation. **Genetic Preservation:** Focuses on the preservation of unique, climate-resilient indigenous breeds. **Sustainable Dairy:** Supports lower-cost, sustainable dairy farming practices suited to India's diverse agro-climatic zones.
Negatives	**Scale of Challenge:** The number of high-quality native cattle is still a small percentage of the total, requiring much larger, continuous investment. **Market Focus:** Exotic breeds continue to be favored by commercial dairy due to higher short-term milk yield, creating a market bias. **Infrastructure:** Lack of sufficient quality semen stations and trained AITs, especially in remote areas.
Relevant Schemes	**Rashtriya Gokul Mission (RGM):** Aims for conservation and development of indigenous breeds and supports the establishment of Gokul Grams. **National Programme for Bovine Breeding (NPBB):** Focuses on scientific breeding techniques like ETT and sex-sorted semen.

Relevant Examples

Gokul Grams: Dedicated centres under RGM for the development and conservation of indigenous breeds.

Sahiwal/Gir Breeds: Examples of high-performing native breeds whose superior genetic material is being selectively multiplied using modern breeding techniques.

Way Forward

Decentralized Breeding Centres: Establish more **Gokul Grams and semen stations** in key indigenous breed tracts, ensuring proximity and access for farmers.

Market Linkage: Create certified, premium **market linkages** for indigenous milk (e.g., A2 milk) and products to provide farmers with better prices, making native breeding economically viable.

Insurance and Risk Management: Develop tailored insurance products for indigenous cattle, recognizing their value and reducing the financial risk for rearers.

Integration with Climate Policy: Officially integrate the RGM and related programs into India's **Climate Action Plans** as a climate adaptation strategy for the livestock sector.

Conclusion

The Gopal Ratna Awards serve as a crucial symbolic and practical catalyst for the conservation of India's indigenous cattle wealth. The future of sustainable dairy farming in India rests on balancing high-yield needs with the climate-resilience and hardiness of native breeds. Sustained policy support, technological diffusion, and market incentives are essential to ensure the vitality of India's genetic resource base.

Practice Mains Questions

Critically evaluate the importance of indigenous cattle breeds to India's rural economy and climate-resilient agriculture. How do schemes like the Rashtriya Gokul Mission and the Gopal Ratna Awards address the challenges in their conservation? (250 words)

RBI Framework for UPI and Digital Payments Governance

Syllabus

GS-III: Indian Economy; Mobilization of resources; Growth, development and employment.

GS-III: Science and Technology—developments and applications in everyday life.

Context

The **Reserve Bank of India (RBI)** has released a comprehensive framework aimed at enhancing the security, interoperability, and global outreach of India's **Digital Public Infrastructure (DPI)**, particularly the **Unified Payments Interface (UPI)**. The framework seeks to regulate the growing dominance of certain third-party application providers (TPAPs) and ensure consumer protection while maintaining the high growth trajectory of UPI transactions.

Main Body: Multidimensional Analysis

Financial and Economic Dimension

UPI, operated by the **National Payments Corporation of India (NPCI)**, has driven India's digital payment volume to over 15 billion transactions monthly. The new RBI framework aims to address the **concentration risk** where a few TPAPs (like PhonePe and Google Pay) dominate the market, potentially creating a single point of failure and reducing competition. By setting clear standards for data localization, security, and dispute resolution, the framework ensures the continued stability of this crucial economic infrastructure.

Technological and Regulatory Dimension

UPI is a textbook example of **Open Architecture** that allows multiple providers to build applications on a shared core, fostering innovation. The RBI's regulatory focus is on maintaining this open nature while mitigating risks related to data privacy and security. New features like **Credit Line on UPI** and **UPI Lite X (offline payments)** require robust regulatory oversight to prevent over-leverage by consumers and ensure the seamless integration of different payment channels. Strict regulations on data storage and use are essential to build user trust.

Global and Strategic Dimension

India is positioning UPI as a global model for DPI, with successful linkages in countries like France, Singapore, and the UAE. The RBI framework supports this global expansion by mandating compliance with international standards for **cross-border payments** and security. A robust domestic regulatory environment is a prerequisite for achieving global interoperability and making UPI a tool for boosting bilateral trade and remittances.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Risk Mitigation:** Addresses concentration risk by regulating market share limits on TPAPs, enhancing stability. **Innovation and Security:** Encourages innovation (e.g., voice-based payments, offline UPI) while setting strict security standards. **Global Expansion:** Provides a stable, regulated foundation necessary for the global expansion of India's DPI model.
Negatives	**Compliance Burden:** Increased regulatory requirements impose a higher compliance burden and cost, potentially slowing down innovation for smaller fintechs. **Privacy Concerns:** Despite end-to-end encryption, the centralized access of NPCI/Regulator to transaction metadata raises potential surveillance and privacy concerns. **SME Adoption:** UPI's dominance in small-ticket P2P transactions needs to be replicated in the large-value B2B/SME segment.
Relevant Schemes	**Digital India Mission:** UPI is a key enabler of this mission, promoting digital literacy and financial inclusion. **Payments Vision 2025:** RBI's strategic roadmap aiming to provide every user with secure, fast, and accessible digital payment options.

Relevant Examples

UPI-PayNow Linkage: The linkage between India's UPI and Singapore's PayNow demonstrates the model's capacity for seamless, real-time cross-border P2P remittances.

Dominance of Foreign Apps: The market dominance of foreign-owned TPAPs (like Google Pay, PhonePe) in transaction volume, necessitating a regulatory cap to promote domestic competition.

Way Forward

Inter-Regulator Coordination: Strengthen coordination between the RBI, NPCI, and the Ministry of Electronics and IT (MeitY) to create a unified policy on DPI, addressing both finance and technology aspects.

Promoting Alternatives: Actively promote alternative domestic TPAPs and banking apps (like BHIM UPI) through incentives and fee structures to diversify the market.

Data Governance Law: Expedite the passage of a comprehensive **Data Protection Law** to provide the necessary legal backing for the strict data regulations being enforced by the RBI on payment systems.

Cyber Resilience: Mandate and regularly audit the **cyber resilience** and security protocols of all entities involved (banks, TPAPs, and NPCI) to protect against systemic failure.

Conclusion

The RBI's new framework for UPI and digital payments is a necessary step to secure and sustain India's fintech revolution. By proactively regulating concentration risk and enhancing security, the RBI ensures that UPI remains a trusted, open, and globally scalable platform that is pivotal to India's vision of a cashless and financially inclusive economy.

Agricultural Market Reforms: FPOs and e-NAM

Syllabus

GS-III: Major crops-cropping patterns in various parts of the country; Public Distribution System—objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; Economics of animal-rearing.

Context

A policy discussion emphasized the need to deepen **agricultural market reforms** in India, focusing on mechanisms like **Farmer Producer Organizations (FPOs)** and the **National Agriculture Market (e-NAM)**. These instruments are central to the government's strategy to enhance farmers' income by providing better price discovery, reducing post-harvest losses, and increasing farmers' collective bargaining power, moving beyond the traditional **APMC (Agricultural Produce Market Committee)** monopoly.

Main Body: Multidimensional Analysis

Economic and Market Dimension

The traditional APMC model often suffers from a lack of transparency, high intermediation costs, and low price realization for farmers. The **e-NAM portal** counters this by creating a **pan-India electronic trading platform**, providing farmers with access to buyers across multiple mandis and states, thereby achieving **real-time price discovery** based on demand and supply. **FPOs** allow small and marginal farmers to aggregate their produce, achieving **economies of scale** in procurement (seeds, fertilizer) and marketing, transforming them from fragmented sellers into significant market players.

Structural and Governance Dimension

Effective market reforms require states to adopt the **Model APMC Act** amendments, which are a prerequisite for linking local mandis to e-NAM (e.g., a single trading license valid across the state and a single point levy of market fee). The governance challenge lies in integrating the vast network of APMCs, ensuring infrastructure readiness (grading, assaying, warehousing), and overcoming resistance from traditional market intermediaries. The government's push for **10,000 new FPOs** is a key step in building farmer-centric market institutions.

Social and Digital Literacy Dimension

The success of e-NAM and FPOs critically depends on the digital literacy and capacity building of small farmers. Many marginal farmers lack the knowledge and means to directly engage with the e-NAM platform. FPOs act as a bridge, utilizing technology to access e-NAM and futures markets on behalf of their members. The social capital built through FPOs also helps in adopting better farming practices, quality standardization, and collective input management.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Price Discovery:** e-NAM ensures transparent, real-time price discovery, eliminating information asymmetry. **Collective Bargaining:** FPOs empower small farmers by increasing their size and scale for inputs and output sale. **Inter-State Trade:** Facilitates seamless, barrier-free inter-state trade of agricultural commodities.
Negatives	**Infrastructure Gap:** Lack of adequate assaying/grading infrastructure and cold storage at the mandi level hinders quality-based trade on e-NAM. **Digital Divide:** Low digital literacy and lack of access to computers/internet limit direct participation by individual farmers. **Financial Sustainability:** Many FPOs struggle with management expertise, market linkages, and achieving financial sustainability without continuous government support.
Relevant Schemes	**National Agriculture Market (e-NAM):** A pan-India electronic trading portal for agricultural commodities. **Scheme for Formation and Promotion of 10,000 FPOs:** Aims to provide technical and financial support for creating new FPOs. **Agriculture Infrastructure Fund (AIF):** Provides medium-to-long-term debt financing for post-harvest management and community farming assets.

Relevant Examples

FPO Trading Module: The introduction of a dedicated trading module in e-NAM that allows FPOs to trade produce directly from their collection centres, bypassing the physical mandi structure.

Mizoram's APMC Act: States that have fully reformed their APMC Acts, enabling smooth electronic trade and providing best-practice models for others.

Way Forward

Strengthening FPOs: Focus on providing **Professional Management Training** and credit guarantees to FPOs to ensure their financial independence and viability.

Decentralized Infrastructure: Significant investment in **Assaying and Grading Infrastructure** at the village level and linking it directly to the e-NAM platform for quality assurance.

Incentivizing State Reforms: Link central government financial support (like AIF) for agricultural infrastructure to the state's progress in implementing **Model APMC Act** provisions.

Warehouse Integration: Integrate e-NAM with the **Warehouse Receipts System (WRS)** to facilitate post-harvest pledge finance, allowing farmers to sell when prices are favorable.

Conclusion

The twin pillars of FPOs and e-NAM are central to modernizing India's agricultural marketing system. While the framework for change exists, its success relies on aggressive implementation, bridging the digital and infrastructural divide, and empowering farmers to truly capture value in the supply chain, thereby realizing the goal of higher and stable farm incomes.

Global Minimum Tax (GMT) and India's Corporate Tax Landscape

Syllabus

GS-III: Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

GS-II: Effect of policies and politics of developed and developing countries on India's interests.

Context

Global news focused on the phased implementation of the **Global Minimum Tax (GMT)**, a key component of the **OECD's Base Erosion and Profit Shifting (BEPS) 2.0 framework (Pillar Two)**. GMT seeks to establish a 15% minimum corporate tax rate worldwide for large multinational enterprises (MNEs) with global revenues exceeding €750 million. This move has significant implications for Indian multinational corporations (MNEs) and the government's tax revenue strategy.

Main Body: Multidimensional Analysis

Economic and Tax Governance Dimension

India's statutory corporate tax rate (around 22%) is already above the 15% GMT threshold. However, the GMT impacts Indian MNEs that have subsidiaries operating in low-tax jurisdictions (tax havens) where they pay an Effective Tax Rate (ETR) below 15%. Under GMT, India (as the parent's headquarters) or another jurisdiction (as a subsidiary location) can impose a **"top-up tax"** to reach 15%, reducing the incentive for profit shifting. The framework is designed to end the global "race to the bottom" in corporate taxation.

Impact on Indian Businesses and Competitiveness

The GMT primarily affects large Indian IT, digital, and pharmaceutical companies with extensive global operations. These companies will face a **higher compliance burden** and will need to restructure their global entities to account for the new rules. While the tax rate in India remains attractive, the benefits of routing profits through low-tax countries like Singapore or Mauritius will diminish. For India, it provides a **level playing field** for domestic companies that already pay the full tax rate.

Global Cooperation and Sovereignty Dimension

India has committed to implementing the BEPS 2.0 framework, aligning its tax laws with OECD model rules. This move enhances India's global reputation as a responsible and cooperative tax jurisdiction. The GMT, however, raises questions about **national tax sovereignty**, as a country's ability to use tax incentives (like special tax holidays for SEZs) to attract foreign investment is curtailed if the ETR falls below 15%. India will need to adapt its domestic tax incentive structure.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Revenue Mobilization:** India stands to gain revenue from taxing foreign MNEs on profits attributable to Indian consumers (Pillar One) and by imposing the top-up tax on low-tax profits of its own MNEs (Pillar Two). **Curbing Profit Shifting:** Ends the practice of Indian MNEs routing profits via tax havens to avoid full taxation. **Tax Certainty:** Increases tax transparency and reduces uncertainty in cross-border tax disputes.
Negatives	**Compliance Cost:** Significant increase in compliance costs, especially for Indian MNEs operating globally, requiring

Aspect	Description
	complex recalculations of the ETR. **Tax Incentive Curtailment:** Domestic tax incentives (like those for SEZs) become less effective if the resulting ETR is below 15%, requiring structural policy redesign. **Implementation Lag:** Ensuring timely and consistent implementation across all jurisdictions is a major technical and legal challenge.
Relevant Schemes	**Vivad Se Vishwas Scheme:** A tax dispute resolution scheme, important given the likelihood of increased transfer pricing and ETR disputes under GMT. **Corporate Tax Rate Reduction (2019):** Reduction of the corporate tax rate to 22% (or 15% for new manufacturing companies) makes India competitive and already above the GMT threshold.

Relevant Examples

Ireland/Netherlands: European countries that historically used low corporate tax rates (below 15%) to attract global MNEs will see their ETR effectively rise, providing a lesson in the loss of tax arbitrage.

IT Sector: Indian IT majors with delivery centres in low-tax jurisdictions will be the primary entities facing GMT adjustments and compliance challenges.

Way Forward

Domestic Law Alignment: Expedite the necessary **amendments to the Income Tax Act** to incorporate the GMT rules (Income Inclusion Rule and Undertaxed Profits Rule) and establish clear guidance for MNEs.

Review of Incentives: Conduct a comprehensive review of domestic tax incentives (like those for SEZs, R&D) to ensure they remain attractive and effective even with a 15% ETR floor.

Capacity Building: Invest heavily in training tax professionals, the Income Tax Department, and chartered accountants on the complex technicalities of the BEPS 2.0 framework.

Digital Economy Taxation: Continue to actively participate in global discussions on Pillar One (profit reallocation) to ensure India gets a fair share of the profits of digital giants operating within its borders.

Conclusion

The Global Minimum Tax marks a historical shift in international tax governance. While India is well-positioned with its corporate tax rate already above the threshold, its success lies in smooth domestic implementation and proactive restructuring by Indian MNEs. This reform is vital for a future where taxation is fair, transparent, and resilient to profit-shifting tactics.

Eighth Central Pay Commission (8th CPC) and Fiscal Prudence

Syllabus

GS-II: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

GS-III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Context

The government formally approved the **Terms of Reference (ToR)** for the **Eighth Central Pay Commission (8th CPC)**, which is set to revise the salaries and allowances of approximately 50 lakh central government employees and 65 lakh pensioners, effective from January 1, 2026. The ToR mandate the commission to specifically consider the **economic conditions** and the need for **fiscal prudence** in its recommendations.

Main Body: Multidimensional Analysis

Economic and Fiscal Dimension

The recommendations of the 8th CPC will have a massive impact on the **Union Budget**, leading to a significant increase in the government's revenue expenditure. This increase can potentially widen the **fiscal deficit** if not balanced by increased revenue mobilization. The ToR's emphasis on **fiscal prudence** is a directive to the Commission to formulate a revision matrix that is sustainable, ensuring that sufficient resources remain for developmental expenditure and welfare schemes without excessive borrowing. The Commission must

balance the need for fair compensation with macroeconomic stability (e.g., controlling inflation).

Social and Administrative Dimension

Pay Commissions are essential for maintaining the **morale and motivation** of the bureaucracy, attracting and retaining talented individuals in public service, and ensuring competitive compensation relative to the private sector. The 8th CPC is expected to address anomalies and distortions left by previous commissions, particularly concerning grade pay, allowances, and the rationalization of various government departments. The revision directly impacts the **"Ease of Living"** for a large section of the middle class, with trickle-down effects on consumption and regional economies.

Mandate and Reform Dimension

The new ToR may push the 8th CPC to propose a compensation structure that is **performance-linked** and promotes efficiency. There is an expectation that the commission will study the feasibility of moving towards a system that rewards merit rather than seniority alone. It also needs to consider the impact of the **New Pension Scheme (NPS)** and the financial viability of demands to revert to the Old Pension Scheme (OPS). The Commission's challenge is to suggest a model that is contemporary, meritocratic, and financially viable in the long run.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Morale Boost:** Lifts the morale and efficiency of the central government workforce. **Demand Generation:** Increases disposable income, potentially stimulating consumer demand in the economy. **Administrative Rationalization:** Opportunity to streamline pay structures and rationalize government posts.
Negatives	**Fiscal Burden:** Significant increase in non-development expenditure, potentially impacting the fiscal deficit target. **Inflation Risk:** Large-scale salary hikes can inject high liquidity into the economy, triggering consumption-led inflation. **Pension Liability:** Challenge in managing the ever-growing pension liability while ensuring fair compensation.
Relevant Schemes	**FRBM Act (Fiscal Responsibility and Budget Management Act):** The legislative framework that guides the government's commitment to fiscal prudence and deficit reduction. **New Pension Scheme (NPS):** The contributory pension system that the commission will analyze in detail.

Relevant Examples

7th Pay Commission (Implementation): Led to a substantial pay increase and its impact on the fiscal deficit and inflation were key concerns that inform the ToR of the 8th CPC.

State-level OPS Reversion: Demands by certain state governments to revert to the OPS, which highlights the political and financial complexities the 8th CPC must address.

Way Forward

Zero-based Budgeting: Encourage the use of a **Zero-based budgeting approach** for non-plan expenditures to offset the anticipated increase in salary and pension outgo.

Performance Linkage: Introduce a robust, measurable system for **performance-related pay** to link salary increases directly to employee productivity and efficiency.

Digital Audit: Use technology and digital platforms to conduct a **comprehensive digital audit** of personnel and pay records to eliminate all administrative and payment anomalies efficiently.

Long-term Pension Reform: Propose radical and sustainable reforms to the pension system to mitigate the mounting financial burden on future generations.

Conclusion

The setting up of the Eighth Central Pay Commission is a routine but critical administrative exercise. The emphasis on fiscal prudence in the ToR is a welcome

step, indicating the government's commitment to macroeconomic stability. The commission's recommendations must, therefore, be a careful balance between ensuring a fair living wage for employees and protecting the nation's financial health.

Major Socio-Economic Reform: Notifying the Four New Labour Codes

Format Element	Analysis for UPSC
Syllabus	**GS-2:** Government policies and interventions for development in various sectors and issues arising out of their design and implementation. **GS-3:** Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.
Context	The Central Government formally **notified and brought into effect the four Labour Codes** passed in 2019 and 2020. These codes—The Code on Wages, The Industrial Relations Code, The Code on Social Security, and The Occupational Safety, Health and Working Conditions (OSHWC) Code—consolidate and simplify **29 central labour laws**, aiming to modernize India's labour market, boost ease of doing business, and expand social security.
Main Body (Multi-Dimensional Analysis)	**Economy and Ease of Doing Business (EODB):** Consolidation of 29 laws into 4 codes reduces the **compliance burden** for businesses, especially **MSMEs**, by introducing unified definitions, a single registration, and annual returns. This is expected to improve India's ranking on the EODB index and incentivize formal employment. **Social Justice and Welfare:** The Codes are landmark for extending social security coverage to the **gig and platform economy** (e.g., Swiggy, Zomato workers), **unorganised workers**, and **inter-state migrant workers**. This provision is a significant step toward universalising social protection, a core **Directive Principle of State Policy (DPSP)**. **Industrial Relations and Trade Unions:** The Industrial Relations Code raises the threshold for requiring government approval for layoffs, retrenchment, and closure from **100 to 300 workers**. While this gives companies greater flexibility (**hire and fire**), trade unions argue it **weakens workers' bargaining power** and job security. The new rules also introduce **Fixed Term Employment (FTE)** with benefits equal to permanent workers.
Positive, Negatives, Government Schemes	**Positives: 1. Universal Minimum Wage:** Introduction of a **National Floor Wage**, ensuring no worker is paid below a minimum living standard. **2. Gig Worker Security:** Legal definition of 'gig/platform worker' and provision for a **Social Security Fund**, funded by a mandatory 1-2% contribution (capped at 5%) from aggregators' annual turnover. **3. Gender Equality:** Mandates **equal pay for equal work** and permits women to work night shifts with safety provisions and consent. **Negatives: 1. Weakened Collective Bargaining:** Increased threshold for layoffs and the requirement for a larger proportion of workers (75%) to participate in a strike ballot weakens trade union power. **2. Fixed-Term Exploitation:** Concerns that employers will use FTE to avoid permanent employment, leading to job insecurity through non-renewal of contracts. **3. Rule-Making Delegation:** Excessive delegation of key definitions and entitlements to the executive through subsequent rules, leading to potential implementation ambiguities. **Government Schemes: 1.**

Format Element	Analysis for UPSC
	E-Shram Portal: National database for unorganised workers, critical for delivering benefits under the new Social Security Code. **2. Pradhan Mantri Shram Yogi Maan-dhan (PMSYM) Yojana:** Pension scheme for unorganised sector, which will be integrated with the new social security framework.
Examples	The definition of gig and platform workers (e.g., **Uber, Flipkart** drivers/delivery personnel) now mandates that the companies (aggregators) contribute to their social security, a reform directly affecting millions of workers previously left outside the formal welfare net. The Code on Wages standardises 'wages', solving the previous complexity where different laws used different definitions.
Way Forward	**1. Uniform State Rules:** Since Labour is a **Concurrent Subject**, the Centre must coordinate with all states to ensure uniform, swift, and effective finalization of state rules to prevent legal complexity and varying protection levels. **2. Tripartite Consultation:** Establish a regular **tripartite consultation mechanism** (Government, Employers, Workers) to review the Codes and their impact, especially on small businesses and vulnerable workers. **3. Awareness and Capacity Building:** Launch massive campaigns to educate workers (especially informal/migrant workers) and MSME owners about their new rights, duties, and compliance mechanisms, leveraging technology for easy understanding and access.
Conclusion	The implementation of the Four Labour Codes is a watershed moment, modernizing a system that was largely unchanged since the 1940s. While critics point to the increased flexibility for industry at the cost of collective bargaining, the Codes' primary achievement is the **universalisation of minimum wages** and the **historic inclusion of gig and platform workers** into the formal social security net, marking a definitive step towards a modern, welfare-oriented labour framework.
Practice Mains Question	**Q:** The new Labour Codes seek to balance the need for 'Ease of Doing Business' with the goal of 'Social Security for All'. Discuss the key features of the codes and critically examine if they have weakened collective bargaining rights in the pursuit of economic efficiency. (250 words, 15 marks)

Economy and Environment: India's Fisheries and Aquaculture Sector

Syllabus

GS-3: Indian Economy (growth, development, employment); Infrastructure; Environmental Pollution and Degradation.

Context

On **World Fisheries Day (November 21, 2025)**, the Ministry of Fisheries highlighted India's progress in the sector, emphasizing its role in the **Blue Economy**.

The theme was **"India's Blue Transformation: Strengthening Value Addition in Seafood Exports,"** focusing on the target of achieving ₹1 lakh Crore in seafood exports by 2030.

India unveiled the **National Framework on Traceability in Fisheries and Aquaculture 2025**.

Main Body (Multi-Dimensional Analysis)

Economic Contribution and Growth:

India is the **second-largest fish-producing country** globally and a leading producer of shrimp.

Fish production has **doubled** in the last decade (from 96 lakh tonnes in 2013-14 to 195 lakh tonnes in 2024-25).

The sector supports over **30 million livelihoods** and is a critical driver of the **Blue Revolution** and rural employment.

The new focus is on **value addition** (e.g., ready-to-eat products, specialized processing) to enhance export earnings.

Sustainability and Regulation (The Traceability Framework):

The new **National Framework on Traceability** aims to establish a **digital, centralized system** using tools like **blockchain and IoT**.

Objective: Ensure compliance with stringent international food safety and environmental standards, curb **Illegal, Unreported, and Unregulated (IUU) fishing**, and provide enhanced market access for Indian seafood.

The new **EEZ Rules** for deep-sea fishing prioritize **cooperative societies** and prohibit harmful practices like **LED light fishing and bull trawling**.

Deep-Sea Potential:

Focus on unlocking the potential of the **Exclusive Economic Zone (EEZ)** and international waters to reduce pressure on nearshore artisanal fisheries.

Promotion of advanced technologies like the **Mother-and-Child vessel concept** for mid-sea transshipment and processing, especially in the Andaman & Nicobar Islands.

Positive,Negatives, & Government Schemes

Category	Description
Positive	**1. Enhanced Exports:** Traceability framework and value addition focus will boost high-quality seafood exports, helping achieve the ₹1 lakh Crore target. **2. Sustainable Practices:** New EEZ rules and the focus on mariculture (seaweed, cage farming) reduce fishing pressure and diversify livelihoods. **3. Digital Inclusion:** The new **ReALCRaft portal** provides transparent and time-bound digital access for vessel registration and operations.
Negative	**1. Post-Harvest Losses:** Significant percentage of fish caught is lost due to poor cold chain, inadequate harbor infrastructure, and lack of processing units. **2. Climate Vulnerability:** Coastal communities and the aquaculture sector are highly vulnerable to climate change-induced sea-level rise and extreme weather events. **3. Over-fishing:** Despite regulations, nearshore resources are over-exploited, threatening biodiversity.
Schemes	**1. Pradhan Mantri Matsya Sampada Yojana (PMMSY):** Flagship scheme with massive investment for sustainable development, infrastructure, value chain, and fisher welfare. **2. Fisheries and Aquaculture Infrastructure Development Fund (FIDF):** Provides concessional financing for modern infrastructure like fishing harbors, cold storage, and wholesale markets.

Examples

Growth: Inland fisheries registered a remarkable **140% growth** in the last decade, surpassing marine capture due to government support for aquaculture.

Value Addition: Export focus is shifting from simple frozen fish to processed and certified products like **Ready-to-Eat (RTE)** shrimp and crab meat to fetch premium prices in EU/US markets.

Way Forward

Harbor Modernization: Implement the new SOP for **Smart and Integrated Fishing Harbours** with compulsory clean energy and waste management systems.

Insurance and Welfare: Universalize the provision of **insurance and disaster relief** for fisherfolk, integrating them fully with central welfare schemes.

Promote Mariculture: Actively promote and subsidize mariculture activities like **seaweed cultivation** as an alternate livelihood source that is environmentally benign and provides raw material for pharma/food industries.

Practice Mains Question

Q: India's ambition to transform its fisheries sector into a major contributor to the Blue Economy hinges on sustainability and value addition. Analyze the significance of the recently released National Framework on Traceability and the challenges faced in deep-sea fishing. (250 words, 15 marks)

Strategic Disinvestment and Economy: Government Approves BEML Disinvestment

Syllabus

GS-3: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Government Budgeting.

Context

The Cabinet Committee on Economic Affairs (CCEA) approved the strategic disinvestment of **Bharat Earth Movers Limited (BEML)**, a **'Miniratna'** Central Public Sector Enterprise (CPSE) under the Ministry of Defence.

The approval involves the sale of a significant percentage of the government's equity, along with the transfer of management control to a strategic buyer.

The move aims to achieve the ambitious annual **disinvestment target** set by the Finance Minister in the Union Budget.

Main Body (Multi-Dimensional Analysis)

BEML's Strategic Importance:

BEML is a key supplier for the **Defence (40%), Rail & Metro (40%), and Mining & Construction (20%)** sectors.

It is vital for the **'Atmanirbhar Bharat'** initiative, manufacturing critical defence equipment like Tatra truck-based missile launchers, and supplying metro rail coaches to almost every major city.

Disinvestment of a defence-linked PSU raises questions about **national security implications** and the risk of technology transfer to private hands.

Rationale for Strategic Disinvestment:

Revenue Generation: Essential for bridging the fiscal deficit and funding social sector schemes and infrastructure development.

Efficiency Improvement: Injecting private sector management and capital is expected to improve BEML's efficiency, modernise its production, and enhance competitiveness in the global market.

Focus on Core Competencies: Allows the government to exit non-core sectors and focus resources on strategic areas where government monopoly is essential.

Disinvestment Mechanism:

The sale involves a **two-stage auction process** (Expression of Interest followed by financial bids).

The land assets have been separated through a new entity, **BEML Land Assets Ltd (BLAL)**, to prevent the strategic buyer from acquiring valuable real estate, maximizing the value of the non-core assets for the government.

Positive, Negatives, Government Schemes

Positive:

Capital Infusion: Private ownership will bring new technology, R&D funds, and global best practices into the company.

Market Liquidity: Supports the government's efforts to increase the depth and breadth of the Indian capital market.

Increased Productivity: Expected to end bureaucratic inertia and boost output to meet the surging demand from the metro and defence sectors.

Negatives:

National Security Risk: Concerns remain over the security clearances and long-term control of a private entity over sensitive defence technology and supply chains.

Labour Issues: Potential job losses and change in employee benefits, triggering resistance from trade unions.

Asset Valuation: Risk of undervaluing a profit-making CPSE, leading to a loss for the exchequer.

Government Schemes:

National Monetization Pipeline (NMP): The disinvestment aligns with the broader NMP goal of unlocking value from public sector assets.

Atmanirbhar Bharat: The strategic buyer will be mandated to maintain or increase the level of indigenization in production.

Examples

The BEML disinvestment follows the model of previous strategic sales like **Air India** and **NILAM (Non-core Assets)**, which separated land and non-core assets to achieve a higher valuation.

Its metro coach supplies are critical to the ongoing **Metro Phase-II projects** in cities like Bengaluru and Mumbai.

Way Forward

Clear Security Clauses: The disinvestment agreement must contain stringent clauses for long-term government control over key defence technology, production lines, and security access.

Employee Protection: Offer a comprehensive **Voluntary Retirement Scheme (VRS)** and robust labour law adherence to mitigate employee resistance.

Transparent Valuation: Employ multiple, independent third-party valuers to ensure the final sale price is fair and transparent, avoiding future allegations of undervaluation.

Conclusion

The strategic disinvestment of BEML is a bold economic decision driven by the need for fiscal prudence and operational efficiency. While it promises to unleash BEML's full commercial potential, the government must address the legitimate concerns regarding national security and worker welfare to ensure a successful and beneficial transition.

Practice Mains Question

Q: Strategic disinvestment of defence-linked Public Sector Undertakings (PSUs) like BEML is argued to be essential for economic efficiency but risks national security. Critically analyze this trade-off in the context of India's 'Atmanirbhar Bharat' policy. (250 words, 15 marks)

INFRASTRUCTURE

India's Total Installed Power Capacity Surpasses 500 GW: Non-Fossil Fuel Share Exceeds 50%

Syllabus Relevance:

GS-III (Infrastructure-Energy): Energy sector development, non-fossil fuel capacity, and infrastructure growth.

GS-III (Environment & Climate Change): Conservation, environmental pollution and degradation, climate change mitigation, and India's international commitments (COP26).

Context: The Ministry of Power announced a major milestone: India's total installed electricity generation capacity has crossed **500 GW (GigaWatts)**. More significantly, the share of non-fossil fuel-based sources—including solar, wind, hydro, and nuclear—now accounts for **over 51%** of this total, surpassing the fossil fuel capacity (coal, gas, etc.) for the first time. This achievement represents a fundamental structural shift in India's energy grid, underscoring its commitment to a low-carbon growth trajectory.

Main Body: A Decisive Shift Towards 'Panchamrit' Goals This success is a direct result of decades of policy support, notably accelerating under the 'Panchamrit' commitments made at COP26. By reaching the 50% non-fossil fuel capacity target, India has met one of its major global climate goals **five years ahead of the 2030 deadline**. The capacity breakdown is instructive: non-fossil fuel sources now stand at approximately **256.09 GW**, with solar power being the dominant driver at over **127 GW**. This surge is fuelled by schemes like the Production Linked Incentive (PLI) for high-efficiency solar modules and the expansion of utility-scale renewable energy parks. The multi-dimensional achievement is not just about capacity; it's about **grid integration and reliability**. The growth in renewable energy required significant investment

in strengthening the transmission network, including the Green Energy Corridors, to manage the intermittency of solar and wind power. This required rapid deployment of new technologies, including Battery Energy Storage Systems (BESS) and smart grid solutions, to ensure grid stability while integrating a high share of variable renewable energy. The achievement confirms India's position as a global leader in the energy transition among major economies.

Positives/Negatives: Scheme Assessment and Implications

Positives: Climate Leadership: Achieving the COP26 goal early boosts India's credibility on the world stage and strengthens its negotiating position in climate forums. **Energy Security:** Reduced dependence on volatile global fossil fuel markets enhances energy independence and resilience. **Economic Growth:** The sector is a massive job creator in manufacturing, installation, and maintenance, aligning with the 'Make in India' initiative. The falling cost of solar power makes it an economically competitive energy source.

Negatives/Challenges: Storage and Intermittency: The primary challenge remains energy storage. Generating capacity is one thing, but ensuring 24/7 power supply requires massive investments in utility-scale BESS, which is still costly. **Land Acquisition:** The massive scale of solar and wind farms leads to inevitable challenges with land acquisition and potential displacement, particularly in densely populated areas. **Grid Stability:** Integrating variable sources beyond a certain threshold without advanced digital control and storage systems poses risks to the stability of the national grid.

Way Forward: The future strategy must shift focus from simply increasing capacity to **deepening integration and firming up renewable energy**. The government must incentivize and mandate **Hybrid Renewable Energy Projects** (e.g., Solar + Wind) paired with BESS. A robust policy framework for **Green Hydrogen** production must be fast-tracked, using surplus renewable energy to create a sustainable fuel source for hard-to-abate sectors. Finally, there must be a strong focus on **decentralized renewable energy (DRE)** solutions, like rooftop solar and mini-grids, to ensure the benefits of clean energy reach every household and industrial unit efficiently.

PM Launches ₹1 Lakh Crore RDI Scheme at ESTIC 2025 to Boost Private Sector R&D

Syllabus Relevance:

GS-III (Economy): Industrial policy and trade; Science and Technology—developments and their applications and effects in everyday life; Achievements of Indians in Science & Technology.

GS-III (Infrastructure): Investment models for infrastructure development.

Context: On November 3, 2025, the Prime Minister inaugurated the Emerging Science, Technology and Innovation Conclave (ESTIC) 2025 in New Delhi. The highlight of the event was the official launch of the ambitious ₹1 Lakh Crore Research Development and Innovation (RDI) Scheme Fund. This scheme signals a decisive pivot toward fostering a private sector-led Research and Development (R&D) ecosystem in India, aiming to significantly increase India's global innovation ranking and reduce reliance on foreign technology imports across critical sectors.

Main Body – Multi-Dimensional Approach: The RDI Scheme is structured around a multi-pronged strategy to de-risk private investment in fundamental and applied research.

Financial Incentives (The Fund): The ₹1 Lakh Crore fund is strategically allocated as *seed capital* and *matching grants* for private companies undertaking high-risk, long-horizon R&D projects aligned with national priorities such as **Artificial Intelligence (AI), Quantum Computing, Advanced Materials, and Bio-Manufacturing**. The scheme operates on a performance-linked incentive (PLI) model, where disbursement is tied to verifiable research milestones, technology transfer, and successful commercialization.

Ecosystem Building: ESTIC 2025 itself serves the dimension of **collaboration**. Bringing together over 3,000 participants—including Nobel Laureates, industry leaders, and academics—creates a crucial interface where industry needs meet academic capabilities, fostering **Technology Transfer Offices (TTOs)** and joint research ventures.

Sectoral Focus: Deliberations focused on 11 key thematic areas, ensuring R&D spending is targeted, for example, in developing next-generation **semiconductors** (addressing supply chain vulnerability) and creating sustainable solutions for the **Blue Economy** and **Climate Change**. This moves research funding away from being purely government-centric to a demand-driven model.

Positives/Negatives – Government Scheme Assessment:

Positives: This is a significant step towards realizing the **National Research Foundation (NRF)** vision. By committing such a large corpus to the private sector, it encourages capital-intensive research that Indian firms often avoid due to high initial costs and low immediate returns. It directly addresses the low Gross Expenditure on R&D (GERD) as a percentage of GDP. The linkage to national missions (like 'Make in India' and 'Digital India') ensures strategic alignment.

Negatives/Challenges: The success hinges entirely on **effective governance and minimal bureaucratic interference** in the grant allocation process. Past schemes have struggled with slow disbursement and complex evaluation metrics. A major challenge is nurturing a culture of **'fail-fast, learn-faster'** in Indian industry; companies must be incentivized to take risks without being penalized for failed but scientifically sound projects. Ensuring equitable distribution of funds across large conglomerates and innovative start-ups will also be crucial to avoid concentration of innovation capacity.

Way Forward:The government must rapidly establish an Independent Oversight Committee composed of global R&D leaders to manage the fund transparently. Simultaneously, streamlining Intellectual Property (IP) rights management for publicly funded research components within private projects is essential to accelerate commercialization. Finally, this RDI scheme must be backed by significant human capital reforms in higher education to produce PhDs and specialized researchers capable of driving this high-level innovation.

Practice Mains Question:Critically analyze the significance of the new ₹1 Lakh Crore RDI Scheme in achieving India's goal of becoming an innovation-driven economy by 2047. What governance challenges must be addressed to ensure its success?

Infrastructure and Aviation Disruption: ATC Glitch at Delhi Airport

Syllabus

GS Paper-III: Infrastructure: Energy, Ports, Roads, Airports, Railways, etc. Science and Technology developments and their applications and effects in everyday life.

GS Paper-III: Disaster and Disaster Management (Aviation incidents). Challenges to internal security through communication networks.

Keywords: Air Traffic Control (ATC), Automatic Message Switching System (AMSS), Aviation Safety, IGI Airport, Critical Infrastructure, Digital Security.

Context

A significant disruption occurred at Delhi's **Indira Gandhi International (IGI) Airport**—India's busiest—following a major technical failure in the **Air Traffic Control (ATC)** system. The Airports Authority of India (AAI) attributed the cause to a glitch in the **Automatic Message Switching System (AMSS)**, a critical digital platform that handles the exchange and processing of Air Traffic Control data and flight plans. The failure led to widespread delays and cancellations for over 265 departing flights and a cascading effect across air traffic in North India, forcing controllers to resort to significantly slower manual procedures.

Multi-Dimensional Analysis

A. Infrastructure and Operational Dimension

The AMSS is the *digital backbone* of modern ATC. Its primary function is the seamless, automated relay of critical data—flight plans, weather updates, route clearances—between controllers, airports, and airlines. The failure forced controllers to process this data **manually**, a procedure that is safe but dramatically slower and more prone to human error and bottlenecks.

Capacity Bottleneck: IGI handles over 1,500 flight movements daily. When the AMSS failed, the number of flights that could be processed per hour

plummeted, leading to immediate **airspace congestion** and a backlog of departures.

Safety Backup: The incident validates the existence of manual, fallback procedures, which ensured that air traffic safety was not compromised, despite the immense operational slowdown. However, the event highlighted the fragility of the primary automated system.

B. Economic and Logistical Dimension

The glitch had significant **cascading economic and logistical effects**:

Airline Costs: Airlines incurred massive costs from fuel burn during extended holding periods, crew duty time violations, compensation to passengers, and schedule realignment.

Passenger Impact: Hundreds of thousands of passengers were stranded, missing connecting flights, or facing significant delays, leading to a loss of productivity and a dent in consumer confidence in aviation infrastructure.

National Network Effect: As Delhi is the primary aviation hub for North India, flights arriving from and scheduled to fly to other northern airports (like Lucknow, Jaipur, Chandigarh) were also affected, demonstrating the **hub-and-spoke vulnerability** of the national aviation network.

C. Technology and Security Dimension

The incident raises serious questions about the **resilience, redundancy, and security** of critical aviation technology systems.

Redundancy Failure: A critical review is needed to determine why the automated systems lacked sufficient, immediate redundancy (fail-over systems) to prevent a complete slowdown.

Cyber Security: While the AAI attributed the issue to a technical fault, such failures in critical communication networks also raise the possibility of external interference or cyber-attack (like the widely reported cases of **GPS spoofing** in the Delhi region, which can also disrupt navigation systems), demanding high-level security audits for all ATC digital platforms. This aligns the issue with the broader challenge of **Critical Information Infrastructure (CII)** protection.

Positives, Negatives, and Government Schemes

Aspect	Description
Positives	**Safety Resilience:** The use of manual procedures, though slow, maintained the highest levels of air safety, proving the effectiveness of established backup protocols. **System Audit:** The incident provides a necessary trigger for a comprehensive audit and upgrade of all legacy ATC and AMSS systems across the country.
Negatives	**Economic Loss:** Massive financial losses for airlines, airport operators, and the overall economy due to delays and disruptions. **Reputational Damage:** Damages the image of IGI Airport and Indian aviation as a whole, especially for international travel. **System Vulnerability:** Exposes a single point of failure (AMSS) in a vital piece of national infrastructure.
Relevant Schemes/Acts	**National Civil Aviation Policy (NCAP):** Aims for modernization of ATC infrastructure and enhancing airport capacity. **Gaganyaan Programme:** The space-based initiatives that require a sophisticated ground support system, including robust ATC. **DGCA & AAI Modernization Programs:** Ongoing efforts to upgrade navigation aids, surveillance, and communication systems (like the new Communication, Navigation, Surveillance/Air Traffic Management – CNS/ATM systems).

Mains Practice Question

"The recent ATC system failure at Delhi Airport underscores the high dependency and inherent vulnerability of India's critical aviation infrastructure to technical glitches." Discuss the multi-dimensional impact (economic, operational, and security) of a breakdown in the Automatic Message Switching System (AMSS) and suggest necessary infrastructural

and policy safeguards to enhance the resilience of the national air traffic management system. (250words)

Diamond Jubilee Celebration of the Indian Telecommunications Service (ITS)

Syllabus

GS-II: Government policies and interventions for development in various sectors. Role of Civil Services in a Democracy.

GS-III: Infrastructure: Communications. Technology Missions.

Context

The Diamond Jubilee Celebration (60 years) of the **Indian Telecommunications Service (ITS)** on November 14, 2025, is a moment to reflect on the pivotal role this organized civil service has played in the evolution of India's communication landscape. Constituted in 1965, ITS officers have been at the forefront of policy, technology, and management, guiding India from the analog era of P&T to the current digital, 5G-enabled ecosystem. The celebration highlights the need to redefine the service's role to align with the ambitions of **Digital India** and the rapid advancements in next-generation technologies like 6G and satellite communication.

Main Body in Multi-Dimensional Analysis

1. Historical Role and Evolution

ITS officers historically managed the vast Post & Telegraphs network and were key in the liberalization and corporatization of the sector, leading to the formation of entities like BSNL, MTNL, and the Department of Telecommunications (DoT). They provided the **techno-managerial backbone** for the sector, ensuring connectivity in remote and strategic areas. Their current role has evolved to focus on **policy formulation, spectrum management, regulatory oversight**, and administering Universal Service Obligation Fund (USOF) projects to bridge the digital divide.

2. Future Relevance in Digital India

In the era of **Digital India** and **Viksit Bharat @ 2047**, the role of the ITS must be re-calibrated. Future challenges include:

5G and 6G Deployment: Ensuring the smooth, secure, and affordable rollout of next-generation networks.

Cyber Security: Formulating policies to protect critical information infrastructure and user data.

Space Communication: Integrating satellite internet (Satcom) and Low Earth Orbit (LEO) constellations into the national telecommunication network.

Spectrum Economics: Developing efficient and transparent policies for spectrum allocation that maximize public revenue and promote technological innovation (e.g., dynamic spectrum sharing).

3. Human Resource and Skill Gap Dimension

The celebration implicitly draws attention to the need for continuous capacity building within the civil service. To effectively manage emerging technologies like AI/ML-driven network optimization and quantum communication, ITS officers require a **specialized, updated skill set** in new engineering domains. The service must focus on institutionalizing continuous learning, cross-sectoral exposure (with private operators and regulators), and attracting top technical talent to maintain its relevance as the technology landscape shifts rapidly.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Historical Expertise:** Provides an invaluable pool of experienced techno-managers for policy formulation. **Digital Divide:** Instrumental in deploying infrastructure (e.g., BharatNet) in rural and underserved areas. **Policy Stability:** Ensures continuity and institutional memory amidst rapid technological shifts.
Negatives	**Bureaucratic Inertia:** Risk of slow decision-making due to traditional bureaucratic structures in a fast-paced technology sector. **Skill Obsolescence:** Need for aggressive retraining to keep up with next-gen technologies like 6G, quantum, and AI. **Resource Allocation:** Managing the

Category	Description
	financial strain of loss-making PSUs (BSNL/MTNL) remains a challenge for the service.
Government Schemes	**Digital India:** Overarching goal for which ITS provides the technical implementation arm. **BharatNet Project:** Key project for which ITS is responsible for planning and deployment using USOF. **PLI for Telecom:** Administered and monitored by the DoT, which employs ITS officers.

Way Forward

Technology Specialization Track: Create a formalized **Technology Specialization Track** within the ITS training curriculum focusing on Cyber Security, Quantum Communication, and Satellite Networking.

Inter-Departmental Secondment: Mandate rotational postings of ITS officers to TRAI (regulator) and leading private telecom firms to ensure a deep understanding of both regulatory and commercial realities.

ITS-Academia Research Cells: Establish joint research cells with institutions like IITs and IISc to keep the service updated on cutting-edge research and innovation in telecom.

India and Nepal Ink Deal to Boost Rail Trade Connectivity

Syllabus

GS-II: India and its neighborhood- relations. Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

GS-III: Infrastructure: Railways.

Context

India and Nepal have signed a significant deal on November 14, 2025, to further **boost rail trade connectivity**, a key milestone in bilateral economic and infrastructural cooperation. This agreement aims to streamline railway operations, expand the network of rail routes open for cross-border trade, and modernize the handling of cargo, particularly containerized freight. The deal is critical for Nepal, a landlocked nation heavily reliant on Indian transit routes, and supports India's **'Neighborhood First' policy** by strengthening regional connectivity and trade facilitation.

Main Body in Multi-Dimensional Analysis

1. Economic and Trade Facilitation Dimension

Nepal's trade deficit and reliance on third-country imports make efficient connectivity vital. The deal is expected to significantly reduce **logistics costs and transit time** for Nepalese importers and exporters by:

Opening New Rail Corridors: Allowing Nepalese cargo access to more ports in India beyond Kolkata/Haldia, such as Visakhapatnam, offering alternative, less congested routes.

Streamlining Customs: Introducing joint inspection and digital documentation processes to minimize delays at border railheads (e.g., Raxaul/Birgunj).

Encouraging Private Sector Participation: The agreement is expected to allow more private Indian railway operators to participate in carrying cargo to Nepal, increasing competition and efficiency.

2. Strategic and Geopolitical Dimension

Rail connectivity is a pillar of India's 'Neighborhood First' policy, aimed at deepening bilateral relations and countering potential geopolitical influences from other powers. Enhancing connectivity with Nepal strengthens the economic interdependence and provides a **reliable, high-capacity, and cost-effective transport solution**. The improved infrastructure also has humanitarian implications, ensuring faster delivery of aid and relief material during natural disasters, which are frequent in the region.

3. Infrastructural and Technical Dimension

The agreement will necessitate immediate upgrades to existing infrastructure on both sides, including:

Gauge Conversion and Electrification: Standardizing rail gauge where needed and extending India's railway electrification to the border terminals. **Modernizing Inland Container Depots**

(ICDs): Investing in mechanized handling equipment and storage facilities at key border points like Birgunj and Jogbani.

Digital Integration: Implementing digital platforms for tracking and tracing cargo, which will improve security and reduce opportunities for pilferage or unauthorized handling.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Lower Logistics Cost:** Reduced transit time and cost for Nepalese trade, boosting their economy. **Trade Diversification:** New routes (e.g., through Vizag) reduce dependency on a single port (Kolkata). **Bilateral Trust:** Strengthens political and economic ties under the 'Neighborhood First' policy. **Disaster Relief:** Improves the capacity for rapid mobilization of humanitarian aid.
Negatives	**Infrastructure Gap:** Upgrading Nepal's rail infrastructure to handle higher traffic volumes will require significant time and funding. **Security Concerns:** The expanded network requires enhanced security protocols to prevent smuggling and illicit activities. **Coordination Hurdles:** Interoperability issues between the two railway systems (signaling, rolling stock) must be continually addressed.
Government Schemes	**Gati Shakti Master Plan:** Framework for integrated infrastructure development, which includes cross-border logistics. **Look East/Act East Policy:** Rail links to Nepal are part of the larger regional connectivity agenda (BBIN, etc.).

Way Forward

Joint Technical Team: Establish a **Permanent Joint Technical Committee** to monitor infrastructure execution, resolve operational bottlenecks (like wagon turnaround time), and harmonize technical standards.

Digital Single Window: Develop a **Single Digital Window for Cross-Border Rail Trade** that integrates customs, railways, and other regulatory processes of both countries for paperless trade.

Human Resource Exchange: Institute a formal program for the exchange of railway operation and maintenance personnel to share best practices and build institutional rapport.

Black Spot Data and Road Safety Initiatives (e-DAR/iRAD)

Syllabus

GS-II: Important aspects of governance, transparency and accountability.

GS-III: Infrastructure: Roads, Airports, etc.

Context

The Ministry of Road Transport and Highways (MoRTH) announced the imminent release of updated **road accident black spot data** for 2023 and 2024. This data is critical for road safety and is based on the ambitious, technology-driven **Electronic Detailed Accident Report (e-DAR) / Integrated Road Accident Database (iRAD) system**. The goal is to collect real-time, geo-tagged data from police first responders to accurately identify high-risk stretches (black spots) on National Highways (NHs) and prevent fatalities, which remain alarmingly high in India.

Main Body: Multidimensional Analysis

Technological and Governance Dimension

The **iRAD/e-DAR system** represents a significant shift from manual, paper-based reporting to a geo-tagged, real-time digital system. This allows MoRTH, NHAI, and state police to have a unified, accurate database. The definition of a **black spot** (a 500-meter stretch with five or more accidents involving fatalities/grievous injuries or 10 deaths within three years) provides a clear, quantitative basis for intervention. This digital framework improves **transparency and accountability** in tracking and remediating dangerous road segments.

Safety and Infrastructure Dimension

Accurate black spot data is fundamental to **proactive safety engineering**. The data allows road-owning

agencies (like NHAI) to conduct targeted **Road Safety Audits (RSA)** and implement corrective measures like improved signage, better lighting, corrected road geometry, crash barriers, and pedestrian crossings. High road fatalities impose a massive **socio-economic burden** on the nation (estimated at over 3% of GDP). Identifying and fixing black spots is a cost-effective public health measure.

Inter-Agency and Implementation Dimension

The success of iRAD/e-DAR depends on seamless **inter-agency coordination** between the state police (data collection), transport departments (driver records), health services (injury data), and highway authorities (remediation). Challenges include resistance to change from ground-level police personnel accustomed to manual systems, poor internet connectivity in remote areas, and the need for continuous training to ensure high-quality data input.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Real-Time Data:** Shift from delayed, inaccurate reporting to real-time, geo-tagged accident data (e-DAR). **Targeted Intervention:** Enables engineering fixes exactly where they are needed most (black spots). **Accountability:** Creates a clear track record for accountability among agencies responsible for road maintenance and safety.
Negatives	**Data Quality:** Variability in data entry and quality across different states and police units. **Police Training:** Need for continuous training of police on using the app and accurately assessing accident causes. **Funding Gaps:** Remediating thousands of black spots requires significant, dedicated funding and quick execution by highway agencies.
Relevant Schemes	**Motor Vehicles (Amendment) Act, 2019:** Strengthened penalties for traffic violations and emphasized technology use for road safety enforcement. **National Road Safety Policy:** Mandates a multi-pronged approach covering engineering, enforcement, education, and emergency care.

Relevant Examples

World Bank Assistance: The iRAD project received technical and financial assistance from the World Bank and is being implemented in multiple states.

Previous Remediation: The previous blackspot data series (2020-22) identified 1,330 critical stretches, showing the scale of the problem and the government's efforts to address it through engineering solutions.

Way Forward

Mandatory Training and Incentives: Introduce mandatory, regular training programs for all police first responders on the iRAD app and provide incentives for high-quality, timely data submission.

Dedicated Fund for Black Spot Remediation: Create a dedicated, fast-disbursing **Road Safety Fund** to ensure that engineering remediation begins within a stipulated period (e.g., 6 months) after a black spot is identified.

Data Linkage and Audit: Ensure complete and mandatory linkage of the e-DAR data with transport, health, and insurance databases for comprehensive auditing of accident costs and outcomes.

Focus on Behavioral Change: Complement engineering fixes with high-visibility, data-driven traffic enforcement and continuous public awareness campaigns on speed limits and helmet/seatbelt use.

Conclusion

The success of India's road safety mission hinges on moving from anecdotal evidence to actionable, accurate data. The e-DAR/iRAD system is a powerful technological enabler in this transition. For this initiative to realize its full potential, the governance hurdles of inter-agency coordination, ground-level training, and dedicated financial allocation for rapid remediation must be decisively overcome to save lives on India's roads.

Practice Mains Questions

How does the implementation of the iRAD/e-DAR system represent a paradigm shift in India's approach to road safety? Discuss the challenges in achieving full inter-agency coordination for effective black spot remediation. (250 words)

Coastal Highway Project (Rameswar-Paradip) and Coastal Zone Development

Syllabus

GS-III: Infrastructure: Energy, Ports, Roads, Airports, Railways, etc.

GS-I: Salient features of world's physical geography; changes in critical geographical features.

GS-III: Environmental Impact Assessment.

Context

The **Cabinet Committee on Economic Affairs (CCEA)** has granted financial approval for a key section of the proposed **Coastal Highway Project**, specifically the **Rameswar-Paradip stretch** in Odisha, with an expenditure of approximately ₹8,300 crore. This development is crucial for enhancing economic connectivity and disaster-resilient infrastructure along the eastern coast, balancing development with environmental protection needs.

Main Body: Multidimensional Analysis

Economic and Infrastructure Dimension

The Coastal Highway is intended to create a seamless link between major ports (like Paradip) and emerging industrial clusters along the coast. It will significantly reduce logistics costs and travel time, boosting **tourism** (connecting pilgrimage and heritage sites like Konark and Puri) and creating an **economic corridor**. By transitioning freight movement from less efficient modes to high-speed road networks, it supports the vision of **PM Gati Shakti** by prioritizing integrated infrastructure planning.

Disaster Resilience and Climate Dimension

The highway is being designed as **climate-resilient infrastructure**, positioned and engineered to withstand cyclones, tidal surges, and sea-level rise, which are frequent occurrences on the Odisha coast. This elevated, resilient road can double as a **critical evacuation route** during natural disasters, protecting coastal populations and ensuring swift movement of relief materials. This directly addresses the lessons learned from past super-cyclones.

Environmental and Governance Dimension

A major challenge for this project is compliance with **Coastal Regulation Zone (CRZ)** norms. Since the highway passes through ecologically sensitive areas, including mangrove forests and turtle nesting sites (like the Gahirmatha Marine Sanctuary), meticulous **Environmental Impact Assessment (EIA)** and mitigation strategies are mandatory. Disputes over **land acquisition** and frequent changes in alignment have historically delayed the project, underscoring the need for clear center-state coordination and transparent governance in project execution.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Logistics Boost:** Provides faster, more reliable connectivity between ports and manufacturing hubs. **Disaster Mitigation:** Functions as a robust evacuation and relief supply route during coastal hazards. **Tourism and Economy:** Unlocks the tourism potential of the eastern coastal circuit.
Negatives	**CRZ Violations:** Risk of irreparable damage to ecologically fragile coastal ecosystems (mangroves, sand dunes, turtle nesting sites). **Land Acquisition Delays:** Complex land issues, especially concerning private and forest land near the coast, cause project overruns. **Socio-Economic Displacement:** Potential displacement of fishing communities dependent on coastal resources.
Relevant Schemes	**PM Gati Shakti National Master Plan:** Aims for integrated planning and synchronized project implementation. **Bharatmala Pariyojana:** The overarching highway development program under which coastal roads are often implemented.

Relevant Examples

Gahirmatha Marine Sanctuary: The highway's proximity to this major nesting site of **Olive Ridley Sea Turtles** requires strict environmental safeguards and alignment adjustments.

CRZ Notification 2019: The regulatory framework that governs construction and development activities along the Indian coast.

Way Forward

Integrated Environmental Clearance: Implement a single-window clearance mechanism for all necessary environmental and forest clearances, prioritizing mitigation measures.

Community Consultation: Ensure a transparent and inclusive **consultative process** with local fishing and tribal communities to address displacement and environmental concerns.

Green Technology: Use **sustainable construction materials** and technologies (like inert waste from dumpsite remediation) to minimize the project's carbon footprint.

Long-term Monitoring: Establish an **independent monitoring agency** to oversee environmental compliance and disaster resilience during and after construction.

Conclusion

The Coastal Highway is a strategic investment in India's future, promising economic growth and disaster resilience. However, its success hinges on the government's ability to navigate the complex environmental and social challenges, demonstrating that large-scale infrastructure development can be both fast-tracked and ecologically responsible.

Digital Infrastructure and Education: PM e-Vidya's 'One Class – One Channel'

Syllabus

GS-2: Issues relating to development and management of Social Sector/Services relating to Education; Governance (e-governance).

Context

On **World Television Day (November 21, 2025)**, the PIB highlighted the crucial role of television (connecting 230 million households) in promoting digital education, particularly through the **PM e-Vidya programme**.

The core of this initiative is the **'One Class – One Channel'** scheme, which delivers curriculum-based content directly to students lacking reliable internet access.

Main Body (Multi-Dimensional Analysis)

PM e-Vidya as a Comprehensive Digital Response:

It is a unified platform consolidating all digital, online, and on-air education efforts for nearly **250 million school-going children**.

It operates on a **multi-mode access strategy** covering DIKSHA, SWAYAM, Radio, and TV channels, ensuring that no student is left behind due to a lack of a specific device or connectivity.

'One Class – One Channel' Scheme:

Mechanism: It introduced **12 dedicated DTH television channels** (one for each class from I to XII) through the **SWAYAM Prabha** platform.

Content: Broadcasts 24×7 curriculum-based, high-quality content prepared by **NCERT** and other expert institutions.

Digital Inclusion: This component specifically targets the **last mile** and regions with poor internet or mobile connectivity, leveraging the massive reach of **DD Free Dish (6.5 crore homes)** for free access.

Alignment with NEP 2020:

The scheme directly supports the **National Education Policy (NEP) 2020** principles of **Access, Equity, and Quality** by providing standardized, expert-led content universally.

It promotes **blended learning** by integrating the DTH content with digital repositories like **DIKSHA** (for interactive resources and assessments).

Positive, Negatives, & Government Schemes

Category	Description
Positive	**1. Bridging the Divide:** Successfully bridged the learning gap exacerbated by the pandemic, making quality education accessible to rural and remote areas. **2.**

Category	Description
	Cost-Effective Scaling: Utilizes existing low-cost infrastructure (TV and DTH) to scale quality education nationwide, benefiting economically weaker sections. **3. Standardization:** Ensures uniformity in educational content delivery, enhancing the quality of learning outcomes across states.
Negative	**1. Interactivity Gap:** Broadcast-based learning is primarily one-way, lacking the necessary **teacher-student interaction, feedback, and immediate doubt resolution** crucial for holistic learning. **2. State-Specific Customization:** Whilethe NCERT curriculum is national, states face challenges in customizing content (e.g., regional language, local history) effectively through the fixed DTH channels. **3. Device Access:** Still requires access to a TV set and DTH connection, which remains a barrier for the most marginalized households.
Schemes	**1. DIKSHA (Digital Infrastructure for Knowledge Sharing):** The backbone platform providing e-content for the PM e-Vidya initiative. **2. SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds):** Provides online courses, and its DTH channels are utilized by the 'One Class – One Channel' scheme.

Examples

Impact: During school closures, the channels became the primary mode of instruction in many parts of Bihar, Odisha, and Northeastern states, preventing widespread educational regression.

Innovation: Content for **Children with Special Needs (CWSN)**, including sign language videos and audiobooks for the visually impaired, has been integrated into the digital ecosystem.

Way Forward

Hybrid Model Enhancement: Develop **two-way communication mechanisms** (e.g., integrationwith mobile apps for live Q&A sessions via phone or chat) to improve the interactivity of broadcast education.

Content Localization: Dedicate resources for the rapid **regionalization** of content and translationinto all 22 official languages, in collaboration with state SCERTs.

Infrastructure Support: Provide subsidized or free **DD Free Dish set-top boxes** to the poorest households to ensure true universal access to the channels.

Practice Mains Question

Q: The PM e-Vidya program's 'One Class – One Channel' scheme is a significant intervention for digital inclusion in education. Evaluate its role in fulfilling the objectives of the National Education Policy (NEP) 2020, highlighting both its reach and limitations. (250 words, 15 marks)

SCIENCE AND TECHNOLOGY

Odisha Unveils India's First Silicon Carbide Semiconductor Plant, A Boost to Electronics Self-Reliance

Syllabus Relevance:

GS-III (Economy): Industrial policy and its effects; Indigenous technology development.

GS-III (Science & Tech): Achievements ofIndiansin science and technology; Electronics sector development.

Context:On November 3rd, political developments in Odisha included the inauguration of the country's first end-to-end Silicon Carbide (SiC) semiconductor production plant. This event is a critical milestone in India's quest for semiconductor sovereignty, moving beyond assembly to base material and component manufacturing, directly supporting the India Semiconductor Mission (ISM).

Main Body – Multi-Dimensional Approach:The SiC plant represents a targeted, multi-dimensional push into next-generation electronics manufacturing, which is vital for both economic security and technological leadership.

Strategic Material Focus: SiC is crucial for high-power, high-temperature applications, making it essential for **Electric Vehicles (EVs)**, advanced defense radar systems, and efficient power grids—areas India is heavily investing in. By manufacturing the raw SiC wafers, India moves up the value chain,

away from mere chip fabrication (which is still resource-intensive).

Ecosystem Development: The plant acts as an **anchor industry** for the entire region. It requires a localized ecosystem of chemical suppliers, precision engineering support, and a highly skilled workforce trained in semiconductor physics and materials science. This catalyzes the development of ancillary industries, creating high-value manufacturing jobs.

Energy Transition Alignment: SiC-based power electronics are significantly more efficient than traditional silicon-based ones, leading to lower energy loss in power transmission and in EV inverters. This directly aids India's national goals for **energy efficiency and climate change mitigation**.

Positives/Negatives – Government Policy Impact:

Positives: Reduced Import Dependency: It significantly de-risks the supply chain for critical sectors like defence and green energy, which are highly dependent on foreign semiconductor imports. **Policy Validation:** It validates the aggressive incentives provided under the ISM, demonstrating that the policy framework can successfully attract high-end, specialized manufacturing to Tier-2/Tier-3 locations like Odisha. **Global Competitiveness:** India moves into a highly specialized niche within the global semiconductor landscape.

Negatives/Challenges: High Initial Capex and R&D Cost: Semiconductor fabrication requires astronomical initial capital investment and decades of sustained R&D, making the project sensitive to policy continuity. **Talent Gap:** The most significant hurdle is finding and retaining world-class materials scientists and fabrication engineers; this requires collaboration with premier institutions like the IITs and IISc. **Global Competition:** The plant must compete against established ecosystems in East Asia, requiring continuous government support to maintain cost competitiveness in the initial years.

Way Forward:The success in SiC must be immediately leveraged by announcing similar dedicated funds or PLI schemes for Gallium Nitride (GaN) technology, which has complementary applications. The state and central governments must partner to create a specialized Semiconductor Technology Incubation Centre near the plant, offering fellowships and subsidized R&D space to convert local academic research into commercial prototypes.

Practice Mains Question:How does the establishment of the Silicon Carbide semiconductor plant in Odisha align with India's broader 'Aatmanirbhar Bharat' goals in the defence and energy sectors? Discuss the role of anchor industries in building high-tech manufacturing clusters.

ISRO Prepares for Maiden Commercial Crewed Mission Following Satellite Launch Success

Syllabus Relevance:

GS-III (Science & Tech): Developments in space technology; Commercialization of space sector.

GS-III (Economy): Role of private sector in national infrastructure development.

Context:Building on the successful launch of its heaviest satellite (as mentioned in prior context), ISRO on November 3rd focused its public messaging on the imminent commercial crewed mission preparations, signaling a major step toward operationalizing India's human spaceflight capability under the Gaganyaan programme through private partnerships.

Main Body – Multi-Dimensional Approach:This transition from state-led to commercially supported human spaceflight is a deep, multi-dimensional shift for the Indian space economy.

Technology Maturity and Risk Transfer: By bringing in private players for specific sub-systems (e.g., crew escape systems, life support modules), ISRO is effectively **transferring risk and diversifying R&D burden**. This allows ISRO to concentrate its high-value scientific expertise on core strategic missions like deep space exploration.

Economic Viability (Commercialization): A commercially viable crewed flight capability opens up future revenue streams through potential **sub-orbital tourism** (in the long run) or, more immediately, by offering reliable astronaut training and certification services to international space agencies or private astronaut corps. This moves the space program toward a *self-sustaining* model.

Regulatory Framework: This transition demands a robust **regulatory body (IN-SPACe)** capable of certifying private hardware for human safety—the highest standard of engineering assurance. The success of this mission validates the new regulatory framework designed to foster private participation without compromising safety.

Positives/Negatives – Space Policy:

Positives: Global Leadership: It positions India as one of the select few nations capable of fielding independent human spaceflight capability while simultaneously fostering a vibrant, regulated private ecosystem. **Innovation Cycle:** Private sector involvement typically accelerates the iteration and refinement of technology due to market pressure for efficiency and cost reduction. **Talent Attraction:** Successful commercial missions attract high-calibre talent back to the domestic space/aerospace industry.

Negatives/Challenges: Safety Culture: Integrating a new private sector supply chain into a mission as critical as human spaceflight requires instilling ISRO's decades-long **safety-first culture** into private entities, which may have different risk appetites based on commercial timelines. **Liability Framework:** Clear international and domestic legal frameworks defining liability in case of a private component failure during a crewed mission are still evolving and must be finalized before large-scale commercial operations. **Funding Dependency:** The initial private investment in human spaceflight hardware requires significant government off-take guarantees to remain viable in the face of high failure risk.

Way Forward: ISRO must establish a dedicated 'Commercial Crew Certification Wing' within IN-SPACe, staffed by experienced ISRO engineers, to rigorously audit and certify every private component against human-rating standards before integration. Simultaneously, India should actively pursue bilateral agreements with other space-faring nations to offer crew training slots, creating an early, guaranteed market for India's new commercial human spaceflight services.

Practice Mains Question: Discuss the strategic advantages of involving the private sector in India's human spaceflight program (Gaganyaan). What regulatory mechanisms are essential to ensure safety parity between ISRO-built and private sector-built crew systems?

PM Launches ₹1 Lakh Crore RDI Fund at ESTIC 2025

Syllabus

GS-III: Science and Technology- developments and their applications and effects in everyday life; Indigenization of technology and developing new technology; Indian Economy and issues relating to growth, development.

Context

On November 5, 2025, Prime Minister Narendra Modi inaugurated the Emerging Science, Technology and Innovation Conclave (ESTIC 2025) and announced the launch of a **₹1 Lakh Crore Research, Development, and Innovation (RDI) Fund**. This fund is designed to provide long-term, low-interest or nil-interest refinancing for private sector R&D projects in strategic areas like AI, Quantum Computing, Semiconductors, and Space Technology. This policy move, aligning with the **Viksit Bharat@2047** vision, marks a structural shift toward a private-sector-led innovation ecosystem, aiming to significantly boost India's Gross Expenditure on R&D (GERD) as a percentage of GDP.

Main Body in Multi-Dimensional Analysis

Economic and Fiscal Dimension: India's GERD currently stands at a low $\sim 0.7\%$ of GDP, significantly less than the 2-3% spent by OECD nations. The new ₹1 Lakh Crore fund, by offering concessional finance, directly addresses the issue of **risk aversion and long gestation periods** that discourage the private sector from investing in high-end, deep-tech research. It is designed to act as a **catalytic capital injection**, bridging the financing gap, and moving R&D from a predominantly public-funded activity to a public-private innovation partnership model.

Technological and Strategic Dimension: The fund's focus on strategic sectors like AI, Quantum, and Space is critical for **Atmanirbhar Bharat** (Self-Reliant India). By targeting these future technologies, India aims to reduce its reliance on foreign technology imports and create indigenous solutions, thereby enhancing its technological sovereignty and

economic competitiveness on the global stage, especially in deep-tech start-up ecosystems.

Institutional and Governance Dimension: The fund is expected to work in conjunction with the existing **Anusandhan National Research Foundation (ANRF) Act, 2023**. The ANRF's role is to fund basic and high-impact research across universities, while the RDI Fund focuses on applied research, commercialization, and Technology Readiness Levels (TRLs) in the private sector. This division of labor aims to create a streamlined, synergistic R&D pipeline from lab to market.

Human Capital and Skill Development Dimension: Successful utilization of the RDI Fund requires a large pool of skilled researchers. The policy must be accompanied by major investments in science and engineering education, doctoral fellowships, and the creation of world-class research facilities to retain top talent and promote academia-industry collaboration (e.g., through mechanisms like visiting industry faculty and mandatory industry internships for PhD students).

Positives and Negatives, Government Schemes

Positives: 1. Bridging the Gap: Directly addresses the long-standing challenge of low private sector R&D investment. **2. Strategic Focus:** Prioritizes cutting-edge technologies crucial for future economic dominance and national security. **3. Commercialization Push:** Concessional refinancing helps de-risk research and accelerates the commercialization of patented technologies.

Negatives: 1. Implementation Risk: Ensuring the fund is utilized effectively without becoming a source of 'evergreening' loans for non-R&D activities. **2. Bureaucratic Hurdles:** Potential for complex application and approval processes may deter MSMEs and smaller start-ups. **3. Output Measurement:** Defining success metrics (patents, products, economic value) for long-term R&D projects is inherently challenging.

Relevant Government Schemes/Initiatives:

Anusandhan National Research Foundation (ANRF) Act, 2023: Statutory body to fund research in universities.

Deep Ocean Mission: Focuses on marine resource exploration and ocean technology (highlighted at ESTIC 2025).

Production Linked Incentive (PLI) Scheme: Indirectly supports R&D by incentivizing large-scale manufacturing and high-value domestic production.

Way Forward

The government must ensure that the RDI Fund's operational guidelines mandate a **strict, outcome-based monitoring and evaluation framework** with transparent eligibility criteria that prioritizes high-risk, deep-tech ventures, minimizing bureaucratic discretion and ensuring capital is deployed for genuine innovation. Simultaneously, a **national IP and Technology Transfer Policy** must be instituted to facilitate easy, low-cost licensing of publicly funded research from ANRF-backed universities to RDI Fund-backed private entities, accelerating the lab-to-market journey. Furthermore, a **robust public-private sector talent exchange program** should be established, enabling scientists from national research labs and universities to undertake sabbaticals in private companies funded by the RDI scheme, thereby cross-pollinating expertise and creating a knowledge economy ecosystem.

Conclusion

The ₹1 Lakh Crore RDI Fund is a significant, decisive policy step that provides the crucial **fiscal impetus** needed to transform India into a technology-driven, knowledge economy. Its success will depend less on the quantum of the fund and more on the **institutional agility and transparency** with which it is deployed. This initiative has the potential to be a defining factor in realizing the ambition of a developed India by 2047, provided it is managed to maximize private sector innovation and collaboration.

Practice Mains Question:

"India's low GERD/GDP ratio is a structural impediment to achieving developed nation status." In light of this statement, critically analyze the potential impact and the institutional challenges in implementing the recently announced ₹1 Lakh Crore RDI Fund to boost private sector research and development. (250 words, 15 marks)

Closest 'Beaver' Supermoon of 2025 Graces Night Sky

Syllabus

GS-I: Geographical features and their location—changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

GS-III: Science and Technology- developments and their applications and effects in everyday life.

Context

On November 6, 2025, the celestial event of the 'Beaver Moon' Supermoon occurs. This phenomenon is particularly significant as it is the **closest and brightest Supermoon of the year**, occurring when the Moon's orbit brings it to its perigee (closest point to Earth) while simultaneously being a full moon.

Main Body: Multi-Dimensional Analysis

Astronomical Phenomenon: A Supermoon occurs because the Moon's orbit around the Earth is elliptical, not a perfect circle. When the full moon phase coincides with the perigee, the Moon appears up to 14% larger and 30% brighter than the faintest full moon. This November Supermoon is the closest of the year, making it a spectacular sight.

Tidal Impact: Due to the Moon's increased gravitational pull at its closest point, a Supermoon causes a slightly stronger tidal effect, leading to marginally higher tides (perigean spring tides). While usually subtle, this has implications for coastal management, particularly during severe weather events.

Cultural & Historical Significance: The November full moon is traditionally known as the **Beaver Moon** in North America, named for the time when beavers actively prepare their lodges for winter. Such traditional names highlight the historical connection between human agrarian and hunting cycles and astronomical events.

Science Communication: The event drives significant public interest in astronomy and space science. It serves as an important tool for science communicators and educators in India and globally to engage the public and promote scientific literacy, encouraging observation and documentation of cosmic events.

Positives & Negatives, Government Schemes

Aspect	Description
Positives	Increased public engagement with space science; a beautiful natural event for photography and viewing; aids in educational outreach and promoting STEM.
Negatives	In some regions, the media hype may exaggerate the actual visible difference in size; the stronger tidal pull requires vigilance in low-lying coastal areas.
Government Schemes	**Space Science and Technology Education:** ISRO and various science centres use such events to conduct outreach and educational programs.

Way Forward

For future such events, science academies and educational institutions should organize public viewing sessions (star parties) to maximize the educational benefit. Coastal authorities must use the precise gravitational data to preemptively manage potential marginal tidal surges, especially if coinciding with other weather phenomena.

Conclusion

The November Supermoon is a confluence of astronomical geometry and cultural history. While posing a minimal increase in tidal variation, its most significant impact is on the public imagination, serving as a powerful reminder of the physical laws governing our planet and its cosmic neighbor.

Practice Mains Question

Q. Explain the astronomical phenomenon of a 'Supermoon.' Discuss the gravitational and cultural significance of such events, particularly in the context of coastal vulnerability and traditional calendar systems in India.

Vanadium Redox Flow Battery (VRFB) Technology

Syllabus

GS-III: Science and Technology- developments and their applications and effects in everyday life. Achievements of Indians in science & technology; indigenization of technology and developing new technology. Infrastructure: Energy.

Context

The inauguration of India's first **MWh-scale Vanadium Redox Flow Battery (VRFB)** at NTPC NETRA (Noida) marks a significant milestone in India's quest for reliable, long-duration energy storage. This development, highlighted by PIB and media reports, is crucial for integrating the increasing share of intermittent renewable energy (solar and wind) into the national grid. VRFB technology, distinct from conventional lithium-ion batteries, offers a non-flammable and scalable solution essential for achieving grid stability and meeting the national goal of Net-Zero emissions by 2070.

Main Body in Multi-Dimensional Analysis

1. Technological Dimension

VRFB is an **electrochemical storage device** that stores energy in chemical form in two separate liquid electrolyte tanks (vanadium compounds). The electrolytes are pumped into a cell stack where a chemical reaction occurs to release/store energy. Unlike Lithium-ion batteries, the energy capacity (tank size) and power output (cell stack size) are independent, allowing for easy scalability. The battery's chemistry enables it to be charged and discharged thousands of times without significant degradation over a 20+ year lifespan, making it ideal for **long-duration storage (4-10 hours or more)**.

2. Energy Security and Environment Dimension

VRFBs address the major challenge of renewable energy—intermittency. By storing daytime solar power and dispatching it during peak evening demand, they eliminate the need for fossil fuel-based peaking plants. Crucially, vanadium is non-flammable and chemically stable, posing a significantly lower fire risk than lithium-ion. Furthermore, the electrolyte is almost entirely recyclable, boosting the sustainability credentials of this technology and reducing dependence on imports of critical minerals like lithium, strengthening India's self-reliance (**Aatmanirbhar Bharat**) in the energy sector.

3. Economic and Manufacturing Dimension

The VRFB manufacturing process presents an opportunity for domestic industrial growth. While vanadium is a critical raw material (currently India is a net importer), the domestic exploration of vanadium reserves (e.g., in Arunachal Pradesh and Maharashtra) is essential. A key economic advantage is the **decoupling of power and energy costs**—the cost of energy storage is primarily the cost of the vanadium electrolyte, which retains its value over the battery's lifespan. This long-term economic value makes VRFB a viable competitor for large-scale, utility-level grid applications.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Long-Duration Storage:** Ideal for utility-scale grid applications (4-10+ hours), a gap Li-ion struggles to fill. **Safety and Longevity:** Non-flammable, non-degrading, with a lifespan exceeding 20 years. **Scalability:** Power and energy are scaled independently, making it flexible for large projects. **Recyclability:** Vanadium electrolyte can be almost fully reused, enhancing sustainability.
Negatives	**Energy Density:** Lower energy density than Li-ion, making it unsuitable for applications like electric vehicles (EVs). **Vanadium Supply Chain:** India currently relies on imports for most of its vanadium needs, making the initial cost high. **System Size:** Large footprint requirement due to the electrolyte storage tanks. **Initial Cost:** Higher upfront capital cost compared to established Li-ion technology.
Government Schemes	**National Green Hydrogen Mission:** Aims to position India as a global hub for Green Hydrogen, often stored and integrated with long-duration batteries. **Production Linked Incentive (PLI) Scheme for ACC Batteries:** While primarily for Li-ion, policy support may be extended to incentivize indigenous manufacturing of VRFBs. **Solar Parks Scheme:** Promotes large-scale renewable energy integration,

Category	Description
	requiring large battery storage solutions.

Way Forward

Securing Critical Minerals: Aggressively fast-track the domestic exploration and mining of vanadium reserves, and establish secured international supply chain agreements to reduce import dependency and volatility.

Dedicated PLI for Non-Lithium Batteries: Launcha dedicated **Production Linked Incentive (PLI)** scheme specifically for non-Lithium advanced chemistry cells (ACC) like VRFB and sodium-ion to scale up indigenous manufacturing and drive down capital costs.

R&D Focus: Increase R&D funding for improving the energy density and power output of VRFBs, particularly focusing on new electrolyte chemistries (e.g., iron-based) to reduce vanadium dependence and system footprint.

Regulatory Mandates: Introduce regulatory mandates or financial incentives for utilities (DISCOMs/GENCOs) to incorporate a minimum percentage of **long-duration storage** (like VRFB) in their capacity procurement plans to ensure grid resilience.

Conclusion

The installation of the MWh-scale Vanadium Redox Flow Battery at NETRA is a pivotal moment, marking India's conscious move toward diversifying its energy storage portfolio beyond lithium-ion. As India scales up its renewable energy capacity towards the 500 GW target, VRFB technology, with its inherent safety and long-life characteristics, is indispensable for grid stability and reliable power supply. Strategic investment in the domestic supply chain and targeted policy support are the next necessary steps to ensure that this technological leap truly secures India's energy future and strengthens its position in the global green energy transition.

Mains Practice Question

Q. Discuss the technological advantages of Vanadium Redox Flow Batteries (VRFBs) over conventional Lithium-ion batteries in the context of utility-scale, long-duration energy storage. How can India leverage VRFB technology to enhance its energy security and achieve its Net-Zero goals? (250 words)

DRISHTI System: AI-Based Locking Monitoring for Freight Wagons

Syllabus

GS-III: Science and Technology: developments and their applications and effects in everyday life. Infrastructure: Railways.

Context

The Indian Railways' plan to install **DRISHTI (AI-Based Freight Wagon Locking Monitoring System)** is a prime example of leveraging cutting-edge technology for operational safety and security. Developed in collaboration with the **Northeast Frontier Railway (NFR)** and IIT Guwahati Technology Innovation and Development Foundation (IITG TIDF), this system aims to solve the persistent operational challenge of **unlocked or tampered doors on moving freight wagons**. DRISHTI is poised to enhance freight security, reduce theft, and minimize the dependency on manual inspection, which is logistically intensive and prone to human error across India's vast rail network.

Main Body in Multi-Dimensional Analysis

1. Technology and Operational Dimension

DRISHTI utilizes a combination of **AI-powered cameras, sensors, and machine learning algorithms** installed along the railway tracks. As a freight train passes, the system captures high-resolution images and video, immediately detecting anomalies such as an unlatched door, a broken seal, or evidence of tampering on the moving wagons. This real-time detection replaces the traditional manual inspection at yards, which is often inefficient and prone to long delays. The system generates instant alerts, allowing maintenance or security personnel to intervene immediately, vastly improving operational efficiency and reducing turn-around time.

2. Security and Economic Dimension

The inability to monitor wagon door integrity on the move leads to significant **economic losses** due to theft, pilferage, and damage to cargo (especially sensitive materials like cement, food grains, or manufactured goods). By providing a high level of security and traceability, DRISHTI helps maintain the integrity of the logistics chain, which is crucial for high-value cargo. This increase in reliability and safety makes the Indian Railways a more attractive and preferred mode of freight transport, thereby increasing freight revenue and contributing to the national logistics efficiency goal, which is vital for the **National Logistics Policy**.

3. Indigenous Innovation and Collaboration Dimension

The development of DRISHTI through the collaboration between the Indian Railways (NFR) and IITG TIDF exemplifies the **'Innovate in India'** spirit under the **Aatmanirbhar Bharat** initiative. It showcases the successful application of domestic AI and engineering capabilities to solve a complex, real-world infrastructural problem. Such partnerships between national institutions (Railways) and academic/innovation hubs (IITs) are vital for the **indigenization of technology** and scaling up innovative solutions tailored to India's unique operational environment.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Real-Time Security:** Detectstampering on moving wagons, enabling immediate action. **Reduced Manual Error:** Minimizes reliance on manual inspection, increasing consistency and safety. **Theft Reduction:** Leadstolower economic losses and improved cargo insurance viability. **IndigenousTech:** A product of collaborative R&D between Indian Railways and IITG TIDF.
Negatives	**Capital Investment:** Requires significant upfront investment in hardware (cameras, sensors) and AI processing units across the network. **Maintenance:** Need for continuous high-level maintenance and calibration of sensitive electronic equipment exposed to harsh railway environments. **Data Handling:** Requires a robust, high-speed data transmission and storage backbone to handle the continuous flow of high-resolution images/videos.
Government Schemes	**National Rail Plan:** Aims for modernized, safe, and efficient rail infrastructure. **Gati Shakti Master Plan:** Seeks integrated planning and implementation of infrastructure projects, including advanced logistics.

Way Forward

Phased Rollout: Implement a phased rollout plan, initially prioritizing high-security and high-theft freight corridors before pan-India expansion.

Standard Operating Procedure (SOP): Developa clear SOP for immediate response teams to act upon DRISHTI alerts, ensuring the technology translates into effective field action.

Cross-Validation: Integrate DRISHTI data with the existing **Freight Operations Information System (FOIS)** for cross-validation and predictive maintenance insights.

Training and Skilling: Launch a dedicated training programme for railway security and maintenance staff on the operation, maintenance, and basic troubleshooting of the AI-based system.

Conclusion

The DRISHTI system is a transformative application of AI in railway operations, promising a leap forward in the security and efficiency of India's freight transport. By leveraging indigenous innovation, the Railways can not only protect valuable cargo but also contribute significantly to the country's overall logistics efficiency and economic growth. The success of this initial deployment will set a crucial precedent for the wider adoption of smart infrastructure in other critical sectors.

India's First Quantum Diamond Microscope (QDM)

Syllabus

GS-III: Science and Technology- developments and their applications and effects in everyday life. Achievements of Indians in science & technology; indigenization of technology and developing new technology.

Context

The announcement that researchers from **P-Quest Lab at IIT Bombay** have successfully developed **India's First Quantum Diamond Microscope (QDM)**, as part of the **National Quantum Mission (NQM)**, is a monumental leap in indigenous S&T capability. The QDM utilizes the unique quantum properties of **Nitrogen Vacancy (NV) centers in diamond** to perform extremely sensitive measurements of magnetic fields, electric fields, and temperature at the nanoscale. This breakthrough positions India in an exclusive group of nations capable of manufacturing such advanced quantum sensing devices, paving the way for applications in medicine, electronics, and fundamental physics research.

Main Body in Multi-Dimensional Analysis

1. Scientific Principle and Indigenous Technology Dimension

The QDM's core technology relies on **Nitrogen Vacancy (NV) centers**—atomic-scale defects in the diamond lattice where a nitrogen atom sits adjacent to a vacant carbon site. These NV centers possess **quantum spin properties** that are highly sensitive to external magnetic fields. The QDM uses a technique called **Optically Detected Magnetic Resonance (ODMR)** to read this quantum state, allowing it to image magnetic fields with unprecedented spatial resolution and sensitivity. Developing this complex technology entirely indigenously under the NQM signifies India's growing self-reliance in cutting-edge quantum science.

2. Application in Healthcare and Electronics

The primary application of the QDM is expected to be in **biomedical diagnostics** and **nanomagnetism**. In healthcare, its high sensitivity allows for the imaging of weak magnetic fields generated by biological samples, enabling the detection of **early-stage diseases** (e.g., mapping neural activity in the brain or detecting cancerous cells) at the cellular level. In electronics, the QDM can be used for **non-destructive testing** of integrated circuits (ICs) and semiconductor chips, allowing engineers to pinpoint flaws and ensure quality control at the nanoscale, thereby boosting the nation's **semiconductor mission**.

3. Strategic and Dual-Use Dimension

Quantum sensing technologies have significant **strategic implications**. High-sensitivity magnetometers, like the QDM, can be adapted for defense applications, such as underwater navigation, detection of submarines (by sensing faint magnetic anomalies), and geological surveying for resource exploration. By mastering the technology behind the QDM, India strengthens its position in the global quantum race, which is increasingly becoming a matter of **national security** and technological superiority alongside traditional computing and cryptography.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Quantum Leap:** Establishes India as a manufacturer of advanced quantum sensing hardware. **Nanoscale Imaging:** Provides capability for highly sensitive, non-invasive imaging in biology and materials science. **Indigenous R&D:** Product of the National Quantum Mission, showcasing successful collaboration between academia (IITs) and national missions. **Commercial Potential:** Opens up high-value manufacturing opportunities for precision scientific instruments.
Negatives	**Scaling and Manufacturing:** Moving from a lab-scale prototype to mass production for commercial and strategic use is a major challenge. **High Skill Requirement:** Requires a very small, highly specialized pool of physicists and engineers skilled in quantum optics and diamond fabrication. **Cost of Raw Materials:** High

Category	Description
	cost and limited availability of high-purity synthetic diamonds needed to create high-quality NV centers.
Government Schemes	**National Quantum Mission (NQM):** Provides the umbrella funding and strategic direction for this R&D. **Semiconductor Mission:** The QDM's application in chip testing directly supports this mission. **Make in India:** Promotes the indigenous development and manufacturing of high-tech devices.

Way Forward

Pilot Manufacturing Unit: Establish a dedicated, mission-mode **pilot manufacturing facility** to produce research-grade QDMs, bridging the gap between the lab and commercial scale.

NV Center Standardization: Invest in dedicated research to standardize the industrial-scale production and quality control of **high-purity synthetic diamonds** with precise NV center concentrations.

Application Testing Hubs: Create **Application Test Centres** in collaboration with major hospitals, defense research labs, and semiconductor firms to quickly validate the QDM's utility in real-world scenarios.

Interdisciplinary Training: Launch specialized post-graduate and doctoral programs focusing on **quantum engineering and quantum sensing** to build the necessary human resource pipeline.

Conclusion

The development of the Quantum Diamond Microscope is a landmark achievement, signaling India's arrival on the global stage of **high-precision quantum technology**. Its immediate applications in advanced diagnostics and electronics testing promise transformative benefits for public health and industrial quality control. The key now is to transition this laboratory success into scalable, affordable commercial technology through sustained funding, focused manufacturing, and the development of a highly skilled quantum workforce, ensuring that the NQM delivers its strategic technological promise

Chandrayaan-3 Propulsion Module Exits Moon's Sphere of Influence (SOI)

Syllabus

GS-III: Science and Technology – Awareness in the fields of Space. ISRO Missions.

Context

In a remarkable continuation of the Chandrayaan-3 mission's post-landing success, the Indian Space Research Organisation (ISRO) announced on November 14, 2025, that the **Propulsion Module (PM)** successfully executed its planned trajectory to exit the Moon's Sphere of Influence (SOI). The PM, which carried the Lander/Rover combination, had previously been relocated from a lunar orbit to a high-altitude Earth-bound orbit (via Trans-Earth Injection, TEI) and was undergoing a series of lunar flyby events. This maneuver demonstrates ISRO's advanced capabilities in **orbital mechanics and interplanetary mission operations**, garnering valuable data for future deep-space missions.

Main Body in Multi-Dimensional Analysis

1. Technological and Operational Dimension

The PM's extended mission is a technological masterclass in using minimal remaining fuel for a complex **orbital dance** between the Earth and Moon. The primary goal of relocating the PM was to study its performance and the data from the **Spectro-polarimetry of HAbitable Planet Earth (SHAPE)** payload over an extended period. The successful flyby events, followed by the exit from the Moon's SOI, test and validate ISRO's **Inter-Planetary Trajectory Design** and the reliability of its propulsion and navigation systems under complex gravity fields. This knowledge is directly transferable to India's upcoming crewed Gaganyaan and planetary exploration missions.

2. Scientific Contribution: SHAPE Payload

The PM is not just an empty fuel tank; it carries the **SHAPE payload**, which aims to study Earth as an **exoplanet**. By observing the Earth from the Moon's orbital distance and beyond, SHAPE

measures the spectral signatures and polarization properties of the Earth's atmosphere. This data is critical for developing sophisticated models that can be used by future space telescopes to **identify habitable exoplanets** by looking for similar bio-signatures in the atmospheres of distant worlds. The extended operational life of the PM and SHAPE significantly enhances the science return of the Chandrayaan-3 mission.

3. Strategic Autonomy and Future Missions

The extended life and maneuverability of the Chandrayaan-3 PM showcase India's progress toward achieving **strategic autonomy in deep-space logistics**. It validates the reliability of the **LVM-3 launch vehicle** and the robustness of the spacecraft design. The operational experience gained in managing the PM's trajectory and payload outside its planned mission window provides crucial inputs for India's upcoming **Venus mission (Shukrayaan)** and the joint **NISAR mission (Earth observation)**, ensuring ISRO's ability to maximize the utility and lifespan of its space assets.

Positives, Negatives, and Government Schemes

Category	Description
Positives	**Trajectory Expertise:** Validates ISRO's proficiency in complex orbital mechanics and deep-space navigation maneuvers. **Extended Science:** Maximizes data collection from the SHAPE payload for exoplanet research. **System Reliability:** Proves the robustness and fuel management efficiency of the PM for long-duration missions. **Future Ready:** Directly benefits future missions like Gaganyaan, Shukrayaan, and future lunar explorations.
Negatives	**Data Link Challenge:** Operating at greater distances requires significant effort from the Indian Deep Space Network (IDSN) for continuous tracking and data downlink. **Limited Fuel:** The mission is constrained by the ultimate depletion of residual fuel, limiting further maneuvers. **Media Focus:** Extended missions sometimes fail to attract sustained public interest compared to initial landing events.
Government Schemes	**National Space Exploration Mission (NSEM):** Overarching mission for planetary science and deep-space exploration. **National Quantum Mission (NQM):** Advanced sensing technologies developed under NQM can benefit future space-borne instruments.

Way Forward

High-Level Data Dissemination: Ensure prompt and open publication of the SHAPE payload data to accelerate global exoplanet research collaboration.

Simulation and Modeling: Use the real-time operational data from the PM's maneuvers to refine and calibrate ISRO's trajectory planning and orbital dynamics simulation software.

Future Design Integration: Incorporate the learnings from the PM's long-duration survival into the design and fuel budgeting of future interplanetary spacecraft for enhanced longevity.

Indian Navy's Indigenous Naval Shipbuilding Program (Crest of Mahe)

Syllabus

GS-III: Science and Technology—indigenization of technology and developing new technology. Achievements of Indians in science & technology; defence technology.

Context

The unveiling of the crest of the **INS Mahe**, the first ship of the **Anti-Submarine Warfare Shallow Water Craft (ASW-SWC)** project, is a significant milestone for the Indian Navy's indigenous shipbuilding program. The vessel, named after the historic coastal town of Mahe, symbolizes India's increasing reliance on domestic technological capabilities under the **'Aatmanirbhar Bharat'** (Self-Reliant India) initiative, specifically in the critical area of littoral/shallow-water defence.

Main Body: Multidimensional Analysis

Strategic and Defence Dimension

The ASW-SWCs are designed to replace the ageing *Abhay*-class corvettes. These crafts are essential for **securing India's vast littoral zones** and shallow harbour areas against potential threats, especially from submarines. In the context of the **Indo-Pacific**, where naval dominance and **Sea Lines of Communication (SLOCs)** are paramount, having sophisticated, indigenously built ASW capabilities strengthens India's overall strategic posture and ensures its readiness for **'grey zone'** warfare scenarios.

Technological and Economic Dimension (Aatmanirbhar Bharat)

The construction of the Mahe-class vessels showcases the maturity of the Indian shipbuilding industry (both public and private sectors) in designing and manufacturing modern warships. This effort generates high-skilled jobs, fosters technological diffusion across sectors, and saves valuable foreign exchange. It also reduces India's reliance on foreign original equipment manufacturers (OEMs), insulating the nation from geo-political supply chain disruptions and **technology denial regimes**.

Cultural and Symbolic Dimension

The crest of INS Mahe, featuring the **Urumi** (a flexible sword from Kerala's *Kalarippayattu* martial art), connects the naval prowess with India's rich cultural and martial heritage. The ship's motto, **"Silent Hunters,"** emphasizes the necessary virtues of stealth, vigilance, and quiet lethality critical for effective anti-submarine warfare. This blending of culture and capability boosts the morale and identity of the armed forces.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Operational Readiness:** ASW-SWCs are crucial for protecting ports and coastal waters against sub-surface threats. **Cost-Effectiveness:** Indigenous manufacturing is generally more cost-effective in the long run and facilitates faster repair/maintenance. **Sovereignty:** Builds sovereign capability in the crucial area of naval technology and system integration.
Negatives	**Delayed Delivery:** Defence indigenisation projects often face time and cost overruns (e.g., initial issues with LCA Tejas). **Technology Gaps:** India still relies on imports for certain critical, high-end technologies (e.g., advanced sonar systems, specialized steel). **R&D Investment:** Requires massive, sustained, and risk-taking investment in core R&D by both government and private players.
Relevant Schemes	**Defence Acquisition Procedure (DAP):** Prioritizes procurement under the Buy (Indian-IDDM – Indigenously Designed, Developed and Manufactured) category. **SRIJAN Portal:** A defence indigenisation portal that provides industry partners access to items that can be taken up for indigenous manufacturing.

Relevant Examples

Project 75 (P75) Submarines: The Scorpene-class submarines being built at Mazagon Dock Shipbuilders Ltd (MDL) exemplify the successful technology transfer and indigenisation efforts in the sub-surface domain.

INS Vikrant: India's first indigenously designed and built aircraft carrier, representing the pinnacle of the 'Make in India' initiative in defence.

Defence Industrial Corridors (DICs): Establishment of DICs in UP and Tamil Nadu to create a focused ecosystem for defence manufacturing and R&D.

Way Forward

Private Sector Empowerment: Further opening up the naval design and construction sector to private players, incentivizing them through predictable order flow and faster regulatory clearances.

Core Technology Acquisition: FocusingR&Defforts on closing critical technology gaps, particularly in **advanced sonars, AIP (Air-Independent Propulsion) systems, and specialized metallurgy**.

Export Promotion: Leveraging the successful domestic shipbuilding program to aggressively market and export naval platforms to friendly foreign countries, enhancing India's strategic reach and generating revenue.

Design Bureau Strengthening: Continuous investment in the **Directorate of Naval Design (DND)** to ensure that the cutting edge of warship design remains internal to the Indian Navy.

Conclusion

The INS Mahe and its class are a testament to India's commitment to strategic self-reliance in a challenging maritime environment. This progress is not just about building ships; it is about building a robust defence-industrial base and projecting power across the Indo-Pacific. The way forward lies in fostering greater R&D, streamlining the acquisition process, and fully integrating the dynamic private sector to meet the evolving demands of modern naval warfare.

Practice Mains Questions

Evaluate the strategic and economic significance of India's indigenous naval shipbuilding programme in the context of the Indo-Pacific security architecture and the 'Aatmanirbhar Bharat' initiative. (250 words)

India's Fight Against Tuberculosis (TB) Elimination by 2025

Syllabus

GS-II: Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

GS-III: Science and Technology—developments and their applications and effects in everyday life.

Context

According to the **Global TB Report 2025**, while the burden of **Tuberculosis (TB)** in India continues to decline, the country is unlikely to meet its highly ambitious target of **eliminating the disease by 2025**, which is five years ahead of the global target (2030). The report indicates that India still accounts for a large number of global TB cases and deaths. This highlights the need for renewed vigour, focus, and structural changes in India's public health delivery mechanisms to combat the infectious killer.

Main Body: Multidimensional Analysis

Health and Epidemiological Dimension

TB remains a major infectious killer in India, driven by factors like malnutrition, poor sanitation, overcrowding, and lack of awareness. India's current rate of reduction (21% reduction in new cases and 28% reduction in deaths between 2015 and 2024) is significant but insufficient to meet the 2025 elimination goal. A major challenge is the rise of **Drug-Resistant TB (DR-TB)**, which requires expensive, long, and often toxic treatment regimens. The COVID-19 pandemic also severely impacted TB testing and notification services, creating a backlog of undetected cases.

Governance and Implementation Dimension

The national program relies heavily on **active case finding**, better notification (from both private and public sectors), and timely treatment completion. Failures often stem from weak primary healthcare infrastructure, especially in remote areas. The implementation of conditional financial support schemes and nutritional support for patients often faces delays due to bureaucratic hurdles and incomplete digital linking. The lack of a decentralized, community-level approach to diagnosis and treatment completion remains a structural weakness.

Socio-Economic Dimension

TB is disproportionately a disease of poverty, with high **catastrophic costs** (loss of income, costofcare) pushing patients and families deeper into poverty. Addressing TB elimination requires moving beyond medical intervention to addressing the **Social Determinants of Health (SDH)**—improvingnutrition, housing, sanitation, and job security. The **Nikshay Poshan Yojana** is a step in this direction, but its reach and efficacy need significant improvement.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Nikshay Ecosystem:** Digital platformfor case notification, patient management, and tracking treatment outcomes. **Nikshay Poshan Yojana:** Provides ₹500 per month for nutritional support to all notified TB patients. **Active Case Finding (ACF):** Systematic screening of vulnerable populations to detect cases early.
Negatives	**Ambitious Target Miss:** The 2025 target appears overly ambitious given the current rate of decline. **Drug Resistance:** Rising cases of Multi-Drug Resistant (MDR) and Extensively Drug-Resistant (XDR) TB pose a major public health crisis. **Private Sector Engagement:** Lack of mandatory and timely notification from the vast private healthcare sector remains a major gap.
Relevant Schemes	**National Tuberculosis Elimination Programme (NTEP):** India's comprehensive mission to eliminate TB. **Pradhan Mantri TB Mukt Bharat Abhiyan:** A community support initiative to provide supplementary nutritional and diagnostic support to TB patients.

Relevant Examples

Digital Notification: Making TB a **notifiable disease** and pushing for mandatory notification through the **Nikshay portal** has improved data collection significantly, a key governance win.

New Diagnostics: Deployment of faster, molecular diagnostic tools like the **CBNAAT (Cartridge-Based Nucleic Acid Amplification Test)** for quicker and more accurate diagnosis of drug resistance.

Community Support: Success stories in states like Sikkim and Kerala where strong **community mobilization and decentralized support systems** have led to high treatment completion rates.

Way Forward

Decentralized Service Delivery: Move from centralized treatment centres to a robust, decentralized **Primary Healthcare (PHC) and Community Health Worker (CHW)** model for diagnosis and Directly Observed Treatment (DOT) supervision.

Financial and Nutritional Enhancement: Significantly increase the **Nikshay Poshan Yojana** payout and ensure timely, direct disbursement to fully cover the nutritional needs of patients and reduce catastrophic health expenditure.

Private Sector Regulation: Strictly enforce mandatory TB notification by the private sector, and offer financial incentives and technical support for adopting standardized diagnosis and treatment protocols.

R&D Focus: Increase investment in **indigenous R&D for new, shorter, and less toxic drug regimens** andan effective TB vaccine, which is the ultimate long-term solution.

Conclusion

India's fight against TB is a microcosm of its public health challenges. While the NTEP has made commendable progress, the failure to meet the 2025 deadline demands an honest appraisal and a shift in strategy. True elimination requires a holistic approach that integrates medical intervention with social equity, nutritional support, and unwavering political commitment to strengthen the last mile of healthcare delivery.

Practice Mains Questions

Despite the National Tuberculosis Elimination Programme (NTEP), India is struggling to meet its 2025 elimination target. Analyse the reasons for this shortfall and suggest a multi-pronged strategy to address the social determinants of TB. (250 words)

India's Indigenous Defence Technology and Naval Procurements

Syllabus

GS-III: Science and Technology—developments and their applications and effects in everyday life; Indigenization of technology and developing new technology.

GS-III: Various Security Forces and Agencies and their Mandate.

Context

The Ministry of Defence (MoD) recently granted **Acceptance of Necessity (AoN)** for several major naval procurements, including advanced systems and vessels, with a significant emphasis on **indigenous design and manufacturing**. This move highlights India's commitment to self-reliance (**Aatmanirbhar Bharat**) in defence, particularly to modernize the Indian Navy's capabilities in the strategically vital Indo-Pacific region.

Main Body: Multidimensional Analysis

Strategic and Geopolitical Dimension

As a major power in the Indian Ocean Region (IOR), India requires a robust, self-sustaining naval fleet to ensure maritime security, counter piracy, and protect its sea lines of communication. Indigenous development of platforms like **Landing Platform Docks (LPDs)** enhances the Navy's **amphibious warfare capability** and capacity for **Humanitarian Assistance and Disaster Relief (HADR)** missions across the Indo-Pacific. The strategic push is to reduce reliance on foreign suppliers, which is crucial during geopolitical crises or sanctions.

Technological and Economic Dimension

The AoN includes indigenously developed systems like **Advanced Lightweight Torpedoes (ALWTs)** and electro-optical search and track systems. This signifies a maturation of India's defence R&D capabilities, led by the **Defence Research and Development Organisation (DRDO)** and various Defence Public Sector Units (DPSUs). Economically, indigenous procurement drives the **'Make in India'** initiative, generating high-skill jobs, boosting the private defence industrial sector, and saving valuable foreign exchange reserves. It fosters a domestic **Military-Industrial Complex**.

Policy and Procurement Dimension

The success of this indigenization push is governed by the **Defence Acquisition Procedure (DAP) 2020**, which mandates prioritizing 'Buy Indian' and 'Make Indian' categories. The challenge remains in streamlining the procurement process, overcoming the gap between the Services' **Qualitative Requirements (QRs)** and what the DRDO/private sector can deliver, and ensuring long-term, predictable funding for domestic R&D projects.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Self-Reliance (Aatmanirbhar):** Reduces critical dependence on imports, enhancing strategic autonomy. **R&D Boost:** Provides large orders to domestic DPSUs and private industry, incentivizing R&D. **Technology Control:** Ensures full control over sensitive technologies, avoiding restrictive end-user monitoring clauses.
Negatives	**Time Overruns:** Indigenous projects often face significant time and cost overruns due to complex technology development and testing. **Quality Gaps:** In some high-tech areas, Indian products still lag behind global standards, risking operational disadvantage. **Bureaucratic Hurdles:** The long and complex defence procurement and testing cycle often discourages private sector participation.
Relevant Schemes	**Defence Acquisition Procedure (DAP) 2020:** Mandates the highest priority for Indian-designed, developed, and manufactured products. **iDEX (Innovations for Defence Excellence):** An ecosystem to foster innovation and technological development in the defence sector by MSMEs and start-ups. **Strategic Partnership Model:** Encourages private Indian companies to tie up with global OEMs to manufacture major platforms in India.

Relevant Examples

INS Vikrant: India's first indigenous aircraft carrier, demonstrating complex shipbuilding capability.

Scorpene Class Submarines: Construction under technology transfer (**Project 75**) showcasing indigenous integration capabilities in naval platforms.

Way Forward

Private Sector Participation: Provide **assured long-term orders** and liberalize funding to encourage

greater private sector investment in niche, high-technology defence R&D.

Testing and Certification: Establish an **independent, specialized agency** for accelerated, realistic testing and certification of indigenous defence products.

Export Focus: Shift focus from just domestic use to **defence exports**, achieving economies of scale and validating the quality of Indian defence technology globally.

Skill Development: Invest in advanced engineering and R&D talent to close the critical technology gaps in areas like stealth, propulsion, and Artificial Intelligence (AI) for defence.

Conclusion

India's emphasis on indigenous naval procurements is a vital step toward realizing its geopolitical and strategic ambitions. By nurturing a competitive domestic defence industrial base and modernizing its naval fleet, India not only secures its maritime domain but also strengthens its credentials as a reliable security partner in the Indo-Pacific.

India International Science Festival (IISF) 2025 and Scientific Outreach

Syllabus

GS-III: Science and Technology—developments and their applications and effects in everyday life.

GS-III: Achievements of Indians in science & technology; indigenization of technology and developing new technology.

Context

News focused on the preparations and goals for the upcoming **India International Science Festival (IISF) 2025**. IISF is a large-scale, annual event organized by the Ministry of Science and Technology and the Ministry of Earth Sciences, in collaboration with Vijnana Bharati (VIBHA). The festival's primary objective is to celebrate the scientific spirit, connect science with society, and promote a **scientific temper** among the public, especially youth.

Main Body: Multidimensional Analysis

Social and Cultural Dimension (Scientific Temper)

The IISF is an exercise in democracy and science communication, designed to popularize science and cultivate a **scientific temper** (as mandated by **Article 51A(h)** of the Constitution). It provides a platform for citizens to interact directly with scientists and innovators, demystifying complex research and showing the practical applications of science in everyday life, thereby countering superstition and promoting rational thinking.

Policy and Innovation Dimension

The festival serves as a platform to showcase India's achievements in science and technology, including breakthroughs in space, nuclear energy, IT, and biotechnology. It encourages **indigenous innovation** by hosting challenges and competitions, connecting researchers and entrepreneurs with industry and potential funders. High-level participation from ministries ensures that scientific priorities and outcomes are integrated into national policy-making.

Education and Outreach Dimension

IISF is a crucial tool for **Science, Technology, Engineering, and Mathematics (STEM) outreach**. It targets students, researchers, farmers, and artisans, providing hands-on workshops, seminars, and exhibitions. Events like the **Nationwide Innovation Challenge** aim to scout for prospective innovators at the grassroots level, encouraging students to pursue science as a career and fostering a pipeline of future researchers and technologists.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Public Engagement:** Excellent mechanism for mass public engagement with science and research. **National Pride:** Showcases India's scientific prowess to domestic and international audiences, boosting morale. **Grassroots Innovation:** Provides a platform for marginalized innovators and students from remote areas to showcase their talent.
Negatives	**Urban Focus:** Events often remain concentrated in major cities/educational hubs, limiting reach to deep rural areas. **Post-Event Impact:** Challenge in

Aspect	Description
	ensuring that the enthusiasm generated during the event translates into sustained science education and career choices. **Cost and Scale:** Organizing a festival of this scale involves significant logistical challenges and financial outlay.
Relevant Schemes	**SERB (Science and Engineering Research Board) Schemes:** The IISF often highlights the work and grants provided by such bodies to promote research. **Jigyasa Programme:** A student-scientist connect program often linked to the spirit of scientific outreach promoted by the IISF.

Relevant Examples

Science Villages: A component of IISF where villagers are invited to experience science demonstrations and modern agricultural practices firsthand.

Guinness World Records: IISF has previously achieved world records for large-scale science experiments, demonstrating mass participation and public engagement.

Way Forward

Digital Integration: Leverage the digital infrastructure to extend the reach of IISF events and content to schools and colleges in the remotest districts.

Year-Round Follow-up: Establish **regional IISF cells** to ensure year-round follow-up, mentoring, and funding support for the innovators and students identified at the festival.

Local Language Communication: Prioritize the translation and dissemination of scientific content showcased at the festival into major Indian languages to break language barriers.

Industry Linkage: Actively involve venture capitalists and industry leaders to provide **incubation and commercialization pathways** for promising technologies showcased by innovators.

Conclusion

The India International Science Festival is a crucial national undertaking that links India's scientific achievements to its democratic aspirations. By fostering a culture of curiosity and evidence-based thinking, the festival is instrumental in realizing the vision of a truly developed and scientifically empowered India.

India's Semiconductor Mission: The Industry-Academia Alliance

Syllabus

GS-III: Science and Technology—developments and their applications and effects in everyday life; Indigenization of technology.

Context

Recent statements by the **Ministry of Electronics and Information Technology (MeitY)** highlighted the critical need for a deeper **industry-academia alliance** to power India's semiconductor revolution. While India boasts strong chip design talent, the challenge remains in transitioning from fragmented design contributions to fully indigenous, end-to-end chip products, a core goal of the **India Semiconductor Mission (ISM)**.

Main Body: Multidimensional Analysis

Technological and Talent Dimension

India currently excels in **fabless design**, meaning Indian engineers design chips used globally, but the manufacturing (**Fabs** or Fabrication units) and the final product are owned elsewhere. The next step is creating an ecosystem that supports **full-stack product development**, including design, fabrication, assembly, testing, marking, and packaging (**ATMP/OSAT**). This requires a targeted effort to align the curricula of institutions (like IITs and NITs) with the highly specialized, market-driven needs of the semiconductor industry, focusing on niche areas like compound semiconductors and specialized analog chips.

Economic and Strategic Dimension

Semiconductors are the "New Oil" of the digital economy, underpinning everything from defense systems to electric vehicles and digital payments. Achieving self-reliance in this sector is a matter of **economic security and strategic autonomy**.By

prioritizing a **market-first approach**—identifying assured demand before mass production—the government aims to create a viable business model for domestic fabs and ATMP plants, making India a trusted partner in the global supply chain, diversifying risk away from single manufacturing hubs.

Policy and Ecosystem Dimension

The **Design Linked Incentive (DLI)** scheme and fiscal support (up to 50% of project cost for Fabs/ATMP) provided by the ISM are crucial policy levers. However, the ecosystem needs faster incubation, access to sophisticated **Electronic Design Automation (EDA) tools**, rapid prototyping facilities, and robust **Intellectual Property (IP)** creation incentives. The industry-academia partnership is essential for R&D, providing real-world problems for students to solve and ensuring the talent produced is immediately employable in highly technical roles.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Productization:** Focus shifts from basic design services to end-to-end indigenous product creation. **Talent Retention:** Creates high-value domestic jobs, reducing the "brain drain" of chip designers. **Strategic Autonomy:** Ensures supply chain resilience against geopolitical shocks and import dependence.
Negatives	**Capital Intensity:** Chip manufacturing (Fabs) requires massive, upfront capital investment ($10+ billion per plant) and long gestation periods. **Technology Lag:** India needs to quickly close the technology gap in cutting-edge process nodes (below 28nm) compared to global leaders. **Market Fragmentation:** Challenge in generating sufficient, assured domestic demand to sustain large-scale manufacturing facilities.
Relevant Schemes	**India Semiconductor Mission (ISM):** The nodal agency for the development of a semiconductor and display manufacturing ecosystem. **Design Linked Incentive (DLI) Scheme:** Provides financial and design infrastructure support for Integrated Circuits and Chipset design.

Relevant Examples

Micron's ATMP Plant: The planned Assembly, Testing, Marking, and Packaging unit in Gujarat serves as a proof-of-concept for India's entry into advanced manufacturing.

MeitY-NSF Collaboration: Ongoing workshops and partnerships with foreign institutions (like the US National Science Foundation) to bridge R&D gaps and enhance collaboration.

Way Forward

Dedicated Curriculum: Create **highly specialized, industry-driven Masters and Ph.D. programs** focused on advanced semiconductor manufacturing and materials science.

Common Facility Centres: Establish **shared, high-end fabrication and testing facilities** (rapid prototyping) accessible to start-ups, MSMEs, and academic researchers.

Mandate Use: Mandate the use of indigenous chips in specific, non-critical government applications (like smart meters or public distribution tracking) to guarantee an **initial market offtake**.

Global Partnership: Actively seek **strategic technical alliances** with global semiconductor leaders to ensure the rapid transfer of high-end manufacturing technology and expertise.

Conclusion

The success of India's Semiconductor Mission depends less on massive subsidies alone and more on forging a cohesive alliance between industry and academia. By translating India's design prowess into domestic manufacturing capability, India can effectively establish itself as a resilient and reliable node in the global semiconductor ecosystem, powering the next wave of digital growth.

Science and Technology: Indigenous Gene Editing Tool for Sickle Cell Anaemia

Syllabus

GS-2: Issues relating to development and management of Social Sector/Services relating to Health. Welfare schemes for vulnerable sections.

GS-3: Science and Technology—developments and their applications and effects in everyday life. Biotechnology, Bioethics.

Context

India launched its **first indigenous CRISPR-based gene therapy**, named **"BIRSA 101,"** specifically developed for treating **Sickle Cell Disease (SCD)**.

The therapy is named in honour of tribal freedom fighter **Bhagwan Birsa Munda**, highlighting the disease's high prevalence in **India's tribal population**.

This marks a major step in making advanced, life-saving therapies **affordable and accessible**.

Main Body (Multi-Dimensional Analysis)

Technology (CRISPR-Cas9):

Function: CRISPR acts as **"precise genetic surgery"** to correct the mutation in the **Beta-globin gene** that causes the red blood cells to deform into a sickle shape.

Process: Blood-forming **stem cells** are collected from the patient, edited using the BIRSA 101 tool in the lab, and then re-infused into the patient after conditioning, enabling them to produce healthy, non-sickle red blood cells.

SCD and Social Justice:

SCD is a chronic, debilitating, and often fatal hereditary disease. India has the **highest burden of SCD** globally, with a concentration in the tribal belts of Central and Eastern India.

An indigenous, affordable cure is a huge leap towards fulfilling the **Directive Principle of State Policy (DPSP)** of improving public health and addressing historical health inequities for vulnerable communities.

Atmanirbhar Bharat in Health:

Global gene therapies for SCD (like *Casgevy*) are prohibitively expensive (around $2-3 million or ₹20-25 Crore).

BIRSA 101, developed by **CSIR–IGIB** with technology transfer to **Serum Institute of India (SIIPL)** for scale-up, aims to reduce the cost to a fraction of the global price, ensuring **cost-effective scalability**.

Positive, Negatives, & Government Schemes

Category	Description
Positive	**1. Potential Cure:** Addresses the root cause of the disease instead of merely managing symptoms. **2. Affordability:** The public-private partnership ensures the therapy can be mass-manufactured at a low cost, aligning with the goal of **Universal Health Coverage**. **3. Scientific Credibility:** Puts India among the handful of nations capable of developing advanced gene editing therapies.
Negative	**1. Bioethics:** Raises ethical dilemmas concerning genetic modification, consent, and potential off-target effects. **2. Delivery Infrastructure:** Implementing the complex "vein-to-vein" therapy requires highly specialized hospitals, trained staff, and robust post-treatment monitoring, which is lacking in tribal/remote areas. **3. Long-Term Safety:** Long-term safety and efficacy data from Phase 1/2 trials need to be robustly monitored.
Schemes	**1. National Sickle Cell Anaemia Elimination Mission (2047):** Launched to eliminate SCD by 2047, which mandates screening, counselling, and treatment. BIRSA 101 is a critical tool for this mission. **2. National Education Policy (NEP) 2020:** Promotes R&D and multidisciplinary research in key areas like biotechnology.

Examples

Public-Private Partnership: The collaboration between the government lab **CSIR-IGIB** and the private manufacturer **SIIPL** is the model for scaling advanced biotech products from lab to market cheaply.

Impact: If successful, this therapy could eliminate the need for costly and risky allogeneic **bone marrow transplants** for SCD patients.

Way Forward

Rapid Clinical Trials: Fast-track the Phase 2 and 3 clinical trials while ensuring strict safety and ethical compliance.

Health Infrastructure: Develop **specialized sickle cell centres** in states with high prevalence (e.g., Madhya Pradesh, Chhattisgarh, Gujarat) and integrate them with the mission's screening process.

Bioethics Regulation: Establish a clear and agile **National Bioethics Authority** to oversee the application of gene editing technologies in a socially responsible manner.

Practice Mains Question

Q: Discuss the significance of the indigenous CRISPR-based therapy 'BIRSA 101' in addressing India's public health challenges. What institutional and ethical challenges must be overcome for its successful and equitable deployment? (250 words, 15 marks)

Science and Technology: ISRO Launches Dedicated Small Satellite Launch Vehicle (SSLV) Mission

Syllabus

GS-3: Science and Technology—developments and their applications and effects in everyday life; Awareness in the fields of Space.

Context

The **Indian Space Research Organisation (ISRO)** successfully launched its third **Small Satellite Launch Vehicle (SSLV-D3)**, carrying a dedicated payload of small satellites for a private Indian space start-up and a university.

The launch signifies the SSLV's transition from a developmental phase to an operational vehicle, specifically catering to the burgeoning demand for **Small Satellite launches** globally and domestically.

Main Body (Multi-Dimensional Analysis)

Small Satellite Launch Vehicle (SSLV):

Capability: Designed to inject satellites weighing up to **500 kg** into a Low Earth Orbit (LEO) of around 500 km.

Key Feature (Quick Turnaround): The SSLV is a **"launch-on-demand"** vehicle. Unlike the PSLV, it can be assembled in just **72 hours** with minimal personnel, drastically reducing launch time and cost.

Cost-Effectiveness: Its simple, modular design, built largely with solid fuel and featuring fewer stages, makes it the world's most **cost-effective launcher** in its category.

Significance for Private Sector and Space Economy:

ANTRX and NSIL: The mission demonstrates the viability of **NewSpace India Limited (NSIL)**, the commercial arm of ISRO, in securing payloads from private entities and foreign clients.

Level Playing Field: The operationalization of SSLV provides a dedicated, accessible, and affordable launch platform for Indian private space startups, fostering innovation and competition.

Global Market Share: The SSLV will help India capture a larger share of the global small satellite launch market, which is currently dominated by players like SpaceX and Rocket Lab.

Indigenous Development and Future:

SSLV is crucial for constellations of **LEO internet satellites** and is entirely indigenous. Its success paves the way for the full transfer of its production and operationalization to the Indian private sector.

Positive, Negatives, Government Schemes

Positive:

Commercial Viability: Makes India a globally competitive player in the small satellite launch segment.

Ease of Launch: Simplifies the launch process for university research and technological demonstrations due to low cost and short notice.

Employment: Boosts the Indian private space industry and creates high-skilled jobs in manufacturing and launch operations.

Negative:

Payload Limitation: Cannot carry heavy communication or remote sensing satellites, which still require the workhorse PSLV or the LVM3.

Infrastructure: Requires development of dedicated, high-volume launch infrastructure, such as the new **SSLV Launch Complex (SLC)** at Kulasekarapattinam, Tamil Nadu.

Government Schemes:

IN-SPACe: The promotion of SSLV directly supports the IN-SPACe mechanism, which enables and regulates the participation of private non-government entities in the space sector.

Space Policy 2023: Aligns with the policy's goal of encouraging private sector participation in the entire value chain of the space economy.

Examples

The payload on SSLV-D3 included a **CubeSat** designed by a private start-up for Earth observation and a student satellite focused on atmospheric studies.

The mission is analogous to the launch of the first successful PSLV missions in the 1990s, marking a crucial step towards launcher maturity.

Way Forward

Full Production Transfer: Expedite the full transfer of SSLV manufacturing and launch operations to an industry consortium to free up ISRO for R&D on next-generation systems (e.g., Reusable Launch Vehicles – RLV).

Global Marketing: Aggressively market the SSLV's short turnaround time and low cost to secure international launch contracts.

SLC Completion: Fast-track the construction and operationalization of the new SSLV launch complex in Tamil Nadu to meet anticipated high demand.

Conclusion

The successful dedicated SSLV launch is not merely a technological achievement; it is a declaration of India's commitment to making the space sector accessible, commercial, and globally competitive. It is the rocket that will truly democratize India's space aspirations, empowering both ISRO and the emerging private space industry.

Practice Mains Question

Q: The operationalization of the Small Satellite Launch Vehicle (SSLV) is a game-changer for India's space economy. Analyze how the SSLV enables the participation of private non-government entities (NGEs) and helps India achieve greater market share in the global space sector. (250 words, 15 marks)

SECURITY AGENCIES IN INDIA

Tri-Services Exercise 'Trishul 2025' Kicks Off to Test Joint Combat Readiness in Eastern Sector

Syllabus Relevance:

GS-III (Security): Security challenges and their management in border areas; role of the armed forces in contemporary security scenarios.

GS-II (International Relations): Defence cooperation and strategic alignments in the Indo-Pacific context.

Context:India commenced the large-scale tri-services military exercise, 'Trishul 2025', in the Eastern Sector on November 3rd. This exercise, involving the Army, Navy, and Air Force, is strategically significant as it is focused on simulating high-intensity conflict scenarios in the High Altitude Areas (HAA) and across the maritime domain bordering China. This is a direct response to the evolving dynamics in the Indo-Pacific and the ongoing border situation.

Main Body – Multi-Dimensional Approach:'Trishul 2025' is a critical test of India's Jointness and Integration doctrine, moving beyond mere coordination to true synergy across domains.

Operational Integration: The exercise tests the ability of air assets (Air Force) to provide rapid close air support and strategic airlift to ground forces (Army) operating in high-altitude, constrained terrain. The Navy's role centers on securing the **Sea Lines of Communication (SLOCs)** and projecting power in the Bay of Bengal, ensuring the logistics chain remains unhindered.

Technology Adoption: A key dimension is the operational induction and testing of newly acquired or developed technologies, such as **indigenous long-range surveillance drones**, networked command and control systems (linking forward posts to strategic

headquarters), and specialized winter warfare equipment designed for the Himalayas.

Deterrence Signaling: Geopolitically, the exercise acts as a clear signal of **robust deterrence capability** to potential adversaries. By showcasing the seamless movement of troops, supplies, and fire support across land, sea, and air in a challenging environment, India demonstrates its readiness for a sustained, technologically advanced operational posture.

Positives/Negatives – Defence Preparedness:

Positives: Enhanced Interoperability: Such exercises are invaluable for ironing out procedural wrinkles between the three services under simulated stress, which is the core objective of the eventual **Chief of Defence Staff (CDS)** reforms. **Logistics Mastery:** Successfully moving and sustaining forces in the Eastern Sector tests critical logistics pipelines, an area that often determines the outcome of high-altitude conflicts. **Confidence Building:** It builds operational confidence among the rank and file regarding new indigenous platforms and joint communication protocols.

Negatives/Challenges: Resource Drain: Large-scale tri-service exercises involve significant expenditure on fuel, ammunition, and operational readiness, putting pressure on an already strained defence budget. **Information Security:** Testing complex network integration increases the potential surface area for cyber intrusions, demanding meticulous security protocols. **Actual Readiness vs. Simulation:** No simulation can perfectly replicate the psychological and physical toll of an actual prolonged conflict in extreme weather, meaning the true test remains ahead.

Way Forward: The learnings from 'Trishul 2025' must be rapidly integrated into revised Joint Doctrine documents, institutionalizing successful collaborative methods. The focus should now pivot to smaller, specialized exercises focused on Information Warfare and Electronic Warfare (EW) capabilities, as the next generation of conflict will be dominated by cyber and electronic superiority. Furthermore, there should be an increased focus on civil-military cooperation in the border infrastructure development projects that support these exercises.

Practice Mains Question: How does the conduct of the tri-services exercise 'Trishul 2025' reflect India's evolving strategy for deterrence in the Indo-Pacific theatre? Discuss the importance of 'Jointness' in modern warfare.

Tri-Services 'Trishul 2025' Signals Modernization of India's Strategic Deterrence Capabilities

Syllabus Relevance:

GS-III (Security): Border management and security challenges; Developments in national security and technology.

GS-II (International Relations): India's strategic posture in the Indian Ocean Region (IOR) and its neighborhood.

Context: While the initial news focused on the start of the military exercise 'Trishul 2025', follow-up analysis on November 3rd emphasized the underlying theme: India's drive for 'Theatreisation' and the modernization of its conventional deterrence. The exercise served as a live-fire demonstration of the doctrinal shift towards integrated, networked combat across all three services.

Main Body – Multi-Dimensional Approach: The 'Trishul 2025' exercise is a practical realization of India's strategy to build a credible, multi-domain deterrence posture.

Joint Theatre Command Precursor: The integration across air, land, and sea elements tests the foundational principles required for future **Theatre Commands**. This includes shared intelligence databases, unified communication channels (SATCOM interoperability), and joint targeting cycles—essential for speed in a modern, fast-paced conflict.

Indigenous Platform Validation: This exercise allows the operational stress-testing of indigenous platforms like the **Tejas Mk1A** fighters, the **Arjun MBT**, and various naval patrol assets. Success in these tests builds confidence in the 'Aatmanirbhar Bharat' push in defence manufacturing and reduces dependency on volatile foreign suppliers.

Maritime Domain Awareness (MDA): The Navy's participation highlights the shift to an assertive MDA posture in the IOR. By demonstrating the capacity to

monitor and interdict maritime threats simultaneously with land defence, India projects itself as a **Net Security Provider** in the region, a key aspect of its foreign policy objective in the Indo-Pacific.

Positives/Negatives – Defence Modernization:

Positives: Doctrinal Shift: Successfully executing joint operations forces procedural standardization, which is vital for reducing response times and optimizing resource deployment. **Technological Integration:** It exposes the strengths and weaknesses of the current C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) architecture, leading to informed future procurement decisions. **Credibility:** A high-profile exercise reaffirms military preparedness to domestic and international audiences.

Negatives/Challenges: Cost vs. Frequency: The sheer expense of such large-scale live exercises means they cannot be as frequent as required by dynamic security threats, leading to a gap between planned and actual operational tempo. **Cyber Vulnerability:** In a networked war, the communication links tested are also the most vulnerable points. Any significant lapse in cyber defense during the exercise would be a major revelation of weakness. **Personnel Training Depth:** Ensuring every soldier/sailor/airman is fully trained on joint protocols requires continuous, rigorous training cycles, which is a massive logistical undertaking.

Way Forward:The primary Way Forward is the expedited creation of the integrated Theatre Commands, using the concrete findings from 'Trishul 2025' to finalize their mandates and composition. Future exercises must incorporate more sophisticated Cyber Warfare and Electronic Warfare (EW) simulation to test resilience against grey-zone threats. Furthermore, fostering greater private sector involvement in the testing and simulation phase can reduce the operational cost of live firing exercises while increasing the complexity of simuated scenarios.

Practice Mains Question:Discuss the strategic imperative behind India's push for 'Theatreisation' of its Armed Forces. How does the operational success of an exercise like 'Trishul 2025' contribute to its policy of deterrence?

Defence PSU Performance Review & R&D Push

Syllabus Relevance

GS Paper III (Security): Developments in Science and Technology; Indigenization of technology and 'Make in India'. Internal Security and Border Management.

GS Paper II (Government Policy): Government policies and interventions for the development and management of Social Sector/Services relating to Health, Education, Human Resources.

Context

On November 10, 2025, **Defence Minister Rajnath Singh** conducts the annual performance review of the **16 Defence Public Sector Undertakings (DPSUs)**. This review follows the declaration of **2025 as the 'Year of Reforms'** in the defence sector. Key expected outcomes involve reviewing the **R&D roadmap** for the next five years, doubling the **R&D expenditure** (projected to be ₹32,766 crore), releasing a new **HAL R&D Manual**, and unveiling a report on **renewable energy ('Swayam')**.The review comes on the back of strong financial performance in FY 2024-25, with a notable **51% increase in exports**.

Main Body in Multi-Dimensional Analysis

A. Strategic Autonomy via Indigenization (Security & Economic Dimension)

The core driver behind these reforms is achieving **strategic autonomy** in defence manufacturing, a crucial element of national security. By emphasizing R&D investment and indigenization, the government aims to reduce reliance on imports, which are often subject to geopolitical risks and sanctions. Doubling R&D investment over the next five years signals a serious commitment to moving beyond licensed production to genuine **innovation** in areas like AI, cyber, and hypersonic technology (as mentioned in related MoD objectives). The R&D Manual for HAL suggests a move towards **Agile Development**—providing flexibility, speed, and better risk assessment—essential for modern defence technology cycles.

B. Corporate Governance and Structural Reform (Governance Dimension)

The context of this review includes the **corporatization of the Ordnance Factory Board (OFB)** into seven new DPSUs. A key metric for success of this structural overhaul will be their R&D spending (projected at over ₹3,000 crore). The review assesses whether this new corporate structure is translating into better performance. The strong financial results of FY 2024-25 (₹1.08 lakh crore turnover, 19.5% PAT growth) suggest positive momentum, but the focus on R&D ensures this momentum is channeled into **future capabilities** rather than just current order book execution. The release of the 'Swayam' report on renewable energy also ties in with modernizing defence logistics and reducing operational footprints in remote/hostile environments.

C. Export Promotion and Global Positioning (Foreign Policy & Trade Dimension)

The remarkable **51% increase in defence exports** in FY 2024-25 is a significant achievement. The performance review serves to institutionalize this trend. By showcasing R&D advancements and operational efficiency, India seeks to position itself as a **reliable and competitive global defence exporter**, challenging established players. This aligns with the **'Make in India'** vision, turning India from a major importer into a net exporter of defence technology, which bolsters foreign reserves and diplomatic influence.

D. Innovation Ecosystem: Breaking Silos (Technological Dimension)

The success of R&D hinges on collaboration. The emphasis on simpler procurement, breaking silos, and promoting **Public-Private Partnerships (PPP)** shows an intent to integrate the private sector's agility with the scale of the DPSUs. The new R&D Manual's flexibility is aimed at reducing bureaucratic hurdles that historically stifle innovation within large public sector units. The goal is to foster a robust **defence-industrial ecosystem** that is self-sustaining and globally competitive.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Record Exports:** Significant jump in exports indicates growing global confidence in Indian defence products. **Focus on Future Tech:** Doubling R&D outlay shows commitment to indigenous capability development in future domains. **Structural Reform:** Progress in integrating OFB into corporatized units is bearing initial financial fruit.
Negatives	**R&D Dependency:** Despite the investment, the gap between achieving technological parity with global leaders remains significant. **Bureaucracy:** While reforms are promised, the actual pace of procurement simplification and R&D manual implementation remains a challenge.
Relevant Govt. Schemes/Policies	**'Year of Reforms' (2025 Declaration):** A policy push for systemic overhaul. **Defence Acquisition Procedure (DAP):** Aims for indigenization and faster procurement. **Make in India/Aatmanirbhar Bharat:** The overarching goal for self-reliance in defence.

Mains Practice Question

Question: The declaration of 2025 as the 'Year of Reforms' in the Defence Sector aims to pivot DPSUs from mere production units to innovation hubs. Analyze the significance of doubling the projected R&D expenditure and discuss the challenges in translating this investment into genuine technological superiority and increased global defence exports. (250 Words, 15 Marks)

Defence Sector Reforms: Beyond DPSUs – Theatre Commands & Tech Focus

This topic is synthesized from the context surrounding the Defence PSU review (Topic 3/5) and related PIB/The Hindu snippets mentioning the

declaration of **2025 as the 'Year of Reforms'** focusing on **theaterisation** and **new domains** (cyber, AI, Hypersonics).

Syllabus Relevance

GS Paper III (Security): Modernization and future areas of development in the fields of Defence and internal security. Challenges to internal and border security created by the development of science and technology.

Context

While the DPSU review focused on manufacturing performance, the overarching theme of **2025 as the 'Year of Reforms'** in the Defence Ministry involves deeper structural changes. The primary objective mentioned is the rolling out of **integrated theatre commands** to bolster synergy among the three services (Army, Navy, Air Force). Simultaneously, there is an emphasis on transitioning R&D focus towards **new domains** like cyber, AI, Machine Learning, Hypersonics, and Robotics, moving beyond conventional platforms.

Main Body in Multi-Dimensional Analysis

A. The Imperative of Integrated Theatre Commands (Security & Structural Dimension)

Theatre commands represent the most significant structural military reform in decades, moving away from the functional silos of the current service headquarters. The goal is to achieve **jointness**—the ability to fight as a single integrated force rather than three separate ones. This is crucial for modern, complex warfare scenarios, especially in contested environments like the Himalayas or the Indian Ocean Region. The reform aims to:

Optimize Resource Allocation: Avoiding duplication of surveillance, logistics, and support assets across the three services.

Enhance Decision Speed: Centralizing command and control structures to enable faster response times during conflict.The rollout requires overcoming deeply entrenched bureaucratic resistance and establishing clear chains of command for resource sharing, making it a complex governance challenge.

B. Indigenization in Next-Generation Warfare Domains (Technology Dimension)

The push into **Cyber, AI, Hypersonics, and Robotics** signifies India's commitment to leapfrogging older technological gaps.

Cyber Security: Essential for protecting the C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) networks of the integrated theatres, which will be highly digitized.

AI/ML: Necessary for data fusion from various sensors (satellites, drones, ground radars) to provide commanders with real-time, actionable intelligence, moving towards **Network-Centric Warfare**.

Hypersonics: A strategic capability to ensure long-range strike and defense superiority against near-peer adversaries.Achieving self-reliance in these areas requires not just funding DPSUs but creating an innovation ecosystem that pulls in private Indian startups and academia.

C. Procurement Simplification and Private Sector Integration (Economic Dimension)

The success of the reform agenda is intrinsically linked to the **Defence Acquisition Procedure (DAP)** streamlining. Theatre commands and advanced technology rely on cutting-edge equipment, often best developed by the private sector. The goal of making procedures "simpler and time-sensitive" aims to reduce the bureaucratic gestation period for procurement—historically a major bottleneck—and encourage **public-private partnerships (PPP)** for co-development.

D. Geopolitical Alignment and Deterrence (Foreign Policy Dimension)

A modern, integrated, and technologically superior military acts as the ultimate **deterrent**. By showcasing credible capability in theatres and advanced technology, India strengthens its negotiating position internationally, particularly in managing border disputes and securing maritime interests. This capability projection, supported by an increasing export market (as noted in PSU performance), enhances India's standing as a regional security provider.

Positives, Negatives, and Government Schemes

Aspect	Details
Positives	**Jointness Realization:** Theatre commands address the historical lack of synergy between the services. **Future-Proofing:** Aggressive focus on Cyber/AI ensures the military remains relevant in 21st-century conflicts. **Technological Self-Reliance:** Reduced dependency on foreign military hardware acquisition.
Negatives	**Implementation Hurdles:** Inter-service rivalry and inertia pose significant political/administrative challenges to establishing unified commands. **Talent Acquisition:** The services need specialized talent pools (cyber experts, AI scientists) that are currently highly sought after by the private sector.
Relevant Govt. Schemes/Policies	**Theatre Commands Plan:** The organizational restructuring initiative. **Defence Space Agency/Cyber Security Initiatives:** Focused efforts on the new warfare domains. **DAP Simplification:** Aimed at accelerating procurement cycles.

Mains Practice Question

Question: The drive for integrated theatre commands is arguably the most profound structural reform in India's military since Independence. Analyze the operational necessity of this reform for modern warfare, and discuss the key political and bureaucratic challenges that must be overcome for its successful realization by the end of 2025. (250 Words, 15 Marks).

Exercise Garuda 25: India-France Bilateral Air Drill

Syllabus

GS-II: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests. Effect of policies and politics of developed and developing countries on India's interests.

GS-III: Various Security Forces and Agencies and their Mandate; Challenges to Internal Security.

Context

Exercise Garuda 25 marks the 8th edition of the bilateral air exercise between the **Indian Air Force (IAF)** and the **French Air and Space Force (FASF)**. This exercise is part of the robust strategic partnership between the two nations and focuses on enhancing interoperability, sharing best practices, and validating joint operational doctrines in complex air combat scenarios. The regularity and scope of Garuda are a clear demonstration of the deepening defence and security cooperation, particularly in the context of the evolving geopolitical landscape of the Indo-Pacific.

Main Body: Multidimensional Analysis

Strategic and Geopolitical Dimension

The India-France strategic partnership is a key pillar of India's foreign policy, especially since France is the only European Union country with significant territorial presence and strategic interests in the **Indo-Pacific**. Garuda provides a platform for both forces, often operating highly sophisticated platforms like the **Rafale jets**, to understand each other's operational philosophies. This collaboration signals a convergence of strategic interests, primarily focused on maintaining a **free, open, and rules-based order** in the region, thereby acting as a balancing force against emerging unilateralism.

Defence and Technological Dimension

The exercise facilitates the exchange of expertise in highly specialized fields, such as **Beyond Visual Range (BVR) combat, air-to-air refueling (AAR), and suppression of enemy air defence (SEAD)** missions. The joint flying operations enhance the **interoperability** between the two forces, which is crucial for potential coalition operations or HADR (Humanitarian Assistance and Disaster Relief) missions. The deep trust built through such exercises is essential for smooth defence procurements, service support, and the eventual co-

development of defence technology, moving beyond a simple buyer-seller relationship.

Economic and Diplomatic Dimension

France is a major supplier of defence equipment to India, a relationship formalized by the purchase of 36 Rafale fighters. Regular joint exercises solidify this economic relationship and encourage **France's 'Make in India' investments** in the defence sector. Diplomatically, Garuda reinforces India's commitment to multilateralism and its role as a regional security provider, showcasing its ability to conduct complex exercises with major global powers.

Positives, Negatives, & Government Schemes

Aspect	Description
Positives	**Enhanced Interoperability:** Allows forces to operate together seamlessly, vital for joint military doctrines and coalition missions. **Strategic Signalling:** Reinforces the Indo-French strategic partnership and shared commitment to regional stability. **Skill Transfer:** Exposure to advanced aerial tactics and best practices from a major global air force.
Negatives	**Logistical Complexity:** Coordinating highly advanced air assets and personnel from different nations is logistically challenging. **Information Security:** Need for robust protocols to prevent the leakage of classified operational details and tactics. **Cost:** Conducting large-scale international exercises involves significant financial expenditure.
Relevant Schemes	**Defence Acquisition Procedure (DAP) 2020:** Promotes strategic partnerships and offsets in defence procurement, which underpins the Rafale deal and future Indo-French collaboration. **Mission Raksha Gyan Shakti:** Focuses on boosting intellectual property in the defence sector, which can be shared/leveraged via such strategic partnerships.

Relevant Examples

Garuda, Varuna, and Shakti: The three main trilateral exercises conducted by India and France for Air, Navy, and Army, respectively, demonstrating a comprehensive defence engagement.

Logistics Exchange Agreements: The mutual agreement for the provision of logistics support between the armed forces (an equivalent of a **Reciprocal Logistics Support Agreement**) facilitates the easy staging and support required for exercises like Garuda.

Operation Sankalp: India's deployment for maritime security in the Gulf region, where coordination with French naval assets is often vital.

Way Forward

Indo-Pacific Integration: Expand the scope of Garuda to include complex scenarios relevant to the **Indo-Pacific theatre**, such as maritime surveillance and extended-range operations.

Quadrilateral Framework: While currently bilateral, future engagement could explore incorporating France's presence into a broader **Quadrilateral Security Dialogue (Quad Plus)** framework with other like-minded partners.

Technological Co-development: Move the defence partnership beyond procurement to **joint design, development, and co-production** of critical aerospace components and platforms.

Cyber and Space Domain Integration: Incorporate specific modules within Garuda to address emerging threats and doctrines related to **cyber warfare and the militarisation of space**.

Conclusion

Exercise Garuda 25 is more than a routine drill; it is a critical component of the India-France strategic matrix, reflecting deep trust and shared regional concerns. By enhancing interoperability and technological exchange, it strengthens India's air power projection and acts as a significant contributor to the security architecture of the Indo-Pacific. Continued commitment to such high-end exercises is key to India's pursuit of strategic autonomy and its role as a net security provider.

Practice Mains Questions

Discuss the significance of the India-France bilateral defence exercises (Garuda, Varuna, and Shakti) in strengthening India's strategic autonomy and its role in the Indo-Pacific. (250 words)