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Foreword

Dear Aspirants,

This magazine by the Plutus IAS team is designed in such a fashion that it holistically covers all the relevant and important topics for the Civil Services Exam to make aspirants exam-ready. Plutus IAS Current Affairs Magazine is a secondary source of information; the newspaper will remain the primary source for the preparation of Current Affairs.

Now, Current Affairs are no longer merely current; they are Contemporary Affairs. Questions asked in both Prelims as well as the Mains assess the conceptual clarity of an aspirant. This magazine is prepared with the aim of helping you understand the interlinkages of both Static and Dynamic news events and internalize the concepts required to crack this examination.

The Plutus IAS team wishes you all the best. Prepare for the UPSC Civil Services Examination with a calm, composed, or serene mind and some patience to crack this examination in one go.

Team
Plutus IAS

Sources:
The Hindu | The Indian Express | The Economic Times | Press Information Bureau | PRS Legislative Research | IDSA: Institute for Defense Studies and Analysis | Yojana and Kurukshetra | Lok Sabha and Rajya Sabha Debates.

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MARCH 2026
CURRENT AFFAIRS

CONTENTS

Science and Technology.....1

- **Pulse Polio to HPV – A Journey Towards Health for All 1**
  - Universal Immunisation Programme (UIP)
  - Recent Developments
  - Impact on Society & Economy
- **PRELIMS QUESTIONS.....4**
- **MAINS QUESIONS.....4**
- **AI-Driven Transformation of India's Statistical and Data Ecosystem.....4**
  - What is AI in Governance?
  - AI in Statistical Operations
  - Role in Digital Public Infrastructure
- **PRELIMS QUESTIONS.....7**
- **MAINS QUESIONS.....7**
- **Artificial Intelligence: Powering India's Inclusive Transformation.....7**
  - Historical & Technological Background
  - Global and Indian Context
  - Government Initiatives & Global Cooperation
- **PRELIMS QUESTIONS.....9**
- **MAINS QUESIONS.....9**
- **The Brain Co-Processor Moonshot: Advancing Neurotechnology and Indigenous Innovation in India.....10**
  - Defining Brain Co-Processors
  - Governance and Institutional Aspects
  - Economic and Social Impact
- **PRELIMS QUESTIONS.....11**
- **MAINS QUESIONS.....11**
- **Atomic Clock Failure in IRNSS-1F: Implications for India's Strategic Autonomy.....12**
  - Constellation Status (as of March 2026)
  - Strategic & Security Dimension
  - Challenges & Root Causes
- **PRELIMS QUESTIONS.....13**
- **MAINS QUESIONS.....14**
- **Digital Gatekeeping in the Age of AI: The Strategic Imperative of Human Verification Systems.....14**
  - Defining Human Verification: The Digital Turing Test
  - Technical and Operational Landscape
  - Constitutional and Legal Dimensions
- **PRELIMS QUESTIONS.....15**
- **MAINS QUESIONS.....16**
- **Harnessing India's Demographic Dividend in the Age of Artificial Intelligence: A Strategic Roadmap for 2026.....16**
  - Defining the Concept: The AI-Demographic Synergy
  - Economic and Social Impact
  - Global Comparison

- **PRELIMS QUESTIONS.....18**
- **MAINS QUESIONS.....18**
- **India's AI-Driven Creative Renaissance: Navigating the Orange Economy towards Viksit Bharat 2047...18**
  - Defining the Concept: The Orange Economy and AVGC-XR
  - Economic, Social, and Environmental Impact
  - Ethical and Democratic Concerns
- **PRELIMS QUESTIONS.....20**
- **MAINS QUESIONS.....20**
- **India Semiconductor Mission (ISM) 2.0: Strategic Decoupling and the Quest for Digital Sovereignty.....21**
  - Defining the Concept: The Semiconductor Imperative
  - Governance and Institutional Aspects
  - Way Forward
- **PRELIMS QUESTIONS.....23**
- **MAINS QUESIONS.....23**
- **India's Drone Revolution: Navigating the Flight Path to Viksit Bharat 2047.....23**
  - Significance and Importance
  - Governance and Institutional Aspects
  - Way Forward
- **PRELIMS QUESTIONS.....25**
- **MAINS QUESIONS.....25**
- **India's AI-Driven Youth Dividend: Skilling, Innovation and Inclusive Growth.....26**
  - Definition / Concept
  - Economic / Social / Environmental Impact
  - Government Initiatives and Policy Response
- **PRELIMS QUESTIONS.....28**
- **MAINS QUESIONS.....28**

International Realtion 29

- **The Dawn of a Creative Superpower: WAVES 2025 and India's Strategic Shift in the Media & Entertainment Landscape.....29**
  - Defining the Concept: The Creative Economy
  - Constitutional and Legal Dimensions
  - Way Forward: A Policy Roadmap
- **PRELIMS QUESTIONS.....31**
- **MAINS QUESTIONS.....31**
- **West Asia Crisis and Global Oil Supply Disruptions: Challenges for India's Energy Security.....31**
  - Background and Context
  - Impact
  - Global Comparison
- **PRELIMS QUESTIONS.....33**
- **MAINS QUESTIONS.....33**
- **Iran Oil Relief: How Iran Oil Relief Could Benefit India's Energy Security.....33**
  - Why Iranian Oil Matters for India
  - History of India-Iran Oil Trade
  - Potential Benefits of Iran Oil Relief for India
- **PRELIMS QUESTIONS.....36**
- **MAINS QUESTIONS.....36**
- **India–US Trade Deal and the Indian Rupee: Navigating Currency Dynamics Amid Global Uncertainty.....36**
  - Defining the Concept: Currency Dynamics in Trade
  - Key Issues / Challenges
  - Governance and Institutional Aspects
- **PRELIMS QUESTIONS.....38**
- **MAINS QUESTIONS.....38**
- **Export Promotion Mission : Revolutionising India's Export Ecosystem for MSMEs.....38**

- What is Export Promotion Mission (EPM)
- Significance: Economy, MSMEs, and GVCs
- Challenges and Limitations

- **PRELIMSQUESTIONS.....40**
- **MAINS QUESTIONS.....41**
- **Pax Silica and the New Geopolitics of Technology: Strengthening India's Strategic and Digital Sovereignty.....41**
  - Defining Pax Silica
  - Economic and Governance Aspects
  - Global Comparison: The "Silicon Curtain"
- **PRELIMS QUESTIONS.....43**
- **MAINS QUESTIONS.....43**

Polity&Governance.....44

- **Passive Euthanasia and the Right to Die with Dignity: Constitutional, Ethical and Legal Perspectives.....44**
  - Understanding Euthanasia
  - Constitutional Basis: Article 21 and Human Dignity
  - International Perspectives
- **PRELIMS QUESTIONS.....46**
- **MAINS QUESTIONS.....47**
- **Strengthening Grassroots Democracy: Towards Synergy Between the ECI and State Election Commissions.....47**
  - Significance of the National Declaration 2026
  - Constitutional and Legal Dimensions
  - Governance and Institutional Aspects
- **PRELIMSQUESTIONS.....49**
- **MAINSQUESTIONS.....49**
- **Governance- PM e-Vidya: Catalyzing India's Digital Education Revolution for Viksit Bharat.....49**
  - Defining PM e-Vidya
  - Significance and Importance
  - Governance and Institutional Aspects
- **PRELIMSQUESTIONS.....51**
- **MAINSQUESTIONS.....51**
- **Removal of the Chief Election Commissioner and Independence of the Election Commission.....51**
  - Constitutional Provisions Governing Removal of the CEC
  - Parliamentary Procedure for Removal of the CEC
  - Reforms to Strengthen Election Commission Independence
- **PRELIMSQUESTIONS.....54**
- **MAINSQUESTIONS.....54**
- **The Office of the Lok Sabha Speaker: Constitutional Sanctity and the Challenge of Impartiality. 54**
  - Defining the Concept: The Speaker as the "Umpire" of Democracy
  - Significance and Importance of the Office
  - Way Forward: Strengthening Parliamentary Institutions
- **PRELIMS QUESTIONS.....57**
- **MAINS QUESTIONS.....57**
- **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP): Towards Affordable and Equitable Healthcare.....57**
  - Defining PMBJP
  - Economic and Social Impact
  - Constitutional and Legal Dimensions
- **PRELIMS QUESTIONS.....59**
- **MAINS QUESTIONS.....59**

Security.....60

- **India's National Counter-Terrorism Policy: 'Prahaar' – A Multidimensional Paradigm Shift.....60**

- Defining 'Prahaar'
- Key Issues and Challenges
- Economic and Social Impact

- **PRELIMS QUESTIONS.....62**
- **MAINS QUESTIONS.....62**
- **Cybercrime as a National Security Crisis: The Rise of India's Digital Shadow Industry.....62**
  - Key Facts & Data
  - Cybercrime in India
  - Government Measures Taken
- **PRELIMS QUESTIONS.....64**
- **MAINS QUESTIONS.....64**
- **Social Modernisation in India: Bridging the Gap Between Economic Growth and Social Equality.....64**
  - Background and Historical Context
  - Key Issues and Challenges
  - Economic and Social Impact: An Analytical View
- **PRELIMS QUESTIONS.....67**
- **MAINS QUESTIONS.....67**

History and Culture.....81

- **Ol Chiki Script and Santhali Language: From Oral Tradition to Constitutional Empowerment.....68**
  - Historical Background and Context
  - Significance and Importance
  - Key Issues and Challenges
- **PRELIMS QUESTIONS.....70**
- **MAINS QUESTIONS.....70**

Environment and Ecology.....71

- **India's Journey from Conventional Power to Clean Energy.....71**
  - India's Energy Transition
  - India's Current Energy Mix
  - Challenges in Energy Transition
- **PRELIMS QUESTIONS.....73**
- **MAINS QUESTIONS.....74**
- **Restoring the Life of Ganga: Scientific River Ranching and Ecological Rejuvenation.....74**
  - Scientific River Ranching
  - Institutional Framework under Namami Gange
  - Challenges and Limitations
- **PRELIMS QUESTIONS.....76**
- **MAINS QUESTIONS.....76**
- **Right to Life, Right to Environment: Re-evaluating the Role of Courts in Developmental Decisions.....76**
  - Significance of Environmental Jurisprudence
  - Economic, Social, and Environmental Impact
  - Global Comparison
- **PRELIMS QUESTIONS.....78**
- **MAINS QUESTIONS.....78**

Economy.....79

- **India's Power Sector: Progress, Reforms, and the Road Ahead.....79**
  - Major Achievements
  - Key Reforms in Power Sector
  - Renewable Energy Transition
- **PRELIMS QUESTIONS.....82**
- **MAINS QUESTIONS.....82**
- **Infrastructure Financing in India: Trends, Institutions, and Innovations.....82**
  - Institutional Framework
  - Financial Instruments & Innovations
  - Recent Policy Measures (Budget 2026–27)
- **PRELIMS QUESTIONS.....84**
- **MAINS QUESTIONS.....84**

- **Unlocking India's Potential: The Rise of Industrial Corridors.....85**
  - Concept of Industrial Corridors
  - Major Industrial Corridors in India
  - Environmental & Governance Challenges
- **PRELIMS QUESTIONS.....86**
- **MAINS QUESTIONS.....87**
- **India's Pharmaceutical Sector: From Global Generic Leader to Innovation Powerhouse.....87**
  - Definition and Context
  - Economic and Social Impact
  - Global Comparison and Trade Integration
- **PRELIMS QUESTIONS.....88**
- **MAINS QUESTIONS.....88**
- **India's Trade Partnerships: Powering Global Integration and Economic Growth.....89**
  - Evolution of India's Trade Policy
  - Strategic & Geopolitical Dimensions
  - Challenges & Structural Constraints
- **PRELIMS QUESTIONS.....91**
- **MAINS QUESTIONS.....91**
- **The Essential Commodities Act (ECA), 1955: Navigating the Intersection of Market Liberalization and State Intervention.....92**
  - Defining the Essential Commodities Act (ECA), 1955
  - Critical Analysis: Challenges and Market Distortions
  - Way Forward: Policy-Oriented Solutions
- **PRELIMS QUESTIONS.....93**
- **MAINS QUESTIONS.....93**
- **Empowering the Rural Backbone: The Strategic Evolution of India's Allied Sectors and Market Integration.....93**
  - India's agricultural
  - Key Challenges in the Sector
  - Strengthening Market Access: The Way Forward
- **PRELIMS QUESTIONS.....96**
- **MAINS QUESTIONS.....96**
- **India's Digital Blueprint: Revolutionising the Ease of Doing Business.....97**
  - Digital Transformation: The Engine of Business Growth
  - Impact on Economic Growth and Entrepreneurship
  - Global Comparison and Best Practices
- **PRELIMS QUESTIONS.....99**
- **MAINS QUESTIONS.....99**
- **SWAMIH: A Policy Lifeline for India's Housing Sector.....100**
  - Objectives, Structure, and Functioning of the SWAMIH Fund
  - SWAMIH within India's Broader Housing Policy Ecosystem
  - Recommended future measures:
- **PRELIMS QUESTIONS.....102**
- **MAINS QUESTIONS.....102**

Economy.....103

- **India's Rise as a Global Health Powerhouse: Advancing Universal Health Coverage and Biopharmaceutical Leadership.....103**
  - Significance and Importance
  - Economic and Social Impact
  - Technological Integration: AI and Innovation
- **PRELIMS QUESTIONS.....104**
- **MAINSQUESTIONS.....105**
- **Kisan Credit Card: Fueling Growth in Agriculture and Strengthening Farmers' Access to Capital.....105**
  - About Kisan Credit Card (KCC) scheme.

- Key Features of the Kisan Credit Card Scheme
- Government Initiatives and Recent Measures

- **PRELIMS QUESTIONS.....108**
- **MAINS QUESTIONS.....108**

PULSE POLIO TO HPV – A JOURNEY TOWARDS HEALTH FOR ALL

WHY IN THE NEWS ?

Every year on 16 March, India observes National Vaccination Day to honour a landmark moment in its public-health history: the administration of the first dose of Oral Polio Vaccine under the Pulse Polio Programme in 1995. The day is more than a commemoration; it is a powerful reminder of how immunisation builds the body's natural defences and saves crores of lives annually by preventing deadly diseases. Vaccines do not merely protect individuals; they shield entire communities, reduce child mortality, cut healthcare costs and lay the foundation for a healthier, more productive population. In India, this simple intervention has transformed public health, eradicating or eliminating some of the most feared diseases and enabling the country to supply life-saving vaccines to the world during the COVID-19 pandemic. As the nation celebrates yet another National Vaccination Day in 2026, it stands as a global exemplar of what sustained political will, scientific innovation and grassroots outreach can achieve.

EVOLUTION OF IMMUNISATION IN INDIA – SMALLPOX, POLIO, MATERNAL & NEONATAL TETANUS ELIMINATION

India's immunisation journey is a story of milestone victories. Smallpox, once a global scourge, was eradicated from the country in 1977 a decade ahead of the worldwide declaration. The Pulse Polio Programme, launched in 1995, turned the tide against poliomyelitis; the last case was reported on 13 January 2011 in Howrah, West Bengal, paving the way for India's polio-free certification in 2014. Maternal and neonatal tetanus, yaws and polio have also been eliminated, while measles-rubella incidence has plummeted and tuberculosis-related child deaths have declined sharply. During the COVID-19 crisis, India lived up to its title of "pharmacy of the world" by supplying over 200 crore vaccine doses, including indigenously developed ones. These successes were not accidental; they resulted from decades of prioritising vaccination as a core public-health strategy, demonstrating that timely immunisation before exposure to pathogens is the most effective shield for infants and pregnant women.

UNIVERSAL IMMUNISATION PROGRAMME (UIP)

Launched in 1985 and implemented by the Ministry of Health and Family Welfare, the Universal Immunisation Programme (UIP) is one of the world's largest public-health initiatives. It aims to provide free vaccines to every child and pregnant woman against 12 vaccine-preventable diseases.

Its core objectives are clear and ambitious:

- Increase immunisation coverage to protect every eligible beneficiary
- Improve the quality of services through trained workers and standardised protocols
- Establish a reliable cold-chain system right down to the health-facility level
- Monitor performance rigorously using digital tools
- Achieve self-sufficiency in vaccine production

The programme reaches approximately 2.9 crore pregnant women and 2.54 crore newborns every year through a vast network of Primary Health Centres, Community Health Centres, sub-centres, Anganwadi centres and outreach sessions. Under the National Rural Health Mission since 2005, UIP also extends to urban slums.

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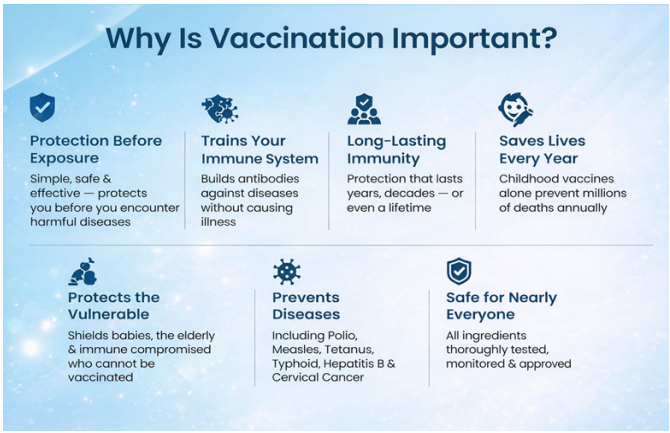
The UIP currently protects against 12 diseases: tuberculosis (severe childhood form), diphtheria, pertussis (whooping cough), tetanus, polio, measles, rubella, hepatitis B, Hib-related meningitis and pneumonia, rotavirus diarrhoea, pneumococcal pneumonia and Japanese Encephalitis (in endemic districts). The vaccines administered include BCG, DPT, Td, bOPV, MR, Hep B, Pentavalent, RVV, PCV and JE vaccine.

A well-defined National Immunisation Schedule ensures protection at the right time. Pregnant women receive Td doses starting from the first antenatal visit. Newborns get Hep B, bOPV and BCG at birth. By the first birthday, infants complete three doses each of bOPV, rotavirus, pentavalent, fractional IPV and PCV, plus the first MR and JE doses (where applicable). Boosters follow by the second and fifth birthdays, with Td doses at 10 and 16 years for adolescents. This structured approach guarantees that protection begins before exposure and lasts through childhood.



KEY ACHIEVEMENTS

The results speak for themselves. Full immunisation coverage has surged from 62 % in 2015 to an impressive 98.4 % as of January 2026. The percentage of zero-dose children in the total population has halved from 0.11 % in 2023 to 0.06 % in 2024 – an achievement highlighted by the UN Inter-Agency Group for Child Mortality Estimation. These gains have directly contributed to lower child and maternal mortality rates.

India's COVID-19 vaccination drive, managed through the CoWIN platform, administered more than 220 crore doses, with the country manufacturing and exporting a significant share globally. The newer vaccines – rotavirus, PCV and Measles-Rubella have specifically targeted the leading infectious killers of children, reinforcing UIP's role in saving lives and reducing the economic burden of illness on families.

RECENT DEVELOPMENTS

The year 2026 has witnessed two landmark expansions that underscore India's commitment to self-reliance and innovation. On 21 February 2026, the indigenously manufactured TetanusDiphtheria (Td) vaccine was launched. Produced at the Central Research Institute, Kasauli, nearly 55 lakh doses are being supplied to UIP by April 2026. This move strengthens domestic manufacturing capacity India already supplies 60 % of the world's vaccines – and reduces dependence on imports.

Just a week later, on 28 February 2026, Prime Minister Narendra Modi launched the nationwide HPV vaccination campaign from Ajmer, Rajasthan. Targeting 14-year-old girls, the programme aims to protect around 1.15 crore girls from cervical cancer. The vaccine is provided free of cost at all government health facilities, marking a major step towards preventing a major cause of cancer among Indian women. These twin initiatives expand UIP's reach to adolescents and reinforce the programme's evolution from childhood protection to lifelong health security.

SUPPORTING MECHANISMS

Several robust mechanisms sustain UIP's success. Mission Indradhanush, launched in 2015 and followed by Intensified versions, has conducted 12 phases until 2023, vaccinating 5.46 crore infants and 1.32 crore pregnant women across 765 districts. The campaign focuses on hard-to-reach and urban populations through inter-ministerial convergence.

The cold-chain network is among the largest globally, with nearly 30,000 storage points, 1.06 lakh ice-lined refrigerators, deep freezers and 432 walk-in coolers. The Electronic Vaccine Intelligence Network (e-VIN) provides real-time stock and temperature monitoring across all states and UTs, ensuring potency is never compromised.

Digital innovation has further strengthened delivery. U-Win, launched in October 2024, allows citizens to locate nearby vaccination centres, book appointments and maintain records for up to 10 family members in 12 languages. CoWIN, originally built for COVID-19, continues to support efficient

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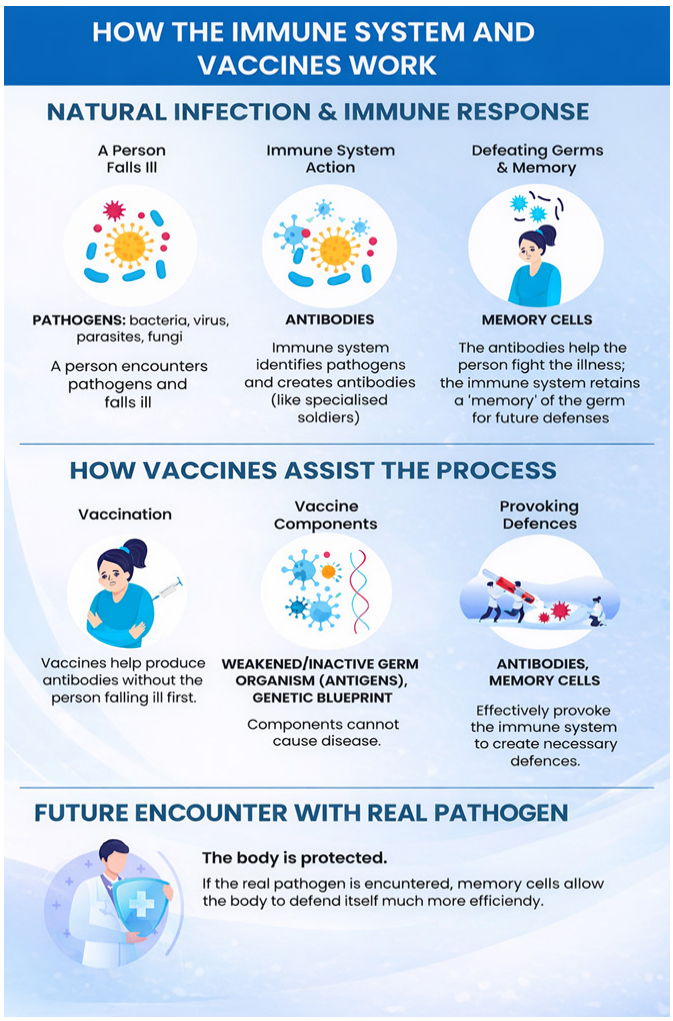
rollout. Together, these platforms, combined with the dedication of ASHAs, Anganwadi Workers and link workers, ensure no child or pregnant woman is left behind.



CHALLENGES

Despite extraordinary progress, challenges remain. Vaccine hesitancy, driven by misinformation, cultural beliefs or lack of awareness in certain communities, still affects uptake in pockets across the country. Reaching urban slums and remote tribal areas continues to demand intensive efforts, even as Mission Indradhanush targets these populations. Logistical hurdles maintaining the cold chain in difficult terrains, ensuring uninterrupted electricity in remote facilities and deploying sufficient trained manpower for outreach sessions test the system's resilience. Manpower shortages and occasional stock-management gaps also surface during peak seasons. The government addresses these through continuous training, infrastructure upgrades and targeted communication campaigns, yet sustained vigilance is essential to convert 98.4 % coverage into 100 %.

IMPACT ON SOCIETY & ECONOMY

Vaccination's benefits extend far beyond disease prevention. Healthier children miss fewer school days, perform better academically and grow into productive adults. Families save on medical expenses, reducing poverty traps caused by illness. Maternal immunisation lowers risks during pregnancy and childbirth, complementing improvements in nutrition, sanitation and skilled birth attendance. The newer vaccines have directly reduced the leading infectious causes of child death. A healthier population contributes more effectively to the workforce, driving economic growth and enabling India to reap its demographic dividend. In short, every rupee invested in immunisation yields manifold returns in human capital and national productivity.

WAY FORWARD

The road ahead is clear. India must accelerate the introduction of new vaccines, pursue Measles-Rubella elimination and explore next-generation formulations such as heat-stable vaccines for remote areas. Awareness campaigns must leverage social media, community leaders and school programmes to counter hesitancy. Deeper integration of digital platforms – expanding U-Win to every corner and linking it with Ayushman Bharat will further streamline delivery. Strengthening research and manufacturing will cement India's global leadership; the country already supplies 60 % of world vaccines and can now export HPV and Td doses to low-income nations. Public-private partnerships, continued investment in cold-chain modernisation and capacity building of frontline workers will ensure that "Health for All" becomes reality.

CONCLUSION

From the eradication of smallpox in 1977 to the elimination of polio and neonatal tetanus, from supplying 200 crore COVID-19 doses to launching nationwide HPV and indigenous Td vaccines in 2026, India's immunisation journey is a verified saga of milestone achievements. National Vaccination Day is not merely a date on the calendar; it symbolises

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the nation's unwavering resolve to protect every citizen. By sustaining high coverage, overcoming remaining challenges and embracing innovation, India is well on its way to "Health for All". A healthy, immunised population is the strongest foundation for the demographic dividend turning 1.4 billion citizens into a global force of productive, resilient and prosperous individuals. The success of UIP today will define the strength of India tomorrow.

Prelims question:

Q. With reference to National Vaccination Day in India and recent developments in the Universal Immunisation Programme (UIP), consider the following statements:

1. National Vaccination Day is observed annually on 16 March to commemorate the launch of the Pulse Polio Immunisation Programme in 1995.
2. In 2026, the Government of India launched a nationwide HPV vaccination campaign targeting girls aged 14 years to prevent cervical cancer, with the campaign inaugurated in Ajmer, Rajasthan.
3. An indigenously manufactured Tetanus–Diphtheria (Td) vaccine was launched in February 2026 at the Central Research Institute (CRI), Kasauli, with plans to supply about 55 lakh doses to UIP by April 2026.
4. As per recent data, India's full immunisation coverage under UIP has increased from 62% in 2015 to 98.4% as of January 2026.

Which of the statements given above are correct?

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

Answer: (d) 1, 2, 3 and 4

Mains Question:

Q. "Examine the progress of India's Universal Immunisation Programme (UIP), including recent 2026 developments (HPV campaign & indigenous Td vaccine). Analyse the contributions of Mission Indradhanush and digital tools, while identifying persisting challenges and suggesting ways forward." (250 words / 15 marks)

AI-DRIVEN TRANSFORMATION OF INDIA'S STATISTICAL AND DATA ECOSYSTEM

WHY IN THE NEWS ?

Artificial Intelligence (AI) is emerging as a key driver of governance reform in India by improving data use, service delivery, and administrative efficiency. India's public data ecosystem is increasingly integrating AI, machine learning, and advanced analytics to make governance more responsive and evidence-based.

Recent initiatives highlight this shift. The e-Sankhyiki platform (2024) provides official statistics through 21 datasets and over 136 million records, while the MCP server launched in 2026 enables AI-based querying of data. The upcoming NDAP 2.0 will further strengthen data discoverability through AI-driven analytics, visualisation, and natural language search. BharatGen (2025), India's sovereign multilingual AI model, supports 22 Indian languages and expands indigenous AI capacity.

AI is also being applied in healthcare, agriculture, and weather forecasting, showing its growing role in building inclusive, data-driven, and efficient governance systems in India.

WHAT IS AI IN GOVERNANCE?

AI in governance refers to the strategic application of Artificial Intelligence, Machine Learning (ML), and Big Data analytics to enhance public administration and service delivery. It involves leveraging algorithms to process vast datasets, predict outcomes, automate routine tasks, and support evidence-based policymaking.

Core applications include decision-making (e.g., resource allocation through predictive models), public service delivery (e.g., chatbots for citizen queries or targeted welfare), and data analysis (e.g., pattern recognition in administrative records).

By automating processes and providing real-time insights, AI improves efficiency (reducing processing times), transparency (through auditable algorithms and open data access), and responsiveness (enabling proactive interventions like disaster alerts or personalized services).

In India's context, AI in governance aligns with Digital Public Infrastructure (DPI) like Aadhaar and UPI, ensuring scalable, inclusive solutions that address diverse needs while promoting accountability and citizen-centric administration.

AI IN PUBLIC DATA SYSTEMS

India's public data ecosystem is undergoing a profound transformation through AI-enabled platforms that shift focus from mere data availability to intelligent usability and actionable insights. The Ministry of Statistics and Programme Implementation (MoSPI) leads this evolution with innovative tools designed to democratize access to official statistics.

(a) AI-enabled Statistical Platforms

The e-Sankhyiki portal, launched in 2024, serves as India's official statistics dissemination platform, aggregating 21 statistical products with over 136 million records. It facilitates better data discovery and management for policymakers, researchers, and citizens. In February 2026, MoSPI introduced the beta Model Context Protocol (MCP) server on e-Sankhyiki, an open-standard innovation allowing users to connect their own AI tools (e.g., ChatGPT, Claude) directly to datasets. This enables natural language querying, real-time insights, automated reporting, and unified access to multiple datasets without cumbersome downloads—significantly reducing analysis time and enhancing decision-making efficiency.

Complementing this, MoSPI's semantic search feature (beta) on e-Sankhyiki allows natural language exploration of datasets, directing users to relevant pages intuitively. An AI-powered chatbot on the MoSPI website further enhances interactivity, handling queries on datasets, reports, and publications in conversational mode while providing embedded links for quick navigation.

(b) National Data & Analytics Platform (NDAP)

Launched in 2022 by NITI Aayog, NDAP consolidates datasets from 52 ministries across 31 sectors in a coherent, standardized format, with tools for analytics and visualization. NDAP 2.0 (upcoming) introduces an advanced layer featuring AI-based analytics, pre-curated insights via visualizations, domain-specific modules, data harmonization, UI/UX enhancements, and an AI/ML-powered search engine for natural language responses to queries.

These platforms collectively drive a paradigm shift: from static data repositories to dynamic, user-centric systems where AI bridges accessibility gaps, enables cross-sectoral analysis, and empowers data-driven governance at scale.

AI IN STATISTICAL OPERATIONS

AI streamlines core statistical processes at MoSPI, reducing manual intervention while boosting accuracy and speed.

The NIC Classification Tool employs Natural Language Processing (NLP) to suggest the top three relevant National Industrial Classification (NIC) codes from text queries, aiding enumerators in accurate categorization during surveys and improving data quality for policymaking.

Stats Doc AI Assistant enables intelligent natural language search across uploaded documents (e.g., PDFs, manuals from April 2025 onward), benefiting field investigators and stakeholders by quickly retrieving relevant information.

The Legacy Data Extraction Tool uses AI to digitize and extract structured data from old formats (PDFs, scanned images, merged-cell Excels, Hindi text), converting unusable archives into analyzable databases for historical insights.

These tools collectively minimize manual effort, enhance classification consistency, reduce errors, and accelerate processing leading to faster, more reliable statistical outputs that support timely governance decisions.

SECTORAL APPLICATIONS OF AI

AI's integration into key sectors demonstrates its potential to enhance public welfare through precise, timely interventions.

(a) Healthcare

The Benchmarking Open Data Platform for Health AI (BODH), launched in February 2026, enables secure testing and evaluation of AI models on anonymized

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real-world health data under the Ayushman Bharat Digital Mission (ABDM). It addresses the "AI Quality Testing Trilemma" by assessing performance, robustness, bias, and generalizability, fostering trusted deployment.

The Strategy for Artificial Intelligence in Healthcare for India (SAHI) provides a governance framework for ethical, safe AI adoption, promoting collaboration among stakeholders while prioritizing patient privacy and accountability.

(b) Agriculture

Bharat-VISTAAR (proposed in Union Budget 2026-27) integrates Agri-Stack and ICAR resources into a multilingual AI advisory system for customized farm recommendations, boosting productivity and risk mitigation.

Kisan e-Mitra (launched 2023) offers voice-enabled AI support in 11 languages, handling over 93 lakh queries on schemes by December 2025.

National Pest Surveillance System (NPSS) uses AI for image-based pest and disease detection across 66 crops and 432 species, aiding 10,000+ extension workers.

(c) Weather & Disaster Management

The India Meteorological Department applies AI for advanced forecasting, including cyclone intensity (Advanced Dvorak Technique), rainfall downscaling, fog/lightning alerts, and hybrid models combining AI with dynamical systems—improving disaster preparedness and public safety.

These applications highlight AI's significance in delivering targeted, efficient services that directly uplift livelihoods and resilience.

INSTITUTIONAL SUPPORT

India's AI integration in governance is bolstered by robust institutional mechanisms emphasizing innovation, collaboration, and skilling.

The Data Innovation Lab (DIL) under MoSPI's Data Informatics and Innovation Division acts as a sandbox for emerging technologies like AI and Big Data. It promotes research, experimentation, and outreach through pillars like Research Network and Student Outreach. By January 2026, DIL had signed 17 MoUs and developed 12 AI use cases (two in production).

Partnerships with NITI Aayog, academia, and international bodies foster knowledge-sharing. Mission Karmayogi drives capacity building, expanding training at the National Statistical Systems Training Academy (NSSTA) to include AI, ML, and bias mitigation—ensuring a future-ready workforce.

Bharat Gen (launched June 2025) develops sovereign, multilingual multimodal LLMs on India-centric data, supporting public applications across 22 languages.

These efforts prioritize ethical innovation, collaborative ecosystems, and inclusive training to embed AI sustainably in governance.

ROLE IN DIGITAL PUBLIC INFRASTRUCTURE

AI strengthens India's DPI, particularly through Aadhaar (UIDAI). Advanced AI-based biometric deduplication and face recognition (enhanced in 2026) improve enrolment accuracy and authentication security across modalities (fingerprint, face, iris).

The Aadhaar Face Authentication solution integrates with welfare schemes like PM Awas, PM-JAY, PM Kisan, enabling seamless, targeted benefit delivery.

AI reduces leakages via fraud detection, ensures precise targeting, and enhances scalability contributing to efficient, leakage-free governance and trusted digital ecosystems.

CHALLENGES

Despite progress, AI deployment in governance faces hurdles. Data privacy and security remain critical amid rising cyber threats and vast personal data usage. Algorithmic bias can perpetuate inequalities if models train on skewed data, affecting marginalized groups.

The digital divide limits rural access due to infrastructure gaps and literacy barriers. A shortage of skilled workforce hinders implementation and maintenance.

Ethical concerns arise around transparency, accountability, and consent in high-stakes decisions. Reliability issues in AI models (e.g., hallucinations) risk erroneous governance outcomes, while over-dependence on technology could undermine human oversight.

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Addressing these requires balanced frameworks to ensure equitable, trustworthy AI adoption.

WAY FORWARD

To harness AI fully, India must strengthen governance frameworks like the India AI Governance Guidelines (2025-26), emphasizing risk-based, inclusive approaches.

Prioritize ethical and responsible AI through audits, bias mitigation, and transparency standards. Invest heavily in capacity building and skilling via Mission Karmayogi and academia partnerships.

Improve data quality, standardization, and interoperability across silos. Foster public-private partnerships for innovation and compute access.

Promote inclusive AI with multilingual support (e.g., BharatGen) and rural accessibility. Enhance cybersecurity measures and regulatory oversight.

A collaborative, human-centric strategy will ensure AI drives equitable development and trusted governance.

CONCLUSION

AI is transforming Indian governance from data-rich to insight-driven, enabling efficient, transparent, and responsive systems. India's model rooted in inclusivity, scalability, and context-specific solutions like multilingual tools and DPI integration positions it as a global leader in responsible AI for public good.

The future lies in human AI collaboration, where technology augments decision-making while preserving ethical oversight. By building trusted digital ecosystems, India can achieve equitable welfare, accelerated innovation, and sustainable progress toward Viksit Bharat.

Prelims question:

Q. With reference to recent initiatives in India's public data and AI ecosystem, consider the following statements:

1. The e-Sankhyiki portal, launched in 2024, serves as the national platform for official statistics and includes over 136 million records across multiple datasets.
2. In February 2026, the National Statistics Office (NSO) launched the beta version of the Model Context Protocol (MCP) server on the e-Sankhyiki portal to enable direct integration of official datasets with external AI tools like ChatGPT and Claude.
3. BharatGen, launched in 2025, is India's first government-funded sovereign multimodal Large Language Model initiative, supporting all 22 scheduled Indian languages for public and developmental applications.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 2 only

(c) 2 and 3 only (d) 1, 2 and 3

Answer: (d) 1, 2 and 3

Mains Question:

Q. "Artificial Intelligence is increasingly becoming a foundational layer in strengthening data-driven governance and public service delivery in India." In the context of recent initiatives such as AI-enabled statistical platforms, digital public infrastructure, and sectoral applications, critically analyse the role of AI in transforming India's public data ecosystem. Also examine the challenges and suggest a way forward.

ARTIFICIAL INTELLIGENCE: POWERING INDIA'S INCLUSIVE TRANSFORMATION

WHY IN THE NEWS?

In February 2026, the India–AI Impact Summit highlighted a pivotal transition in the nation's technological trajectory: moving from experimental pilots to system-wide implementation of Artificial Intelligence (AI) for equitable rural development. With the vision of Viksit Bharat@2047, India is positioning AI as a "public good" aimed at equity rather than exclusivity.

HISTORICAL & TECHNOLOGICAL BACKGROUND

AI refers to the capability of machines to perform cognitive tasks typically associated with human

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intelligence, such as learning, reasoning, and decision-making. AI serves as the backbone of the 4th Industrial Revolution, merging the physical, digital, and biological spheres. In India, this manifests through the integration of AI into Digital Public Infrastructure (DPI) to enhance transparency and service delivery.

GLOBAL AND INDIAN CONTEXT

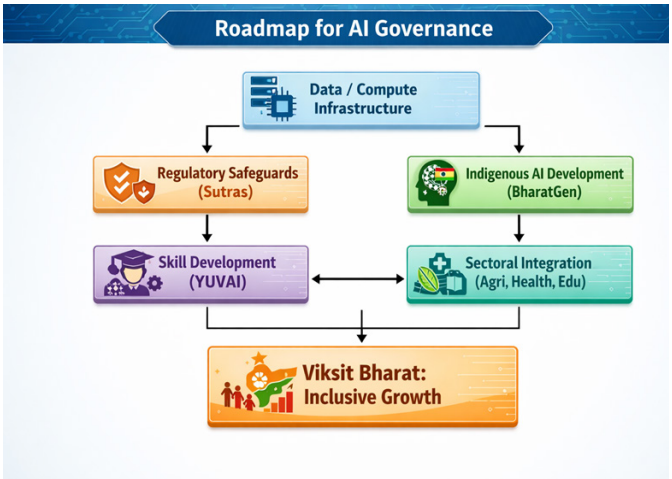
The evolution of AI has shifted from experimental laboratory use to large-scale deployment. Globally, AI evolved through phases of symbolic AI to the current data-driven deep learning era. In India, the ecosystem is characterised by a social-purpose framework. The technological backbone relies on:

- **Data:** Platforms like AI-Kosh provide over 7,500 datasets and 273 models to lower entry barriers for developers.
- **Algorithms:** Focus on multilingualism to address India's diversity (e.g., BHASHINI supports 36+ languages).
- **Computing Power:** Facilitated through the IndiaAI Mission and academic-government collaborations.
- **Agriculture:** AI acts as a decision-support system for weather forecasting, pest detection (National Pest Surveillance System), and irrigation schedules. Kisan e-Mitra provides a virtual assistant for government schemes.
- **Healthcare:** AI enhances last-mile outreach through tools like the Suman Sakhi WhatsApp chatbot, providing maternal health info in rural areas.
- **Education:** The DIKSHA platform uses AI for keyword video search and read-aloud tools for visually impaired students.

GOVERNANCE

Sabha Saar automates documentation for Panchayats. e-Gram Swaraj and Gram Manchitra use GIS and AI for budgeting, asset mapping, and spatial planning.

- **Rural Asset Management:** Bhu-PRAHARI integrates AI and geospatial data to monitor MGNREGA assets and water bodies (Amrit Sarovars).
- **Informal Sector:** Digital Shram Setu Mission deploys AI to support livelihood and service delivery for informal workers.



BENEFITS FOR INDIA

- **Economic Growth:** AI facilitates inclusive participation through decentralised skilling and digital work opportunities.
- **Job Creation:** The strategy emphasizes augmentation of human labour (farmers, teachers, health workers) rather than displacement.
- **Digital Governance:** Systems like e-GramSwaraj have onboarded over 2.53 lakh Gram Panchayats, enhancing transparency in payments and monitoring.
- **Inclusion:** BHASHINI and Adi Vaani break language barriers, allowing tribal and rural populations to access governance in their native dialects.

CHALLENGES & CONCERNS

- **Data Privacy:** Addressed through "privacy by design" in Digital Public Infrastructure.
- **Algorithmic Bias:** Risks of exclusion in welfare delivery if automated tools are opaque.
- **Job Displacement:** A concern mitigated by India's focus on AI as a support system for frontline workers.
- **Ethical Issues:** Need for India-specific risk assessments, as global models may not fit the domestic socio-economic context.
- **AI Divide:** The "Global North vs South" divide is addressed by India developing its own sovereign AI stack (Bharat-Gen) to ensure technological independence.

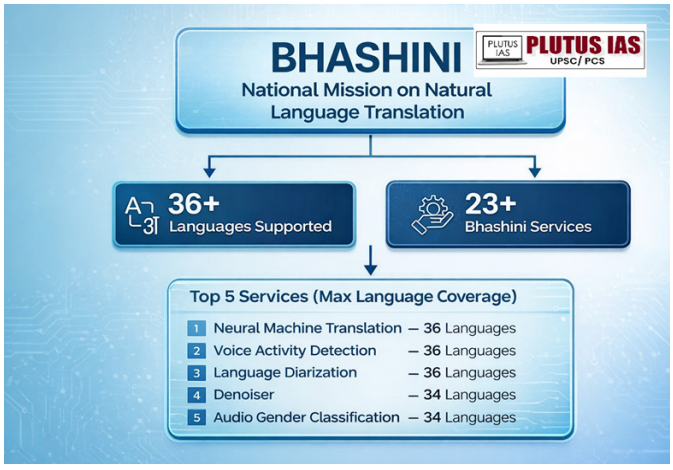
ETHICAL & GOVERNANCE DIMENSION

India's Responsible AI framework is built on:

- **Seven Guiding Principles (Sutras):** Focusing on fairness, accountability, and transparency.
- **Human Oversight:** Positioning AI to augment human capacity, ensuring administrators and local officials remain central to decision-making.
- **Accountability:** Establishing grievance redressal mechanisms and institutional preparedness to prevent "administrative harm".

GOVERNMENT INITIATIVES & GLOBAL COOPERATION

- **National Language Translation Mission (BHASHINI):** Integrates voice-based interfaces into 23+ government services.
- **Bharat Gen:** The first government-funded, multimodal LLM built on India-centric datasets.
- **Adi Vaani:** Dedicated to preserving tribal languages and oral traditions through digitisation.
- **Collaborative Ecosystem:** Partnerships with 50+ ministries, startups, and academic institutions like IIT Delhi.



WAY FORWARD

- **Skill Development:** Expanding programs like YUVAI to ensure a future-ready workforce.
- **Public-Private Partnership:** Scaling proven use-cases through start up innovation and government scaling.
- **Indigenous AI:** Reducing dependence on foreign models by strengthening the domestic AI stack.

CONCLUSION

AI in India is not merely a technological intervention but a foundational pillar of rural and national transformation. By embedding constitutional values of equity and inclusion into its governance frameworks—embodied in the "AI for All" philosophy—India ensures that the digital revolution leaves no citizen behind. As the nation moves toward 2047, the responsible deployment of AI will be central to building a resilient, equitable, and future-ready society.

Prelims question:

Q. With reference to India's approach towards Artificial Intelligence (AI) for rural development, consider the following statements:

1. BHASHINI aims to promote multilingual access to digital services by enabling AI-driven language translation across Indian languages.
2. Bhu-PRAHARI is an AI-enabled platform used for monitoring rural assets such as MGNREGA works and water bodies.
3. Bharat Gen is a privately funded foreign large language model adopted by India for governance purposes.

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 2 and 3 only

(c) 1 and 3 only (d) 1, 2 and 3

Answer: (a) 1 and 2 only

Mains Question:

Q. "Artificial Intelligence is emerging as a new instrument of socio-economic transformation in rural India." In the context of India's vision of Viksit Bharat@2047, critically examine.

(250 Words)

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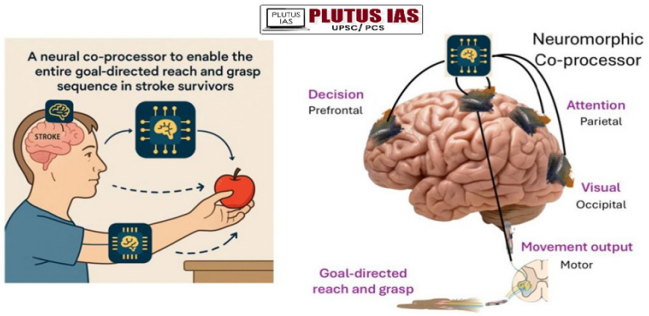
THE BRAIN CO-PROCESSOR MOONSHOT: ADVANCING NEUROTECHNOLOGY AND INDIGENOUS INNOVATION IN INDIA

WHY IN THE NEWS?

Recently, the Indian Institute of Science (IISc), Bangalore, in partnership with the Pratiksha Trust, launched an ambitious "Moonshot Project" to develop brain co-processors. This multidisciplinary initiative aims to position India at the global frontier of neuroscience and AI-driven medical technology.



DEFINING BRAIN CO-PROCESSORS

Brain co-processors are advanced, AI-powered closed-loop devices designed to interact directly with the human brain. These systems function by decoding neural signals, processing them through artificial intelligence (AI) algorithms, and re-encoding the information back into the brain via neural stimulation or neurofeedback. Unlike traditional assistive devices, they aim to enhance or restore natural brain functions such as motor control, memory, and vision.

BACKGROUND AND CONTEXT

The project evolved from the Brain, Computation, and Data Science (BCD) initiative at IISc, an interdisciplinary cluster comprising over 20 faculty members from eight different departments. Supported by a generous endowment from the Pratiksha Trust (founded by Kris Gopalakrishnan and Sudha Gopalakrishnan), the initiative aligns with the vision of establishing an "Indian Brain Project".

This effort comes at a critical time as traditional silicon electronics approach saturation, necessitating brain-inspired or neuromorphic computing accelerators to deliver faster, more energy-efficient AI.

SIGNIFICANCE AND IMPORTANCE

1. **Medical Rehabilitation:** The primary focus is the cognitive and motor rehabilitation of stroke survivors, specifically restoring goal-directed reaching and grasping abilities.
2. **Technological Breakthroughs:** Researchers have already developed an analog computing platform capable of storing 16,500 conductance states—a massive leap over the binary (two-state) limit of traditional digital computers.
3. **Strategic Autonomy:** By indigenizing the development of implants, hardware, and AI stacks, India reduces its dependence on expensive imported neurotechnology.
4. **Creation of Digital Public Goods:** The project intends to release open-source AI tools, visualization platforms, and India-specific neural datasets (such as stereo EEG and ECoG) to foster global research.

GOVERNANCE AND INSTITUTIONAL ASPECTS

The project is a collaborative model involving IISc's Foundation for Science, Innovation and Development (FSID), medical professionals, and international research institutions. It receives support from the Ministry of Electronics and Information Technology (MeitY) and aligns with the India Semiconductor Mission, focusing on developing a fully indigenous system-on-a-chip.

Key Issues and Challenges

1. **Technical Complexity:** The human brain's 86 billion neurons present an immense challenge for accurate decoding and real-time interaction.
2. **Regulatory Hurdles:** Medical implants require rigorous clinical validation and must meet stringent national and international safety standards before deployment.
3. **Data Privacy:** Neural data is exceptionally sensitive; its collection and use raise significant neuro-privacy concerns regarding how thought-related data is stored and protected.
4. **Cost and Accessibility:** Initial stages of such high-end technology are often expensive, potentially limiting access to specialized healthcare centers.

ETHICAL AND DEMOCRATIC CONCERNS

The ability to "write" signals back into the brain via re-encoding raises ethical questions regarding human agency and cognitive liberty. Furthermore, ensuring that these life-altering technologies do not exacerbate the digital divide in healthcare is a vital democratic concern for inclusive growth.

ECONOMIC AND SOCIAL IMPACT

1. **Energy Efficiency:** Neuromorphic accelerators can perform complex AI tasks (like training Large Language Models) on personal devices at a fraction of the energy required by traditional data centers.
2. **Healthcare Savings:** Developing affordable treatments suited for low-resource healthcare settings can significantly reduce the long-term economic burden of neurological disability in India.

WAY FORWARD

1. **Robust Regulatory Framework:** India must develop specific clinical and ethical guidelines for Brain-Machine Interfaces (BMI) to ensure patient safety and data protection.
2. **Interdisciplinary Talent Pipeline:** Strengthening programs like IISc's Interdisciplinary Ph.D. in Brain and Artificial Intelligence is essential to sustain a specialized workforce.
3. **Public-Private Partnerships (PPP):** Scaling the project from a "moonshot" to a mass-market reality will require deeper integration with India's burgeoning medical device and semiconductor industries.
4. **Clinical Integration:** Continuous feedback loops involving neurologists, therapists, and caregivers are necessary to ensure the technology meets real-world patient needs.

CONCLUSION

The IISc Moonshot Project on Brain Co-processors represents more than a scientific milestone; it is a testament to India's growing capacity for technological self-reliance (Atmanirbhar Bharat). By bridging the gap between foundational neuroscience and clinical application, this initiative supports United Nations Sustainable Development Goal 3 (Good Health and Well-being) and promotes inclusive growth by targeting affordable rehabilitation for stroke survivors. As India moves toward Viksit Bharat 2047, such pioneering efforts in neurotechnology will be pivotal in positioning the nation as a global leader in the Age of AI, grounded in the constitutional value of improving the quality of life for all its citizens.

Prelims question:

Q. With reference to Brain Co-Processors, consider the following statements:

I. Brain co-processors are AI-based closed-loop devices that decode neural signals and send processed signals back to the brain.

II. They can help restore or enhance brain functions such as motor control, memory, and vision.

III. They work only as external assistive devices and do not interact directly with neural activity.

Which of the statements given above is/are correct?

(a) I and II only (b) II and III only

(c) I only (d) I, II and III

Answer: A

Mains Question:

Q. The development of brain co-processors represents a major advancement in neurotechnology and artificial intelligence. Discuss the significance of the "Moonshot Project" launched by the Indian Institute of Science in advancing indigenous innovation in India. Also examine the challenges associated with brain-machine interface technologies.

(250 words)

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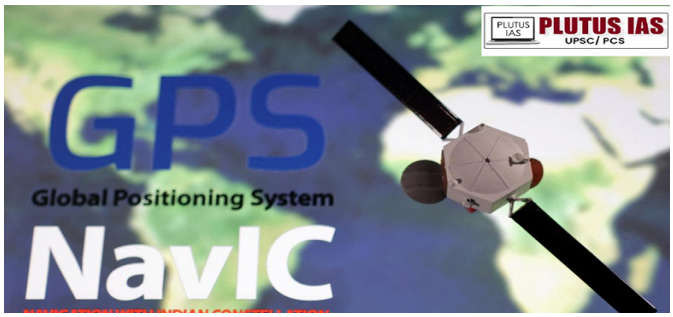
ATOMIC CLOCK FAILURE IN IRNSS-1F: IMPLICATIONS FOR INDIA'S STRATEGIC AUTONOMY

WHY IN THE NEWS?

"IRNSS-1F satellite launched in March 2016 has completed its design mission life of 10 years on 10th March 2026. On 13th March 2026, procured on-board Atomic clock stopped functioning. However, the satellite will continue to function in-orbit for various societal applications to provide one way broadcast messaging services."



TECHNICAL DIMENSION: WHAT FAILED AND WHY IT MATTERS

Each NavIC satellite carries 3 rubidium atomic clocks (highly precise, losing ~1 second in millions of years) for redundancy.

IRNSS-1F had already lost two clocks earlier; the third (last) clock failed on March 13, 2026 — shortly after end-of-design-life.

Impact: Satellite can no longer transmit accurate timestamps needed for Positioning, Navigation, and Timing (PNT) via trilateration.

Why atomic clocks are critical: GNSS relies on precise time synchronization (speed-of-light distance calculation). Failure = no reliable PNT from that satellite.

CONSTELLATION STATUS (AS OF MARCH 2026)

- **Original Design:** 7 satellites (3 GEO + 4 GSO) for India + 1,500 km coverage.
- **Total Launched:** 11 satellites (including NVS series) since 2013.
- **Historical Failures:** 6 satellites lost navigation capability (mostly imported clock failures + orbital issues like NVS-02 stuck in wrong orbit).
- **Pre-failure (July 2025 Parl reply):** 4 satellites for full PNT; 4 for one-way messaging; 1 decommissioned; 2 failed to reach orbit.
- **Post-IRNSS-1F failure:** Only 3 satellites provide PNT — IRNSS-1B (2014), IRNSS-1L (likely typo in some reports for 1I/2018), NVS-01 (2023, first indigenous clock).
- **Critical Threshold:** Minimum 4 satellites required for accurate 3D positioning + time (trilateration principle). Below 4 → system "below optimal", inconsistent coverage, degraded accuracy (not 24x7 reliable), potential outages.

STRATEGIC & SECURITY DIMENSION

- **Self-Reliance (Atmanirbhar Bharat):** NavIC offers independence from US-controlled GPS (jamming/vulnerability in conflict).
- **Military Applications:** Critical for missiles, drones, naval ops, border surveillance (better accuracy in Indian Ocean/region via S-band + L5).
- **Risk Exposed:** With only 3 satellites, wartime denial/jamming becomes easier; forces may fallback to foreign GNSS → strategic vulnerability.
- **Civilian Dependence:** Fisheries (alerts), precision agriculture, disaster management (GAGAN integration), transport, banking (timing), railways.

KEY FEATURES

1. **Space & Aeronautics:** NASA's ISS spacewalks (94 & 95) to install solar arrays for extended operations Progress in X-59 quiet supersonic aircraft. Advancements in Artemis Programme for Moon missions ISRO using RISAT & Cartosat satellites for glacier monitoring
2. **Artificial Intelligence:** AI systems outperforming humans in medical diagnosis. Expansion of AI in coding, research, and automation. China's focus on AI leadership under its 15th Five-Year Plan (2026–2030)
3. **Energy & Nuclear:** Development of Small Modular Reactors (SMRs). Emergence of Sodium-ion batteries as alternatives to lithium-ion

4. **Strategic & Navigation Systems:** NavIC atomic clock failure raising reliability concerns Importance of indigenous navigation systems for strategic autonomy
5. **Emerging Technologies:** Advancements in quantum computing Innovations in biotechnology and enzyme research

SIGNIFICANCE

1. **Strengthening National Security:** Enhances surveillance, intelligence gathering, and secure communication through advanced space, cyber, and navigation systems.
2. **Effective Disaster Management:** Enables early warning and monitoring of disasters, including glacier-related risks like Glacial Lake Outburst Flood.
3. **Promoting Self-Reliance (Atmanirbharta):** Reduces dependence on foreign technologies by boosting indigenous capabilities under Atmanirbhar Bharat.
4. **Driving Economic Growth & Innovation:** Stimulates high-tech industries, startups, and research, contributing to economic development and job creation.
5. **Enhancing Global Competitiveness:** Strengthens India's position in global technological and strategic competition.
6. **Expanding Civilian Applications:** Improves public services like navigation through NavIC and supports sectors such as agriculture and urban planning.

CHALLENGES & ROOT CAUSES

1. **Repeated Clock Failures:** Early IRNSS had high failure rate (imported clocks); pattern persists even post-design life.
2. **Launch & Orbital Delays:** NVS-02 failure (wrong orbit); slow NVS series (NVS-03 in assembly; 04–05 delayed).
3. **Transparency Issues:** No public NavIC performance reports since Q1 2021; ISRO avoids exact operational numbers.
4. **Expansion Lag:** Proposed MEO augmentation (12+ satellites for global coverage) not yet approved/launched.
5. **Redundancy Shortfall:** Aging first-gen satellites (1B from 2014) at risk of further failure.

WAY FORWARD

1. **Strengthening Indigenous R&D:** Promote advanced research and innovation to build self-reliant capabilities in critical technologies.
2. **Boosting Public - Private Partnerships:** Enhance collaboration between government, industry, and startups for faster technological development.
3. **Investing in Emerging Technologies:** Prioritize sectors like AI, quantum computing, and space technology for future readiness.
4. **Ensuring Data Protection & Ethical AI:** Develop robust frameworks for data security and responsible use of artificial intelligence.
5. **Building Climate-Resilient Infrastructure:** Strengthen systems to manage climate risks and disasters effectively.
6. **Enhancing Skill Development:** Develop a skilled workforce aligned with next-generation technologies and innovation needs.

CONCLUSION

The failure of the atomic clock onboard IRNSS-1F highlights critical vulnerabilities in India's NavIC system, particularly in terms of reliability and redundancy. With the constellation currently operating below the minimum threshold for accurate positioning, concerns over strategic autonomy and service reliability have intensified.

However, ongoing efforts toward indigenisation, especially with the NVS series and indigenous atomic clocks, signal a positive shift. Moving forward, timely satellite launches, technological upgrades, and enhanced transparency will be essential to ensure that NavIC evolves into a robust, self-reliant, and globally competitive navigation system.

Prelims question:

Q. With reference to India's technological and strategic advancements, consider the following statements:

1. NavIC is India's indigenous navigation system used for both civilian and military purposes.

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2. Atmanirbhar Bharat aims to reduce dependence on foreign technologies.
3. Glacial Lake Outburst Flood is primarily caused by volcanic eruptions.

Which of the statements given above is/are correct?

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

Answer: A

Mains Question:

Q. Discuss the significance of technological self-reliance in strengthening India's national security, economic growth, and global competitiveness. Suggest suitable measures for achieving this goal.

(250 words)

DIGITAL GATEKEEPING IN THE AGE OF AI: THE STRATEGIC IMPERATIVE OF HUMAN VERIFICATION SYSTEMS

WHY IN THE NEWS?

As India moves towards becoming a $1 trillion digital economy, concerns over the security and integrity of its digital infrastructure have gained prominence. The increasing use of sophisticated botnets and automated scripts is posing serious threats to online platforms, financial systems, and governance mechanisms. Traditional human verification tools like CAPTCHA are gradually losing effectiveness against advanced AI-driven bots. In response, there is a growing shift towards next-generation verification systems that rely on behavioral analysis and AI-based detection techniques.

DEFINING HUMAN VERIFICATION: THE DIGITAL TURING TEST

Human verification, commonly manifested as CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart), is a security protocol designed to distinguish between human users and automated software or "bots". At its core, it is a challenge-response test where the user is required to solve a puzzle or perform a task that is traditionally easy for humans but difficult for current-generation automated scripts. These systems function as the primary defense mechanism to protect user accounts from unauthorized access and to prevent the proliferation of spam, which can degrade network performance and compromise data integrity.

TECHNICAL AND OPERATIONAL LANDSCAPE

The operational efficacy of these systems relies on specific technical environments:

- **The JavaScript Prerequisite:** Modern verification puzzles are computationally interactive and require JavaScript to be enabled within the user's browser
- Without this, the security check cannot execute, effectively barring access to the requested service
- **Browser Environment Integrity:** The source material highlights that certain automated tools, such as Google Translate, can interfere with the security puzzle's logic SUsers are often required to disable such extensions to ensure the verification process remains untampered and secure
- **Multilingual Reach:** To cater to a globalized digital population, these systems are deployed in a vast array of languages, including Arabic, Chinese, French, Hindi, and Japanese, ensuring that "humanity" is not gatekept by language barriers

SIGNIFICANCE AND IMPORTANCE

- **Preserving Digital Trust:** In a "Trust Economy," verification ensures that interactions on social media, e-commerce, and government portals are authentic.
- **Mitigating DDoS and Bot Attacks:** Automated scripts can overwhelm servers (Distributed Denial of Service). Human verification acts as a "speed bump" that throttles automated traffic.
- **Financial Integrity:** In the era of the Unified Payments Interface (UPI) and digital banking,

human verification prevents bots from attempting to guess PINs or passwords through brute-force methods

KEY ISSUES AND CHALLENGES

- **Technical Exclusion:** The requirement for JavaScript and specific browser settings (like disabling translation tools) can create hurdles for users with low digital literacy or those using older hardware.
- The AI Paradox: As Generative AI evolves, bots are becoming increasingly adept at solving traditional text and image puzzles. This has led to a "security arms race" where puzzles become more complex, potentially frustrating human users.
- Accessibility Concerns: Traditional visual puzzles pose significant challenges for Persons with Disabilities (PwDs), specifically those with visual impairments, necessitating more robust audio-based verification alternatives.

CONSTITUTIONAL AND LEGAL DIMENSIONS

1. **Right to Privacy (Article 21):** The Supreme Court in the Puttaswamy judgment declared privacy a fundamental right. Human verification systems must balance security with data minimization, ensuring they do not collect excessive behavioral data under the guise of security.
2. **Digital Personal Data Protection (DPDP) Act, 2023:** Verification systems must comply with "notice and consent" requirements if they track user behavior (like mouse movements) to verify humanity.
3. **IT Act, 2000:** Section 66 addresses "hacking" and unauthorized access. Human verification serves as the technical barrier that defines the "unauthorized" nature of bot-driven entries.

GOVERNANCE AND INSTITUTIONAL ASPECTS

Human verification is a cornerstone of the National Cyber Security Policy. For the National Informatics Centre (NIC), implementing these checks on sites like the Parivahan portal or Cowin (during the pandemic) was essential to prevent "scalping" and ensure equitable access to public resources.

WAY FORWARD:

1. **Zero-Knowledge Proofs (ZKP):** Moving toward cryptographic methods where a user can prove they are human without solving a frustrating puzzle or revealing personal data.
2. **Behavioral Biometrics:** Analyzing passive signals (typing rhythm, mouse movement) to verify humanity without interrupting the user experience.
3. **Standardization of Accessibility:** Ensuring all government verification systems adhere to WCAG (Web Content Accessibility Guidelines) to include PwDs.
4. **Local Language Integration:** Expanding the linguistic repertoire of puzzles to include more Indian regional languages, building on the multilingual foundations seen in current systems

CONCLUSION

As India moves toward Viksit Bharat 2047, the resilience of its digital ecosystem will determine its global standing. Human verification is not merely a technical nuisance but a democratic safeguard that ensures digital resources are preserved for genuine citizens. By aligning these security measures with Constitutional values of equity and privacy, India can foster an inclusive and secure digital society, paving the way for sustainable and Inclusive Growth.

Prelims question:

Q. With reference to digital security, consider the following statements regarding CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart):

1. It is designed to prevent "brute-force" attacks by distinguishing between humans and automated scripts.
2. Most modern CAPTCHA puzzles can function effectively even if JavaScript is disabled in the browser.
3. Some verification systems may require the disabling of browser-based translation tools to function correctly.

Which of the statements given above is/are correct?

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(a) 1 only (b) 1 and 3 only

(c) 2 and 3 only (d) 1, 2, and 3

Answer: B

Mains Question:

Q. The evolution of human verification systems represents a double-edged sword: while essential for cybersecurity, they risk deepening the digital divide and compromising user privacy." Critically analyze this statement in the context of India's Digital Personal Data Protection Act, 2023. (250 words)

HARNESSING INDIA'S DEMOGRAPHIC DIVIDEND IN THE AGE OF ARTIFICIAL INTELLIGENCE: A STRATEGIC ROADMAP FOR 2026.

WHY IN THE NEWS?

The India-AI Impact Summit 2026, which commenced on 16th February 2026, has brought to the forefront India's strategic vision of placing its youth at the centre of the global Artificial Intelligence (AI) revolution. Coupled with the Union Budget 2026–27, which prioritises AI skilling and the "Orange Economy," India is signalling a shift from being a mere consumer of technology to a global hub for AI-driven innovation and talent.

DEFINING THE CONCEPT: THE AI-DEMOGRAPHIC SYNERGY

In simple terms, India's Youth Dividend refers to the economic growth potential resulting from the country's large working-age population. Currently, over 65% of India's population is under the age of 35.

Artificial Intelligence (AI), in this context, is viewed not just as a disruptive technology, but as a transformative force and a "key lever" to enhance the productivity of this demographic powerhouse. The synergy between the two involves transition from "passive learning to active participation," where youth are equipped with digital fluency and interdisciplinary expertise to drive a future-ready economy.

BACKGROUND AND CONTEXT

Historically, India's demographic dividend was leveraged through the IT services boom. However, the current era demands a structural transformation.

- **Economic Context:** AI-related job postings in South Asia rose from 2.9% to 6.5% between 2023 and 2025, with AI skill demand growing 75% faster than non-AI roles.
- **Policy Evolution:** The IndiaAI Mission, backed by an allocation of over ₹10,300 crore, marks a transition toward building Sovereign AI—indigenous models tailored to India's linguistic and developmental needs.

SIGNIFICANCE AND IMPORTANCE

Economic Momentum: India's youth are the "engine of economic momentum," with AI projected to reshape livelihoods and enhance national productivity.

- **Job Creation in Emerging Sectors:** The focus on the Orange Economy (Animation, Visual Effects, Gaming, and Comics - AVGC) is expected to generate nearly 20 lakh (2 million) jobs by 2030.
- **Global Leadership:** According to the Stanford Global AI Index Report 2025, India's AI skill penetration is 2.5 times higher than the global average, positioning the country as a leader in "responsible, inclusive, and use-case driven AI".
- **Inclusivity:** By democratising access to digital infrastructure, India is ensuring innovation

emerges from beyond metropolitan hubs, with over 50% of start ups now originating in Tier-2 and Tier-3 cities.

KEY ISSUES AND CHALLENGES

- **Labour Market Resilience:** Accelerated AI adoption creates "employment pressures" for younger workers in roles with high AI exposure, necessitating urgent policy interventions to manage this transition.
- **Infrastructure Gaps:** High-end compute power remains expensive. While the government provides subsidised access (₹65/hour for GPUs), scaling this to meet the needs of millions remains a challenge.
- **Skill Mismatch:** There is an urgent need to sync classroom education with rapidly evolving industry needs to prevent the demographic dividend from becoming a "demographic burden".
- **Ethical Risks:** The rise of AI brings challenges related to data privacy, misinformation, and accountability, as highlighted by the national push for "AI Responsibility Pledges".

CONSTITUTIONAL AND LEGAL DIMENSIONS

While India does not yet have a standalone AI Act, the framework is guided by:

- **Article 21A (Right to Education):** The National Education Policy (NEP) 2020 integrates AI literacy as an essential competency, fulfilling the spirit of providing quality, future-ready education.
- **Directive Principles (Article 38 & 39):** The state's duty to promote a social order that minimises inequalities is reflected in the India AI Mission's efforts to provide equitable access to compute and data for all citizens.
- **Sovereign AI:** The focus on building "indigenous AI models" aligns with the constitutional goal of maintaining national sovereignty in the digital age.

ECONOMIC AND SOCIAL IMPACT

The "AI by HER" Movement: Dedicated programmes for women-led AI startups (targeting 150 founders) aim to translate empathy-driven innovation into scalable solutions for healthcare and education, fostering gender-inclusive growth.

- **Vocational Transformation:** Through the Skill India Mission (SOAR), over 1.34 lakh students and teachers are being upskilled, ensuring that the benefits of AI reach the grassroots level.
- **Grassroots Innovation:** The establishment of AI Data and AI Labs in ITIs and Polytechnics across 27 States/UTs ensures that high-end resources are not confined to elite institutions.

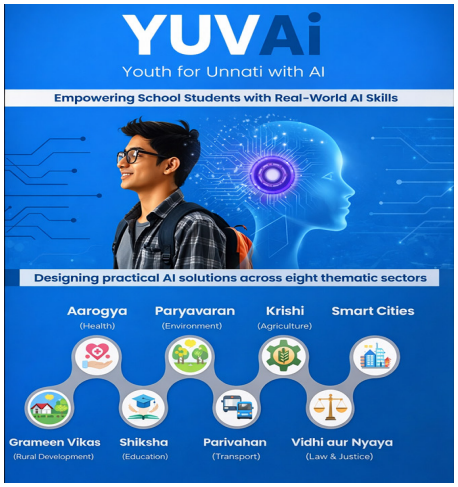
GOVERNANCE AND INSTITUTIONAL ASPECTS

- **Education to Employment and Enterprise Standing Committee:** Proposed in the 2026-27 Budget to assess how AI affects job requirements and to bridge the gap between academia and enterprise demand.
- **Multi-tiered Infrastructure:** The government is expanding compute capacity from 38,000 GPUs to 58,000 high-end GPUs to support the startup ecosystem.
- **Institutional Framework:** Collaboration between MeitY, MSDE (Ministry of Skill Development and Entrepreneurship), and industry bodies like NASSCOM via platforms like FutureSkills Prime.

GLOBAL COMPARISON

India stands out globally for its "scale of skilling." While many developed nations focus on high-end research, India is focusing on "AI for All".

- **Skill Penetration:** India's relative penetration (2.5x global average) outperforms many peers in the Stanford Global AI Index.
- **Enterprise Adoption:** 87% of Indian enterprises actively use AI, compared to lower adoption rates in several other developing economies.



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ETHICAL AND DEMOCRATIC CONCERNS

The Guinness World Record of 2.5 lakh AI Responsibility Pledges in 24 hours underscores India's commitment to "human-centric" and "ethically grounded" AI. The focus is on:

- **Transparency and Explainability:** Building AI systems that address real-world challenges while being accountable to the citizens.
- **Digital Trust:** Combatting misinformation and ensuring data privacy as core components of digital citizenship.

WAY FORWARD

- **Scaling Sovereign AI:** Development of indigenous models that understand India's linguistic diversity is crucial for "outcome-driven" AI.
- **Strengthening the "Orange Economy":** Operationalising the Indian Institute of Creative Technologies (IICT) and content creator labs in 15,000 schools will be vital for job creation.
- **Equitable Compute Access:** Expanding the GPU infrastructure to 58,000 units must be accompanied by further subsidies for rural entrepreneurs.
- **Lifelong Learning:** Enhancing the Skill India Digital Hub (SIDH) to provide continuous upskilling as AI models evolve.
- **Evidence-Based Implementation:** Using the AI Impact Startup Book as a repository to scale successful "pilot projects" into "population-scale deployment" across ministries.

CONCLUSION

India's journey toward a Viksit Bharat by 2047 is inextricably linked to how it manages its youth dividend in the AI era. By prioritising inclusive growth, democratic governance, and responsible innovation, India is not just adopting AI—it is defining its ethical and social contours for the world. As the nation advances, empowering the young population with AI capabilities will remain the cornerstone of long-term productivity and Atmanirbhar Bharat (Self-reliant India).

Prelims question:

Q. With reference to India's AI ecosystem as of 2026, consider the following statements:

1. According to the Stanford Global AI Index Report 2025, India's AI skill penetration is more than double the global average.
2. The India AI Mission has set a target to provide compute access at a subsidised rate to start ups.
3. The "Orange Economy" primarily focuses on heavy manufacturing and semiconductor fabrication.

Which of the statements given above is/are correct ?

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

Answer: A) 1 and 2 only

Mains Question:

Q. "The transition from passive learning to active participation is the cornerstone of India's strategy to leverage its demographic dividend in the AI era." Critically analyse the institutional and policy measures taken by the Government of India to build an AI-ready talent ecosystem.

INDIA'S AI-DRIVEN CREATIVE RENAISSANCE: NAVIGATING THE ORANGE ECONOMY TOWARDS VIKSIT BHARAT 2047

WHY IN THE NEWS?

In February 2026, India solidified its position as a global leader in the digital landscape by hosting the India AI Impact Summit 2026 at Bharat Mandapam, New Delhi. This landmark event was the first international summit on Artificial Intelligence hosted in the Global South, signaling a shift in the global AI dialogue toward a paradigm that prioritizes "People,

Progress, and Planet". Central to this summit was the Ministry of Information and Broadcasting's (MIB) showcase of India's thriving Orange Economy, powered by a confluence of government initiatives, startups, and creative technologies.

DEFINING THE CONCEPT: THE ORANGE ECONOMY AND AVGC-XR

The Creative Economy, often referred to as the Orange Economy, comprises industries where value is derived from the intersection of creativity, culture, technology, and Intellectual Property (IP). This sector spans media, entertainment, animation, gaming, and digital content platforms.

A critical subset of this economy is the AVGC-XR sector (Animation, Visual Effects, Gaming, Comics, and Extended Reality). This represents the most technology-intensive frontier of the creative economy, where AI-led innovation is no longer experimental but a strategic driver of growth, employment, and international influence.

BACKGROUND AND CONTEXT

India's transition toward an AI-integrated creative economy is backed by strong policy tailwinds. The Union Budget 2026–27 formally recognized the Orange Economy as a primary engine for innovation and employment. Historically, while India has been a global production base for animation and VFX contributing to international films and streaming—the current focus has shifted toward indigenous AI capabilities and original IP creation.

The establishment of the Indian Institute of Creative Technologies (IICT) in Mumbai and the rollout of AVGC Content Creator Labs in 15,000 secondary schools and 500 colleges nationwide highlight a strategic attempt to build a skilled talent pipeline for a sector projected to require 2 million professionals by 2030.

SIGNIFICANCE AND IMPORTANCE

- **Economic Multiplier:** India's media and entertainment sector, valued at approximately ₹2.5 trillion in 2024, is projected to reach ₹3.067 trillion by 2027. The sector already supports over 10 million livelihoods.
- **Technological Sovereignty:** By fostering 51 high-tech startups in the AVGC-XR space, India is transitioning from being a mere consumer of global technology to a developer of AI-native platforms.
- **Global South Leadership:** As the first major AI summit in the Global South, India is setting the agenda for responsible and inclusive AI that addresses diverse linguistic and cultural needs.
- **Soft Power Projection:** Through initiatives like WAVES (World Audio Visual and Entertainment Summit) and the screening of Made-in-India AI short films (e.g., Kathāvatar), India is using technology to export its cultural heritage globally.

ECONOMIC, SOCIAL, AND ENVIRONMENTAL IMPACT

- **Economic:** Digital media revenues are outpacing traditional formats, standing at ₹802 billion in 2024 and expected to cross ₹1.1 trillion by 2027. AI integration in filmmaking and gaming optimizes costs and enables rapid scalability.
- **Social & Linguistic Inclusion:** AI tools like the Bhasha-Wall (multilingual dubbing) and AI sign language avatars are breaking communication barriers, ensuring that the digital revolution is accessible to India's diverse population.
- **Environmental:** The shift toward virtual production and digital-first content creation reduces the physical footprint and resource intensity of traditional film sets.

GOVERNANCE AND INSTITUTIONAL ASPECTS

The governance of this sector is characterized by a multi-stakeholder approach:

- **Ministry of Information and Broadcasting (MIB):** Acts as the primary facilitator, establishing platforms like the WAVES Creators Corner for market-ready AI solutions.
- **Partnerships:** Strategic collaborations, such as the MIB–Adobe partnership, focus on scalable creative workflows and filmmaking innovation.
- **Academic Integration:** The IICT Mumbai anchors the national skilling mission, ensuring the curriculum evolves with AI advancements.

KEY ISSUES AND CHALLENGES

- **The Talent Gap:** Despite the 2 million jobs projection, there is a pressing need to move

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from basic vocational skills to high-end AI-native creative skills.

- **Intellectual Property (IP) Risks:** As generative AI (e.g., Sketly AI) becomes mainstream, protecting original style training and proprietary assets becomes complex.
- **Digital Fragmentation:** In the gaming sector, addressing hardware-software fragmentation is essential to enable high-performance competitive gameplay on mobile devices.
- **Ethical Concerns:** The use of voice cloning and AI avatars raises significant questions regarding consent, misinformation, and the preservation of human creative "craft".

ETHICAL AND DEMOCRATIC CONCERNS

The integration of AI into newsrooms (e.g., Zero-Touch Autonomous Newsrooms) and the rise of conversational humanoid robots necessitate a robust ethical framework. The primary democratic concern lies in ensuring that AI-driven storytelling does not inadvertently lead to algorithmic bias or the erosion of cultural nuances in the quest for scalable production.

GLOBAL COMPARISON

Unlike many Western nations that view AI in media primarily through the lens of automation and cost-cutting, India's approach is inclusive and preservationist. For example, AI tools are being used specifically for cultural preservation through initiatives like Kalaasetu. Furthermore, India is positioning itself as a developer of AI-native gaming platforms rather than just a massive consumer market, competing with global hubs like South Korea and the USA.

WAY FORWARD

To realize the vision of an AI-powered Viksit Bharat, the following policy-oriented solutions are recommended:

- **Robust Regulatory Framework:** Develop a "Responsible AI" code for the creative industry that balances innovation with IP protection and ethical safeguards.
- **Incentivizing Original IP:** Move beyond "work-for-hire" models to support startups (like Youth Buzz) that are creating original gameplay formats and AI agents.
- **Strengthening Infrastructure:** Expand high-speed digital connectivity to rural hubs to decentralize the creative economy beyond Bengaluru and Mumbai.
- **Global Benchmarking:** Continue participating in international dialogues to shape global AI standards and digital trade frameworks that favor Indian enterprises.

CONCLUSION

The India AI Impact Summit 2026 demonstrates that India is not just participating in the AI revolution but is actively shaping its creative trajectory. By leveraging the Orange Economy, India is aligning its technological prowess with its deep cultural heritage. This synergy is essential for achieving Inclusive Growth and the long-term vision of Viktit Bharat 2047, where India serves as a global powerhouse of responsible, scalable, and innovative AI-driven creative services.

Prelims question:

Q. With reference to the "Orange Economy" mentioned in recent government discussions, consider the following statements:

1. It refers exclusively to the agricultural transition toward high-value citrus crop exports.
2. It treats culture and creativity as strategic economic assets linked with technology and intellectual property.
3. The Union Budget 2026-27 identified it as a key driver for the Animation, Visual Effects, Gaming, and Comics (AVGC) sector.

Which of the statements given above is/are correct?

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

Answer: B) 2 and 3 only

Mains Question:

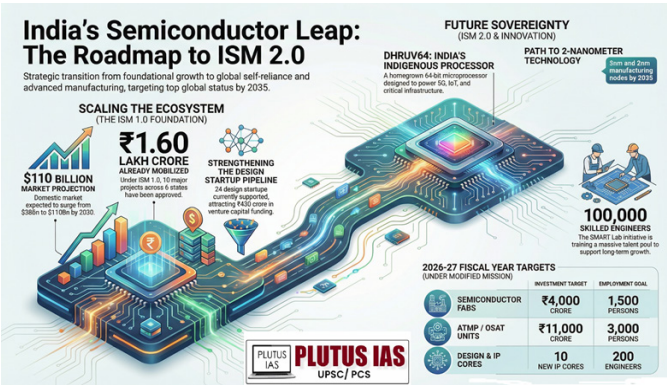
Q. "The convergence of Artificial Intelligence and the Creative Economy presents a unique

opportunity for India to transition from a technology consumer to a global innovation leader." Critically analyze this statement in the context of the India AI Impact Summit 2026 and the projected growth of the AVGC-XR sector. (250 words)

INDIA SEMICONDUCTOR MISSION (ISM) 2.0: STRATEGIC DECOUPLING AND THE QUEST FOR DIGITAL SOVEREIGNTY

WHY IN THE NEWS?

The Union Budget 2026–27 marks a significant turning point in India's technological ambitions with the launch of India Semiconductor Mission (ISM) 2.0. Backed by a fiscal allocation of ₹1,000 crore for FY 2026–27, this phase aims to move beyond initial ecosystem building toward consolidation, capacity strengthening, and deeper global integration. The initiative comes at a crucial time when India is striving to reduce its vulnerability to global supply chain disruptions and position itself as a reliable partner in the global high-technology value chain.



DEFINING THE CONCEPT: THE SEMICONDUCTOR IMPERATIVE

Semiconductors are often described as the "invisible brain" and the backbone of modern electronics. They are the fundamental components powering everything from mobile devices and telecommunications to artificial intelligence (AI), defense systems, and aerospace. ISM 2.0 is a refined policy framework designed to deepen domestic capabilities in semiconductor equipment, materials, and Indian Semiconductor Intellectual Property (IP). Unlike its predecessor, ISM 2.0 focuses on "production readiness" and achieving technological depth in advanced manufacturing nodes.

BACKGROUND AND CONTEXTUAL EVOLUTION

The genesis of this mission lies in ISM 1.0, approved in December 2021 with a massive incentive framework of ₹76,000 crore. This initial phase offered up to 50% fiscal support for silicon fabs and design, leading to the approval of 10 major projects with a cumulative investment of ₹1.60 lakh crore by late 2025. Historically, the push for semiconductor self-reliance was accelerated by the COVID-19 pandemic, which exposed the extreme vulnerability of global supply chains. Currently, the industry is highly concentrated; Taiwan alone produces over 60% of the world's semiconductors and nearly 90% of the most advanced chips. This geographical concentration poses a significant risk to India's economic stability, especially as India consumes nearly 20% of the global microprocessor output. In response, India is joining global peers like the US, EU, and Japan in launching domestic chip manufacturing initiatives to ensure technological sovereignty.

SIGNIFICANCE AND STRATEGIC IMPORTANCE

- **Economic Resilience:** As highlighted in the Economic Survey 2025–26, semiconductors are critical for the continuity of energy networks, financial markets, and healthcare.
- **Strategic Autonomy:** By developing indigenous microprocessors like DHRUV64 (a 64-bit indigenous processor), India reduces its long-term dependence on imported chips for critical infrastructure.
- **Global Positioning:** India is positioning itself as a "trusted and reliable partner" in a more resilient global semiconductor network, offering an alternative to the current narrow set of suppliers.
- **Technological Leadership:** The mission provides a roadmap to move beyond assembly to achieve 3-nanometre and 2-nanometre technology nodes by 2029–2035.

ECONOMIC AND SOCIAL IMPACT

- **Market Growth:** The domestic semiconductor market, valued at $38 billion in 2023, is projected

to surge to $100–$110 billion by 2030.

- **Employment Generation:** For FY 2026–27, projects under the Modified Scheme for Semiconductor Fabs and ATMP (Assembly, Testing, Marking, and Packaging) are expected to generate 4,500 direct jobs.
- **Startup Ecosystem:** The Design Linked Incentive (DLI) Scheme has already nurtured 24 startups, which have attracted ₹430 crore in venture capital funding.
- **Academic Innovation:** Over 75 patents have been filed by academic institutions, and 122 designs have been taped out, reflecting a growing culture of indigenous R&D.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Nodal Oversight:** The Ministry of Electronics and Information Technology (MeitY) drives the policy, while C-DAC leads the development of indigenous microprocessors under the Microprocessor Development Programme (MDP).
2. **Human Capital Development:** The "Chips to Startup" programme provides 397 universities access to Electronic Design Automation (EDA) tools.
3. **Skill Alignment:** The AICTE has introduced specialized B.Tech and diploma courses in VLSI design to align academia with industry needs.
4. **Training Infrastructure:** The SMART Lab at NIELIT Calicut and the FutureSkills PRIME (a MeitY-NASSCOM initiative) are training over one lakh engineers in semiconductor technologies.

KEY ISSUES AND CHALLENGES

- **Global Subsidy Wars:** Major economies are offering "aggressive incentives," making it necessary for India to constantly recalibrate its financial support to remain competitive.
- **Technological Lag:** While India is making strides, achieving parity with the 3nm and 2nm nodes dominated by global giants remains a steep climb.
- **Capital Intensity:** Semiconductor manufacturing is exceptionally capital-intensive. The projected investment for compound semiconductors and ATMP units for just one year (2026–27) is ₹11,000 crore.
- **Supply Chain Dependencies:** India still relies on global partners for high-end manufacturing equipment and raw materials, a focus area for ISM 2.0.

CONSTITUTIONAL AND LEGAL DIMENSIONS

The India Semiconductor Mission aligns with the Directive Principles of State Policy (Article 38), which mandates the State to secure a social order for the promotion of the welfare of the people through sustainable economic growth. Furthermore, the push for indigenous R&D and microprocessor development (e.g., DIR-V Program) resonates with the Fundamental Duty (Article 51A) to develop the scientific temper, humanism, and the spirit of inquiry. The focus on Digital Sovereignty is also a legal imperative to protect national security and data integrity in an increasingly digitized global order.

GLOBAL COMPARISON

India's strategy differs from the established models of Taiwan or South Korea. While those nations focus on high-volume manufacturing, India is leveraging its design talent—India already consumes 20% of global microprocessors and has a massive pool of design engineers. By using the RISC-V open-source architecture for its SHAKTI and AJIT processors, India is avoiding the high license costs associated with traditional architectures, creating a more collaborative and cost-effective innovation model than many Western counterparts.

WAY FORWARD

1. **Scaling the Fabless Ecosystem:** The goal should be to expand from 24 supported startups to at least 50 fabless companies to create a robust domestic IP base.
2. **Deepening Value Chains:** Move beyond assembly and testing (ATMP/OSAT) toward the domestic production of semiconductor equipment and materials, as envisioned in ISM 2.0.
3. **Sustaining the Talent Pipeline:** Expand the partnership with global leaders like Lam Research to train 60,000 professionals in specialized nanofabrication over the next decade.

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4. **Strategic International Partnerships:** Continue positioning India as a "trusted hub" to attract diversified global investments away from geographically concentrated zones.

CONCLUSION

India Semiconductor Mission 2.0 represents a decisive move toward Aatmanirbhar Bharat and the realization of Viksit Bharat 2047. By integrating indigenous microprocessor design (DHRUV64) with advanced fabrication targets, India is not just seeking to be a manufacturing base but a global leader in innovation. This mission is central to India's long-term vision of inclusive growth—creating high-value jobs—and sustainable development, as chips are the catalysts for the smart energy and transport systems of the future. Ultimately, ISM 2.0 is the foundation upon which India's digital infrastructure and technological sovereignty will be built in the coming decade.

Prelims Questions

Q. With reference to the India Semiconductor Mission (ISM) 2.0 and indigenous microprocessor development, consider the following statements:

1. DHRUV64 is an indigenous 64-bit microprocessor developed by C-DAC under the Microprocessor Development Programme (MDP).
2. The Digital India RISC-V (DIR-V) Programme utilizes proprietary architectures to ensure global compatibility and high licensing revenues for the government.
3. By 2029, India aims to have the capability to design and manufacture chips required for nearly 70–75% of domestic applications.
4. The ISM 2.0 specifically targets the development of advanced manufacturing nodes, including 3-nanometre and 2-nanometre technology.

Which of the statements given above are correct?

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

Answer: B

Mains Questions

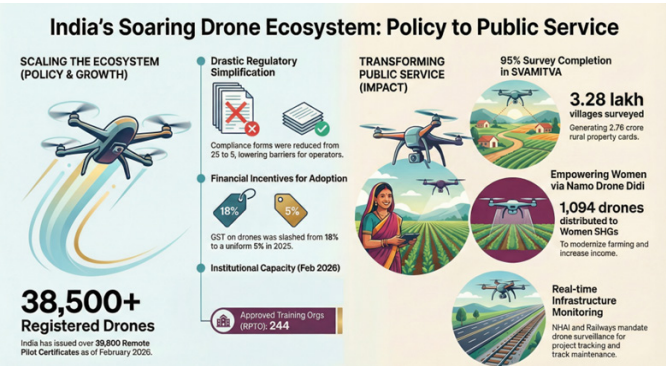
Q. The transition from India Semiconductor Mission (ISM) 1.0 to 2.0 reflects a strategic shift from ecosystem creation to ecosystem consolidation and digital sovereignty." In light of this statement, discuss the significance of ISM 2.0 in the context of global supply chain vulnerabilities and examine the challenges India must overcome to become a leading semiconductor nation by 2035

(250 words, 15 marks)

INDIA'S DRONE REVOLUTION: NAVIGATING THE FLIGHT PATH TO VIKSIT BHARAT 2047

WHY IN THE NEWS?

As of February 2026, India has successfully transitioned from a nascent stage of experimental drone deployment to a mainstream, innovation-driven ecosystem. Recent data indicates a robust expansion with over 38,500 registered drones (UIN), nearly 40,000 DGCA-certified remote pilots, and 244 approved training organizations, signaling the maturation of "Drone-as-a-Service" (DaaS) as a pillar of modern governance.



DEFINING THE CONCEPT

A Drone Ecosystem in the Indian context is a comprehensive, multi-sectoral framework comprising Unmanned Aerial Systems (UAS) manufacturers, software developers, service

providers, and certified training institutions. It operates within a unified regulatory environment (Digital Sky/eGCA) and leverages technology to optimize public service delivery, infrastructure management, and national security.

BACKGROUND AND CONTEXT

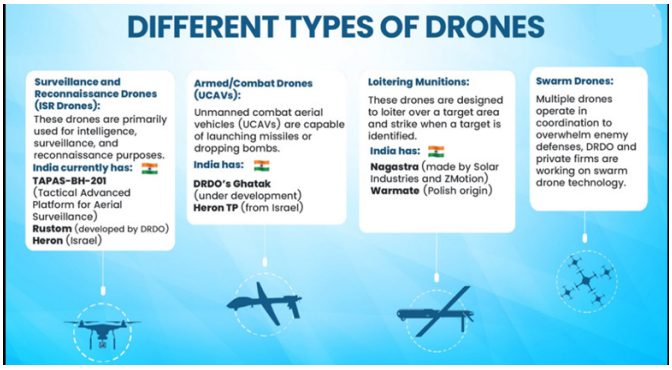
Historically, drones were limited to defense applications and experimental research. However, the last two decades have witnessed an evolution where drones have become central to the "Minimum Government, Maximum Governance" philosophy. The shift was accelerated by the Drone Rules, 2021 and subsequent amendments, which liberalized the sector by removing stringent licensing requirements and simplifying compliance to foster domestic manufacturing and grassroots adoption.

SIGNIFICANCE AND IMPORTANCE

1. **Precision Governance and Rural Empowerment:** Through the SVAMITVA Scheme, drones have revolutionized land records by surveying 3.28 lakh villages (95% of the target) and facilitating the creation of 2.76 crore property cards. This reduces land disputes and enhances the creditworthiness of rural citizens.
2. **Infrastructure Transparency:** The National Highways Authority of India (NHAI) now mandates monthly drone-video recordings for all projects. This creates a "Data Lake" of permanent records that serve as evidence in dispute resolutions and ensure project accountability.
3. **Modernizing Logistics and Railways:** The Railway Protection Force (RPF) utilizes drones for security surveillance in yards and stations, while the Ministry of Railways has directed zones to use UAVs for inspecting hard-to-reach tracks and bridges, significantly improving maintenance efficiency.
4. National Security: In defense, drones provide real-time intelligence and strike capabilities, as demonstrated in Operation SINDOOR, where loitering munitions and Indian drones were used to destroy targets with high precision.

KEY ISSUES AND CHALLENGES

1. **Privacy and Data Security:** While drones provide real-time surveillance for the RPF and NHAI, the lack of a specific, stringent data protection protocol for aerial surveillance data remains a concern regarding individual privacy rights.
2. **Airspace Management:** With nearly 90% of Indian airspace designated as "Green Zones," the challenge lies in managing the increasing traffic to avoid collisions while strictly enforcing "No-Fly Zones" around critical infrastructure.
3. **Import Dependency:** Despite the PLI scheme, India is still in the process of achieving full technological self-reliance for high-end components like flight controllers and sensors.
4. **Skill Gap:** While there are 244 RPTOs, the rapid demand for certified pilots across 31 States and UTs requires even more decentralized training facilities to cater to the agriculture sector.



CONSTITUTIONAL AND LEGAL DIMENSIONS

The drone ecosystem is underpinned by the Drone Rules, 2021 (Amended 2022 & 2023).

- **Simplified Regulatory Architecture:** Compliance forms were reduced from 25 to 5, and approvals dropped from 72 to 4, embodying the spirit of Ease of Doing Business.
- **Decentralization:** The replacement of a traditional pilot license with a Remote Pilot Certificate issued by the DGCA has democratized access to the technology.
- **Digital Governance:** The migration to eGCA for registration and certification ensures a paperless, transparent interface between the citizen and the regulator.

ECONOMIC, SOCIAL, AND ENVIRONMENTAL IMPACT

1. **Economic Impact:** The ₹120 crore PLI scheme for drones and components encourages MSMEs

and startups to scale production. Furthermore, reducing GST on drones to a uniform 5% in 2025 significantly lowered the cost of entry for commercial and personal use.

2. **Social Impact (Namo Drone Didi):** This flagship initiative has distributed 1,094 drones to Women Self Help Groups (SHGs). By training women as "Drone Didis," the government is shifting rural labor from hazardous manual chemical spraying to high-tech precision agriculture, thereby enhancing income and social status.
3. **Environmental Resilience:** The North East Centre for Technology Application and Reach (NECTAR) uses drones for flood and landslide monitoring. These drones provide live visuals that allow for faster, better-coordinated search and rescue operations, minimizing human and environmental loss during disasters.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Digital Sky Platform:** Serves as the single-window interface for flight plans and airspace maps, ensuring that the 38,575 registered drones operate within authorized limits.
2. **Skill Development (SwaYaan):** This capacity-building program has benefited 26,000+ participants, creating a talent pool necessary for the burgeoning sector.
3. **Innovation Incentives (NIDAR):** The National Innovation Challenge encourages students and researchers with a ₹40 lakh prize pool to develop autonomous drones for disaster management and agriculture.

WAY FORWARD

1. **Strengthening Atmanirbharta:** To move beyond the current ₹120 crore PLI, the government should encourage the domestic manufacture of high-value sensors and motors to reduce dependency on foreign supply chains.
2. **Harmonizing Data Standards:** Establishing a national protocol for drone-captured data, especially those used as legal evidence in NHAI disputes, will ensure judicial consistency.
3. **Scaling Rural Infrastructure:** Expanding the number of Remote Pilot Training Organisations (RPTOs) specifically in the North East and hilly regions will support disaster management initiatives like NECTAR.
4. **Integration with PMFBY:** Fully automating crop assessment for the Pradhan Mantri Fasal Bima Yojana via drones will ensure faster and more accurate insurance payouts for farmers.

CONCLUSION

The evolution of India's drone ecosystem is a testament to the transformative power of technology-led governance. By prioritizing inclusive development through the Namo Drone Didi initiative and enhancing transparency via the SVAMITVA Scheme, India is aligning its technological prowess with Constitutional values of social and economic justice. As the nation marches toward Viksit Bharat 2047, the drone sector will remain a critical catalyst for Atmanirbhar Bharat, ensuring that the benefits of the digital revolution reach the "last mile" and contribute to a more resilient and sustainable India.

Prelims question:

Q. With reference to the Drone Rules, 2021, consider the following statements:

1. The Rules replaced multiple approval layers with a simplified digital single-window system.
2. Remote Pilot Certificates are issued by the DGCA instead of requiring a traditional pilot license.
3. The Rules prohibit the use of drones for agricultural purposes.

Which of the statements given above is/are correct?

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

Answer: A

Mains Question:

Q. India's drone ecosystem represents a convergence of technology, governance reform, and rural transformation." Discuss

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the significance of drones in achieving Viksit Bharat 2047 while highlighting the associated regulatory and ethical challenges

(250 words)

INDIA'S AI-DRIVEN YOUTH DIVIDEND: SKILLING, INNOVATION AND INCLUSIVE GROWTH

WHY IN THE NEWS?

India's demographic advantage and AI ambitions gained prominence following the India-AI Impact Summit 2026, which highlighted youth-led innovation, large-scale AI skilling initiatives, and infrastructure expansion under the IndiaAI Mission. The Union Budget 2026-27 further emphasised AI skilling, the creative digital economy, and education-to-employment transitions.

DEFINITION / CONCEPT

Youth dividend in the AI era refers to India's ability to convert its large young population into a productive, innovation-driven workforce through Artificial Intelligence (AI) skilling, infrastructure access, and ecosystem development.

Key elements:

- Demographic advantage
- AI-enabled employability and entrepreneurship
- Digital public infrastructure and compute access
- Responsible and inclusive AI innovation

SIGNIFICANCE

1. **Economic growth:** AI can significantly enhance productivity, innovation, and startup ecosystem growth. Creative digital sectors projected to generate ~2 million jobs by 2030
2. **Employment transformation:** AI job demand rising faster than non-AI roles. Emergence of interdisciplinary careers combining tech with domain expertise
3. **Innovation leadership:** Youth-led startups and research are positioning India as a use-case capital in AI
4. **Inclusive development:** Democratised compute infrastructure reduces urban-rural digital divides
5. **Strategic autonomy:** Indigenous AI models strengthen technological sovereignty

KEY ISSUES / CHALLENGES

1. Skill mismatch between education and industry needs
2. Risk of job displacement in routine tasks
3. Digital divide across regions and socio-economic groups
4. Inadequate research ecosystem compared to global leaders
5. Ethical concerns including bias, privacy, and misinformation
6. Funding and infrastructure constraints for deep-tech startups

CONSTITUTIONAL / LEGAL DIMENSIONS

1. Fundamental Rights

1. **Article 14 —** equality in access to opportunities

2. **Article 19 —** freedom of expression in digital spaces
3. **Article 21 —** privacy and data protection concerns

2. Directive Principles

1. **Article 39 —** equitable distribution of resources
2. **Article 41 —** right to work and education
3. **Article 46 —** promotion of educational and economic interests of weaker sections

3. Judicial dimension: Data privacy jurisprudence emphasises balancing innovation with rights protection.

ECONOMIC / SOCIAL / ENVIRONMENTAL IMPACT

1. **Economic Impact:** Enterprise AI adoption (87%) driving labour demand. Growth of startups beyond metropolitan regions. Enhanced global competitiveness
2. **Social Impact:** Expanded access to education and skill developmen. Women and youth entrepreneurship in AI ecosystem. Improved public service delivery through AI applications
3. **Environmental Impact:** AI enabling climate monitoring, smart agriculture, and energy optimisation. Need to manage energy consumption of AI infrastructure

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Multi-tier skilling ecosystem:** Foundational AI literacy in schools,Vocational training through Skill India and FutureSkills Prime. Advanced research via fellowships and AI labs
2. **Infrastructure expansion:** Subsidised compute and GPU access under IndiaAI Mission. Data and AI labs in Tier-2/3 cities.
3. **Industry-academia collaboration:** Partnerships with technology firms and startups, Innovation challenges and incubation platforms
4. **Labour market governance:** Education-to-Employment Standing Committee to align skills with jobs

GLOBAL COMPARISON

Dimension	India	US	China	EU
Talent scale	Large youth pool	High research intensity	Massive investment	Strong regulation
Infrastructure	Expanding compute access	Advanced tech ecosystem	State-driven AI push	Ethical AI focus
Policy approach	Inclusive and use-case driven	Innovation-led	Strategic dominance	Rights-centric governance

GOVERNMENT INITIATIVES AND POLICY RESPONSE

1. **School-level AI literacy:** AI and Computational Thinking curriculum. YUVAi and AI literacy programmes
2. **Vocational and professional upskilling:** Skill India Mission and SOAR initiative. FutureSkills Prime and Skill India Digital Hub
3. **Advanced research ecosystem:** Fellowships and AI labs under IndiaAI Mission. Expansion of compute infrastructure
4. **Innovation ecosystem:** Global youth challenges and startup platforms, Women-led AI entrepreneurship initiatives

WAY FORWARD

1. **Education reforms:** Embed AI across disciplines. Strengthen STEM and interdisciplinary learning
2. **Labour market transition:** Reskilling and lifelong learning frameworks. Social security for displaced workers
3. **Research and innovation:** Increase R&D investment. Promote academia-industry collaboration
4. **Infrastructure expansion:** Expand affordable compute and data ecosystems. Strengthen rural digital connectivity
5. **Ethical AI governance:** Develop comprehensive AI regulation. Promote transparency and accountability frameworks

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6. **Inclusive ecosystem:** Focus on women, rural youth, and disadvantaged groups. Encourage regional innovation clusters
7. **Global partnerships:** Collaboration in AI research, standards, and governance

CONCLUSION

India stands at a decisive juncture where its demographic dividend can evolve into a youth dividend in the AI era. The momentum generated by initiatives such as the IndiaAI Mission and policy emphasis in the Union Budget 2026-27 reflects a strategic effort to transform the country's vast young population into a globally competitive AI workforce. However, realising this potential requires bridging skill gaps, strengthening research capacity, expanding digital infrastructure, and ensuring ethical AI governance. A balanced approach that combines innovation with inclusivity, productivity with employment security, and technological advancement with constitutional safeguards will be essential.

Prelims question:

Q. With reference to India's youth dividend in the Artificial Intelligence (AI) era, consider the following statements:

1. The youth dividend refers to converting India's large young population into an innovation-driven workforce through AI skilling and infrastructure access.
2. The IndiaAI Mission focuses only on AI research and does not address computer infrastructure or skilling.
3. AI adoption can contribute to productivity growth and create interdisciplinary employment opportunities.

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 1 and 3 only

(c) 2 and 3 only (d) 1, 2 and 3

Answer: B

Mains Question:

Q. India's demographic dividend can transform into a youth dividend in the Artificial Intelligence era.
Discuss the opportunities, challenges, and policy measures required to harness AI-driven youth potential in India. (250 words)

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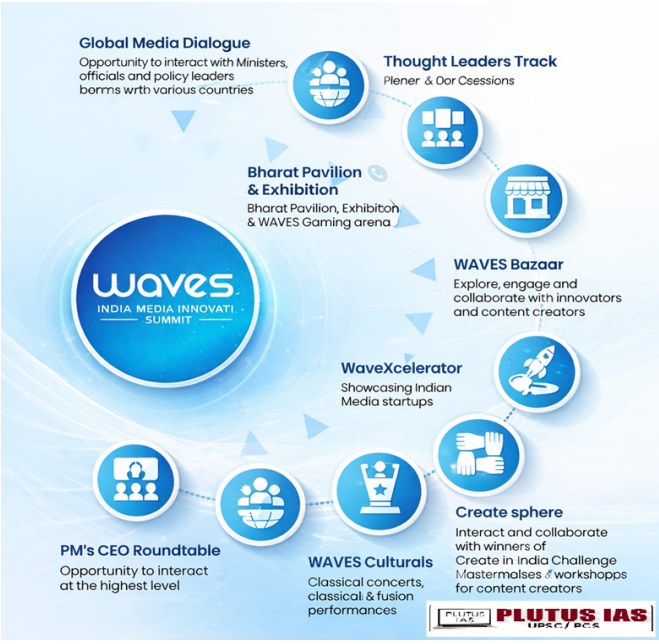
THE DAWN OF A CREATIVE SUPERPOWER: WAVES 2025 AND INDIA'S STRATEGIC SHIFT IN THE MEDIA & ENTERTAINMENT LANDSCAPE

WHY IN THE NEWS?

In May 2025, Mumbai hosted the inaugural World Audio Visual and Entertainment Summit (WAVES 2025), a landmark event that signals India's transition from being a consumer of global content to a central architect of the global creative economy. With the adoption of the WAVES Declaration by 77 nations, the summit has established a multilateral framework for ethical media, digital inclusion, and cross-border co-productions, positioning the creative sector as a primary engine for Viksit Bharat 2047.

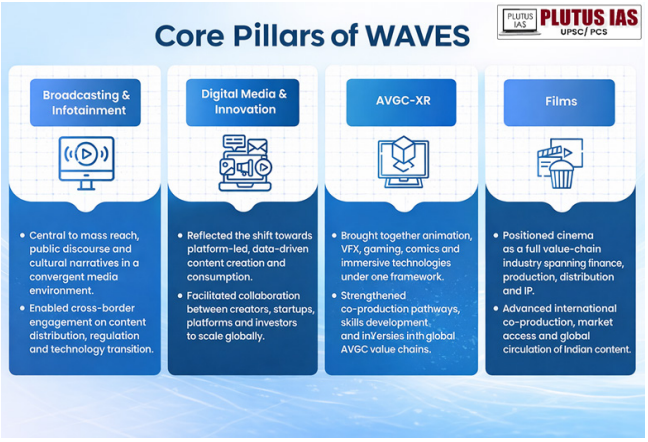


DEFINING THE CONCEPT: THE CREATIVE ECONOMY

The Creative Economy encompasses sectors that bridge culture, technology, and commerce, specifically focusing on the Media and Entertainment (M&E) ecosystem. It includes film, broadcasting, digital media, music, and the rapidly expanding AVGC-XR (Animation, Visual Effects, Gaming, Comics, and Extended Reality) segment. Within the UPSC framework, this sector is viewed not merely as "entertainment" but as a critical component of soft power, employment generation, and technological innovation.

BACKGROUND AND CONTEXT

Historically, India's engagement with the global creative market was fragmented across regional and sectoral lines. WAVES 2025 marks a paradigm shift by creating a single, integrated framework that connects policy, commerce, and talent. The summit was designed as a living interface to link Indian creators with global markets, ensuring that "Create in India" becomes as significant as "Make in India".



SIGNIFICANCE AND IMPORTANCE

- **Economic Growth Engine:** The creative industries are no longer niche; they are export-ready sectors capable of significant

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revenue generation. For instance, the WAVES Bazaar alone facilitated business transactions exceeding ₹800 crore, with projections crossing ₹1,000 crore.

- **Global Soft Power:** By "Connecting Creators and Connecting Countries," India leverages its cultural diversity—from classical traditions to contemporary digital media—to foster global harmony and resilience.
- **Start up Incubation:** Through platforms like Wave X, the summit bridges the gap between early-stage ventures in language technologies and global investors like Google and Microsoft, accelerating the "Lab to Market" transition.
- **Employment and Inclusivity:** The sector is a major provider of opportunities for youth, women, and underrepresented groups, aligning with the goals of inclusive growth.

CONSTITUTIONAL AND LEGAL DIMENSIONS

- **Freedom of Expression (Article 19(1)(a)):** The summit's focus on diverse voices and fact-based journalism reinforces the constitutional right to free speech while emphasizing the duty to counter misinformation and disinformation.
- **Intellectual Property Rights (IPR):** A core pillar of the WAVES Declaration is the protection of intellectual property, which is essential for fair and open markets and the sustainability of creative professions.
- **WAVES Declaration:** This multilateral commitment functions as a "Soft Law" framework, where 77 nations agreed on principles of transparency, accountability, and inclusivity in media governance.

GOVERNANCE AND INSTITUTIONAL ASPECTS

India is building a robust institutional architecture to support this vision:

- **National Centre of Excellence:** The designation of IICT as the National Centre of Excellence for AVGC-XR signals a commitment to advanced skills and production capabilities.
- **Educational Integration:** The government has announced AVGC Content Creator Labs across 15,000 secondary schools and 500 colleges, aiming to train two million professionals by 2030. This represents a forward-looking strategy to embed creative technology into the education system.

KEY ISSUES AND CHALLENGES

- **The Digital Divide:** Despite growth, the WAVES Declaration acknowledges that bridging the digital divide remains a priority to ensure equitable participation across all communities.
- **Ethical Use of AI:** The rise of Artificial Intelligence in content creation poses risks regarding transparency and accountability.
- **Market Friction:** Moving from a "pitch" to a "partnership" often faces bureaucratic and commercial friction, which platforms like WAVES Bazaar seek to mitigate through structured B2B meetings.
- **Misinformation:** In an era of digital media, upholding fact-based journalism and cultural sensitivities while countering disinformation is a constant struggle for regulators.

ETHICAL AND DEMOCRATIC CONCERNS

The summit highlighted that creativity must be guided by public interest content. The WAVES Declaration explicitly calls for the responsible use of emerging technologies, ensuring that AI and digital platforms do not undermine human rights or cultural diversity. This aligns with democratic values of fostering an informed citizenry through ethical media practices.

WAY FORWARD: A POLICY ROADMAP

- **Sustained Infrastructure:** WAVES must transition from a biennial event into a permanent digital infrastructure (like the year-round WAVES Bazaar) to provide continuous market access.
- **Global Co-production Treaties:** India should leverage the WAVES Declaration to sign more bilateral co-production treaties, facilitating joint funding and trade in creative services.
- **Skilling at Scale:** The target of 2 million professionals by 2030 requires urgent implementation of school-level labs to ensure a "talent pipeline" that is globally competitive.

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- **Regulatory Clarity on AI:** Developing a clear legal framework for the use of AI in M&E, focusing on transparency and IPR protection, is essential to attract global studios.

CONCLUSION

WAVES 2025 has demonstrated that India's creative economy is no longer on the sidelines but is a central driver of diplomacy and growth. By combining imagination with organisation, India is positioning itself as a global convener in cultural governance. Ultimately, this initiative serves the vision of Viksit Bharat 2047, linking creative ambition to Sustainable Development Goals (SDGs), long-term peace, and inclusive prosperity.

Prelims question:

Q. With reference to the WAVES Declaration 2025, consider the following statements:

1. It was endorsed by 77 participating nations in Mumbai.
2. It explicitly focuses on bridging the digital divide and the ethical use of Artificial Intelligence.
3. It calls for the total deregulation of media markets to encourage international co-productions.

Which of the statements given above is/are correct?

A) 1 and 2 only B) 2 and 3 only

C) 1 and 3 only D) 1, 2, and 3

Answer: A) 1 and 2 only.

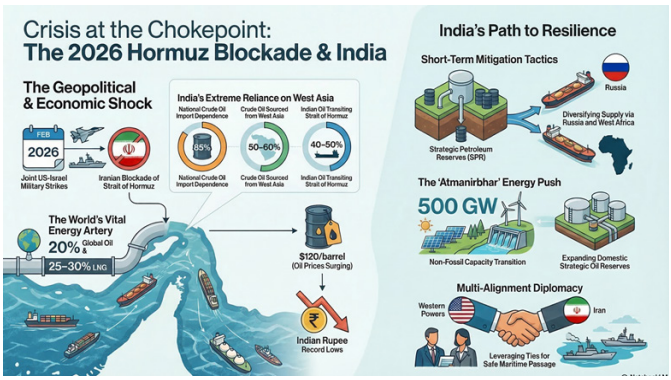
Mains Question:

Q. "The creative economy is evolving from a cultural expression into a strategic engine of economic growth and soft power." In the light of WAVES 2025 and the WAVES Declaration, evaluate India's potential to become a global hub for the AVGC-XR sector by 2047.

WEST ASIA CRISIS AND GLOBAL OIL SUPPLY DISRUPTIONS: CHALLENGES FOR INDIA'S ENERGY SECURITY

WHY IN THE NEWS?

The West Asia conflict escalated dramatically in late February 2026 when the United States and Israel launched joint military strikes on Iran, including the killing of Iran's Supreme Leader Ayatollah Ali Khamenei on February 28, 2026. In retaliation, Iran launched missile and drone attacks on US military bases, Israeli targets, and energy facilities in Gulf states (Saudi Arabia, Qatar, UAE, Kuwait). Iran has effectively blockaded or closed the Strait of Hormuz — a critical chokepoint for ~20% of global seaborne oil and significant LNG flows — halting tanker traffic and disrupting supplies. As of March 13, 2026, Iran's new Supreme Leader Mojtaba Khamenei has vowed to keep the strait closed, causing Brent crude prices to surge (briefly nearing $120/barrel, now around $90–100+ levels with volatility). This has triggered global energy market shocks, supply concerns, and direct economic pressures on import-dependent nations like India.



CONCEPT / DEFINITION

The core issue is geopolitical disruption in energy supply chains via the Strait of Hormuz, a narrow waterway (33 km wide at narrowest) between the Persian Gulf and the Gulf of Oman, bordered by Iran and Oman. It serves as the world's most vital energy chokepoint, carrying ~20% of global oil trade (~16–21 million barrels per day) and ~25–30% of LNG. Iran's actions represent asymmetric warfare using

control over this chokepoint to impose leverage, leading to supply shortages, price spikes (including "war premium"), higher freight/insurance costs, and risks of stagflation globally.

BACKGROUND AND CONTEXT

1. **Historical tensions:** Rooted in long-standing Iran-Israel rivalry, US sanctions on Iran, nuclear concerns, and proxy conflicts (Hezbollah, Houthis). The 2026 escalation marks a direct US-Israel intervention, possibly to prevent Iran's nuclear advancement.
2. **India's context:** India imports ~85% of its crude oil and high shares of LNG/LPG. In 2025, West Asia supplied ~50–60% of crude and ~70% of gas; ~40–50% of India's oil transits the Strait of Hormuz. Past crises (e.g., 2019 tanker attacks, Ukraine war) highlighted vulnerabilities; diversification (Russia as top supplier since 2022) helped, but Gulf dependence remains high.
3. **Global energy dynamics:** IEA monitors chokepoints; emergency stock releases considered amid disruptions.

SIGNIFICANCE

1. **Economy:** Oil price spikes widen India's Current Account Deficit (CAD ~0.8% GDP in H1 FY26, but risks rising), depreciate rupee (hit ~92+ levels), fuel imported inflation (every $10/bbl rise adds 40–100 bps to CPI).
2. **International relations:** Tests India's multi-alignment (ties with US, Israel, Gulf states, Iran via Chabahar); diplomacy active (PM Modi-EAM calls with Iranian leaders for safe passage).
3. **National security & energy security:** Exposes import vulnerabilities; threatens strategic reserves (~20–25 days coverage).
4. **Sustainable development:** Delays clean energy transition by making fossil fuels costlier temporarily.

KEY ISSUES AND CHALLENGES

1. **Geopolitical risks:** Prolonged blockade risks sustained high prices ($100–150+/bbl worst-case), physical shortages for Asia.
2. **Economic vulnerabilities:** Dual shock for India (higher oil + LNG costs); impacts fertilisers (Gulf-linked via Hormuz), petrochemicals, shipping (45,000+ containers stuck), exports.
3. **Policy gaps:** Limited strategic reserves vs. global 90-day norm; over-reliance on single chokepoint.
4. **Institutional limitations:** Coordination between refiners, MoPNG, MEA for diversification/ diplomacy.

CONSTITUTIONAL / LEGAL DIMENSIONS

1. Energy as concurrent subject (List III, Seventh Schedule); Centre's role via Petroleum & Natural Gas Ministry.
2. Essential Commodities Act, 1955 invoked for prioritising domestic gas to LPG.
3. Foreign policy under Article 51 (promote international peace); multi-alignment aligns with Directive Principles.
4. No direct SC judgments, but linked to energy security as part of right to life (Art. 21) in broader welfare sense.

IMPACT

1. **Economic stability:** Inflation rise (transport, food via fertilisers); CAD widening; rupee pressure; sectors like aviation (fuel surcharges), FMCG, construction hit.
2. **Social equity:** LPG queues reported; higher costs burden poor households; potential job impacts in export sectors.
3. **Environmental sustainability:** Temporary setback to renewables push (e.g., solar, EVs); forces reliance on dirtier imports if diversification fails.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Government institutions:** Ministry of Petroleum and Natural Gas (diversification to Russia/US/ West Africa); Strategic Petroleum Reserves; IEA coordination for emergency releases.
2. **Regulatory bodies:** PNGRB for gas; refiners (IOC, BPCL) using buffers.
3. **Public policies:** Atmanirbhar Bharat in energy; National Biofuel Policy; green hydrogen mission.
4. **International organizations:** IEA (emergency stocks); OPEC+ dynamics affected.

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GLOBAL COMPARISON

1. **China:** Similar high dependence (~40% oil via Hormuz); urged reopening but faces dual shocks.
2. **Japan/South Korea:** High vulnerability; diversified via long-term contracts.
3. **US:** Energy exporter now; less impacted, uses leverage in conflict.
4. **Best practices:** EU's REPowerEU (post-Ukraine diversification); US SPR releases.

WAY FORWARD

1. **Diplomatic Engagement:** India should continue active diplomacy with regional stakeholders to ensure the reopening of maritime routes and de-escalation of tensions.
2. **Diversification of Energy Sources:** Expanding imports from Russia, the United States, and Africa can reduce dependence on a single region.
3. **Expansion of Strategic Reserves:** India should gradually build reserves covering 90 days of imports, matching global best practices.
4. **Accelerating Energy Transition:** Investment in renewable energy and electric mobility is essential to reduce fossil-fuel vulnerability. India aims to reach 500 GW of non-fossil capacity by 2030, aligning with climate commitments.
5. **Strengthening Supply Chain Resilience:** Developing alternate trade routes such as the Chabahar Port can reduce dependence on vulnerable chokepoints.

CONCLUSION

The 2026 West Asia conflict, centred on the Strait of Hormuz blockade, underscores the fragility of global energy security and India's deep vulnerabilities as a major importer. While immediate mitigation through diversification and reserves is possible, the crisis reinforces Prime Minister Modi's call (March 11–12, 2026) for accelerated self-reliance in energy — echoing lessons from COVID and Ukraine.

Prelims question:

Q. With reference to the Strait of Hormuz, consider the following statements:

1. It connects the Persian Gulf with the Gulf of Oman.
2. Nearly one-fifth of global seaborne crude oil trade passes through it.
3. It lies between Iran and Saudi Arabia.

Which of the statements given above are correct?

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

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

Answer: A

Mains Question:

Q. The Strait of Hormuz remains one of the most critical energy chokepoints in the world. Discuss how geopolitical conflicts in West Asia affect global energy markets and India's energy security. Suggest measures India should adopt to reduce its vulnerability.

(250 words)

IRAN OIL RELIEF: HOW IRAN OIL RELIEF COULD BENEFIT INDIA'S ENERGY SECURITY

WHY IN THE NEWS ?

Escalating conflict in West Asia has disrupted global oil supplies, pushing crude prices higher and worsening energy security risks. Since the February 28 US-Israel offensive, Iran has effectively constrained traffic through the Strait of Hormuz a key route for about one-fifth of global oil and LNG trade — while attacks on regional energy infrastructure have further tightened supplies and increased market volatility. In response, the US is reportedly considering a temporary suspension of sanctions on Iranian crude already at sea. For India, which imports over 88% of its crude and has historically benefited from Iranian oil's refinery suitability and favourable terms, this could be important. The move may release unsold Iranian barrels into global markets, ease price pressures, improve access to discounted crude,

and strengthen India's short-term energy security amid continuing regional instability.

BACKGROUND

The Strait of Hormuz remains the world's most vital energy artery. Situated between Iran and Oman, it serves as the primary exit route for oil and liquefied natural gas exports from the Persian Gulf. Nearly 20 percent of global seaborne oil trade and a substantial share of LNG pass through this narrow waterway daily. Any disruption here sends immediate ripples across international markets, inflating freight costs, insurance premiums, and benchmark crude prices such as Brent and WTI.

The ongoing West Asia conflict has turned this vulnerability into reality. Following the US-Israel offensive starting February 28, Iran responded by restricting vessel movements, effectively taking a large volume of supply offline. While some cargoes are being rerouted via alternative passages such as the Cape of Good Hope, the bulk remains disrupted. Attacks on energy infrastructure across the region have compounded the issue, leading to a sharp surge in global oil prices and exposing importers like India to acute supply insecurity. The situation underscores how regional conflicts can rapidly translate into global economic shocks, particularly for energy-dependent economies.

WHY IRANIAN OIL MATTERS FOR INDIA

- **India's energy security** rests on a fragile foundation: the country depends on imports for more than 88 per cent of its crude oil needs. In recent months, 2.5–2.7 million barrels per day roughly half of total imports have transited the Strait of Hormuz, with longer-term averages hovering around 40 per cent. This heavy reliance on a single chokepoint makes diversification not just desirable but essential during periods of volatility.
- **Iranian crude historically** occupied a prized position in India's import basket precisely because of its unique advantages. Indian refiners, particularly those with complex configurations, found excellent compatibility with both Iranian Light and Heavy grades. Beyond technical fit, commercial terms were highly attractive: discounted pricing, subsidised shipping costs, and extended credit periods that eased working-capital pressures. These factors allowed Indian buyers to secure reliable volumes at competitive rates, helping stabilise domestic fuel prices and refinery margins even during earlier periods of global uncertainty.

HISTORY OF INDIA-IRAN OIL TRADE

The trajectory of India-Iran oil trade reflects the interplay of geopolitics, sanctions, and pragmatic diplomacy. In the pre-sanctions era, Iran was a cornerstone supplier. During 2009-10, India imported 22.1 million tonnes of Iranian crude — accounting for 14.4 per cent of total imports of 153.6 million tonnes. Even under milder sanctions, volumes remained significant.

When international sanctions intensified between 2010 and 2015, India and Iran innovated a workaround through the Rupee Payment Mechanism. Indian refiners paid 45 per cent of dues in rupees into accounts held by Iranian banks in India; Iran used these funds to purchase Indian goods, effectively creating a barter-linked arrangement. The remaining 55 per cent was deferred until sanctions eased. Major buyers during this phase included Essar Oil (now Nayara Energy) and Mangalore Refinery and Petrochemicals Ltd (MRPL).

The 2015 JCPOA nuclear deal brought a dramatic revival. Sanctions were lifted, and imports surged 13.6 million tonnes in 2015-16 and a peak of 27.1 million tonnes in 2016-17, when Iran became India's third-largest supplier after Saudi Arabia and Iraq (12.6 per cent of total imports of ~215 million tonnes). Tehran sweetened deals with further discounts on shipping and credit.

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The decline began in 2017-18 (22.6 million tonnes) due to multiple factors: bilateral tensions over a gas field, India's deliberate supply diversification, and — most critically — the US withdrawal from the JCPOA under President Trump and the reimposition of sanctions. A temporary US waiver allowed some imports, but it expired in May 2019. Volumes crashed to just 2 million tonnes in 2019-20 and then fell to zero. India complied fully to avoid secondary sanctions, replacing Iranian barrels with Middle Eastern, US, and other grades.

POTENTIAL BENEFITS OF IRAN OIL RELIEF FOR INDIA

A temporary easing of sanctions on the estimated 170 million barrels of Iranian crude currently afloat (including floating storage and in-transit cargoes, per Kpler data) could deliver multiple gains. **First**, increased global supply would exert downward pressure on crude prices, providing immediate relief to India's import bill. **Second**, it would enable diversification away from the conflict-disrupted Strait of Hormuz route, reducing vulnerability.

Third, Indian refiners could secure discounted Iranian grades once more, improving bargaining power vis-à-vis other suppliers. Fourth, the relief would strengthen short-term energy security by offering an alternative contracting channel during instability. **Finally**, redirecting barrels previously heading to China would inject incremental supply into open markets, benefiting price-sensitive importers like India without requiring long-term policy shifts.

OPERATIONAL FEASIBILITY

Indian refiners are exceptionally well-positioned to absorb Iranian crude quickly. Past experience in processing both Light and Heavy Iranian grades means minimal operational adjustments are needed. Established trading desks, long-standing relationships with Iranian suppliers, and proven logistics expertise further smooth the transition.

The precedent is clear: after **Western sanctions on Russia** created market opportunities, India rapidly scaled up Russian crude imports from negligible levels to become the largest buyer within months. Analysts note that a similar swift pivot is feasible with Iranian oil if sanctions enforcement is relaxed, underscoring the operational agility of Indian refineries and trading firms.

STRATEGIC AND GEOPOLITICAL DIMENSIONS

The US decision to consider temporary sanctions relief highlights the flexible use of sanctions as a geopolitical tool — mirroring the earlier month-long waiver granted for Russian crude. By allowing Iranian oil already at sea to reach global markets, Washington can stabilise supply without committing to permanent policy change.

For India, the move offers a chance to balance energy needs with diplomacy. While China might lose some volumes, Gulf producers could face marginal competition, and India's foreign-policy balancing act between the US, Israel, and Iran would require careful navigation. New Delhi must seize the window for imports while maintaining diplomatic caution to avoid future secondary-sanction risks.

CHALLENGES AND LIMITATIONS

Any relief would be temporary and partial, not a structural reopening of trade. Renewed enforcement could abruptly halt flows, exposing buyers to renewed secondary sanctions. Practical hurdles persist: shipping and insurance constraints in a conflict zone, the absence of a reliable payment mechanism post-2019, and the broader risk of over-dependence on West Asian supplies amid recurring instability.

Moreover, while Iranian crude offers short-term relief, it does not address India's underlying structural vulnerabilities high import dependence and exposure to a single volatile region.

WAY FORWARD

India should treat the potential Iran oil relief as a tactical opportunity rather than a long-term solution. Key measures include accelerating diversification of crude sources beyond West Asia, rapidly expanding strategic petroleum reserves to buffer shocks, and deepening energy diplomacy with stable producers. Simultaneously, accelerating the shift to renewables, developing resilient rupee-based or alternative payment systems, and investing in domestic refining flexibility will build enduring resilience. Long-term contracts with diversified suppliers and enhanced maritime security cooperation can further insulate the economy from future chokepoint disruptions.

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CONCLUSION

The prospective Iran oil relief offers India a timely window for short-term price relief, supply diversification, and enhanced energy security amid the West Asia conflict. By leveraging historical refinery compatibility and operational readiness much like the successful Russian crude pivot Indian refiners can quickly integrate these barrels, easing the burden of elevated global prices and Strait of Hormuz disruptions.

Yet this relief is inherently temporary and geopolitically contingent. True long-term energy security demands structural reforms: aggressive source diversification, strategic reserve build-up, renewable energy expansion, and innovative financing mechanisms. As India navigates the complex interplay of sanctions, conflict, and global supply dynamics, a balanced approach seizing immediate opportunities while pursuing deeper resilience will determine its ability to safeguard energy security in an increasingly volatile world.

Prelims question:

Q. With reference to the Strait of Hormuz and India's energy security, consider the following statements:

1. The Strait of Hormuz carries about one-fifth of global oil and a significant share of LNG trade.
2. About half of India's crude oil imports pass through the Strait of Hormuz.
3. India stopped importing Iranian crude in 2019 due to renewed US sanctions.
4. The US is considering temporary relief for Iranian crude already at sea, which may ease supplies in global markets.

Which of the statements given above are correct?

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

Answer : C

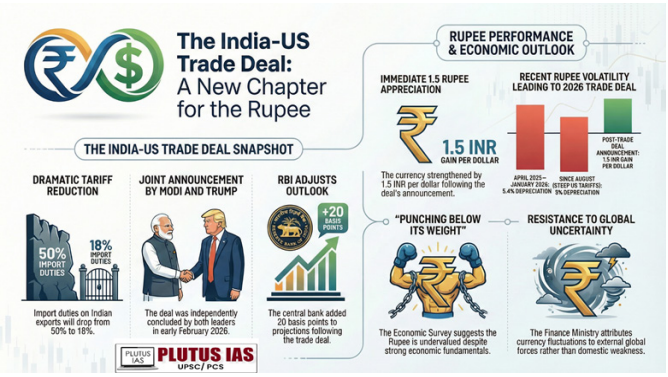
Mains Question:

Q. Discuss the history of India-Iran oil trade, the strategic importance of the Strait of Hormuz, and the likely gains and limits of renewed Iranian oil access for India. Suggest measures for long-term energy resilience. (250 Words)

INDIA–US TRADE DEAL AND THE INDIAN RUPEE: NAVIGATING CURRENCY DYNAMICS AMID GLOBAL UNCERTAINTY

WHY IN THE NEWS?

The global economic landscape witnessed a significant shift with the independent announcements by Prime Minister Narendra Modi and US President Donald Trump regarding the conclusion of a landmark India-US trade deal. Following this announcement, Reserve Bank of India (RBI) Governor Sanjay Malhotra observed that the Indian currency appreciated by approximately 1.5 Rupees per dollar, highlighting the immediate market sensitivity to bilateral trade breakthroughs. The Governor further emphasized that while the deal is a positive catalyst, the precise long-term impact on the Rupee will be dictated by the "specific details of the pact".



DEFINING THE CONCEPT: CURRENCY DYNAMICS IN TRADE

In macroeconomics, the exchange rate of the Indian Rupee (INR) against the US Dollar (USD) is not merely a number but a reflection of India's trade competitiveness, capital flows, and economic health. This trade-currency nexus is defined by how changes in trade barriers—such as tariffs—alter the demand for domestic currency. A trade deal that lowers tariffs essentially reduces the cost of Indian goods in the US, potentially increasing export volumes and, consequently, the demand

for the Rupee. Currently, the discourse centers on "managed volatility," where the RBI intervenes to prevent erratic swings while allowing market forces to determine the currency's fundamental value.

SIGNIFICANCE / IMPORTANCE

- **Drastic Tariff Rationalization:** The deal facilitates a massive reduction in tariffs on Indian exports, bringing them down to 18% from a staggering 50% (which included a 25% punitive levy previously imposed).
- **Export Competitiveness:** Lower tariffs act as a direct stimulus for merchandise exports, which Governor Malhotra identifies as a key driver to "sustain growth momentum".
- **Sentiment and Speculation Control:** The announcement has already led to a reduction in intraday short bets, as traders recalibrate their positions in favor of a stronger Rupee supported by expected trade inflows.
- **Macroeconomic Signaling:** The RBI's proactive addition of 20 basis points to certain metrics following the deal signals institutional confidence in the deal's ability to bolster India's external account.

KEY ISSUES / CHALLENGES

- **Persistent Depreciation:** Between April 1, 2025, and mid-January 2026, the Rupee depreciated by approximately 5.4% against the US Dollar.
- **The "External Forces" Factor:** Finance Minister Nirmala Sitharaman has pointed out that while domestic "fundamentals are fine," the Rupee is being disproportionately affected by "global uncertainty".
- **Corporate Dollar Demand:** High and persistent demand for US Dollars from corporate India for imports and debt servicing continues to put downward pressure on the domestic currency.
- **Tariff Sensitivity:** The Rupee is highly sensitive to US trade policy; it fell nearly 5% specifically after the US imposed steep tariffs on Indian merchandise in August 2025.

ECONOMIC / SOCIAL / ENVIRONMENTAL IMPACT

- **Strategic Undervaluation:** The latest Economic Survey notes that the Rupee is currently "punching below its weight". While this suggests the currency doesn't reflect India's "stellar economic fundamentals," an undervalued Rupee is currently serving as a strategic "offset" against remaining American tariffs.
- **Inflationary Buffer:** Usually, a weak Rupee leads to "imported inflation" (especially via oil). However, the sources indicate there is currently no threat of higher inflation from crude oil imports, providing the RBI more room to manage the currency without immediate price stability concerns.
- **Growth Linkage:** By boosting merchandise exports through the trade deal and Free Trade Agreements (FTAs), the economy can maintain its high-growth trajectory, which is essential for job creation and poverty reduction.

GOVERNANCE AND INSTITUTIONAL ASPECTS

- **RBI's Interventionist Philosophy:** The RBI maintains that it does not target a specific level or band for the Rupee. Its mandate is strictly to "curb excessive volatility" to ensure market stability.
- **Market Support Mechanisms:** The Rupee's recent stability near the Rs 91.97 mark has been largely supported by foreign banks' dollar sales and the central bank's tactical presence in the forex market.
- **Fiscal-Monetary Coordination:** The Finance Ministry's focus on maintaining strong "fundamentals" (as noted in Budget 2026) provides the necessary backdrop for the RBI to manage external shocks effectively.

ETHICAL / DEMOCRATIC CONCERNS

- **Equitable Growth:** A volatile currency can disproportionately hurt small-scale exporters and consumers if it leads to inflation.
- **Transparency in Trade:** The Governor's remark that the impact "depends on the details" underscores the need for transparency in bilateral pacts to allow domestic industries to prepare for the transition.

WAY FORWARD

1. **Diversification of the Export Basket:** Beyond simply benefiting from lower tariffs, India must

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use the 18% tariff window to move into high-value manufacturing and technology exports, ensuring that dollar inflows are diverse and resilient to sector-specific shocks.

2. **Strengthening Hedging Mechanisms:** To manage the "high corporate dollar demand," the government and RBI should facilitate easier and more cost-effective currency hedging for Indian firms, reducing sudden spikes in dollar demand that destabilize the Rupee.
3. **Active FTA Outreach:** Following the India-US model, India should fast-track other Free Trade Agreements (FTAs). As Governor Malhotra noted, these are essential to "sustain growth momentum" and provide a buffer against the volatility of any single trading partner.
4. **Calibrated Forex Intervention:** The RBI should continue its policy of curbing "excessive volatility" while gradually allowing the Rupee to move toward its fair value as global uncertainties (like those cited by the Finance Minister) subside.
5. **Leveraging the Energy Shield:** Since stable crude oil prices are currently preventing "imported inflation," India should accelerate its energy transition and strategic petroleum reserves to ensure this shield remains permanent, even if global oil prices rise in the future.
6. **Enhancing "Viksit Bharat" Fundamentals:** Focus must remain on the domestic fundamentals—fiscal discipline, infrastructure, and ease of doing business—so that the Rupee's "stellar economic fundamentals" eventually outweigh external speculative forces.

CONCLUSION

The India-US trade deal marks a strategic victory in navigating an era of global protectionism. By reducing tariffs and boosting export prospects, the deal provides a vital anchor for the Indian Rupee in turbulent waters. While the currency may currently be "punching below its weight" due to external shocks, the path forward lies in utilizing this period of "strategic undervaluation" to build a robust, export-led economy.

Ultimately, a stable and resilient Rupee is fundamental to the vision of Viksit Bharat 2047. By aligning trade diplomacy with sound monetary governance and inclusive growth, India can ensure that its currency becomes a global symbol of its Atmanirbhar (self-reliant) and stellar economic strength. This transition will be pivotal in achieving sustainable development and maintaining India's leadership in the democratic global order.

Prelims Questions

Q. With reference to the impact of trade agreements on currency valuation, consider the following statements:

1. Reduction in tariffs on exports can increase demand for the domestic currency by boosting export volumes.
2. A policy of "managed volatility" implies that the central bank targets a fixed exchange rate band.
3. An undervalued currency can sometimes act as a buffer against external trade shocks.

Which of the statements given above are correct?

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

Answer: B

Mains Questions

Q. Discuss how trade liberalisation influences the valuation of the Indian Rupee. In this context, examine the role of the RBI in managing exchange rate volatility and suggest measures to ensure that the Rupee reflects India's economic fundamentals.

(250 words, 15 marks)

EXPORT PROMOTION MISSION: REVOLUTIONISING INDIA'S EXPORT ECOSYSTEM FOR MSMES

WHY IN THE NEWS?

The Export Promotion Mission (EPM), approved by the Government of India in November 2025,

marks a transformative, mission-mode approach to strengthening India's global trade presence. With a total financial outlay of ₹25,060 crore for the period FY 2025–26 to FY 2030–31, the EPM is designed to provide a unified, digitally driven framework that converges multiple export-support measures into a single institutional pathway.

WHAT IS EXPORT PROMOTION MISSION (EPM)

The EPM was conceived to address the fragmentation in India's export support architecture. By adopting a "whole-of-government" approach, the mission integrates policy support, trade finance, market readiness, and market linkages. It specifically targets Micro, Small, and Medium Enterprises (MSMEs), first-time exporters, and labour-intensive sectors to ensure that India's growth is inclusive and export-led.

KEY FEATURES AND COMPONENTS OF EPM

The Mission is implemented through two integrated sub-schemes: Niryat Protsahan (Financial Enablers) and Niryat Disha (Non-Financial Enablers). Currently, 10 interventions are operational under the EPM.

A. Niryat Protsahan Financial Enablers This sub-scheme addresses credit constraints through various instruments:

- **Support for Export Factoring:** Provides immediate cash to exporters by selling receivables. It offers an interest subvention of 2.75% on factoring costs, capped at ₹50 lakh per IEC.
- **Credit for E-Commerce Exporters:** Supports MSMEs using postal or courier channels. It offers 90% guarantee coverage for direct credit (capped at ₹50 lakh) and 75% coverage for overseas inventory credit (capped at ₹5 crore). Eligible exporters also receive a 2.75% interest subvention.
- **Emerging Export Opportunities:** A risk-sharing model covering 10% to 90% of transaction values to help MSMEs enter high-risk markets.
- **Interest Subvention for Pre/Post-Shipment Credit:** A continuing intervention providing 2.75% subvention (max ₹50 lakh) to improve working capital liquidity.
- **Collateral Support:** Offers credit guarantee coverage of 85% for micro/small enterprises and 65% for medium enterprises, with a credit limit of up to ₹10 crore.

B. Niryat Disha – Non-Financial and Market Access Enablers This sub-scheme focuses on compliance, logistics, and global visibility:

- **TRACE (Trade Regulations, Accreditation and Compliance Enablement):** Assists MSMEs in meeting international standards. It provides 60% to 75% financial assistance for certification costs, capped at ₹25 lakh annually.
- **LIFT (Logistics Interventions for Freight and Transport):** Reduces the cost of transporting goods from hinterland districts to ports. It covers up to 30% of actual costs, capped at ₹20 lakh per year.
- **INSIGHT (Integrated Support for Trade Intelligence):** Addresses information gaps. Private entities can receive up to 50% support, while government entities may receive 100% for trade analytics and capacity building.
- **FLOW (Facilitating Logistics, Overseas Warehousing and Fulfilment):** Supports overseas storage. Assistance includes up to ₹10 crore for warehouses and ₹5 lakh/month for fulfilment arrangements.
- **Market Access Support (MAS):** Funds participation in trade fairs and buyer-seller meets, with support up to ₹5 crore (regular events) or ₹10 crore (reverse meets).

SIGNIFICANCE: ECONOMY, MSMES, AND GVCS

The EPM's significance lies in its ability to bridge the gap between local production and global demand:

- **MSME Empowerment:** By reducing the cost of finance and compliance, it enables small units to scale up and sustain global participation.
- **Employment and Inclusive Growth:** Focus on labour-intensive sectors ensures that export growth translates into job creation and decentralised development.
- **Global Value Chain (GVC) Integration:** Interventions like TRACE and FLOW ensure Indian products meet the quality and delivery timelines required for GVC integration.
- **Economic Resilience:** Diversifying markets through the "Emerging Export Opportunities" intervention mitigates over-dependence on traditional trade partners.

CHALLENGES AND LIMITATIONS

While EPM is robust, several challenges remain:

- **Implementation Complexity:** Coordinating between Central Ministries, State authorities, and Indian Missions abroad requires high levels of institutional synergy.
- **Risk Management:** The shared-risk models have strict exposure caps (e.g., 15% country-wise cap), which might limit large-scale expansion in specific volatile markets.
- **Awareness Gaps:** As of early 2026, registration numbers are still growing (e.g., 3,000 for interest subvention; 60 for collateral support), indicating a need for broader outreach among MSMEs.
- **Global Risks (External Context):** Rising protectionism, geopolitical tensions affecting shipping routes, and varying international carbon standards (like CBAM) pose external threats not fully mitigated by domestic financial support.

WAY FORWARD

To maximise the EPM's impact, the following steps are essential:

- **Digitalisation:** Full transition to the dgft.gov.in and trade.gov.in portals for all claims and approvals to ensure a paperless, transparent process.
- **Institutional Strengthening:** Using the INSIGHT intervention to build district-level export hubs and improve trade intelligence at the grassroots.
- **Policy Convergence:** Aligning the EPM with the "Districts as Export Hubs" initiative and the Production Linked Incentive (PLI) schemes to create a seamless "Make in India for the World" pipeline.

CONCLUSION

The Export Promotion Mission (EPM) marks a major shift in India's trade strategy by creating an integrated export support system instead of fragmented schemes. It addresses both financial constraints and non-financial barriers like compliance, logistics, and market access to reduce export costs and enhance global competitiveness. Through a whole-of-government approach, EPM aims to empower MSMEs and promote inclusive, decentralised, and sustainable export-led growth.

Prelims question:

Q. With reference to the Export Promotion Mission (EPM), consider the following statements:

1. It is a flagship initiative with a total outlay of over ₹25,000 crore for the period ending in FY 2030–31.
2. The Niryat Protsahan sub-scheme focuses exclusively on non-financial enablers such as quality standards and logistics.
3. Under the TRACE intervention, MSME exporters can receive financial assistance for international testing and certification.

Which of the statements given above is/are correct?

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

Answer - B) 1 and 3 only

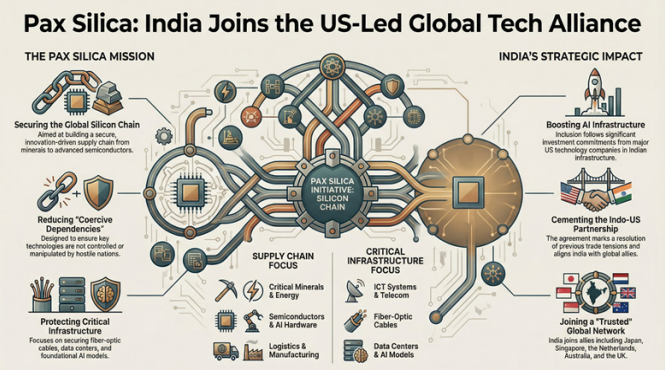
Mains Question:

Q. "The Export Promotion Mission (EPM) represents a shift from fragmented support to a coordinated ecosystem for Indian exporters." Discuss the role of EPM in enhancing the competitiveness of MSMEs and its potential impact on India's integration into Global Value Chains (GVCs). (250 Words)

PAX SILICA AND THE NEW GEOPOLITICS OF TECHNOLOGY: STRENGTHENING INDIA'S STRATEGIC AND DIGITAL SOVEREIGNTY

WHY IN THE NEWS?

On February 20, 2026, India formally transitioned from a peripheral observer to a core participant in the global high-tech alliance by signing the Pax Silica declaration. This landmark event occurred on the sidelines of the India AI Impact Summit in New Delhi, marking a significant pivot in Indo-US relations and India's positioning within the global semiconductor and Artificial Intelligence (AI) landscape. The signing follows months of diplomatic negotiation aimed at resolving trade-related uncertainties that had initially seen India excluded from the group's launch in December 2025.



DEFINING PAX SILICA

Pax Silica is a US-led strategic initiative designed to create a "secure, prosperous, and innovation-driven silicon supply chain." According to the United States Department of State, the framework is predicated on the concept of "trusted geography," bringing together friendly and trusted nations to ensure that critical and emerging technologies—specifically those involving semiconductors and AI—are safe, reliable, and insulated from the influence of hostile actors.

The scope of Pax Silica is comprehensive, covering the entire silicon lifecycle, including:

1. **Upstream:** Extraction and processing of critical minerals and energy inputs
2. **Midstream:** Advanced manufacturing and semiconductor fabrication
3. **Downstream:** AI infrastructure, logistics, and foundational models
4. **Critical Infrastructure:** Fiber-optic cables, data centers, and Information and Communication Technology (ICT) systems

BACKGROUND AND CONTEXT: FROM EXCLUSION TO CONVERGENCE

The initiative was officially launched on December 12, 2025, with an initial membership consisting of allies such as Japan, Republic of Korea, Singapore, Netherlands, United Kingdom, Israel, United Arab Emirates, and Australia. India's initial exclusion raised concerns among policy analysts regarding a potential trust deficit or trade friction between New Delhi and Washington. However, the arrival of US Ambassador Sergio Gor signaled a dialing down of tensions. The subsequent agreement on a framework for an Indo-US trade deal paved the way for India's inclusion, reflecting a realization that India's vast market and growing tech prowess are indispensable to the success of a China-plus-one strategy in the tech sector.

SIGNIFICANCE AND IMPORTANCE

1. **Countering Coercive Dependencies:** The primary strategic objective of Pax Silica is to reduce coercive dependencies on countries of concern, specifically targeting China's current dominance in global manufacturing supply chains.
2. **Securing Critical Infrastructure:** By joining this framework, India gains access to a trusted technology ecosystem, vital given long-standing

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security concerns regarding foreign involvement in sensitive sectors such as telecommunications and ICT.

3. **Technological Parity:** The initiative places India at the high table of global technology governance, ensuring participation in standards governing foundational AI models and applications.
4. **Strategic De-risking:** It provides a multilateral platform to de-risk supply chains from geopolitical shocks and unilateral disruptions.

ECONOMIC AND GOVERNANCE ASPECTS

1. **Investment Inflow:** India's entry into Pax Silica is synchronized with substantial investment commitments from US tech giants. The participation of leaders like Sundar Pichai and Sam Altman at the AI summit underscores the value global capital places on the Indian AI and semiconductor ecosystem.
2. **Catalyst for Domestic Missions:** The partnership is expected to provide technological and financial impetus to the India Semiconductor Mission and the country's AI ambitions.
3. **Infrastructure Protection:** The framework mandates higher security standards for data centers and fiber-optic cables, which are the backbone of the digital economy.

KEY ISSUES AND CHALLENGES

1. **Balancing Strategic Autonomy:** A major challenge for Indian diplomacy will be participation in a US-led security architecture while preserving strategic autonomy and avoiding technological dependency.
2. **Trade Uncertainties:** Differences in trade policy can affect strategic cooperation, highlighting the need for regulatory consistency.
3. **Implementation Gaps:** Transitioning from a late-starter in semiconductors to a global leader requires overcoming domestic bottlenecks in infrastructure and skilled workforce availability.

CONSTITUTIONAL AND LEGAL DIMENSIONS

From a UPSC perspective, Pax Silica aligns with multiple constitutional and legal frameworks:

1. **Article 51 (Directive Principles of State Policy):** Promotes international peace, security, and honorable relations among nations.
2. **Data Sovereignty and Privacy:** The initiative intersects with India's evolving data protection framework, including the Digital Personal Data Protection Act.
3. **National Security:** The emphasis on trusted ICT systems aligns with regulatory powers under the Information Technology Act, 2000, to block or regulate technologies threatening national security.

GLOBAL COMPARISON: THE "SILICON CURTAIN"

1. **Pax Silica represents a shift from globalized** open-market tech chains toward geofenced or trusted chains. Unlike the Cold War-era Iron Curtain, the Silicon Curtain reflects selective decoupling rather than total isolation.
2. **US Approach:** Focus on security and maintaining technological edge over hostile players
3. **India's Approach:** Transition from strict strategic autonomy toward selective alignment in critical sectors like telecom and AI
4. **Regional Context:** Inclusion of Indo-Pacific partners highlights broader regional alignment to secure silicon supply chains

WAY FORWARD

1. **Strengthening the Upstream:** Secure access to critical minerals such as gallium and germanium essential for semiconductor fabrication
2. **R&D and Human Capital:** Invest heavily in foundational AI research and talent development to move from consumer to innovator
3. **Legislative Harmony:** Harmonize domestic tech regulations with Pax Silica standards for seamless integration
4. **Incentivizing Private Sector:** Translate global partnerships into domestic manufacturing facilities through the India Semiconductor Mission

CONCLUSION

India's entry into Pax Silica is more than a diplomatic achievement; it is a strategic necessity in an era

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where data is the new oil and silicon is the new soil. By aligning with trusted global partners, India is securing its digital frontiers against external coercion while fostering inclusive growth and innovation. This partnership strengthens the vision of Atmanirbhar Bharat and supports India's journey toward Viksit Bharat 2047, ensuring technological resilience, democratic values, and progress toward Sustainable Development Goal 9 (Industry, Innovation, and Infrastructure).

Prelims question:

Q. Consider the following statements regarding semiconductor supply chains:

1. Semiconductors are critical components for Artificial Intelligence, telecommunications, and defence technologies.
2. The global semiconductor supply chain is concentrated only in raw material extraction and not in fabrication.
3. Supply chain diversification is often pursued to reduce geopolitical risks and coercive dependencies.

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 1 and 3 only

(c) 2 and 3 only (d) 1, 2 and 3

Answer: B

Mains Question:

Q. Discuss the significance of emerging technology alliances such as Pax Silica in shaping global semiconductor supply chains and India's strategic and digital sovereignty.

(250 words)

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PASSIVE EUTHANASIA AND THE RIGHT TO DIE WITH DIGNITY: CONSTITUTIONAL, ETHICAL AND LEGAL PERSPECTIVES

WHY IN THE NEWS ?

Recently, the Supreme Court permitted the withdrawal of life support for Harish Rana, a 32-year-old patient who had remained in a persistent vegetative state for nearly thirteen years following an accident. The bench comprising Justice J. B. Pardiwala and Justice K. V. Viswanathan held that continuing medical treatment in such circumstances would be futile and not in the patient's best interest. The decision reaffirmed the constitutional principle that the right to life includes the right to die with dignity, thereby strengthening the legal acceptance of passive euthanasia in India.

This judgment represents a significant milestone in India's evolving jurisprudence on euthanasia, balancing ethical concerns, constitutional values, and medical realities.

UNDERSTANDING EUTHANASIA

Euthanasia refers to the practice of intentionally ending a person's life to relieve suffering, particularly in cases of terminal illness or irreversible medical conditions. The term originates from the Greek words meaning "good death."

Euthanasia can broadly be categorized into:

- **Active Euthanasia:** Active euthanasia involves directly causing the death of a patient through deliberate medical intervention, such as administering a lethal injection. This form remains illegal in India and many other countries because it involves active participation in ending a life.
- **Passive Euthanasia:** Passive euthanasia involves withdrawing or withholding life-sustaining treatment, such as ventilators, feeding tubes, or medications, allowing the patient to die naturally. It does not involve directly causing death but rather allowing the natural course of illness to take place.

India's legal system currently recognizes only passive euthanasia, subject to strict safeguards and judicial oversight.

EVOLUTION OF EUTHANASIA JURISPRUDENCE IN INDIA

The debate surrounding euthanasia in India has evolved through several landmark judicial decisions.

Early Legal Position

- **In Gian Kaur v. State of Punjab (1996),** the Supreme Court held that the right to life under Article 21 does not include the right to die. The Court upheld the constitutional validity of laws criminalizing suicide and assisted suicide. However, the judgment acknowledged that the right to die with dignity in the context of terminal illness could be considered separately.
- **Aruna Shanbaug Case:** The issue resurfaced prominently in Aruna Shanbaug v. Union of India (2011), involving a nurse who had remained in a vegetative state for decades following a brutal assault. In this case, the Supreme Court allowed passive euthanasia under exceptional circumstances and laid down guidelines for withdrawing life support with approval from High Courts.

This judgment marked the first legal recognition of passive euthanasia in India, though it required strict judicial supervision.

- **Recognition of Living Wills:** A further development occurred in Common Cause v.

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Union of India (2018), where the Supreme Court recognized the legality of living wills or advance medical directives. A living will allows individuals to specify in advance that they do not wish to receive life-prolonging treatment if they become terminally ill or incapable of making decisions. This decision firmly established the principle that dignity in death is an integral part of dignity in life.

THE RECENT HARISH RANA CASE

The recent case concerning Harish Rana has once again brought the issue of euthanasia into public discourse. Rana had been in a persistent vegetative state for nearly thirteen years after suffering severe brain injury in an accident.

After evaluating medical reports and expert opinions, the Supreme Court bench consisting of **Justice J.B. Pardiwala** and **Justice K.V. Viswanathan** concluded that continuing life-support treatment would not improve the patient's condition and would only prolong suffering. The Court therefore permitted the withdrawal of life-support measures.

The judgment emphasized that medical decisions must prioritize the **best interests and dignity of the patient**, rather than merely extending biological life through artificial means.

CONSTITUTIONAL BASIS: ARTICLE 21 AND HUMAN DIGNITY

The right to life is one of the most fundamental human rights recognized by modern constitutional democracies. In India, this right is enshrined in Article 21 of the Constitution of India, which guarantees that no person shall be deprived of life or personal liberty except according to procedure established by law. Over the years, the interpretation of Article 21 by the Supreme Court of India has expanded beyond mere physical survival to include the right to live with dignity.

The interpretation of Article 21 has undergone significant transformation through judicial activism. The Supreme Court has repeatedly emphasized that life under Article 21 means a life with dignity, autonomy, and meaningful existence.

By recognizing passive euthanasia, the Court reinforced the idea that forcing a patient to endure prolonged suffering or irreversible vegetative existence may violate the very dignity that Article 21 seeks to protect.

The recognition of the right to die with dignity thus represents an extension of constitutional morality and human rights principles.

ETHICAL DIMENSIONS OF EUTHANASIA

The debate on euthanasia involves complex ethical considerations involving autonomy, compassion, and medical responsibility.

- **Autonomy:** One of the strongest arguments supporting passive euthanasia is respect for patient autonomy. Individuals should have the freedom to decide the course of their medical treatment, including the refusal of life-prolonging interventions. Living wills and advance directives empower individuals to make these decisions beforehand.
- **Compassion and Relief from Suffering :** Terminally ill patients often experience intense pain and irreversible decline. Passive euthanasia allows them to avoid unnecessary suffering and maintain dignity during the final stages of life.
- **Medical Ethics:** Doctors traditionally follow the principle of "do no harm." However, prolonging life artificially in hopeless situations may sometimes be considered harmful. Allowing natural death may align better with ethical medical practice in such cases.

CONCERNS AND RISKS

Despite its ethical justification, euthanasia raises several concerns.

- **Possibility of Misuse:** Critics argue that euthanasia could be misused for financial gain, inheritance disputes, or to relieve families of caregiving burdens.
- **Pressure on Vulnerable Patients:** Elderly or disabled individuals might feel pressured to choose euthanasia to avoid being perceived as a burden on their families.
- **Ethical Dilemmas for Doctors:** Medical professionals may face moral conflicts when deciding whether to withdraw life-sustaining treatment.

These concerns highlight the need for strong safeguards and oversight mechanisms.

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SAFEGUARDS AND LEGAL PROCEDURES

To prevent misuse, the Supreme Court has prescribed several safeguards for passive euthanasia.

- **Living Wills and Advance Directives:** Individuals can formally express their wishes regarding end-of-life treatment.
- **Medical Board Approval:** A panel of doctors must confirm that the patient is terminally ill or in an irreversible vegetative state.
- **Family Consent:** Close family members must be consulted before withdrawing treatment.
- **Judicial Oversight:** Courts may review decisions in sensitive cases to ensure compliance with legal standards.

These safeguards aim to ensure that passive euthanasia is applied only in genuine and compassionate circumstances.

INTERNATIONAL PERSPECTIVES

Several countries have developed legal frameworks addressing euthanasia.

Countries such as the Netherlands, Belgium, and Canada permit various forms of euthanasia or physician-assisted dying under strict conditions.

In contrast, many countries including India—permit only passive euthanasia while prohibiting active euthanasia.

The global debate demonstrates the ongoing struggle to balance human dignity, medical ethics, and societal values.

SIGNIFICANCE OF THE JUDGMENT

The Supreme Court's decision in the Harish Rana case has several important implications.

First, it strengthens the constitutional interpretation of **Article 21** by emphasizing dignity at the end of life. Second, it provides clarity for doctors and families facing difficult decisions regarding life-support treatment. **Third**, it promotes awareness about living wills and patient autonomy. **Most importantly**, it reinforces the idea that law must respond compassionately to complex medical realities.

WAY FORWARD

While judicial recognition of passive euthanasia is a major step forward, further reforms are necessary.

- **Comprehensive Legislation:** India needs a clear statutory framework regulating euthanasia and end-of-life care.
- **Public Awareness:** Awareness about living wills and advance directives remains limited.
- **Strengthening Palliative Care:** Expanding palliative care services can reduce suffering for terminally ill patients.
- **Medical Ethics Training:** Doctors should receive specialized training in end-of-life decision-making.

By addressing these areas, India can ensure that the right to die with dignity is implemented responsibly.

CONCLUSION

The recognition of passive euthanasia marks an important development in India's constitutional and ethical landscape. By permitting the withdrawal of life support in cases like that of Harish Rana, the Supreme Court of India has reaffirmed that the right to life under Article 21 includes the right to die with dignity.

This principle reflects a humane understanding of life, dignity, and autonomy. At the same time, careful safeguards are essential to prevent misuse and protect vulnerable individuals.

Ultimately, the challenge lies in striking a delicate balance between preserving life and respecting human dignity. As medical science advances and societies evolve, the law must continue to adapt to ensure that compassion and justice remain at the heart of end-of-life decisions.

Prelims question:

Q. With reference to Passive Euthanasia in India, consider the following statements:

1. Passive euthanasia refers to the deliberate administration of lethal substances to end a patient's life.
2. The Supreme Court of India has recognized that the right to life under Article 21 of the Constitution of India includes the right to die with dignity.
3. Living wills or advance medical directives allowing withdrawal of life support were

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recognized by the Supreme Court in Common Cause v. Union of India (2018).

Which of the statements given above is/are correct?

A. 1 only B. 2 only

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

Answer: C

Mains Question:

Q. "The right to life under Article 21 includes the right to die with dignity." In light of recent Supreme Court judgments permitting passive euthanasia, critically examine the ethical, legal, and social implications.

(250 words)

STRENGTHENING GRASSROOTS DEMOCRACY: TOWARDS SYNERGY BETWEEN THE ECI AND STATE ELECTION COMMISSIONS

WHY IN THE NEWS?

A National Round Table Conference between the Election Commission of India (ECI) and State Election Commissioners was held in New Delhi on 24 February 2026, culminating in the adoption of the National Declaration 2026.

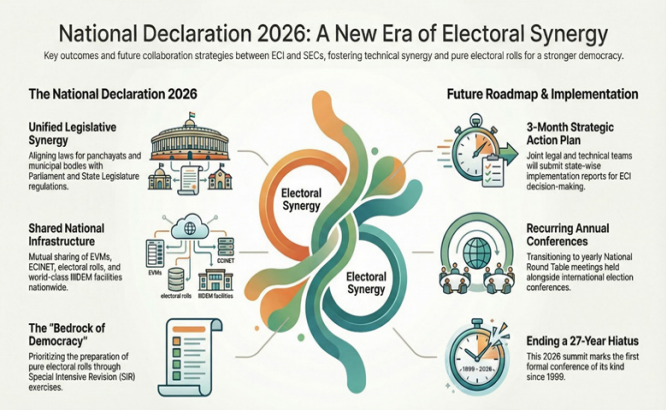
The conference took place after a gap of 27 years, with the last such interaction occurring in 1999, signalling renewed efforts to strengthen electoral federalism and institutional coordination.

DEFINING THE CONCEPT: ELECTORAL SYNERGY AND INTEGRITY

Electoral synergy refers to collaborative coordination between the ECI and State Election Commissions (SECs) to ensure:

1. Preparation of pure electoral rolls
2. Transparent conduct of elections
3. Strengthening democratic legitimacy

A pure electoral roll includes all eligible voters while excluding ineligible names, thereby reflecting the genuine will of citizens.



BACKGROUND AND CONSTITUTIONAL CONTEXT: DUAL ELECTION STRUCTURE

India follows a dual institutional election management framework:

1. **Article 324:** Empowers the ECI to supervise elections to Parliament, State Legislatures, and offices of President and Vice-President.
2. **Articles 243K & 243ZA:** Establish SECs to conduct Panchayat and Municipal elections under the 73rd and 74th Amendments.
3. **Institutional Gap:** Limited structured dialogue between these bodies for nearly three decades, resulting in operational silos.

SIGNIFICANCE OF THE NATIONAL DECLARATION 2026

1. **Strengthening Democratic Legitimacy:** The declaration emphasises pure and updated electoral rolls as the foundation of democracy, ensuring inclusion of all eligible voters and safeguarding the constitutional right to vote.
2. **Administrative and Fiscal Efficiency:** Resource sharing—such as EVMs, digital platforms like ECINET, and training infrastructure—reduces duplication of efforts, lowers election costs, and improves operational efficiency.
3. **Deepening Electoral Federalism:** Enhanced coordination between the Election Commission of India and State Election Commissions promotes cooperative federalism while respecting institutional autonomy.
4. **Technological Modernisation and Capacity Building:** Technology transfer, digital roll management, and joint training initiatives help

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bridge capability gaps among states and improve transparency in local body elections.

5. **Enhancing India's Global Democratic Leadership:** A unified and coordinated election management framework strengthens India's standing as a global model for large-scale democratic governance and electoral integrity.

KEY ISSUES AND CHALLENGES

1. **Duplication of Electoral Rolls:** Separate voter lists for local and general elections create inconsistencies, confusion among voters, and risks of exclusion or duplication.
2. **Technological Asymmetry:** While the Election Commission of India uses advanced digital platforms and EVM infrastructure, many State Election Commissions lack adequate technological capacity.
3. **Legal Fragmentation:** Diverse state laws governing local body elections often diverge from the Representation of the People Acts, leading to regulatory inconsistency.
4. **Institutional Coordination Deficit:** The absence of a structured, periodic platform for dialogue between election bodies has historically limited collaboration and knowledge sharing.
5. **Capacity and Resource Constraints:** Limited financial and human resources at the state level hinder adoption of best practices and modern election management tools.

CONSTITUTIONAL AND LEGAL DIMENSIONS

1. **Preservation of Institutional Autonomy:** Any collaboration must respect the constitutional independence of SECs under Articles 243K and 243ZA.
2. **Functional Parity Principle:** Judicial pronouncements (e.g., Kishansing Tomar case, 2006) affirm that SECs enjoy powers analogous to the ECI within their respective jurisdictions.
3. **Legal Harmonisation with Federal Balance:** Efforts to align election laws must ensure administrative efficiency while safeguarding state legislative autonomy.
4. **Scope for Cooperative Federalism:** The Constitution does not prohibit resource sharing, enabling synergy within a legally viable framework.
5. **Need for Clarified Institutional Protocols:** Clear guidelines on collaboration can prevent jurisdictional conflicts and enhance accountability.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Special Intensive Revision (SIR):** Targeted electoral roll cleansing exercises aim to enhance accuracy and eliminate ineligible entries.
2. **Formation of Joint Technical Teams:** Legal and technical experts are tasked with translating policy ideas into operational reforms.
3. **Infrastructure and Capacity Sharing:** Training and research facilities, including advanced election management institutions, can strengthen SEC capabilities.
4. **Digital Integration and Data Synchronisation:** Adoption of digital platforms enables real-time voter roll updates and improves transparency.
5. **Institutionalised Dialogue Mechanisms:** Regular conferences and review platforms can ensure sustained coordination and policy continuity.

WAY FORWARD

1. **Institutionalise Structured Inter-Institutional Dialogue:** Regular annual round table conferences and thematic workshops should be formalised to ensure continuous coordination between the Election Commission of India and State Election Commissions.
2. **Move Towards a Unified and Dynamic Electoral Roll:** Adoption of a single, synchronised voter database ("One Nation, One Voters' List") can eliminate duplication, reduce errors, and enhance voter convenience.
3. **Accelerate Digital Integration and Technological Modernisation:** Expansion of platforms such as ECINET, GIS mapping, and digital Special Intensive Revision tools will enable real-time updates and improve transparency.
4. **Promote Legal Harmonisation with Federal Sensitivity:** States should gradually align local election laws with national electoral standards

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while preserving constitutional autonomy and federal balance.

5. **Strengthen Capacity Building and Infrastructure Sharing:** Training, research collaboration, and shared infrastructure—including EVM logistics and election management institutes—can bridge capability gaps among states.
6. **Establish Robust Monitoring, Audit, and Accountability Mechanisms:** Periodic performance reviews, joint audit frameworks, and data-driven monitoring can ensure effective implementation and sustained electoral integrity.

CONCLUSION

The National Round Table Conference 2026 marks a significant step toward ending institutional fragmentation between the ECI and SECs. By prioritising electoral roll purity, technological collaboration, and legal harmonisation, India is strengthening the foundations of its multi-tier democratic system. Sustained synergy between these constitutional bodies will enhance transparency, efficiency, and inclusive participation, positioning India as a global exemplar of electoral federalism.

Prelims question:

Q. With reference to electoral governance in India, consider the following statements:

1. The Election Commission of India is responsible for conducting elections to Panchayats and Municipalities.
2. State Election Commissions derive their constitutional status from the 73rd and 74th Constitutional Amendments.
3. The Constitution prohibits any form of coordination or resource sharing between the Election Commission of India and State Election Commissions.

Which of the statements given above is/are correct?

(a) 1 only (b) 2 only

(c) 1 and 3 only (d) 2 and 3 only

Answer: B

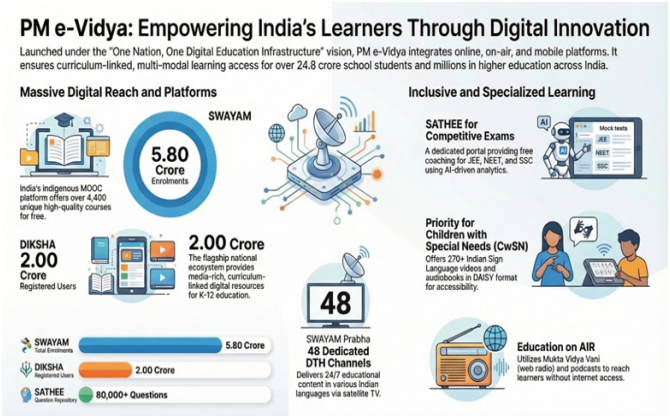
Mains Question:

Q. Discuss the need for enhanced coordination between the Election Commission of India and State Election Commissions in strengthening (250 words)

GOVERNANCE- PM E-VIDYA: CATALYZING INDIA'S DIGITAL EDUCATION REVOLUTION FOR VIKSIT BHARAT

WHY IN THE NEWS?

As of March 2026, the PM e-Vidya initiative has reached significant milestones in democratizing education. DIKSHA has surpassed 2.00 crore registered users, while SWAYAM, India's indigenous MOOC platform, has recorded over 5.80 crore enrollments. Additionally, the expansion of the SWAYAM Prabha network to 48 DTH channels underscores the government's commitment to providing 24x7 educational access across the country.



DEFINING PM E-VIDYA

PM e-Vidya is a comprehensive, multi-modal digital education program launched under the Atmanirbhar Bharat Abhiyan. It is built on the principle of "One Nation, One Digital Education Infrastructure," integrating online (DIKSHA, SWAYAM), on-air (SWAYAM Prabha, Radio), and offline channels to ensure universal, equitable, and technology-enabled learning.

BACKGROUND AND CONTEXT

1. **Genesis:** Initially launched on May 17, 2020, as an emergency response to the COVID-19 pandemic, it was later formalized and renamed in August 2020 to align with the National Education Policy (NEP) 2020.
2. **Strategic Alignment:** The initiative builds upon existing foundations like Digital India, the National Mission on Education through ICT (NMEICT), and SAMAGRA Shiksha.
3. **The Problem Statement:** India caters to 24.8 crore school-going children and 4.33 crore higher education students, many of whom face barri

SIGNIFICANCE AND IMPORTANCE

1. **Bridging** ers such as remote geography, socio-economic compulsions, and a shortage of trained teachers.
2. **Holistic Learning:** Aligned with NEP 2020, it promotes multidisciplinary learning, critical thinking, and creativity through media-rich resources like 3D animations and virtual labs.
3. **Democratization of Coaching:** The SATHEE portal (developed with IIT Kanpur) provides free, high-quality preparation for competitive exams like JEE and NEET, bridging the gap between aspiration and achievement for students who cannot afford private coaching.

CONSTITUTIONAL AND LEGAL DIMENSIONS

1. **Right to Education (Article 21A):** PM e-Vidya serves as a modern vehicle to realize the fundamental right to free and compulsory education by ensuring "access" is not limited by physical boundaries.
2. **UGC Regulations (2021):** To institutionalize online learning, the UGC Credit Framework for Online Learning Courses allows higher education institutions to offer up to 40% of credits in a semester through SWAYAM.
3. **Inclusivity (Article 15/46):** The initiative supports the educational interests of marginalized sections and the differently-abled through specialized content.

KEY PILLARS OF THE ECOSYSTEM

1. **DIKSHA:** The national digital infrastructure for school education (K-12), featuring QR-coded Energised Textbooks.
2. **SWAYAM:** A MOOC platform providing free high-quality courses curated by premier institutions like IITs, IIMs, and NCERT.
3. **SWAYAM Prabha:** A suite of 48 DTH channels broadcasting curriculum-based content, including a dedicated channel for Indian Sign Language (ISL).
4. **Education on Air:** Utilization of Mukta Vidya Vani (Web Radio) and Shiksha Vani (Podcasts) to cater to non-digital and mobile audiences.

SOCIAL AND ENVIRONMENTAL IMPACT

1. **Early Inclusion:** The "Barkha" Reading Series employs Universal Design for Learning (UDL), using tactile visuals and high-contrast illustrations to foster foundational literacy among all children, including those with cognitive or motor challenges.
2. **Empowering CwSN:** The provision of DAISY (Digitally Accessible Information System) format audiobooks and ISL videos ensures that visually and hearing-impaired learners can study independently.
3. **Environmental Sustainability:** By reducing the dependency on physical infrastructure and printed materials through digital e-books (UNICODE), the initiative aligns with eco-friendly educational practices.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Collaborative Governance:** The program is spearheaded by the Ministry of Education, with technical and content support from NCERT, CIET, NIOS, and premier technical institutes like IIT Madras and IIT Kanpur.
2. **Teacher Empowerment:** Through the NISHTHA program on DIKSHA, the government provides self-paced, certified training to upskill educators nationwide, ensuring they are equipped for the digital era.

KEY ISSUES AND CHALLENGES

1. **Socio-Economic Barriers:** Despite digital access, many students are still constrained by

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household responsibilities and the need for livelihood activities.

2. **Human Resource Gap:** The persistent shortage of trained teachers remains a hurdle in translating digital content into improved learning outcomes.
3. **Standardization:** Maintaining uniform quality across various regional languages and state boards remains an ongoing challenge.

WAY FORWARD

1. **Last-Mile Connectivity:** Further investment in low-cost e-learning modules and offline digital access points for the most remote tribal belts is essential.
2. **AI Integration:** Expanding the use of Smart AI features for personalized study plans and performance analytics, as seen in the SATHEE platform, across all K-12 segments.
3. **Stakeholder Synergy:** Enhancing collaboration between the private sector, NGOs, and the government to innovate content delivery and pedagogy.
4. **Continuous Evaluation:** Implementing data-informed analytics to identify learning gaps in real-time and provide adaptive assessments.

CONCLUSION

PM e-Vidya has transitioned from an emergency COVID-19 response to a robust Digital Public Infrastructure that embodies the spirit of Inclusive Growth and Sustainable Development Goal 4 (Quality Education). By prioritizing the "last learner," it upholds the constitutional values of equity and social justice. As India marches toward Viksit Bharat @ 2047, PM e-Vidya stands as a global benchmark for a future-ready, adaptive, and barrier-free education system that empowers every citizen to realize their full potential.

Prelims question:

Q. Consider the following statements regarding PM e-Vidya:

1. It was launched in 2020 under the Atmanirbhar Bharat Abhiyan to promote digital education in India.
2. DIKSHA provides digital infrastructure for school education and QR-coded energized textbooks.
3. SWAYAM allows higher education institutions to offer up to 40% of credits in a semester through online courses.
4. SWAYAM Prabha currently operates 48 DTH channels broadcasting educational content across India.

Which of the statements given above are correct?

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

Answer: D

Mains Question:

Q. Discuss the role of PM e-Vidya in transforming India's digital education ecosystem. Examine its key components, significance in bridging the digital divide, and the challenges that must be addressed to ensure inclusive and equitable learning. (250 words)

REMOVAL OF THE CHIEF ELECTION COMMISSIONER AND INDEPENDENCE OF THE ELECTION COMMISSION

WHY IN THE NEWS?

The Opposition is preparing to move a motion to impeach Chief Election Commissioner (CEC) Gyanesh Kumar, alleging biased conduct. The removal process will follow the same procedure as that for removing a Supreme Court judge, as provided under the law.

CONSTITUTIONAL SAFEGUARDS AND THE ROLE OF THE CHIEF ELECTION COMMISSIONER

The Election Commission of India (ECI) stands as the cornerstone of the world's largest democracy, overseeing free, fair, and impartial elections across a nation of over 1.4 billion people. Established under Article 324 of the Constitution, the ECI ensures the conduct of elections to Parliament, state legislatures, and the offices of the President and Vice-President. The Chief Election Commissioner (CEC) heads this multi-member body, wielding significant authority over electoral processes, voter rolls, model code enforcement, and dispute resolution.

The credibility of India's elections hinges on the independence and neutrality of the ECI. Any perception of executive influence or bias could undermine public trust in democratic outcomes. To safeguard this autonomy, the Constitution provides robust protections for the CEC's tenure. Article 324(5) stipulates that the CEC can be removed only in the same manner and on the same grounds as a Supreme Court judge—through a rigorous parliamentary process involving proved misbehaviour or incapacity. This high threshold prevents arbitrary dismissal and shields the office from political pressures, reinforcing the ECI's role as an impartial guardian of democracy.

CONSTITUTIONAL PROVISIONS GOVERNING REMOVAL OF THE CEC

Article 324 of the Indian Constitution vests the superintendence, direction, and control of elections in the Election Commission, making it a powerful, independent constitutional body. Clause (5) of Article 324 specifically addresses security of tenure for the CEC and other commissioners.

The provision states that the CEC shall not be removed from office except in like manner and on like grounds as a judge of the Supreme Court (under Article 124(4)). This equates the removal process to impeachment-like proceedings for judges, limited to proved misbehaviour or incapacity. Service conditions cannot be altered to the CEC's disadvantage post-appointment, further entrenching independence.

In contrast, other Election Commissioners (ECs) and Regional Commissioners can be removed only on the recommendation of the CEC. This hierarchical distinction—affirmed by the Supreme Court in cases like T.N. Seshan vs Union of India (1995)—prevents subordinate members from being politically targeted while preserving the CEC's primacy.

The purpose of these safeguards is clear: to insulate the ECI from executive or legislative interference, prevent politicization, and sustain public confidence in electoral integrity. Without such protections, governments could manipulate elections by removing inconvenient commissioners, eroding democratic fairness. The constitutional design reflects the framers' intent to make the ECI a bulwark against majoritarian or partisan control, ensuring elections remain the authentic voice of the people.

LEGAL FRAMEWORK GOVERNING THE REMOVAL PROCESS

The Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023 provides the statutory backbone for the CEC's appointment, conditions, and removal, supplementing constitutional provisions.

Section 11 of the 2023 Act explicitly reiterates that the CEC can be removed only in the manner and on the grounds prescribed for Supreme Court judges. It maintains the constitutional parity, ensuring no dilution of safeguards through ordinary legislation.

The procedural details draw from the Judges (Inquiry) Act, 1968, which outlines the framework for investigating allegations against judges—and by extension, the CEC. This Act mandates a structured inquiry before parliamentary action, preventing hasty or politically motivated proceedings.

The legal framework's significance lies in its emphasis on due process and fairness. It creates procedural clarity, requires evidence-based allegations, and mandates judicial involvement in investigations. This multi-layered approach protects constitutional offices from arbitrary executive or legislative decisions, upholding the rule of law.

By linking the CEC's removal to judicial impeachment standards, the framework deters misuse while allowing accountability for genuine misconduct. It balances independence with responsibility, ensuring the ECI remains credible and effective.

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PARLIAMENTARY PROCEDURE FOR REMOVAL OF THE CEC

The removal of the CEC follows a stringent parliamentary process akin to impeaching a Supreme Court judge, designed to prevent casual or partisan action.

- **Initiation of the Motion:** The process starts with a removal motion alleging proved misbehaviour or incapacity. It requires signatures from at least 100 members of the Lok Sabha or 50 members of the Rajya Sabha. This high threshold ensures broad support and deters frivolous attempts.
- **Admission of the Motion:** The signed motion is submitted to the Speaker of the Lok Sabha or the Chairman of the Rajya Sabha (as the case may be). The presiding officer examines its admissibility, potentially consulting legal experts, before deciding to admit or reject it.
- **Investigation by Inquiry Committee:** Upon admission, a three-member committee investigates the charges. Comprising a Supreme Court judge (as presiding officer), a Chief Justice of a High Court, and a distinguished jurist, the committee examines evidence, hears witnesses, and submits a report to the presiding officer. This judicial-led probe ensures objectivity and fairness.
- **Parliamentary Debate and Voting:** If the committee finds charges proved, the motion proceeds to debate and voting in the originating House, then the other House. Passage requires a special majority—a majority of the total membership of the House and two-thirds of members present and voting—in both Houses during the same session.
- **Final Removal by the President:** Upon approval by both Houses, an address is presented to the President, who issues the removal order.

SIGNIFICANCE OF THE REMOVAL MECHANISM

The stringent removal process for the CEC is vital for preserving the ECI's independence. By mirroring Supreme Court judge impeachment, it prevents arbitrary executive dismissal, allowing the CEC to make unbiased decisions without fear of reprisal.

It protects democratic institutions by reinforcing electoral credibility. Voters trust the process when they know the overseer cannot be easily removed for unfavourable rulings.

The mechanism promotes institutional neutrality, encouraging impartial enforcement of the model code, voter list management, and result declarations.

The high threshold—special majority in both Houses after judicial inquiry—prevents political misuse. It demands consensus across party lines, deterring vendettas and ensuring only grave misconduct triggers action.

Overall, this safeguard upholds constitutional morality, making the ECI a resilient pillar of India's democracy.

CHALLENGES AND CONCERNS

- Despite robust safeguards, challenges persist. Political polarisation can turn removal motions into partisan tools, as seen in recent opposition considerations against the CEC amid electoral roll controversies.
- Allegations of institutional bias—such as perceived leniency in model code enforcement or voter deletions—erode trust, even if unsubstantiated.
- The process's extreme difficulty may limit accountability, shielding potential misconduct while the executive influences appointments via the 2023 Act's committee (Prime Minister, LoP, Cabinet nominee).
- Debates over the appointment process highlight executive dominance post the 2023 Act, which replaced the CJI with a Cabinet member, raising concerns about long-term neutrality.

These issues underscore the need for balanced reforms.

REFORMS TO STRENGTHEN ELECTION COMMISSION INDEPENDENCE

To enhance ECI autonomy, a transparent appointment process is essential. A collegium including the Prime Minister, Leader of Opposition, and Chief Justice of India—aligned with the 2023 Supreme Court directive in Anoop Baranwal could insulate selections from executive bias.

Fixed and protected tenure (e.g., non-extendable six years) would reduce political pressure.

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Granting institutional autonomy through an independent secretariat, separate budget, and enhanced enforcement powers would bolster operational freedom.

Greater transparency in decisions, voter roll processes, and funding would rebuild trust via public disclosures and audits.

These reforms would fortify the ECI against evolving threats.

CONCLUSION

The removal process for the Chief Election Commissioner embodies India's constitutional commitment to shielding electoral institutions from undue influence. By aligning it with Supreme Court judge impeachment—requiring proved misbehaviour or incapacity, judicial inquiry, and special majorities in Parliament—the framers ensured arbitrary removal is nearly impossible.

Yet, contemporary challenges like polarisation, appointment controversies, and bias allegations highlight vulnerabilities. Strengthening safeguards through transparent appointments, fixed tenures, autonomy, and transparency is crucial.

Ultimately, a strong, impartial ECI remains indispensable for sustaining India's vibrant democracy and public faith in electoral outcomes.

Prelims question:

Q. With reference to the Election Commission of India, consider the following statements:

1. It is a constitutional body established under Article 324 of the Constitution of India.
2. It conducts elections to Parliament, State Legislatures, and Panchayats.
3. It advises the President on matters relating to the disqualification of Members of Parliament.

Which of the statements given above is/are correct?

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

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

Mains Question:

Q. Examine the challenges and reforms required to strengthen the institutional autonomy of the Election Commission of India.(250 words)

THE OFFICE OF THE LOK SABHA SPEAKER: CONSTITUTIONAL SANCTITY AND THE CHALLENGE OF IMPARTIALITY

WHY IN THE NEWS?

In a significant constitutional development, more than 100 Opposition MPs from the Congress and allied parties submitted a formal resolution in February 2026 seeking the removal of Lok Sabha Speaker Om Birla. This move, coordinated across multiple political entities, alleges that the Speaker has engaged in partisan conduct and the abuse of constitutional office during the Budget Session. The notice is currently being examined by the Lok Sabha Secretariat to determine its admissibility and the subsequent procedural steps.

DEFINING THE CONCEPT: THE SPEAKER AS THE "UMPIRE" OF DEMOCRACY

The Speaker of the Lok Sabha is not merely a presiding officer; they are the guardian of the powers and privileges of the House and its members. In a parliamentary system, the Speaker represents the dignity and freedom of the House. While the Speaker is elected from a political party, the office demands absolute neutrality to ensure that the "voice of the minority" (the Opposition) is heard alongside the "will of the majority" (the Government). The removal process is a rare constitutional safety valve intended to hold the Chair accountable to the House as a whole.

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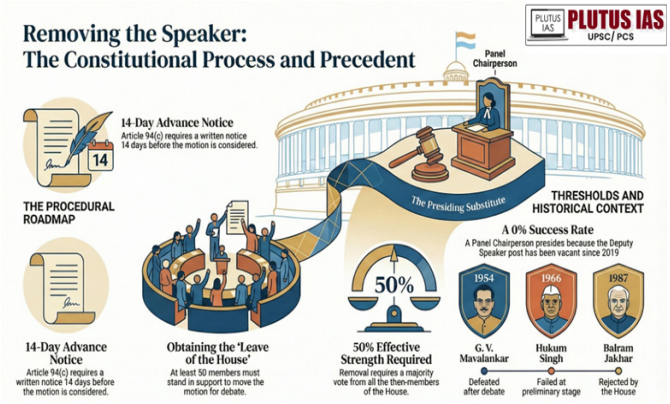
BACKGROUND AND CONTEXT: THE RARITY OF REMOVAL

The removal of a Speaker is a high-threshold event in Indian parliamentary history. Historically, such attempts are rare and have never resulted in a successful removal. Since Independence, the Lok Sabha has witnessed only three previous efforts:

- **1954:** A motion against the first Speaker, G. V. Mavalankar, was debated and ultimately defeated.
- **1966:** A resolution against Hukum Singh failed at the preliminary stage because it did not secure the support of the required 50 members.
- **1987:** A motion against Balram Jakhar was rejected by the House.

The current resolution arises in a polarized political climate where the Opposition has specifically cited the denial of speaking time to the Leader of the Opposition, the suspension of opposition MPs, and a perceived failure to act against objectionable remarks by ruling party members as the primary triggers for the motion.



CONSTITUTIONAL AND LEGAL DIMENSIONS

1. **The Constitutional Mandate (Article 94):** Under Article 94(c), a Speaker can be removed by a resolution passed by a majority of all the then members of the House. This is known as an "effective majority," meaning more than half of the total strength of the Lok Sabha, excluding current vacancies.
2. **Procedural Safeguards (Rule 200):** To prevent frivolous attempts at removal, Rule 200 of the Rules of Procedure and Conduct of Business in Lok Sabha stipulates that a written notice of fourteen days must be given before the motion can even be considered by the House.
3. **The Preliminary Threshold (Rule 10):** Once the motion is listed, it must obtain the "leave of the House." This requires at least 50 members to stand in their places in support of the motion. If this threshold is not met, the motion fails at the preliminary stage, as seen in the 1966 Hukum Singh case.
4. **Temporary Recusal (Article 96):** During the consideration of a resolution for their removal, Article 96 prohibits the Speaker from presiding over the House. This ensures that the individual being judged does not act as the judge of the proceedings against them.

SIGNIFICANCE AND IMPORTANCE OF THE OFFICE

The Speaker holds a pivotal role in maintaining the separation of powers and the integrity of legislation.

- **Managing Debates:** The Speaker is responsible for the fair allocation of time and the management of floor discipline.
- **Institutional Stability:** The Chair ensures that the House functions according to established rules, preventing the executive from steamrolling the legislature.
- **Representation:** As the representative of the House to the outside world, any perceived bias in the Speaker's conduct tarnishes the image of the legislature itself.

KEY ISSUES AND GOVERNANCE CHALLENGES

1. **The Crisis of the Vacant Deputy Speaker (Article 93):** A critical issue highlighted by the current resolution is the ongoing vacancy in the post of Deputy Speaker, which has remained empty since June 2019. While Article 93 mandates that the House "shall" choose both a Speaker and a Deputy Speaker, the position has not been filled since the end of the 16th Lok Sabha.
   - **Impact on Removal:** Under Article 96, the Deputy Speaker is supposed to preside when a removal motion against the Speaker is pending. In the current absence of a Deputy Speaker, the House must rely on Article 95(2) and Rule 9, which allow a member from the Panel of

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Chairpersons to preside. This member exercises the same authority as the Speaker during the debate and vote.

2. **Allegations of Partisanship and "Abuse of Office":** The current resolution is built on the allegation of "abuse of constitutional office". The Opposition argues that the Speaker's power to suspend members and manage debates has been used selectively to favor the ruling party. This raises fundamental questions about the neutrality of the Chair in a majoritarian system.
3. **The Effectiveness of Oversight:** When the Speaker is perceived as biased, the ability of the Opposition to fulfill its duty of parliamentary oversight is diminished. The denial of floor time to the Leader of the Opposition is cited as a direct blow to the accountability of the government.

GLOBAL COMPARISON: THE UK MODEL VS. THE INDIAN MODEL

(Note: The following information on the UK model is not in the sources and is provided for analytical depth; you may want to independently verify this). Unlike the Indian system, where the Speaker often retains their political party affiliation (even if unofficially), the United Kingdom follows the principle of "once a Speaker, always a Speaker." In the UK, the Speaker formally resigns from their party upon election and is generally not challenged by major parties during general elections. This ensures a higher degree of perceived and actual neutrality compared to the Indian model, where the Speaker remains vulnerable to accusations of partisan loyalty.

ETHICAL AND DEMOCRATIC CONCERNS

The survival of a deliberative democracy depends on the ethical conduct of the Speaker. If the Chair becomes an instrument of the executive, the legislature ceases to be a forum for debate and becomes a mere rubber stamp. The frequent use of disciplinary actions, such as suspensions, without perceived impartiality, creates an atmosphere of confrontation rather than consensus-building.

WAY FORWARD: STRENGTHENING PARLIAMENTARY INSTITUTIONS

1. **Mandatory Election of Deputy Speaker:** To uphold the spirit of Article 93, there should be a defined timeline for electing a Deputy Speaker, who, by convention, often belongs to the Opposition to ensure balance.
2. **Codification of Conventions:** Clearer guidelines for the allocation of speaking time and the suspension of members should be codified to minimize the subjective discretion of the Chair.
3. **Adopting Neutrality Norms:** India should consider the ethical convention of the Speaker formally resigning from their political party upon election to the Chair. This would bolster public and parliamentary confidence in the neutrality of the office.
4. **Strengthening Article 96 Mechanisms:** The reliance on the Panel of Chairpersons (who are nominated by the Speaker) to preside over the Speaker's removal resolution could lead to a conflict of interest. A more independent mechanism or a prioritized election of a Deputy Speaker is essential for constitutional propriety.
5. **Transparent Adjudication:** The Lok Sabha Secretariat should ensure that the examination of the removal notice is conducted with transparency and within a strict timeframe to avoid the perception of procedural delay.

CONCLUSION

The office of the Speaker is the cornerstone of democratic governance in India. The current resolution, while politically contentious, serves as a reminder that constitutional offices are not immune to the principles of accountability and constitutional morality. Ensuring the impartiality of the Speaker is not just a matter of parliamentary procedure; it is essential for inclusive growth and the protection of the rights of the minority within the legislature. As India strives toward the vision of Viksit Bharat 2047, the resilience of its institutions will be measured by their ability to remain neutral arbiters in a vibrant, multi-party democracy. Upholding the sanctity of Articles 93, 94, and 96 is vital to ensuring that the "Temple of Democracy" remains a space for robust, fair, and unobstructed deliberation.

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Prelims question:

Q. With reference to the removal of the Speaker of the Lok Sabha, consider the following statements:

1. The Speaker can be removed by a resolution passed by a simple majority of members present and voting.
2. A 14-day prior notice is mandatory before moving a resolution for removal of the Speaker.
3. During the consideration of the removal resolution, the Speaker can preside over the House but cannot vote.
4. At least 50 members must support the motion for it to be taken up for consideration.

Which of the statements given above are correct?

(a) 1 and 2 only (b) 2 and 4 only

(c) 2, 3 and 4 only (d) 1, 2 and 4 only

Answer: B

Mains Question:

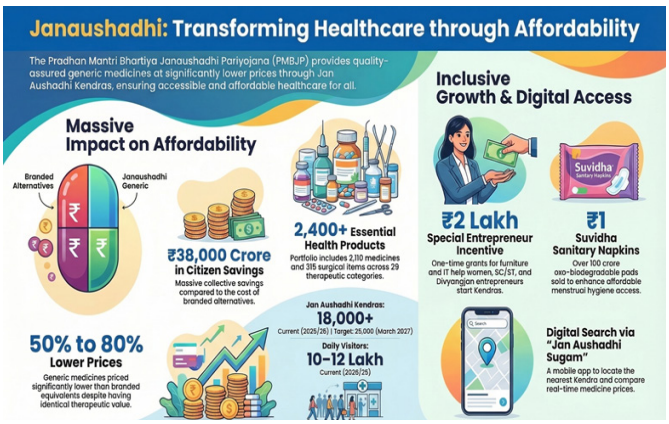
Q. Discuss the constitutional procedure for the removal of the Speaker of the Lok Sabha. How does the vacancy of the Deputy Speaker affect the functioning of this mechanism? (250 words)

PRADHAN MANTRI BHARTIYA JANAUSHADHI PARIYOJANA (PMBJP): TOWARDS AFFORDABLE AND EQUITABLE HEALTHCARE

WHY IN THE NEWS?

India observed Janaushadhi Saptah 2026 from March 1st to 7th, culminating in the 8th Janaushadhi Diwas on March 7, 2026.

This nationwide outreach initiative, themed "Janaushadhi Sasti Bhi, Bharosemand Bhi, Sehat Ki Baat, Bachat Ke Saath," was organized by the Pharmaceuticals and Medical Devices Bureau of India (PMBI) to promote awareness regarding affordable, quality generic medicines.



DEFINING PMBJP

The Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) is a flagship campaign launched by the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers.

It aims to provide quality-assured generic medicines at significantly lower prices—typically 50% to 80% less than branded alternatives—through a dedicated network of outlets known as Jan Aushadhi Kendras (JAKs).

BACKGROUND AND CONTEXT

In India, medicines constitute a disproportionately high share of household out-of-pocket expenditure (OOPE), often acting as a barrier to essential treatment.

While branded generic medicines are sold at premium prices, their unbranded counterparts possess the same therapeutic value.

The PMBJP serves as a critical policy intervention to bridge this disparity, ensuring that financial vulnerability does not translate into a denial of healthcare.

SIGNIFICANCE AND IMPORTANCE

1. **Financial Protection:** By offering medicines at a fraction of market costs, the scheme has generated estimated savings of approximately ₹38,000 crore for citizens as of June 2025.
2. **Healthcare Accessibility:** With over 18,000 functional Kendras and a target of 25,000 by March 2027, the scheme ensures the availability

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of over 2,100 medicines and 315 surgical items even in remote areas.

3. **Inclusive Entrepreneurship:** The franchise-based model empowers individual entrepreneurs, NGOs, and cooperatives, particularly those from marginalized groups.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Regulatory Oversight:** The Pharmaceuticals and Medical Devices Bureau of India (PMBI) is the implementing agency.
2. **Quality Assurance:** Medicines are sourced exclusively from WHO-GMP compliant manufacturers and undergo rigorous testing at NABL-accredited laboratories before distribution.
3. **Digital Integration:** The Jan Aushadhi Sugam mobile app facilitates transparency by allowing users to locate nearby shops, check real-time availability, and compare prices with branded drugs.

ECONOMIC AND SOCIAL IMPACT

1. **Menstrual Hygiene:** The introduction of Suvidha Oxo-biodegradable Sanitary Napkins at ₹1 per pad has revolutionized access to menstrual health, with over 100 crore pads sold by January 2026.
2. **Empowerment of Vulnerable Sections:** Special financial incentives of up to ₹2 lakh are provided to women, SC/ST, Divyangjan, and entrepreneurs in Himalayan and North-Eastern regions to establish Kendras.
3. **Rural Penetration:** The integration of Primary Agricultural Credit Societies (PACS) allows the scheme to leverage a network of 13 crore farmers to serve as affordable medicine hubs in deep rural pockets.

KEY ISSUES AND CHALLENGES

1. **Supply Chain Resilience:** Maintaining a consistent supply of fast-moving drugs across a massive national network remains a logistical challenge.
2. **Perception Gaps:** Despite quality certifications, overcoming the public and medical community's bias toward expensive branded medicines requires continuous awareness efforts.
3. **Operational Sustainability:** Ensuring the long-term viability of individual Kendras requires maintaining a minimum stock of high-demand products and diversifying the product basket to include nutraceuticals.

CONSTITUTIONAL AND LEGAL DIMENSIONS

While the PMBJP is an executive scheme, it aligns with the Directive Principles of State Policy, specifically Article 47, which mandates the State to improve public health.

Furthermore, the Supreme Court of India has frequently interpreted the Right to Health as an integral part of the Right to Life under Article 21, making the provision of affordable medicine a constitutional imperative.

WAY FORWARD

1. **Strengthening Last-Mile Connectivity:** Expanding the presence of JAKs at high-footfall transit hubs like Railway Stations (currently 116) and through the PACS network to ensure no citizen is left behind.
2. **Technological Upgradation:** Further digitizing demand forecasting and utilizing the end-to-end IT-enabled supply chain to prevent "out-of-stock" scenarios for the 400 fastest-moving products.
3. **Behavioral Change Communication:** Sustained outreach like Janaushadhi Saptah is essential to build trust in the efficacy of generic drugs among doctors and patients alike.
4. **Enhancing Store Viability:** Continually expanding the product basket to include medical devices and daily health supplements to increase footfall and revenue for store operators.

CONCLUSION

The Pradhan Mantri Bhartiya Janaushadhi Pariyojana has evolved from a price-control mechanism into a robust ecosystem for inclusive growth and democratic governance in healthcare. By intertwining affordable health with entrepreneurial opportunities, it aligns with India's long-term vision of Viksit Bharat 2047 and Sustainable Development Goal 3 (Good Health and Well-being). Ultimately, the scheme reinforces the Government's commitment to an Atmanirbhar

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Bharat, where quality healthcare is a right for all, regardless of socio-economic status.

Prelims question:

Q. With reference to the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP), consider the following statements:

1. It aims to provide quality generic medicines at affordable prices through Jan Aushadhi Kendras.
2. The scheme is implemented by the Pharmaceuticals and Medical Devices Bureau of India.
3. Medicines under the scheme are procured only from WHO-GMP compliant manufacturers and tested in NABL-accredited laboratories.
4. The scheme is implemented by the Ministry of Health and Family Welfare.

Which of the statements given above are correct?

A) 1 and 2 only B) 1, 2 and 3 only

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

Answer: B

Mains Question:

Q. The Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) aims to make healthcare more affordable and accessible in India. Discuss its significance in reducing healthcare costs and improving public health. Also examine the challenges associated with its implementation. (250 words)

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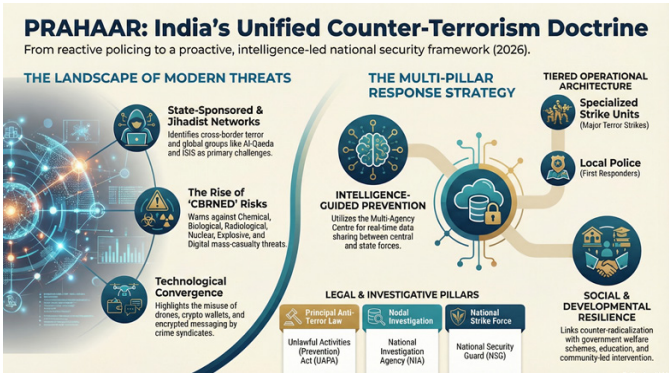
INDIA'S NATIONAL COUNTER-TERRORISM POLICY: 'PRAHAAR' – A MULTIDIMENSIONAL PARADIGM SHIFT

WHY IN THE NEWS?

The Union Home Ministry has formally articulated India's national counter-terrorism doctrine, titled 'Prahaar'. This strategy signals a move toward institutionalizing a permanent, technology-driven, and globally aligned counter-terror posture, treating terrorism as a multidimensional national security challenge rather than a mere law-and-order issue.



DEFINING 'PRAHAAR'

'Prahaar' is a comprehensive National Counter-Terrorism Policy and Strategy that combines intelligence-led prevention, swift military-grade responses, legal deterrence, and international cooperation. It explicitly adopts a "zero tolerance" approach to terrorism in all its forms.

BACKGROUND AND CONTEXT

Historically, India's counter-terrorism efforts were often seen as reactive, but 'Prahaar' seeks to establish a proactive "Intelligence-First" doctrine. It acknowledges the evolution of threats from traditional cross-border incursions to modern challenges like drone-based smuggling, cyber radicalization, cryptocurrency funding, and the potential misuse of chemical, biological, and nuclear materials. The document serves as both a doctrine and a roadmap for the Indian state to confront evolving jihadist networks and global terror entities like Al-Qaeda and ISIS.

SIGNIFICANCE AND IMPORTANCE

1. **Proactive Disruption:** The policy shifts the focus from reactive policing to proactive disruption, specifically targeting the dismantling of over-ground worker (OGW) networks and choking terror financing channels.
2. **Technological Adaptation:** It is the first consolidated policy document to explicitly highlight the risks posed by CBRNED material (chemical, biological, radiological, nuclear, explosive, and digital).
3. **Holistic Security Posture:** It addresses the "dual threat" from state and non-state actors misusing emerging technologies, robotics, and cyber tools for mass-casualty attacks.
4. **Conviction as Deterrent:** By emphasizing standardized operating procedures and centralized coordination, the policy aims for high conviction rates to serve as a deterrent against future strikes.

KEY ISSUES AND CHALLENGES

1. **State-Sponsored Terrorism:** The policy identifies state-sponsored terrorism from across India's borders as the primary and continuing challenge.
2. **Nexus with Organized Crime:** There is a growing convergence between terror groups and organized crime syndicates for logistics, arms supply, and recruitment.
3. **Evolving Tech Risks:** Challenges include the increasing use of drones, encrypted messaging

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platforms, dark web infrastructure, and crypto wallets to evade detection.

4. **Radicalization:** Global organizations like Al-Qaeda and ISIS are actively attempting to radicalize Indian youth through sleeper cells and sophisticated online propaganda.
5. **Institutional Gaps:** The Home Ministry acknowledges existing gaps in capacity and coordination between various agencies and state governments.

CONSTITUTIONAL AND LEGAL DIMENSIONS

1. **Principal Statutes:** The Unlawful Activities (Prevention) Act (UAPA) is reaffirmed as the primary anti-terror law.
2. **Modern Legal Framework:** The policy integrates UAPA with newly enacted criminal codes, namely the Bharatiya Nyaya Sanhita (BNS), Bharatiya Nagarik Suraksha Sanhita (BNSS), and Bharatiya Sakshya Adhiniyam (BSA).
3. **Judicial Oversight:** Operations are explicitly anchored within constitutional guarantees and international commitments, ensuring multiple levels of judicial oversight and access to legal redress.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Centralized Nodes:** The Multi-Agency Centre (MAC) and the Joint Task Force on Intelligence (JTFI) within the Intelligence Bureau serve as the central nodes for real-time sharing of counter-terror inputs.
2. **Tiered Response Architecture:**

- **Local Police:** Recognized as the first responders to any terror incident.
- **National Security Guard (NSG):** Designated as the nodal national counter-terror force for major attacks.
- **National Investigation Agency (NIA):** Entrusted with specialized investigations and prosecution alongside state police forces.

3. **Coordination:** Standardized operating procedures are emphasized to avoid the delays witnessed in past attacks.

ECONOMIC AND SOCIAL IMPACT

- **Socio-Economic Roots:** The policy links terrorism prevention with developmental interventions, arguing that poverty, unemployment, and lack of education are factors exploited by extremist groups.
- **Welfare as Strategy:** Government welfare schemes, scholarships, and employment programs are framed as indirect but critical counter-terror tools to build social resilience.

ETHICAL AND DEMOCRATIC CONCERNS

1. **Counter - Radicalization vs. Criminalization:** 'Prahaar' emphasizes early identification of vulnerable youth and graded police intervention rather than automatic criminalization.
2. **Community Involvement:** It calls for a multi-stakeholder approach involving community leaders, religious figures, NGOs, and prison authorities to prevent extremist indoctrination.
3. **Balancing Security and Liberty:** The government signals an intent to balance necessary security imperatives with civil liberties through the rule-of-law framework.

GLOBAL COMPARISON AND INTERNATIONAL COOPERATION

- **Transnational Strategy:** Recognizing terrorism as a global threat, India emphasizes extradition treaties, Mutual Legal Assistance Treaties (MLATs), and joint working groups.
- **Multilateralism:** The policy reiterates India's push for international terrorist designations at the United Nations and deeper intelligence-sharing arrangements with global partners.

WAY FORWARD

1. **Uniform State Structures:** There is a critical need to establish uniform counter-terror structures across all Indian states to ensure seamless coordination with central agencies.
2. **Legal Integration:** Deeper integration of legal experts from the very start of terror investigations is necessary to bolster prosecution success.
3. **Continuous Reform:** The legal and technological framework must undergo continuous reform to stay ahead of evolving threats like robotics and cyber-warfare.

PLUTUS IAS UPSC/ PCS

4. **Internet Ecosystem Disruption:** Law enforcement agencies must be systematically tasked to disrupt online extremist ecosystems and the misuse of the internet for recruitment.

CONCLUSION

'Prahaar' represents a landmark shift in India's internal security architecture. By aligning counter-terrorism with constitutional values and human rights frameworks, it ensures that the fight against terror does not compromise the democratic fabric of the nation. Furthermore, by addressing the socio-economic roots of radicalization through inclusive growth and development, the policy supports India's long-term vision of a secure and Atmanirbhar Bharat. (Note: The following conclusion points are based on general UPSC context as per your prompt requirements, as they are not explicitly detailed in the source material). A robust and technology-driven security posture is the bedrock upon which Viksit Bharat 2047 and the Sustainable Development Goals (SDGs)—particularly Goal 16 (Peace, Justice, and Strong Institutions)—can be successfully realized.

Prelims question:

Q. With reference to India's National Counter-Terrorism Policy 'Prahaar', consider the following statements:

1. It adopts an intelligence-first doctrine with emphasis on proactive disruption of terror networks.
2. The policy identifies drones, encrypted platforms, and crypto-funding as emerging terror challenges.
3. The policy designates local police as the last responders in major terror incidents.

Which of the statements given above is/are correct?

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

Answer: A

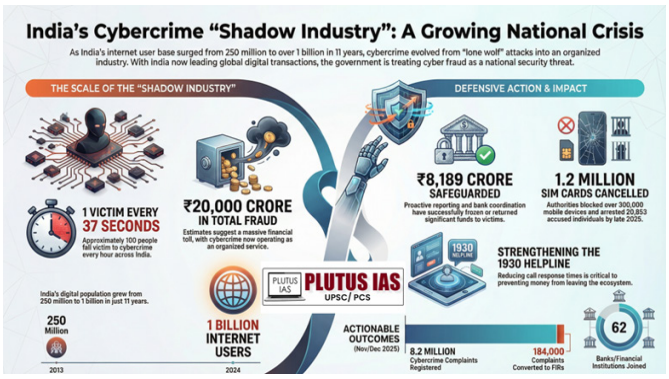
Mains Question:

Q. India's National Counter-Terrorism Policy 'Prahaar' represents a paradigm shift from reactive policing to a proactive and technology-driven counter-terror strategy. Discuss its key features, institutional framework, and challenges in ensuring a balance between national security and civil liberties (250 words)

CYBERCRIME AS A NATIONAL SECURITY CRISIS: THE RISE OF INDIA'S DIGITAL SHADOW INDUSTRY

WHY IN THE NEWS?

Union Home Minister Amit Shah, while addressing a conference titled "Tackling Cyber-Enabled Frauds & Dismantling the Ecosystem," warned that cybercrime in India has escalated into a "national crisis." He described it as a rapidly expanding "shadow industry" posing a serious threat to national security, emphasizing that the exponential growth in digital transactions has been accompanied by proportionate risks.



KEY FACTS & DATA

1. One person in India falls victim to cybercrime every 37 seconds, averaging nearly 100 victims per hour.
2. India has crossed 1 billion internet users, compared to 250 million users 11 years ago.
3. Every second digital transaction in the world now takes place in India.
4. Cybercrimes increased by over 30% as per the NCRB report (2023).
5. **Estimated total cyber fraud amount:** approximately ₹20,000 crore, of which ₹8,189 crore has been safeguarded or returned.

INSTITUTIONAL MECHANISMS:

- **Indian Cyber Crime Coordination Centre (I4C):** The central nodal agency for coordinating action against cybercrime.
- **Central Bureau of Investigation (CBI):** Co-organised the national conference along with I4C.

SCHEMES/HELPLINES/PORTALS

- **1930 Helpline:** Dedicated emergency helpline for immediate reporting and financial freezing in cyber fraud cases.
- **I4C Reporting Portal:** Accessed over 230 million times between January 2020 and November 2025, registering over 8.2 million complaints.

CYBERCRIME IN INDIA

Dimension	Details	Implications for National Security & Governance
Nature of the Problem	Cybercrime has evolved from sporadic digital offences into a structured and organised national security threat.	Threat extends beyond financial fraud to systemic instability, trust deficit in digital economy, and economic security risks.
	Massive financial implications and widespread victimisation across states.	Undermines digital confidence, affects fintech growth, and impacts vulnerable sections disproportionately.
Structural Causes	Rapid digital expansion and fintech penetration.	Increased digital footprint without corresponding security architecture.
	Massive growth in internet penetration creating a large attack surface.	More entry points for fraud, phishing, ransomware, and data breaches.
	Rise in digital payment volumes without proportionate digital literacy.	Citizens become soft targets for social engineering and OTP-based fraud.
	Technological sophistication of criminals using automated and AI-enabled fraud mechanisms.	Harder detection, scalable fraud models, deepfake-based scams emerging.
Trends & Patterns	Shift from isolated "lone wolf" attacks to organised cyber syndicates.	Indicates criminal institutionalisation and professionalisation.
	Complaints increased from 52,000 (2021) to 86,000 (recent data).	Rising incidence despite better reporting and awareness mechanisms.
	Investigations becoming faster, yet crime volume rising simultaneously.	Enforcement improvements insufficient against scale and speed of crime.
Organised Crime Dimension	Cybercrime now functions like a structured industry.	Institutional threat requiring coordinated multi-agency response.
	Bank accounts "bought and sold as a service."	Emergence of financial crime marketplaces in dark web ecosystems.
	SIM cards and mule accounts systematically exploited.	Weak KYC compliance and identity misuse concerns.
	Fraud networks operate across jurisdictions, often internationally.	Necessitates international cooperation, MLATs, and cyber diplomacy.

GOVERNMENT MEASURES TAKEN

- **Institutional Framework:** Establishment of I4C as a specialised coordination centre under MHA. Integration of 62 banks and financial institutions with I4C mechanisms.

- **Technological & Operational Measures:** Establishment of the 1930 emergency helpline to enable prompt reporting of cyber fraud and immediate freezing of suspicious financial transactions.
- **Achievements:** ₹8,189 crore safeguarded or returned to victims. Over 12 lakh suspicious SIM cards cancelled. More than 3 lakh IMEI numbers blocked. 20,853 accused persons arrested in cybercrime cases.

WAY FORWARD

- **Institutional Strengthening:** Expand and professionalise 1930 helpline infrastructure. Create specialised cybercrime courts for faster adjudication. Enhance state-level cyber police stations.
- **Awareness & Digital Literacy:** Launch of nationwide campaigns to promote safe digital practices and responsible online behaviour. Focused outreach programmes for vulnerable groups such as senior citizens and rural populations, who are more susceptible to online fraud.
- **Technological Modernisation:** AI-based fraud detection systems. Predictive analytics for suspicious transaction monitoring. Real-time inter-bank alert systems.
- **International Cooperation:** Bilateral and multilateral cybercrime treaties. Strengthening INTERPOL and global cyber coordination frameworks. Extradition agreements for cyber offenders.

CHALLENGES / GAPS

- **Coordination Issues:** Need for seamless coordination between: Banks, Telecom operators, State police units, Central agencies Identification and dismantling of domestic and foreign call centres remains complex.
- **Capacity Constraints:** Delays in answering 1930 helpline calls reduce recovery chances. Shortage of trained cyber forensic personnel. Variations in cyber policing capabilities across states.
- **International Dimension:** Cross-border cyber fraud networks. Jurisdictional limitations in investigation. Need for global intelligence-sharing frameworks.

CONCLUSION

As India leads the world in digital transaction volume, securing the digital ecosystem has become a matter of national security priority. The transformation of cybercrime into a structured industry demands coordinated, technology-driven, and citizen-centric responses. Ensuring robust cyber security is indispensable for sustaining trust in the Digital India ecosystem and preventing the escalation of cyber fraud into a systemic national crisis.

Prelims question:

Q. With reference to India's cybercrime response mechanism, consider the following statements:

1. The Indian Cyber Crime Coordination Centre (I4C) functions under the Ministry of Home Affairs.
2. The 1930 helpline is used for immediate reporting and freezing of funds in cyber fraud cases.
3. Cybercrime investigation is exclusively the responsibility of the Central Bureau of Investigation (CBI).

Which of the statements given above is/are correct?

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

Answer: A

Mains Question:

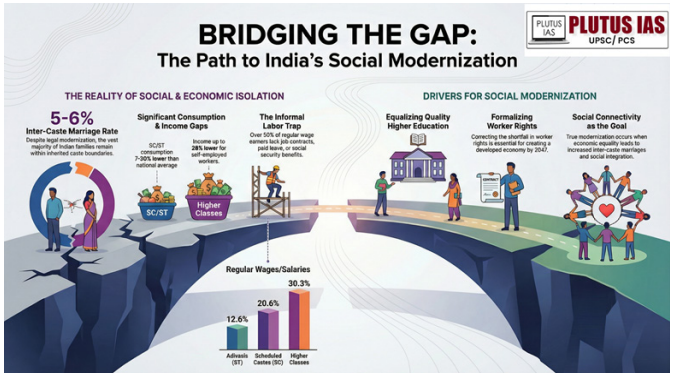
Q. Cybercrime is emerging as a serious internal security challenge in India. Discuss the causes, consequences, and measures required to address this issue (250 words)

SOCIAL MODERNISATION IN INDIA: BRIDGING THE GAP BETWEEN ECONOMIC GROWTH AND SOCIAL EQUALITY

WHY IN THE NEWS?

As India celebrates four decades of robust economic growth and sets its sights on becoming

a "Viksit Bharat" (Developed India) by 2047, a critical disconnect has emerged between economic progress and social evolution. While the nation's GDP continues to rise, social modernization—characterized by the erosion of caste hierarchies and the promotion of social connectivity—remains significantly lagged. Recent data from the Periodic Labour Force Survey (PLFS) 2023-24 and various consumption surveys highlight persistent disparities that threaten the sustainability of India's long-term developmental goals.



DEFINING SOCIAL MODERNISATION

Social modernisation in the Indian context is the process of transforming a traditional society, historically structured around rigid caste hierarchies and endogamy, into a modern, integrated society based on individual merit, social mobility, and fraternity. It involves the transition from a "division of labourers" based on birth to a "division of labour" based on choice and skill. True modernisation is achieved when social connectivity transcends inherited identities, primarily reflected in the prevalence of inter-caste marriages and equal access to economic opportunities.

BACKGROUND AND HISTORICAL CONTEXT

The roots of social inequality in India are deeply embedded in the traditional caste hierarchy, which historically dictated both social interactions (endogamy) and economic roles (division of labour).

1. **Colonial Formalisation:** Traditional separations were formalised during British rule through the inclusion of thousands of castes in the Census and the judicial enforcement of within-caste marriage under Hindu law. During this era, inter-caste marriage often required the renunciation of one's faith.
2. **Early Reform Efforts:** The freedom movement recognized the rejection of untouchability as a core pillar of national identity. Reformers like Vithalbhai Patel sought to permit inter-caste marriages through bills in the Imperial Legislative Council, though these were initially unsuccessful.
3. **Post-Independence Legislation:** A major legal shift occurred with the Hindu Marriage Act, which finally modernised marriage laws by removing the legal ban on inter-caste unions. Despite this, social practice has been slow to follow legal theory.

SIGNIFICANCE OF SOCIAL MODERNISATION

1. **Economic Productivity:** Social development is not merely a welfare measure; by integrating more workers and entrepreneurs into the formal economy, it serves as a catalyst for faster and more inclusive economic growth. Breaking caste-based occupational rigidities enhances labour mobility and efficiency.
2. **Social Connectivity and National Integration:** Greater inter-caste interaction and integration strengthen social trust, fraternity, and democratic stability. A cohesive society is better equipped to manage diversity and prevent social conflict.
3. **Human Capital Optimization:** Equal access to quality education, skills, and employment enables the country to fully utilise its demographic dividend, particularly among Dalits and Adivasis who constitute nearly one-fourth of the population.
4. **Reduction in Structural Inequality:** Social modernisation helps dismantle entrenched hierarchies, reducing income, consumption, and opportunity gaps across communities. This ensures that economic growth translates into equitable development.
5. **Strengthening Constitutional Values:** By promoting equality, dignity, and fraternity, social modernisation deepens the realization of constitutional ideals and strengthens the moral and democratic foundations of the Republic.

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KEY ISSUES AND CHALLENGES

1. **Persistence of Endogamy:** Despite legal reforms, within-caste marriage remains the overwhelming norm. Surveys from 2010 onwards indicate that only 5–6% of marriages are inter-caste, suggesting that families remain largely confined within inherited caste silos.
2. **The "Fatal Accident" of Birth:** The tragic suicides of students like Rohith Vemula—who described his birth as a "fatal accident"—and Payal Tadvi underscore the severe psychological and social toll of persistent caste discrimination in elite educational spaces.
3. **Occupational Traps:** While traditional barriers have weakened, Scheduled Castes remain disproportionately represented in stigmatized labour such as manual scavenging, waste disposal, and handling dead bodies.
4. **Adivasi Isolation:** Scheduled Tribes (Adivasis) remain largely isolated from the economic mainstream and the political core, often relegated to unpaid labour as helpers in household enterprises.

ECONOMIC AND SOCIAL IMPACT: AN ANALYTICAL VIEW

1. **Consumption and Income Gaps:** The Household Consumption Expenditure Survey (2022–23) reveals that SC/ST monthly consumption is 7% to 20% lower than the national average. Furthermore, research from Azim Premji University shows that incomes for SC/ST individuals are 10% lower for casual workers and 28% lower for the self-employed compared to other groups.
2. **Employment Disparity:** PLFS 2023–24 data shows that while 30.3% of "higher classes" hold regular wage/salary jobs, only 12.6% of Adivasis and 20.6% of Scheduled Castes have secured similar positions.
3. **Unpaid Labour:** A staggering 29.7% of Adivasi employment consists of work as helpers in household enterprises, which is frequently unpaid and lacks formal recognition.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **The Ambedkar Scheme:** The Dr. Ambedkar Scheme for Social Integration through Inter-Caste Marriages was designed to provide incentives for integration but has yielded limited impact thus far.
2. **UGC Regulations:** In response to campus discrimination, the University Grants Commission recently introduced regulations for the strict implementation of anti-discrimination measures across Indian universities.
3. **The Reservation Debate:** Because senior bureaucratic and management positions continue to be dominated by upper-caste individuals, caste-linked reservations remain a necessary tool for a defined length of time to ensure equitable access to quality jobs.

LABOR RIGHTS AND THE INFORMAL ECONOMY

A broader challenge for social policy is the high level of informality in the Indian workforce.

- **Lack of Contracts:** Among regular wage earners, 58% have no job contract.
- **Social Security Deficit:** Over 53% of regular workers are ineligible for social security benefits, and 47.3% have no access to paid leave. This informality disproportionately affects those at the bottom of the social hierarchy, reinforcing their economic vulnerability.

ETHICAL AND DEMOCRATIC CONCERNS

The continued discrimination against Dalits and the isolation of Adivasis represent a failure of the constitutional promise of equality. When a significant portion of the population is excluded from the benefits of growth or faces reported attacks, the democratic fabric of the nation is weakened. True modernisation requires a shift in the minds of those who hold the levers of economic and administrative power.

WAY FORWARD: A POLICY-ORIENTED ROADMAP

1. **Equalising Access to Quality Higher Education:** Education is the key to reducing disparity. Higher education significantly lowers the income gap for lower-caste individuals and Adivasis.
2. **Support for Minority Entrepreneurship:** Governance must move beyond wage

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employment to support SC/ST-led startups, ensuring they have the capital and mentorship to break traditional economic barriers.

3. **Formalisation of the Workforce:** As India moves toward 2047, job creation must be accompanied by worker rights—contracts, social security, and paid leave—to ensure inclusive growth.
4. **Promoting Social Integration:** Policies must move beyond economic incentives to actively foster social connectivity. Inter-caste marriage is viewed as the more complete modernisation of society.
5. **Strict Enforcement of Anti-Discrimination Laws:** Institutionalize recent regulatory measures and ensure that campuses and workplaces are safe, inclusive environments.

CONCLUSION

The modernisation of the Indian economy must be matched by the modernisation of Indian society. While infrastructure and GDP are vital, the primary instrument for social development remains education, skill development, and the breaking of age-old social separations. To achieve Viksit Bharat 2047, India must ensure that a citizen's progress is determined by their aspirations and skills rather than the accident of birth. By aligning economic growth with Constitutional values of fraternity and equality, India can build a truly inclusive and sustainable future.

Prelims question:

Q. With reference to social modernisation in India, consider the following statements:

1. Social modernisation implies the transition from caste-based division of labourers to skill-based division of labour.
2. The Hindu Marriage Act legally prohibited inter-caste marriages after Independence.
3. PLFS 2023–24 indicates significant disparities in regular wage employment between higher castes and Scheduled Tribes.
4. Informality in employment disproportionately affects socially marginalized communities.

Which of the statements given above are correct?

(a) 1, 3 and 4 only (b) 1 and 2 only

(c) 2 and 3 only (d) 1, 2, 3 and 4

Answer: A

Mains Question:

Q. Economic growth without social modernisation can deepen structural inequalities in India. In the context of persistent caste disparities and labour market informality, critically examine the challenges to social modernisation and suggest policy measures to achieve inclusive development by 2047 (250 words)

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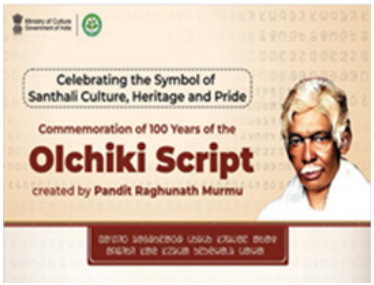
OL CHIKI SCRIPT AND SANTHALI LANGUAGE: FROM ORAL TRADITION TO CONSTITUTIONAL EMPOWERMENT

WHY IN THE NEWS?

In February 2026, the Ministry of Culture, in collaboration with the Santhali newspaper Fagun, organized the inaugural centenary celebrations of the Ol Chiki script in New Delhi. To commemorate 100 years of this indigenous script (1925–2025), the Government of India released a ₹100 commemorative coin and a postage stamp. This follows the landmark release of the Constitution of India translated into Santhali using the Ol Chiki script in December 2025.

DEFINING OL CHIKI

Ol Chiki is the official and indigenous writing system of the Santhali language, a prominent tribal language belonging to the Austroasiatic family. Created in 1925 by the visionary Pandit Raghunath Murmu, the script comprises 30 letters specifically designed to represent the unique phonetic features of Santhali, such as glottal stops and specific vowel patterns, which external scripts often fail to capture accurately.



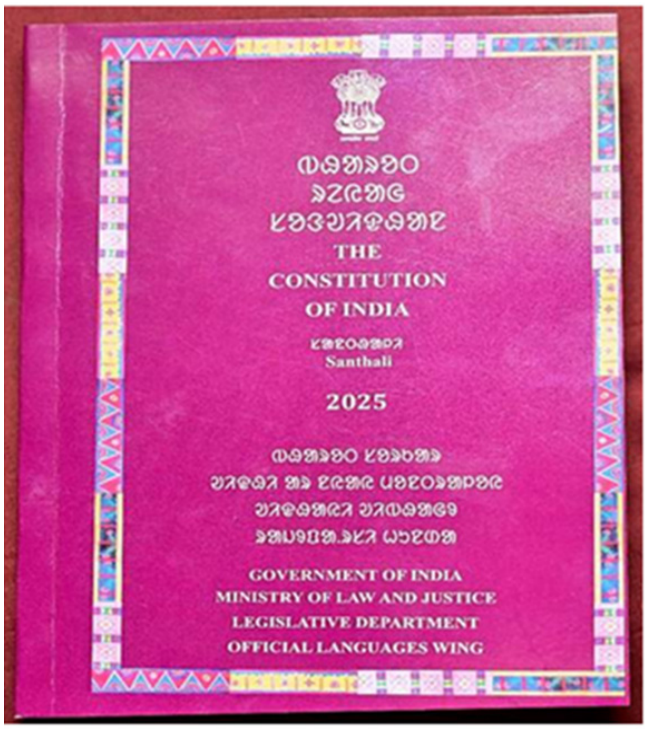
HISTORICAL BACKGROUND AND CONTEXT

For centuries, Santhali was maintained through a rich oral tradition of folklore, songs, and storytelling. Before the 20th century, the language was transcribed using borrowed scripts like Roman, Bengali, Odia, and Devanagari. However, these writing systems were inadequate for Santhali's distinctive phonetics, leading to distortions in meaning and pronunciation. Recognizing this gap, Pandit Raghunath Murmu (born 1905 in Odisha) developed Ol Chiki to provide his community with a scientific and dedicated writing system. His work, including the first book in Ol Chiki, Hital Serena (1936), transformed Santhali from an oral medium into a structured written legacy.

CONSTITUTIONAL AND LEGAL DIMENSIONS

The journey of Ol Chiki is closely tied to India's constitutional framework for linguistic diversity:

- **Eighth Schedule Inclusion:** Through the 92nd Constitutional Amendment Act of 2003, Santhali was formally included in the Eighth Schedule of the Constitution. This transition from a marginalized language to a formally recognized one enabled its use in competitive exams, governance, and public communication.
- **Linguistic Justice:** The 2025 translation of the Constitution into Santhali using Ol Chiki by the Legislative Department serves as a tool for democratic empowerment. It allows Santhali speakers to directly engage with constitutional provisions, including tribal safeguards under the Fifth and Sixth Schedules.
- **Article 29 & 350A:** While not explicitly cited in the press note, this development aligns with Article 29 (protection of interests of minorities/ distinct scripts) and Article 350A (instruction in mother tongue at the primary stage).



SIGNIFICANCE AND IMPORTANCE

1. **Phonetic Authenticity:** Unlike borrowed writing systems, Ol Chiki was designed with 30 letters to specifically capture the unique phonetic features of Santhali, such as glottal stops and specific vowel patterns.
2. **Transition to Written Legacy:** The script enabled Santhali to transition from a purely oral tradition into a structured written medium, allowing for the accurate recording of vocabulary and grammar.
3. **Constitutional Validation:** The existence and adoption of the script facilitated the 2003 inclusion of Santhali in the Eighth Schedule of the Constitution via the 92nd Amendment Act.
4. **Democratic Empowerment:** By enabling the translation of the Constitution of India into an indigenous script, Ol Chiki provides Santhali speakers direct access to their legal rights and tribal safeguards.
5. **Symbol of Self-Determination:** Ol Chiki serves as a vital symbol of linguistic dignity, cultural resilience, and intellectual self-determination for the Santhal community.
6. **National Cultural Integration:** The formal recognition through commemorative coins and stamps acknowledges tribal knowledge systems as an integral part of India's national cultural mosaic.

KEY ISSUES AND CHALLENGES

1. **Distortion via External Scripts:** Historically, the use of Roman, Bengali, Odia, and Devanagari scripts led to significant distortions in the pronunciation and meaning of Santhali words.
2. **Barriers to Documentation:** The absence of a standardized script for centuries posed challenges for formal documentation, literary development, and the preservation of cultural memory.
3. **Educational Impediments:** Before Ol Chiki's widespread adoption, the mismatch between the language's sounds and external scripts created persistent obstacles in educational contexts.
4. **Administrative Marginalization:** For much of its history, the language was considered administratively marginalized, lacking institutional support in governance and public communication.
5. **Risk to Oral Traditions:** Relying solely on oral transmission made the continuity of identity and folklore vulnerable to generational gaps and external cultural pressures.

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6. **Institutional Gaps:** Until its formal recognition, there was a lack of systemic support for using the language in competitive examinations and high-level academic research.

WAY FORWARD

1. **Institutionalizing Education:** There is a need to further integrate Ol Chiki into formal school curricula and state-level publications to ensure the script's survival among youth.
2. **Expanding Digital Presence:** To remain a "vibrant written medium," the script must be increasingly adapted for digital platforms, social media, and modern knowledge systems.
3. **Enhancing Linguistic Justice:** The government should continue translating essential legal and administrative documents into Santhali to deepen democratic engagement.
4. **Promoting Literary Research:** Supporting academic research at the university level (following the example of Ranchi University) can help archive Santhali oral history using the script.
5. **Safeguarding Knowledge Traditions:** Policy efforts should focus on using Ol Chiki as a tool to preserve indigenous knowledge traditions for future generations.
6. **Bridging Tradition and Modernity:** Future initiatives should position the script as both a protector of tribal identity and a bridge that enables speakers to engage fully with modern public life.

CONCLUSION

The centenary of the Ol Chiki script represents more than the survival of a writing system; it is a testament to the power of linguistic dignity and cultural continuity. By bridging the gap between ancient oral traditions and modern constitutional governance, Ol Chiki serves as a vital pillar for inclusive growth and democratic access. As India marches toward Viksit Bharat 2047, the preservation and promotion of such indigenous scripts will be essential in maintaining the country's rich cultural mosaic and fulfilling the vision of an Atmanirbhar Bharat rooted in its own intellectual heritage.

Prelims question:

Q. With reference to the Ol Chiki script, consider the following statements:

1. It is the indigenous writing system of the Santhali language.
2. It was created by Pandit Raghunath Murmu in 1925.
3. Santhali was included in the Eighth Schedule through the 92nd Constitutional Amendment Act, 2003.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 2 only

(c) 2 and 3 only (d) 1, 2 and 3

Answer: D

Mains Question:

Q. The centenary of the Ol Chiki script marks a significant milestone in India's journey toward linguistic justice and cultural preservation. Discuss its historical evolution, constitutional significance, and role in strengthening tribal identity. Also examine the challenges in its contemporary adoption. (250 words)

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INDIA'S JOURNEY FROM CONVENTIONAL POWER TO CLEAN ENERGY

WHY IN THE NEWS?

India's non-fossil capacity exceeding 50% and solar reaching 140 GW. It features the SHANTI Act 2025 for nuclear reform and the India Energy Stack digital infrastructure. These milestones showcase India's transition toward Net Zero 2070 and global energy leadership.

INDIA'S ENERGY TRANSITION

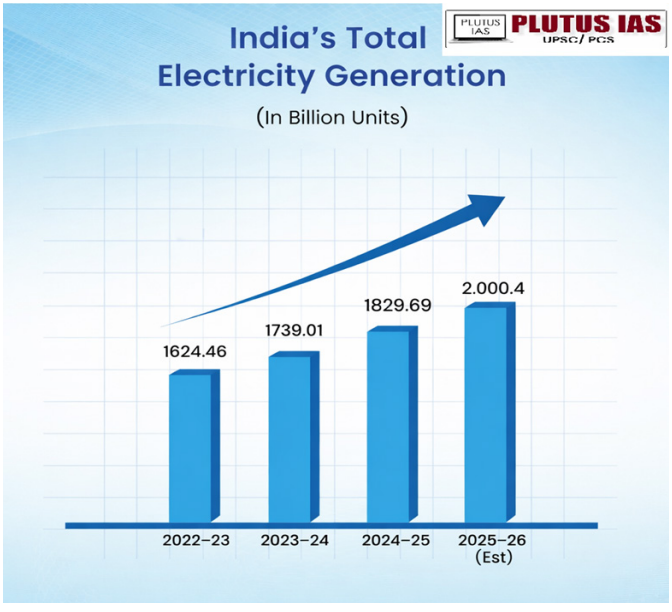
Energy is the silent backbone of a nation's advancement, powering every classroom fan, agricultural pump, and hospital light that facilitates economic growth and human development. As India continues its rapid progression, it has established itself as one of the world's top three energy consumers, with a burgeoning demand that necessitates a robust and reliable supply.

The national focus is currently undergoing a strategic shift from merely addressing energy scarcity to orchestrating a sophisticated energy transition. This evolution is not about an abrupt abandonment of traditional sources but a carefully planned move toward an evolving spectrum of energy that is cleaner, more affordable, and more secure. By prioritizing this transition, India aims to power its future growth while fulfilling its long-term international commitment to achieving Net Zero emissions by 2070. This journey reflects a balanced approach to meeting the needs of a developing economy while assuming a leadership role in global climate responsibility.

GROWTH IN ELECTRICITY DEMAND AND SUPPLY

India has witnessed a significant surge in electricity generation to keep pace with its growing economy. Total generation rose from 1,739.09 Billion Units (BU) in 2023–24 to 1,829.69 BU in 2024–25, marking a growth of 5.21%. For the 2025–26 fiscal year, the government has set an ambitious generation target of 2,000.4 BU.

This growth in supply has been accompanied by a dramatic improvement in energy access, linking electricity with inclusive development across the country. Ongoing reforms have substantially increased power availability; rural areas have seen a jump from an average of 12.5 hours in 2014 to 22.6 hours today, while urban availability has reached 23.4 hours. This expansion of the grid has been supported by massive infrastructure investments, such as those under the SAUBHAGYA and DDUGJY schemes, which electrified over 18,374 villages and provided connections to 2.86 crore households. Furthermore, the Revamped Distribution Sector Scheme (RDSS), with an outlay of ₹3.03 lakh crore, is modernizing infrastructure to ensure that this increased capacity translates into a reliable 24x7 supply for all citizens.

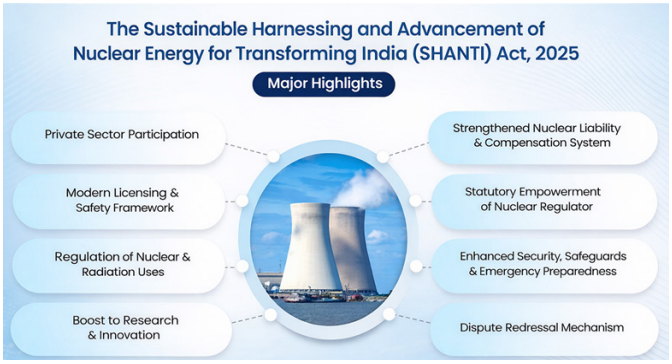


INDIA'S CURRENT ENERGY MIX

- **India's renewable energy (RE)** expansion is characterized by unprecedented scale and speed, ranking the country fourth globally in total installed RE capacity. This growth is driven by massive projects like 55 approved solar parks with a sanctioned capacity of 40 GW and specialized wind corridors. Rooftop solar has also become a priority through the PM Surya Ghar scheme, which has already enabled 23.9 lakh households to add 7 GW of clean energy capacity.
- The benefits of this expansion extend beyond environmental protection; the **Production Linked Incentive (PLI) Scheme**, with a ₹24,000 crore outlay, is fostering domestic manufacturing, creating jobs, and reducing import dependence. Globally, India co-founded the International Solar Alliance (ISA), which now includes over 125 member countries, to mobilize finance and technology for solar deployment. Despite this success, the transition faces challenges such as the intermittency of solar and wind, which necessitates advancements in grid integration and storage technology to maintain a stable power flow. By addressing these, India seeks to build a competitive and self-reliant clean energy ecosystem.

EMERGING FRONTIERS: GREEN HYDROGEN & NUCLEAR REFORM

- India is pioneering new frontiers in energy through the National Green Hydrogen Mission, which aims to produce 5 MMT of green hydrogen annually by 2030. This mission is critical for decarbonizing "hard-to-abate" sectors like steel, refining, and heavy transport. With an outlay of ₹19,744 crore, the mission is expected to attract over ₹8 lakh crore in investment and significantly reduce fossil fuel imports. Pilot projects for hydrogen-powered mobility are already operational on ten routes.
- In tandem, the government is modernizing the nuclear sector through the SHANTI Act of 2025. This landmark legislation consolidates the nuclear legal framework, enabling limited private sector participation and introducing a graded liability framework while maintaining sovereign control. Nuclear energy is viewed as a vital, carbon-free baseload power source, with plans to increase capacity to 100 GW by 2047. The mission also includes a ₹20,000 crore allocation for Small Modular Reactors (SMRs), which offer flexible and scalable options for meeting diverse energy demands while upholding stringent safety and security standards.



POWER SECTOR REFORMS & ENERGY EFFICIENCY

- The financial and operational health of the power sector is being addressed through comprehensive distribution reforms. The RDSS is currently implementing projects worth ₹2.8 lakh crore to modernize DISCOM infrastructure. A central pillar of this digital transformation is the installation of 5.62 crore smart meters, which improve billing accuracy and reduce commercial losses.
- Energy efficiency measures further ensure that growth does not lead to a proportionate rise in emissions. A major policy shift involves transitioning from the Perform, Achieve and Trade (PAT) scheme to the Carbon Credit Trading Scheme (CCTS), creating a market incentive for industries to meet greenhouse gas intensity targets. At the consumer level, the UJALA programme has been a massive success, distributing 36.87 crore LED bulbs and saving 47,883 million kWh of energy annually. These efforts are supplemented by the India Energy Stack (IES), a digital public infrastructure designed to empower consumers to become active participants in the energy market by monetizing assets like rooftop solar and batteries.

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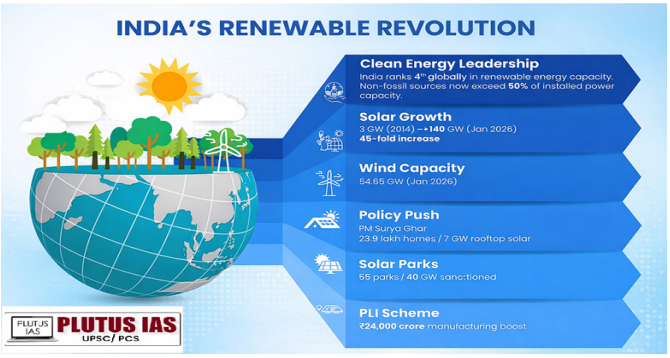

CHALLENGES IN ENERGY TRANSITION

The transition to a clean energy future presents significant hurdles. The financing requirements are immense; for instance, the Green Hydrogen Mission alone requires investments exceeding ₹8 lakh crore. Moving away from coal dependency is a complex task that requires a "just transition" to ensure economic stability for regions currently reliant on fossil fuels.

Technological and logistical challenges also persist. The intermittency of renewable sources like solar and wind makes storage technology and grid modernization essential for maintaining reliability. While the sources do not explicitly detail land acquisition issues, they highlight the difficulty of decarbonizing intensive industries such as steel and shipping. Furthermore, India's climate vulnerability necessitates a balanced approach where growth and sustainability move together, ensuring that the energy system remains resilient against future environmental pressures while meeting the country's vast developmental needs.

WAY FORWARD

India's roadmap involves a balanced energy mix where solar, wind, nuclear, and green hydrogen work in concert to provide secure and affordable power. A key priority is grid modernization through the India Energy Stack, which uses open standards to enable better coordination between utilities and consumers. Innovation in storage and battery technology is also crucial to manage the variability of renewables.

The strategy emphasizes policy stability through legislative updates like the proposed Electricity (Amendment) Bill and the National Electricity Policy 2026, both of which aim for a financially viable and sustainable sector. Community participation is being fostered by empowering individuals to earn from the transition via rooftop solar and EV chargers. Ultimately, these domestic efforts are aligned with India's international Roadmap to Net Zero 2070, as the country continues to lead global initiatives like the Global Biofuels Alliance and the International Solar Alliance.

CONCLUSION

India's energy transformation is a gradual and structured transition, not a sudden replacement of existing systems. It is a layered process that combines infrastructure investment, technological innovation, and robust policy reform. By linking this transformation with both development and sustainability, India is demonstrating that a nation can power its economic growth while simultaneously acting with climate responsibility.

The milestones achieved from surpassing 50% non-fossil capacity to launching the National Green Hydrogen Mission reflect a commitment to a secure, affordable, and clean energy future. India is not merely generating more power; it is fundamentally redesigning how that power is produced and shared, ensuring a resilient and self-reliant system that is prepared for the needs of the future.

Prelims question:

Q. With reference to India's energy sector and recent policy initiatives, consider the following statements:

1. According to the International Renewable Energy Agency (IRENA), India currently ranks second globally in total installed renewable energy capacity.
2. Under the government's notified standards, hydrogen is classified as "green" only if total emissions do not exceed 2 kg of CO_2 equivalent for every 1 kg of hydrogen produced.
3. The SHANTI Act, 2025 provides statutory recognition to the Atomic Energy Regulatory Board (AERB) and allows for limited private sector participation.

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4. The India Energy Stack (IES) is a physical infrastructure project aimed at building a national grid for green hydrogen pipelines.

Which of the statements given above are correct?

(A) 1 and 2 only (B) 2 and 3 only

(C) 1, 3, and 4 only (D) 2, 3, and 4 only

Answer: (B) 2 and 3 only

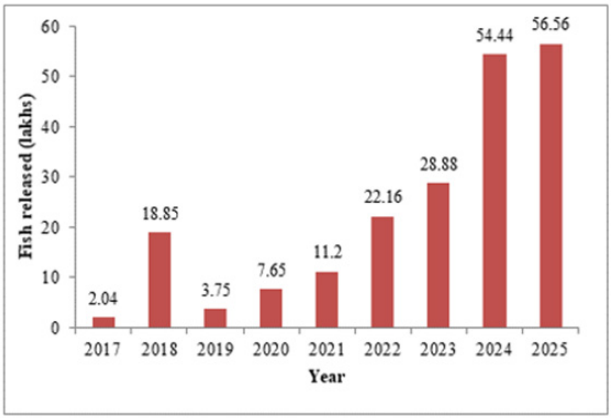
Mains Question:

Q. "India's energy journey is no longer defined by a single source but by an evolving spectrum that balances growth with sustainability." In the light of this statement, analyse how the integration of nuclear reforms and digital public infrastructure is expected to redefine India's energy security and its path to Net Zero 2070. (250 words)

RESTORING THE LIFE OF GANGA: SCIENTIFIC RIVER RANCHINGANDECOLOGICAL REJUVENATION

WHY IN THE NEWS?

Under Namami Gange, ICAR-CIFRI released 205.5 lakh indigenous fish seeds via 169 ranching programmes (2017–2025) to restore Ganga's biodiversity. This scientific approach increased fish landings by 41% in Varanasi and 24.7% in Prayagraj. Resultantly, India became the world's top producer of inland capture fishes.



SIGNIFICANCE OF RIVER GANGA.

The River Ganga is not merely a watercourse; for over a century, it has served as the lifeblood of India, sustaining a dense web of biodiversity and anchoring the livelihoods of millions. However, the river's ecological integrity has faced a severe crisis, characterized by a sharp decline in indigenous fish biodiversity. This decline is a casualty of decades of habitat degradation, pollution, and unregulated fishing. In response, the Government of India, under the Namami Gange Programme, has adopted scientific river ranching as a pivotal, evidence-based strategy for restoration. Implemented by the ICAR-Central Inland Fisheries Research Institute (ICAR-CIFRI), this initiative represents a transition from mere restocking to a broader goal of ecological balance. Thesis: The success of Ganga's rejuvenation lies in an integrated approach that harmonises scientific rigor with socio-economic sustainability and active community stewardship, ensuring the river remains a living ecosystem for future generations.

STATUS OF INDIGENOUS FISH DIVERSITY IN GANGA BASIN

- **Historically,** the Ganga basin has been home to a rich variety of native fish that supported food security and cultural practices. In recent decades, these populations have thinned significantly.
- **Key Causes of Decline:** The sources identify habitat degradation, altered flow regimes, and pollution as primary drivers. Additionally, relentless and unregulated fishing pressure has further depleted stocks.
- **Impact:** This biodiversity loss directly threatens the resilience of riverine ecosystems and the livelihoods of dependent fisher communities who rely on the river for their primary income and nutritional needs.

SCIENTIFIC RIVER RANCHING

Scientific river ranching involves the planned release of fish seeds into natural water bodies to augment existing populations.

- **Breeding and Release:** Between 2017 and 2025, 205.5 lakh indigenous fish seeds were released through 169 ranching programmes. To ensure

survival, fingerlings (10–15 cm) were used instead of generic hatchery fish.

- **Genetic Stock Management:** Crucially, seeds are bred from wild brooders collected directly from the Ganga to safeguard native genetic lines.
- **Monitoring and Technology:** The programme utilizes advanced tools like GIS-based habitat mapping through the Indian Inland Fisheries Informatics (INNF) platform and Real-time monitoring via IoT for water quality. Tagging systems (e.g., 6,031 Hilsa tagged) are used to track movement and survival.

INSTITUTIONAL FRAMEWORK UNDER NAMAMI GANGE

The Namami Gange Programme provides the overarching framework for these interventions, with ICAR-CIFRI serving as the primary scientific body.

- **Collaboration:** The initiative involves high-level policy support, evidenced by the participation of senior Union Ministers in ranching events to raise public awareness.
- **Policy Convergence:** The development of the National Reservoir Fisheries Management Policy (2025) and the use of River Aqua Map to integrate pollution data with aquatic life suitability demonstrate a move toward unified, science-based governance.

ECOLOGICAL OUTCOMES

The interventions have yielded measurable ecological gains:

- **Species Revival:** Significant increases in Indian Major Carp (IMC) landings have been recorded, with Prayagraj seeing a 24.7% rise and Varanasi a 41% rise.
- **Trophic Balance:** Ranching efforts focus on diverse species, including Mahseer, Catfishes, and Hilsa, to restore the natural food web.
- **Critical Analysis:** While successful, the sources emphasize that restoration must be persistent rather than symbolic. Genetic dilution is mitigated by using wild-caught brooders, but long-term sustainability requires refining adaptive management and continuous monitoring.

SOCIO-ECONOMIC DIMENSIONS

The programme views fisheries not just as a resource, but as a pillar of nutritional security and poverty alleviation.

- **Livelihood Support:** By rebuilding fish populations, the initiative strengthens the economic base of fishing communities.
- **Productivity Gains:** Guided by ICAR-CIFRI, reservoir productivity rose from 20 to 150 kg/ha/year, and wetland productivity reached 1,600 kg/ha/year.
- **Commercial Potential:** India has become the world's top producer of inland capture fishes (1.89 million tonnes), indicating the high economic stakes of successful river management. (Note: While the sources focus on broad community impact, specific details on SHGs or eco-tourism are less detailed; these are generally recognized in wider policy contexts).

CHALLENGES AND LIMITATIONS

Despite progress, several hurdles remain:

- **Environmental Pressures:** Climate variability and altered flow regimes continue to challenge habitat stability.
- **Governance and Enforcement:** The need for "unregulated fishing" control suggests gaps in enforcement.
- **Monitoring:** While IoT and GIS are being deployed, the sources highlight the necessity of scaling these technologies for basin-wide tracking.
- **Invasive Species:** While not explicitly detailed in the excerpts, the focus on "native species conservation" implies a strategic effort to counter the risks posed by non-native species.

WAY FORWARD

The future of the Ganga depends on basin-level integrated management.

- **Technology Integration:** Expanding AI and IoT-based technologies for real-time water quality and drone-based sampling will be critical.
- **Stakeholder Participation:** Deepening community engagement and public awareness is essential for the longevity of conservation efforts.

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- **Policy refinement:** Continuous research and adaptive management are required to ensure that interventions keep pace with environmental changes.

ETHICAL AND SUSTAINABLE DEVELOPMENT PERSPECTIVE

The approach has evolved from "production-oriented" to an ecosystem-based model. This reflects a shift toward ecological stewardship, where the river is treated as a living entity rather than a mere resource. This aligns with the principle of inter-generational justice, ensuring that the Ganga's biological wealth is preserved for the future.

CONCLUSION

A decade of interventions under Namami Gange has demonstrated that scientific river ranching is a powerful tool for reversing biodiversity loss. By releasing millions of genetically pure seeds and leveraging advanced informatics, the programme has successfully boosted fish biomass in critical stretches like Prayagraj and Varanasi. However, true rejuvenation requires more than just stocking; it demands a persistent commitment to science-based stewardship, community participation, and ethical governance. As the Ganga transitions from a polluted waterway to a restored ecosystem, it serves as a global model for balancing economic needs with ecological integrity.

Prelims question:

Q. Which of the following statements regarding the "Scientific River Ranching" programme under Namami Gange is/are correct?

1. It is primarily implemented by the ICAR-Central Inland Fisheries Research Institute (ICAR-CIFRI).
2. Fish seeds for ranching are exclusively sourced from generic commercial hatcheries to ensure high volume.
3. The programme uses the "River Aqua Map" to integrate water quality data with aquatic life suitability.

Select the correct answer:

A) 1 and 2 only B) 1 and 3 only

C) 2 and 3 only D) 1, 2, and 3

Answer - B

Mains Question:

Q. "Scientific river ranching under the Namami Gange Programme represents a shift from mere pollution control to comprehensive ecological restoration." Critically examine this statement with reference to its impact on biodiversity and the socio-economic conditions of riverine communities.

(250 Words)

RIGHT TO LIFE, RIGHT TO ENVIRONMENT: RE-EVALUATING THE ROLE OF COURTS IN DEVELOPMENTAL DECISIONS

WHY IN THE NEWS?

Former Supreme Court judge Deepak Gupta recently expressed concern over the declining proactive role of courts in environmental protection at the Anil Agarwal Dialogue 2026 held at the Anil Agarwal Environment Training Institute. He questioned judicial handling of projects such as the Great Nicobar Island development and highlighted tensions between economic growth and ecological sustainability.

CONCEPT: ENVIRONMENTAL JURISPRUDENCE & SUSTAINABLE DEVELOPMENT

Environmental jurisprudence refers to the body of legal principles developed by courts to protect

environmental rights and regulate developmental activities.

Sustainable development implies development that meets present needs without compromising the ability of future generations to meet their needs, integrating economic growth, social justice, and environmental protection.

Justice Gupta's remarks underline the debate on whether current judicial approaches adequately safeguard environmental sustainability while enabling development.

BACKGROUND AND CONTEXT

- **Constitutional Basis:** Article 21 has been judicially interpreted to include the right to a clean and healthy environment. This is supported by Article 48A (State's duty to protect the environment) and Article 51A(g) (Fundamental duty of citizens to safeguard nature).
- **Legal Framework:** Key legislations include the Environment (Protection) Act, 1986, the Forest Conservation Act, 1980, and the National Green Tribunal (NGT) Act, 2010.
- **Judicial Doctrines:** Landmark rulings have established core principles such as Absolute Liability (Oleum Gas Leak case), the Precautionary Principle, and the Polluter Pays Principle (Vellore Citizens Welfare Forum v. Union of India). The TN Godavarman case further expanded forest conservation efforts.

SIGNIFICANCE OF ENVIRONMENTAL JURISPRUDENCE

1. **Environmental Constitutionalism:** It expands the scope of the "Right to Life" and strengthens intergenerational equity.
2. **Rule of Law:** The judiciary acts as a vital check on executive-led projects, ensuring they meet both procedural and substantive environmental safeguards.
3. **Long-term Economic Stability:** By preventing ecological damage, jurisprudence protects the natural capital necessary for sustainable growth and fulfills international SDG commitments.
4. **Biodiversity Protection:** It mediates conflicts between infrastructure needs and conservation, such as the protection of the Great Indian Bustard.

KEY ISSUES AND CHALLENGES

1. **Dilution of Judicial Activism:** There is a growing concern that courts are shifting focus toward procedural compliance (checking if paperwork is in order) rather than ensuring actual ecological outcomes.
2. **Reliance on Technical Reports:** Courts often depend on expert reports that may be contested, incomplete, or influenced by project proponents.
3. **Compensatory Afforestation Myths:** Artificial plantations often fail to replicate the complex ecological functions and biodiversity of natural forests they replace.
4. **Development vs. Ecology Trade-off:** Increasing pressure for "linear development" and investment leads to the relaxation of environmental clearances, particularly in sensitive areas like the Himalayan border regions

ECONOMIC, SOCIAL, AND ENVIRONMENTAL IMPACT

1. **Economic:** Environmental degradation imposes hidden long-term costs that can undermine national economic health despite short-term commercial gains.
2. **Social:** Environmental harm is regressive, disproportionately affecting vulnerable communities through health risks and loss of traditional livelihoods.
3. **Environmental:** Irreversible damage includes habitat fragmentation, biodiversity loss, and increased climate vulnerability.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Capacity Constraints:** Vacancies and a lack of specialized environmental expertise among judges and staff.
2. **Implementation Deficits:** Challenges in enforcing orders against powerful state and private actors.
3. **Policy Shifts:** The lifting of restrictions on run-of-the-river dams and delayed interventions in mining projects highlight a gap between environmental laws and their enforcement.

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ETHICAL AND DEMOCRATIC CONCERNS

1. **Environmental Democracy:** The need for transparency and meaningful public participation in decision-making.
2. **Intergenerational Justice:** The ethical obligation to ensure that the "development" of today does not bankrupt the environment for future citizens.
3. **Judicial Courage:** The necessity for an independent judiciary that remains skeptical of government submissions when ecological integrity is at stake.

GLOBAL COMPARISON

1. **Colombia:** Recognized the Amazon River as a legal entity with specific rights.
2. **Ecuador:** Integrated the "Rights of Nature" directly into its Constitution.
3. **European Union:** Employs rigorous precautionary regulations to manage environmental risks.

WAY FORWARD

1. **Strengthening Adjudication:** Establish specialized environmental benches and create independent expert panels to assist the judiciary in technical matters.
2. **EIA Reform:** Move beyond project-specific assessments to Cumulative Impact Evaluations and ensure transparent, participatory Environmental Impact Assessments (EIA).
3. **Institutional Revitalization:** Fill NGT vacancies and enhance its technical and enforcement powers.
4. **Ecosystem-based Planning:** Integrate biodiversity valuation into economic decision-making to promote green infrastructure over destructive "linear development".
5. **Evidence-based Litigation:** Strengthen mechanisms for compensatory afforestation and improve the quality of ecological evidence presented in courts.

CONCLUSION

The debate triggered by Justice Deepak Gupta underscores a fundamental constitutional dilemma—balancing developmental imperatives with ecological limits. India's environmental jurisprudence, rooted in Article 21 and strengthened through judicial doctrines, remains central to safeguarding environmental rights and intergenerational equity. However, emerging concerns regarding declining judicial activism, institutional capacity constraints, and procedural formalism highlight the need for renewed judicial vigilance and institutional reforms. Strengthening environmental adjudication, improving regulatory frameworks, and fostering participatory governance are essential to prevent irreversible ecological damage.

Prelims question:

Q. With reference to environmental jurisprudence in India, consider the following statements:

1. Article 21 of the Constitution has been interpreted to include the right to a clean environment.
2. The Precautionary Principle and Polluter Pays Principle were recognised in the Vellore Citizens Welfare Forum case.
3. Compensatory afforestation fully restores the ecological functions of natural forests.

Which of the statements given above are correct?

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

Answer: A

Mains Question:

Q. Environmental jurisprudence in India reflects the judiciary's evolving role in balancing development and ecological sustainability. Discuss in the light of recent debates on declining judicial activism in environmental

(250 words)

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INDIA'S POWER SECTOR: PROGRESS, REFORMS, AND THE ROAD AHEAD

WHY IN THE NEWS ?

BHARAT ELECTRICITY SUMMIT 2026

POWERING A CLEAN FUTURE

India's power sector has transformed significantly, emerging as a model of sustained reform and policy success. By January 2026, installed capacity reached 520.51 GW, with a record addition of 52,537 MW in FY26—driven largely by renewables. Power shortages have nearly disappeared, dropping from 4.2% (FY14) to 0.03% (2025). Financial health has improved, with DISCOMs posting a ₹2,701 crore profit (FY25) and dues falling sharply. Over 5.62 crore smart meters signal a shift toward digital efficiency. The upcoming Bharat Electricity Summit 2026 highlights India's growing global leadership in clean energy, with major investment potential. Overall, the sector's shift from deficit to reliability is boosting growth, inclusion, and sustainability.

WHAT IS THE POWER SECTOR?

The power sector is the foundational infrastructure of any modern economy, enabling industrial production, agricultural productivity, healthcare services, education, digital economy, and household welfare.

It rests on three interdependent pillars:

- **Generation:** Production of electricity from thermal (coal, gas), hydro, nuclear, and renewable sources (solar, wind, biomass). It determines the quantum and quality of supply.
- **Transmission:** High-voltage national grid (world's largest synchronous grid) that evacuates power from generating stations to load centres with minimal losses, ensuring grid stability and renewable integration.
- **Distribution:** Last-mile delivery managed by DISCOMs, involving sub-transmission, feeders, transformers, metering, billing, and consumer services.

A robust power sector acts as the backbone of economic activity, supports 'Make in India', powers irrigation for food security, enables 'Digital India', and ensures reliable electricity to every household and enterprise. Weaknesses in any pillar especially financially stressed DISCOMs create cascading inefficiencies across the entire value chain.

MAJOR ACHIEVEMENTS

Capacity Expansion

India's installed capacity reached 520.51 GW by January 2026. FY 2025–26 witnessed the highest-ever single-year addition of 52,537 MW (11% growth), surpassing the previous record. Renewables dominated with 39,657 MW added—34,955 MW solar and 4,613 MW wind—demonstrating accelerated clean energy deployment.

Transmission Strengthening

The national transmission network exceeds 5 lakh circuit kilometres (ckm), with transformation capacity at 1,407 GVA. New high-capacity corridors, upgraded substations, and transformers have reduced transmission bottlenecks, improved grid reliability, and enabled large-scale renewable integration.

Demand-Supply Balance

Peak demand of 242.49 GW was comfortably met in FY 2025–26, with average power shortage falling

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to 0.03% (from 4.2% in FY14). This near-elimination of shortages has minimised load-shedding, reduced diesel generator dependence, and supported consistent industrial and agricultural operations.

Universal Electrification

Flagship schemes DDUGJY (rural infrastructure), IPDS (urban modernisation), and Saubhagya (household connectivity) involved investments of ₹1.85 lakh crore. Outcomes include electrification of 18,374 unelectrified villages and provision of connections to 2.86 crore households (2017–2022). Rural daily supply hours improved dramatically from 12.5 hours (FY14) to 22.6 hours (FY25); urban from 22.1 to 23.4 hours. Per capita consumption rose 52.6% to 1,460 kWh in 2024–25.

These milestones reflect policy continuity, massive public investment, and improved planning, shifting the sector from deficit management to adequacy assurance.

KEY REFORMS IN POWER SECTOR

Distribution Sector Reforms

The Revamped Distribution Sector Scheme (RDSS) (2021, outlay ₹3.03 lakh crore; ₹2.8 lakh crore approved) targets operational efficiency, loss reduction, and financial turnaround of DISCOMs through infrastructure upgrades and performance-linked incentives.

Smart Metering Revolution

As of January 2026, 5.62 crore smart meters installed (4.05 crore under RDSS). Consumers gain real-time usage visibility via mobile apps, enabling consumption tracking, budget alerts, recharge options, and historical analysis—promoting transparency, reducing theft, and empowering demand-side management.

Financial Discipline Measures

Late Payment Surcharge (LPS) Rules, 2022 enforced structured repayment, slashing generator dues from ₹1.4 lakh crore to ₹4,109 crore. Automatic monthly fuel and power purchase cost adjustment mechanisms ensure timely pass-through of legitimate costs, preventing fresh losses.

Tariff and Market Reforms

Introduction of cost-reflective tariffs, Green Energy Open Access rules (for loads >100 kW), Renewable Consumption Obligations, inter-state transmission charge waivers, and energy storage promotion policies have created a more competitive and renewable-friendly market.

Electricity (Amendment) Bill, 2026

The Bill rationalises cross-subsidies, promotes competition in distribution, allows industries to procure power directly from generators, and ensures affordable, reliable supply while protecting subsidised categories (farmers, poor households).

These reforms collectively aim to make the sector financially viable, digitally enabled, consumer-centric, and aligned with clean energy goals.

DISCOM REFORMS & FINANCIAL TURNAROUND

The financial health of DISCOMs determines the viability of the entire power value chain. In FY25, DISCOMs achieved a Profit After Tax of ₹2,701 crore—a dramatic reversal from ₹67,962 crore losses in FY14.

Aggregate Technical & Commercial (AT&C) losses declined from 22.62% (FY14) to 15.04% (FY25). The Average Cost of Supply (ACS) – Average Revenue Realised (ARR) gap narrowed sharply from ₹0.78/unit to ₹0.06/unit.

These improvements result from better billing & collection efficiency, smart metering, theft control, timely tariff revisions, and reforms like RDSS and LPS Rules. **A financially sound DISCOM ecosystem ensures:**

- Timely payments to generators and transmission utilities
- Attraction of private investment
- Sustained infrastructure upgrades
- Reliable and quality power supply to consumers

This turnaround marks a structural shift from chronic stress to sustainability.

RENEWABLE ENERGY TRANSITION

India ranks fourth globally in installed renewable capacity (IRENA 2025). Solar capacity surged from 3 GW (2014) to 140 GW (January 2026); wind reached 54.65 GW.

Key initiatives include:

- **PM Surya Ghar:** Muft Bijli Yojana (₹75,021 crore) – 31.04 lakh households benefited with rooftop

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solar (target: 1 crore by FY27).Green Open Access Rules, Renewable Purchase Obligations, storage promotion policies

- **Landmark moment:** On 29 July 2025, renewables met 51.5% of national demand (203 GW), with solar (44.5 GW), wind (29.89 GW), and hydro (30.29 GW) contributing significantly.

This transition enhances energy security, reduces fossil fuel import dependence, supports manufacturing competitiveness through affordable green power, and aligns with India's climate goals (500 GW non-fossil fuel capacity by 2030).

RENEWABLE ENERGY TRANSITION

India ranks fourth globally in installed renewable capacity (IRENA 2025). Solar capacity surged from 3 GW (2014) to 140 GW (January 2026); wind reached 54.65 GW.

Key initiatives include:

PM Surya Ghar: Muft Bijli Yojana (₹75,021 crore) – 31.04 lakh households benefited with rooftop solar (target: 1 crore by FY27)

Green Open Access Rules, Renewable Purchase Obligations, storage promotion policies

Landmark moment: On 29 July 2025, renewables met 51.5% of national demand (203 GW), with solar (44.5 GW), wind (29.89 GW), and hydro (30.29 GW) contributing significantly.

This transition enhances energy security, reduces fossil fuel import dependence, supports manufacturing competitiveness through affordable green power, and aligns with India's climate goals (500 GW non-fossil fuel capacity by 2030).

CHALLENGES

Despite progress, several challenges remain:

Persistent inefficiencies and financial stress in some state DISCOMs

Continued high dependence on coal (~48% of capacity, higher in generation mix)

Intermittency of solar and wind, requiring massive storage scaling

Land acquisition delays for large renewable and transmission projects

Grid integration difficulties for variable renewables

Evolving and expensive battery/pumped storage technologies

Cross-subsidy burden distorting tariffs and discouraging efficiency

These issues demand balanced policy action, accelerated technology deployment, and just transition planning for coal-dependent regions.

WAY FORWARD

The future lies in building a resilient, sustainable, and consumer-centric power ecosystem:

Scale up energy storage (batteries, pumped hydro) to manage renewable variability

Develop green hydrogen ecosystem for hard-to-abate sectors

Deepen private sector participation and competition through open access

Complete nationwide smart metering rollout

Strengthen regulatory governance and timely tariff reforms

Modernise grid with digitalisation, AI-based forecasting, and flexibility

Prioritise decarbonisation with just transition for affected communities

Achieve 500 GW non-fossil target and expand transmission infrastructure (to 6.48 lakh ckm and 2,345 GVA by 2032)

With continued policy coherence, innovation, and international collaboration, India can emerge as a global leader in affordable, reliable, and clean energy.

CONCLUSION

India's power sector transformation from managing chronic shortages to achieving near-universal adequacy and financial viability stands as a model of gradual, consistent reform. Universal electrification, record renewable additions, smart metering, and DISCOM turnaround have laid a strong foundation. The future depends on accelerating clean energy dominance, building intelligent grids, scaling storage, and empowering consumers. By sustaining reforms and embracing innovation, India can realise energy security, climate leadership, and equitable development powering the vision of a Viksit Bharat.

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Prelims question:

Q. With reference to India's power sector in recent years, consider the following pairs:

1. Saubhagya Yojana – Provision of electricity connections to unelectrified households
2. Revamped Distribution Sector Scheme (RDSS) – Mandatory installation of smart meters for all consumers
3. PM Surya Ghar: Muft Bijli Yojana – Rooftop solar installations with free electricity up to a limit for households
4. Late Payment Surcharge (LPS) Rules, 2022 – Reduction of outstanding dues of DISCOMs to generators from over ₹1 lakh crore to below ₹5,000 crore

How many of the above pairs are correctly matched?

(a) Only one pair (b) Only two pairs

(c) Only three pairs (d) All four pairs

Answer: C

Mains Question:

Q. "India's power sector has achieved near-elimination of shortages and improved financial health of DISCOMs; however, rapid renewable energy expansion poses challenges to grid stability and energy transition." In light of recent developments, critically examine the progress, associated challenges, and the way forward for India's power sector. (250 Words)

INFRASTRUCTURE FINANCING IN INDIA: TRENDS, INSTITUTIONS, AND INNOVATIONS

WHY IN THE NEWS ?

Infrastructure financing is essential for India's growth, providing long-term capital for key sectors like transport, power, and urban development. It enables project execution, shares risk between public and private players, and supports national goals such as sustainability and inclusive growth.

It also drives economic expansion through a strong multiplier effect—boosting demand, creating jobs, and stimulating multiple industries. With continued focus in the Union Budget 2026–27, including higher public investment and risk-mitigation measures, infrastructure remains central to India's vision of a developed (Viksit) Bharat.

TRENDS IN INFRASTRUCTURE FINANCING

The most visible trend has been the dramatic rise in public capital expenditure. From ₹2 lakh crore in FY 2014–15, allocations have climbed steadily to a Budget Estimate of ₹12.2 lakh crore in FY 2026–27. This sustained increase reflects the government's conviction that higher public investment crowds in private capital, generates employment, and boosts industrial output.

A second major trend is the shift from near-total dependence on budgetary support to a blended finance model. Public funds now act as an anchor that leverages private equity, debt, and institutional capital. According to the World Bank, India has become the largest recipient of Private Participation in Infrastructure (PPI) investment in South Asia, accounting for over 90 per cent of the region's total. Asset monetisation through Infrastructure Investment Trusts (InvITs) and Real Estate Investment Trusts (REITs) has already unlocked more than ₹1.5 lakh crore, recycling capital into new projects and attracting global investors. Together, these trends have transformed infrastructure financing from a government-centric exercise into a vibrant public-private ecosystem.

INSTITUTIONAL FRAMEWORK

Three specialised institutions anchor India's infrastructure financing architecture.

The National Investment and Infrastructure Fund (NIIF), set up in 2015, functions as a sovereign-linked asset manager. It has mobilised capital from global sovereign wealth funds (Abu Dhabi Investment Authority, Temasek), pension giants (AustralianSuper, Ontario Teachers' Pension Plan, CPPIB), and multilateral banks (AIIB, ADB, New

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Development Bank). With USD 4.9 billion in Assets Under Management, NIIF operates four active funds: the Master Fund for direct infrastructure projects, the Private Markets Fund (a fund-of-funds), the India–Japan Fund for climate and corridor projects, and the Strategic Opportunities Fund for growth equity. Fully committed Master and Private Markets Funds have already channelled resources into greenfield ports, logistics parks, airports, and data centres.

The National Bank for Financing Infrastructure and Development (NaBFID), established in 2021, is India's dedicated Development Finance Institution. As of December 2025 it had sanctioned ₹3.03 lakh crore and disbursed ₹1.09 lakh crore across core and social infrastructure sectors. NaBFID fills the long-term non-recourse finance gap, develops bond and derivatives markets, and acts as a catalyst through lending, equity participation, and ESG-focused products. Its Partial Credit Enhancement (PCE) facility, launched in February 2026, improves bond ratings and opens doors for insurance and pension funds. Transaction advisory services help states structure PPP pipelines—from Dal Lake tourism in Jammu & Kashmir to port and airport projects in Andhra Pradesh. NaBFID is also establishing investment arms at GIFT City to attract foreign capital and has signed partnerships with IFC, ADB, NDB, AIIB, and KfW for climate-resilient and sustainable projects.

Complementing these is the Indian Railway Finance Corporation (IRFC), the dedicated financing arm of Indian Railways since 1986. Operating on a leasing model, IRFC raises domestic and international funds to meet Extra Budgetary Resource requirements. It has financed 13,764 locomotives, 76,735 passenger coaches, and 2,65,815 wagons covering nearly 75 per cent of the rolling-stock fleet—thereby keeping the world's fourth-largest railway network on a strong financial footing.

FINANCIAL INSTRUMENTS & INNOVATIONS

Innovative instruments have broadened the investor base and improved capital recycling.

Infrastructure Investment Trusts (InvITs), introduced by SEBI in 2014, allow retail and institutional investors to participate in operational assets. The National Highways Infra Trust (NHIT), sponsored by NHAI, completed its fourth fundraising round at an enterprise value of ₹18,380 crore and has realised over ₹46,000 crore across four rounds. The upcoming Raajmarg Infra Investment Trust has secured a AAA rating in January 2026. POWERGRID's asset monetisation through the InvIT route in 2020 marked the first such move in the power sector, with proceeds directed into new projects. Cumulatively, InvITs and Toll-Operate-Transfer models have monetised ₹1.52 lakh crore; the first public InvIT is slated for launch in 2026.

Real Estate Investment Trusts (REITs) similarly democratise real-estate investment. Units listed on stock exchanges offer liquidity, transparency through regular NAV disclosures, and low entry barriers. The Union Budget 2026–27 has announced dedicated REITs for Central Public Sector Enterprises to accelerate monetisation of government-owned properties.

Debt-market reforms have strengthened long-term financing. Incentives for women, senior citizens, and retail investors, simplified compliance for issuers, refinement of the Electronic Book Provider (EBP) platform, and frameworks for green, social, and sustainability-linked bonds have improved transparency and depth. Streamlined norms for InvITs have further boosted asset monetisation.

The Infrastructure Risk Guarantee Fund, announced in the Union Budget 2026–27, addresses construction and execution risks by providing partial guarantees to lenders. This mechanism crowds in private capital, reduces default perception, and ensures timely project delivery.

RECENT POLICY MEASURES (BUDGET 2026–27)

The Budget has introduced targeted urban-development tools. **City Economic Regions (CERs)** are being mapped around growth drivers in cities with populations above five lakh. An allocation of ₹5,000 crore per CER over five years will be implemented through a challenge-mode, reform-and-results-based financing approach. This focus on Tier-II and Tier-III cities aims to spread economic activity beyond metropolitan areas and promote balanced regional development.

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IMPACT

Higher public capex and blended financing have produced measurable outcomes. Government spending builds investor confidence, crowding in private capital for large-scale projects. Construction of highways, railways, housing, and energy assets generates direct and indirect employment. Rising demand for materials and services strengthens industrial output. Investments in Tier-II and Tier-III cities and CERs are fostering inclusive growth, reducing regional imbalances, and creating new centres of economic activity.

CHALLENGES

Despite progress, gaps remain. Long-term financing needs still exceed available resources in some sectors. Project delays arising from land acquisition, regulatory clearances, and execution risks continue to deter investors. While private participation is strong in roads and renewable energy, sectors such as urban water supply and last-mile rail connectivity see limited private appetite. Credit enhancement and risk-sharing mechanisms are still evolving.

WAY FORWARD

Several steps can accelerate the journey. Deepening corporate bond markets through further EBP refinements and ESG bond frameworks will mobilise household and institutional savings. Strengthening PPP frameworks with standardised contracts, faster dispute resolution, and NaBFID's transaction advisory will attract more private players. Expanding green and sustainability-linked financing, backed by partnerships with multilateral banks and the Climate Bonds Initiative, will align infrastructure with climate goals. Finally, continuous capacity building within NIIF, NaBFID, and state agencies will improve project preparation and governance.

CONCLUSION

India's infrastructure financing story is one of scale, innovation, and resilience. By combining record public capex, world-class institutions, market instruments, and forward-looking policy measures, the country is creating a robust ecosystem that attracts global capital while serving domestic needs. This blended approach not only bridges financing gaps but also drives job creation, industrial growth, and regional equity. As India marches toward Viksit Bharat, modern, sustainable, and inclusive infrastructure financed through a mature and diversified system will remain the strongest foundation for a prosperous and equitable future.

Prelims question:

Q. Consider the following statements regarding recent developments in India's infrastructure financing as highlighted in the Union Budget 2026–27:

1. Public capital expenditure has increased from ₹2 lakh crore in FY 2014–15 to a Budget Estimate of ₹12.2 lakh crore in FY 2026–27.
2. The Infrastructure Risk Guarantee Fund has been proposed to provide partial credit guarantees to lenders, primarily to mitigate risks during the construction and development phases of infrastructure projects.
3. City Economic Regions (CERs) are proposed for cities with populations above 5 lakh, with an allocation of ₹5,000 crore per CER over five years, implemented through a challenge mode with reform-and-results-based financing.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 2 only

(c) 2 and 3 only (d) 1, 2 and 3

Answer: (d) 1, 2 and 3

Mains Question:

Q. Critically examine the role of NIIF and NaBFID, along with recent initiatives like the Infrastructure Risk Guarantee Fund and CERs, in promoting infrastructure-led growth in India.

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UNLOCKING INDIA'S POTENTIAL: THE RISE OF INDUSTRIAL CORRIDORS

WHY IN THE NEWS?

India is aggressively pursuing an infrastructure-led growth model designed to facilitate a structural transformation of the economy. At the heart of this strategy are industrial corridors, which serve as growth multipliers by integrating manufacturing hubs with high-speed transport networks. Guided by the PM Gati Shakti framework, the National Industrial Corridor Development Programme (NICDP) aims to create a network of future-ready hubs equipped with logistics efficiency and plug-and-play infrastructure. This initiative directly supports the Make in India vision by lowering production costs and strengthening global market access. While not explicitly mentioned in the sources, industry standards often cite India's logistics cost at approximately 13–14% of GDP, a figure the government seeks to reduce through these coordinated multimodal linkages.

CONCEPT OF INDUSTRIAL CORRIDORS

Industrial corridors are defined as linear development zones that connect major economic centres through an integrated infrastructure region of roads, railways, ports, and airports. These corridors are not merely transport routes but urban-industrial ecosystems that facilitate manufacturing clusters and industrial clustering. Key features include multi-modal connectivity and the development of smart cities alongside industrial nodes. A hallmark of this model is the plug-and-play infrastructure, which provides ready-to-use facilities and assured utilities, allowing businesses to accelerate their readiness and begin operations quickly.

According to the United Nations Development Programme (UNDP), a ***Low Carbon City (LCC)*** helps urban areas move towards greener and more sustainable growth by using clean energy, improving energy efficiency, encouraging eco-friendly transport and adopting better waste management.

These measures support a faster shift to sustainable development and create new opportunities for quality jobs in emerging green sectors.

MAJOR INDUSTRIAL CORRIDORS IN INDIA

- **Delhi–Mumbai Industrial Corridor (DMIC):** A flagship project featuring the Dholera Special Investment Region (SIR)—India's first semiconductor city—and the Shendra - Bidkin Industrial Area, a greenfield smart city targeting the auto and heavy engineering sectors. It leverages the Western Dedicated Freight Corridor for efficient logistics.
- **Chennai–Bengaluru Industrial Corridor (CBIC):** This corridor includes key nodes like the Tumakuru Industrial Area and Krishnapatnam, focusing on electronics and automobile manufacturing.
- **Amritsar–Kolkata Industrial Corridor (AKIC):** Designed to foster Eastern India development, this corridor includes nodes such as Raghunathpur and Gaya, aimed at boosting sectors like textile and agro-processing while ensuring balanced regional growth.
- **Bengaluru–Mumbai Economic Corridor (BMEC):** This corridor integrates technology and manufacturing through nodes like Dharwad in Karnataka and Satara in Maharashtra.
- **East Coast Economic Corridor (ECEC):** The Union Budget 2026-27 recently announced the development of an integrated East Coast corridor with a major node at Durgapur, focusing on port-led development and maritime trade.

ECONOMIC SIGNIFICANCE

The development of these corridors is pivotal for GDP growth and Atmanirbhar Bharat. They significantly heighten export competitiveness and have already attracted substantial private investment; for instance, Phase-I cities have drawn ₹2.02 lakh crore. By integrating into global value chains, India aims to position itself as a premier manufacturing destination. Furthermore, the 12 newly approved projects are estimated to have an employment generation potential of over 9 lakh jobs, fostering massive socio-economic shifts.

SOCIAL & REGIONAL IMPACT

Industrial corridors drive urbanization through walk-to-work planning, which reduces commuting and improves the quality of life. Skill development initiatives and partnerships with educational institutions are building a skilled local workforce, thereby promoting inclusive growth and reducing regional disparity. The sources do not explicitly mention "migration patterns" or "women workforce participation," though they emphasize that these industrial townships are designed to be attractive to all workers and investors.

ENVIRONMENTAL & GOVERNANCE CHALLENGES

The sources primarily focus on the government's strategic framework and do not detail specific governance challenges such as land acquisition issues, environmental clearance delays, or federal coordination challenges. However, the programme addresses potential ecological degradation by transitioning towards Low-Carbon Cities (LCCs). This framework includes water resource conservation, solid waste recycling, and the systematic mitigation of environmental impacts through green spaces. Financing gaps are addressed through allocations like the ₹3,000 crore provided to the NICDIT in the 2026-27 budget.

WAY FORWARD

The future of these corridors lies in sustainable urban planning and green industrial corridors. Integration of renewable energy, ESG compliance (implied by climate-conscious systems), and digital infrastructure are central to the NICDP. The government continues to utilize Public-Private Partnerships (PPP) to ensure efficient resource management and better development outcomes. Moving forward, the integration of Skill India and ongoing Ease of Doing Business reforms will remain essential to maintaining India's global competitiveness.

CONCLUSION

The National Industrial Corridor Development Programme is establishing the backbone of a modern, competitive economy. By creating a nationwide network of advanced production centres, India is ensuring balanced regional development and sustainable industrialization. These corridors serve as engines of New India, driving large-scale investment and job creation while adhering to a sustainability-focused framework. Through the coordinated efforts of the NICDC and NICDIT, India is well-positioned to achieve inclusive and environmentally responsible growth, fulfilling its long-term economic aspirations. I would like to note that while the user query mentions a "$5 trillion economy" target, this specific terminology was not present in the provided sources.

Prelims question:

Q. Which of the following statements is correct regarding the current status and recent developments of India's industrial corridors as of the Union Budget 2026-27 ?

A) The National Industrial Corridor Development Programme (NICDP) is currently implementing projects across 15 distinct industrial corridors.

B) The Tumakuru Industrial Area in Karnataka is listed as one of the four projects that have already been fully completed.

C) The Union Budget 2026-27 announced the development of an integrated East Coast Industrial Corridor with a key node at Durgapur.

D) The National Industrial Corridor Development and Implementation Trust (NICDIT) was newly established in 2026 to replace the DMICDC.

Answer: C

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Mains Question:

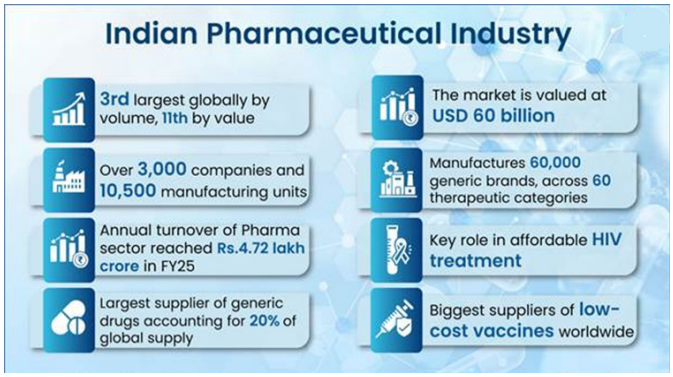
Q. "Industrial corridors in India have evolved into integrated and sustainable economic ecosystems rather than mere transport routes." Discuss with reference to NICDP. Highlight the economic and environmental strategies adopted for their success.

(250 words)

INDIA'S PHARMACEUTICAL SECTOR: FROM GLOBAL GENERIC LEADER TO INNOVATION POWERHOUSE

WHY IN THE NEWS?

The release of the Economic Survey 2025-26 and the Union Budget 2026-27 have highlighted the Indian pharmaceutical sector's robust growth, with annual turnover reaching Rs. 4.72 lakh crore in FY25. Furthermore, the sector's strategic importance has been underscored by the conclusion of major trade agreements with the United Kingdom (July 2025) and New Zealand (December 2025), alongside ongoing negotiations with the European Union.



DEFINITION AND CONTEXT

The Indian pharmaceutical industry is a vital socio-economic sector that occupies a unique intersection between public health and economic development. It is defined by its ability to provide essential medicines and vaccines globally, driven by a combination of affordable pricing and assured quality. Historically, the sector has evolved from focusing on domestic production to becoming the world's largest provider of generic medicines, accounting for approximately 20% of the global generic supply.

SIGNIFICANCE

1. **Global Leadership in Vaccines:** India provides nearly 60% of vaccine supplies to UNICEF, meets 40-70% of global demand for DPT and BCG vaccines, and satisfies 90% of the WHO's measles vaccine demand.
2. **Market Scale:** Ranked 3rd globally by volume and 11th by value, the industry comprises over 3,000 companies and 10,500 manufacturing units.
3. **Strategic Exports:** India exported to 191 countries in 2024-25, with 50% of exports directed to highly regulated markets like the U.S. and Europe.
4. **Cost-Efficient Excellence:** Cost-efficient manufacturing and a strong scientific workforce have enabled the production of 60,000 generic brands across 60 therapeutic categories.

KEY ISSUES AND CHALLENGES

1. **Import Dependence on Critical Inputs:** Despite growth, there has been a historical reliance on single sources for Active Pharmaceutical Ingredients (APIs) and Key Starting Materials (KSMs).
2. **Moving Up the Value Chain:** While India leads in generics, there is a strategic need to move beyond generic manufacturing toward high-value biopharmaceuticals, biologics, and biosimilars.
3. **Regulatory Harmonization:** Ensuring continuous alignment of domestic standards with evolving international scientific and technological advancements remains a priority.

ECONOMIC AND SOCIAL IMPACT

1. **Economic Growth and FDI:** The sector is a top-10 industry for foreign investment, attracting Rs. 13,193 crore in FDI up to September 2025. The domestic market is projected to grow from USD 60 billion to USD 130 billion by 2030.
2. **Social Welfare and Affordability:** The Pradhan Mantri Bhartiya Janaushadhi Pariyojana has established over 18,646 Jan Aushadhi Kendras, providing 2,110 medicines at reasonable prices

and saving citizens approximately Rs. 8,000 crore in 2024-25.

3. **Employment:** Government schemes like the PLI for Pharmaceuticals have generated employment for approximately 97,000 persons as of late 2025.

GOVERNMENT POLICY INTERVENTIONS

1. **Production Linked Incentive (PLI) Schemes:** These schemes target pharmaceuticals, bulk drugs, and medical devices to reduce import dependency and boost domestic manufacturing.
2. **Infrastructure Development:** The government is supporting three Bulk Drug Parks (Andhra Pradesh, Gujarat, Himachal Pradesh) and three Medical Device Parks (UP, MP, Tamil Nadu) to provide common infrastructure and reduce manufacturing costs.
3. **Innovation Focus:** The Scheme for Promotion of Research and Innovation in Pharma MedTech (PRIP) and the new Biopharma SHAKTI initiative (with a Rs. 10,000 crore outlay) aim to foster a biopharmaceutical ecosystem.

GLOBAL COMPARISON AND TRADE INTEGRATION

1. **India-EU FTA:** Expected to provide market access valued at USD 572.3 billion.
2. **India-UK CETA:** Grants zero-duty access for 56 pharmaceutical tariff lines, enhancing the competitiveness of Indian generics in its largest European market.
3. **India-NZ FTA:** Provides zero-duty access across 90 tariff lines where duties previously ranged up to 5%.

WAY FORWARD

1. **Strengthening the API Ecosystem:** Continue the momentum of the PLI for Bulk Drugs to further reduce the Rs. 3,591 crore worth of imports already avoided, ensuring supply chain resilience.
2. **Focus on High-Value Innovation:** Fully operationalize the Biopharma SHAKTI initiative by upgrading NIPERs and creating a network of 1,000+ accredited clinical trial sites to lead in biologics.
3. **Enhancing Regulatory Diplomacy:** Leverage the growing international acceptance of the Indian Pharmacopoeia to harmonize standards with more global partners.
4. **Scaling Infrastructure:** Accelerate the completion of common infrastructure in approved Bulk Drug and Medical Device Parks to support MSME participation.

CONCLUSION

India's pharmaceutical sector has matured into a globally integrated system that effectively balances commercial scale with public health imperatives. By aligning with the vision of Atmanirbhar Bharat through reduced import dependence and pursuing inclusive growth via the PMBJP, the industry is a cornerstone of India's journey toward Viksit Bharat 2047. Its continued focus on innovation-led growth and sustainable development in healthcare ensures that India remains a dependable and technologically advanced global leader in the pharmaceutical landscape.

Prelims question:

Q. Consider the following statements regarding India's pharmaceutical sector:

1. India is the largest provider of generic medicines globally.
2. India meets about 60% of UNICEF's vaccine demand.
3. India is fully self-reliant in the production of Active Pharmaceutical Ingredients (APIs).

Which of the statements given above is/are correct?

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

Answer: A

Mains Question:

Q. India's pharmaceutical sector is transitioning from a 'Pharmacy of the World' to a global innovation hub. Discuss the challenges

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and suggest measures to achieve this transformation. (250 words)

INDIA'S TRADE PARTNERSHIPS: POWERING GLOBAL INTEGRATION AND ECONOMIC GROWTH

WHY IN THE NEWS?

India stands at a pivotal moment in its economic rise, emerging as a major global trade force. The UNCTAD Trade and Development Report 2025 ranks India third among Global South economies in trade partnership diversity, reflecting strong global integration and resilience to tariff uncertainties. As India advances toward its Viksit Bharat vision, trade agreements—bilateral, regional, and multilateral—form the backbone of its growth and geopolitical strategy. In early 2026, India finalised the India-EU FTA and progressed negotiations with the US, GCC, and Israel. Agreements with the UK, Oman, and New Zealand are being implemented, while the EFTA pact secures $100 billion in long-term FDI commitments.

EVOLUTION OF INDIA'S TRADE POLICY

The evolution of India's trade policy represents a journey from a cautious, protectionist stance to one of calibrated globalisation. While the post-1991 liberalisation era opened India's doors to the world, the current phase is marked by a more sophisticated and strategic engagement with the global trade architecture. India has long been an active participant in the World Trade Organization (WTO), but recent years have seen a shift toward concluding high-standard, modern bilateral agreements that address contemporary challenges.

A significant turning point in this evolution was the decision to pivot away from large regional blocs like the Regional Comprehensive Economic Partnership (RCEP)—which is not detailed in the sources but is a known historical context—in favour of selective, mutually beneficial FTAs. This "Act East" and "Look West" philosophy is reflected in the rapid conclusion of deals with partners ranging from Australia and the UAE to the European Union and Oman. These modern agreements move beyond simple tariff reductions to include provisions for services, investment, and regulatory cooperation, ensuring that India's domestic industries, such as those under the Make in India initiative, are propelled rather than hindered by international competition.

MAJOR TRADE PARTNERSHIPS DRIVING INTEGRATION

India's trade network is expanding across diverse geographical regions, each serving a specific strategic purpose.

A. **United States & Europe** The relationship with the West has entered a historic phase. In January 2026, India concluded negotiations for the India-EU Free Trade Agreement, hailed as the "Mother of All Deals". This landmark pact provides preferential access to 97% of EU tariff lines, covering nearly 99.5% of trade value, which will drastically benefit Indian textiles, leather, and gems. Simultaneously, India reached a framework understanding with the United States for an Interim Agreement in February 2026, aimed at fostering reciprocal trade and resilient supply chains. With the United Kingdom, the signed Comprehensive Economic and Trade Agreement (CETA) aims to double bilateral trade to USD 112 billion by 2030, offering duty-free access for 99% of Indian exports.

B. **Middle East** The Middle East serves as a vital pillar for energy security and remittances. The India-UAE CEPA, signed in 2022, has already seen bilateral trade surpass USD 100 billion in FY 2024-25, with a notable 25.6% growth in non-oil exports. Furthermore, India signed a CEPA with Oman in December 2025, granting zero-duty access to over 98% of Oman's tariff lines. Negotiations are also formally underway with

the Gulf Cooperation Council (GCC) to further elevate these deep economic ties. (Note: The "I2U2 grouping" mentioned in your query is a known geopolitical entity but is not explicitly named in these sources).

C. **Indo-Pacific & East Asia** In the Indo-Pacific, India is leveraging partnerships to strengthen supply chain resilience. The India-Australia ECTA provides zero-duty access for 100% of Indian tariff lines as of January 2026, benefiting labour-intensive sectors and securing raw materials like coal and mineral ores for Indian industry. Discussions for the ASEAN-India Trade in Goods Agreement (AITIGA) are also active to unleash the full economic potential of the region.

D. **Oceania and Africa** The India-New Zealand FTA, concluded in 2025, stands as one of the fastest-negotiated deals, including a USD 20 billion investment commitment over 15 years. In Africa, the CECPA with Mauritius acts as a strategic gateway, providing preferential access for over 300 Indian export products.

These agreements collectively boost exports, improve market access for farmers and MSMEs, and diversify trade dependence by creating "trusted" alternative supply routes.

HOW TRADE PARTNERSHIPS POWER ECONOMIC GROWTH

Trade partnerships act as a multiplier for domestic economic growth by opening new avenues for diversification and value addition. One of the most significant impacts is on manufacturing, where FTAs complement the Production Linked Incentive (PLI) schemes (noted in the query) by ensuring that Indian-made goods have ready markets abroad. For example, the India-EFTA TEPA includes a ground breaking commitment to direct USD 100 billion in FDI into India over 15 years, which is projected to generate one million direct jobs.

The services sector also sees a massive boost; agreements with the UK, Australia, and the EU include commitments in IT, healthcare, and education, easing the mobility of Indian professionals through "Mode 4" categories. Furthermore, the government has integrated trade with the Atmanirbhar Bharat vision, emphasizing competitive integration rather than isolation. Domestic enablers like the Export Promotion Mission (EPM) and the Trade Connect ePlatform provide the infrastructure and regulatory clarity needed for MSMEs to integrate into Global Value Chains (GVCs).

Financial measures, such as the extension of the period for realisation of export proceeds to 15 months and the removal of value caps on courier exports in the 2026-27 Budget, further enhance the comparative advantage of Indian exporters by maintaining liquidity and reducing logistics costs.

STRATEGIC & GEOPOLITICAL DIMENSIONS

In the post-COVID era, trade has been redefined as a tool for strategic leverage and national security. India's "trusted partner" status is essential to the "China+1" strategy (as referenced in your query), as global firms seek to diversify their manufacturing bases away from over-reliance on a single geography. India's negotiations with Israel, concluded in its first round in February 2026, focus on high-tech sectors like AI, quantum computing, space, and defence, illustrating how trade is now tied to technology access.

Energy security remains paramount, with the Oman and UAE deals securing steady flows of resources while opening markets for Indian traditional medicine (AYUSH). Additionally, the EFTA agreement ensures long-term productive investments that build domestic capacity rather than just speculative portfolio flows. While the sources do not explicitly name the "Quadrilateral Security Dialogue" or "BRICS" in the text, they highlight that India's expanding network of agreements positions it to shape the contemporary trade architecture based on strategic trust and mutual growth.

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CHALLENGES & STRUCTURAL CONSTRAINTS

Despite these successes, India faces several structural constraints that require careful management. The trade deficit, particularly with major manufacturing hubs, remains a concern, necessitating the "carefully calibrated liberalisation" mentioned in policy documents to protect sensitive sectors like agriculture, dairy, and poultry.

Non-tariff barriers and logistics bottlenecks continue to pose challenges to export competitiveness. While the 2026-27 Budget introduces measures like electronic sealing for direct factory-to-ship clearance to reduce time and costs, broader reforms are still needed. The withdrawal from RCEP (noted in the prompt) highlights the ongoing debate regarding domestic manufacturing competitiveness and the fear of being overwhelmed by cheaper imports. To truly excel, India must continue addressing the need for labor and land reforms (noted in the query) to ensure that the domestic ecosystem can keep pace with the opportunities provided by new FTAs.

WAY FORWARD

The path toward Viksit Bharat **@ 2047 requires a continued focus on deepening FTAs with robust safeguards for domestic industries. Policy suggestions for the future include:**

- Deepening MSME integration into GVCs through digital tools like the Trade Connect platform.
- Expanding the negotiation agenda with countries like Canada and Mexico to reach new markets in the Americas.
- Implementing logistics reforms to further reduce the "hidden costs" of trade.
- Fostering skill development to ensure the Indian workforce can meet the "Mode 4" mobility opportunities in sectors like healthcare and engineering.
- Anticipating global shifts toward green trade and carbon adjustments, ensuring Indian exports remain sustainable and compliant with international standards (this is a conceptual extension as the sources focus on current agreements).

CONCLUSION

India's trade partnerships in 2026 represent more than just commercial contracts; they are a bridge between economic growth and global geopolitics. By balancing self-reliance (Atmanirbhar Bharat) with global integration, India is successfully positioning itself as a "trusted partner" in global supply chains. As the nation continues to conclude landmark deals with the EU, UK, and EFTA, it is clear that India has transitioned from being a mere participant in global trade to a rule-shaper, driving sustainable growth and shared prosperity on the world stage. Through a blend of domestic policy support and strategic international engagement, India is well on its way to becoming a central pillar of the 21st-century global economy

Prelims question:

Q. With reference to India's recent trade agreements and partnerships, which of the following statements is correct?

A) The India-Australia ECTA, as of January 2026, provides India with zero-duty access across 70% of Australian tariff lines.

B) India ranks first among Global South economies in trade partnership diversity according to the UNCTAD 2025 report.

C) The India-EFTA TEPA includes a commitment to increase FDI into India by USD 100 billion over 15 years, excluding foreign portfolio investment (FPI).

D) The India-Oman CEPA is the first agreement where a partner country has extended commitments on traditional medicine across only two modes of supply.

Answer: C

Mains Question:

Q. "Economic integration in the 21st century is no longer just about tariff reductions but also about securing investment commitments and professional mobility." Discuss

(250 words)

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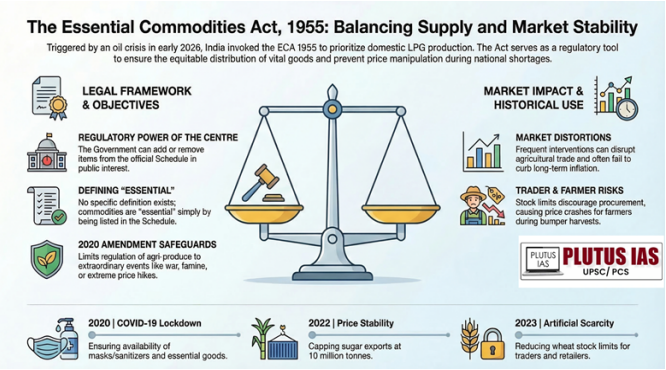
THE ESSENTIAL COMMODITIES ACT (ECA), 1955: NAVIGATING THE INTERSECTION OF MARKET LIBERALIZATION AND STATE INTERVENTION

WHY IN THE NEWS?

On March 9, 2026, the Central Government invoked the Essential Commodities Act (ECA), 1955, in response to a global oil crisis triggered by Israel-U.S. strikes on Iran. This directive mandates that all oil refining companies maximize the production of Liquefied Petroleum Gas (LPG) and ensure its availability is prioritized exclusively for domestic consumers to prevent energy shortages.



DEFINING THE ESSENTIAL COMMODITIES ACT (ECA), 1955

The ECA is a regulatory tool used by the state to control the production, supply, and distribution of commodities that are vital to the community.

1. **Legal Precision:** The Act does not provide a specific definition of what an "essential commodity" is.
2. **Section 2(A):** It clarifies that an "essential commodity" refers to any item currently specified in the "Schedule" of the Act.
3. **Central Authority:** The Centre holds the power to add or remove items from this Schedule in the public interest, typically in consultation with State Governments.

HISTORICAL AND ECONOMIC CONTEXT: A LEGACY OF SCARCITY

1. **Genesis (1955):** The Act was born out of a period of severe food shortages and low domestic foodgrain production in post-independence India.
2. **External Dependence:** During this era, India was heavily reliant on food aid, most notably wheat imports under the United States' Public Law 480 (PL-480) Program.
3. **Initial Intent:** The primary goal was to ensure a fair distribution system and to curb the predatory practices of hoarding and black marketing.

THE 2020 AMENDMENT: A PARADIGM SHIFT

- **Limited Regulatory Scope:** The Centre's power to regulate items like cereals, pulses, potatoes, onions, edible oilseeds, and oils was restricted to "extraordinary circumstances" such as war, famine, extraordinary price rises, or grave natural calamities.
- **Price-Triggered Stock Limits:** Stock limits on agricultural produce can now only be imposed if there is a 100% retail price rise for horticultural produce or a 50% rise for non-perishables.

CRITICAL ANALYSIS: CHALLENGES AND MARKET DISTORTIONS

1. **Distorting Agricultural Trade:** Frequent and ad-hoc government interventions often disrupt the natural price discovery of the market and have been largely ineffective at controlling long-term inflation.
2. **Deterring Infrastructure Investment:** The fear of sudden stock limits discourages traders from investing in large-scale storage and warehousing, as they often purchase less than their actual capacity to avoid legal complications.
3. **Impact on Farmers:** During bumper harvests, the inability of traders to stock large quantities leads to price crashes, particularly for perishable goods, causing heavy financial losses for farmers.
4. **Administrative Malpractice:** The broad regulatory powers have occasionally led to rent-seeking, corruption, and harassment of legitimate market participants by enforcement agencies.

GOVERNANCE AND INSTITUTIONAL ASPECTS

1. **Role of States:** While the Centre notifies a commodity, it often urges State Governments to

enforce stock limits and ensure fair pricing, as seen during the COVID-19 lockdown in April 2020.

2. **Digital Monitoring:** The government has increasingly moved toward transparency, such as the Wheat Stock Limit Portal (2023), which requires stocking entities to register and provide weekly updates.
3. **Export Controls:** The Directorate General of Foreign Trade (DGFT) often uses ECA-linked orders to cap exports, as seen with Sugar in May 2022, to prioritize domestic stability.

WAY FORWARD: POLICY-ORIENTED SOLUTIONS

1. **Objective Trigger Mechanisms:** Adhere strictly to the 2020 amendment's price triggers to ensure regulatory predictability for investors.
2. **Infrastructure Incentives:** Provide "safe harbor" status for modern warehouses and cold-chain providers to encourage private investment in the agricultural value chain.
3. **Market-Based Price Stabilization:** Instead of restrictive stock limits, the government should strengthen the Price Stabilization Fund to intervene through open market operations.
4. **Evidence-Based Implementation:** Use real-time data from GSTN and digital stock portals to target only genuine hoarders rather than legitimate traders.

CONCLUSION

The Essential Commodities Act, 1955, serves as a vital safeguard for the socio-economic rights of Indian citizens, ensuring that the most vulnerable are protected from market volatility during crises. However, as India aims for Viksit Bharat 2047, the Act must evolve from a "control-based" regime to a "facilitative" framework. By balancing the constitutional value of social justice with the needs of a modern, efficient market, India can achieve inclusive growth and Atmanirbhar Bharat, ensuring that "essential" goods are accessible to all without stifling the economic engine of the nation.

Prelims question:

Q. With reference to the Essential Commodities Act (ECA), 1955, consider the following statements:

1. The Act clearly defines the term "essential commodity" in its provisions.
2. The Central Government has the power to add or remove commodities from the Schedule of the Act.
3. After the 2020 amendment, stock limits on agricultural produce can be imposed only under extraordinary circumstances.

Which of the statements given above is/are correct?

A) 1 and 2 only B) 2 and 3 only

C) 1 and 3 only D) 1, 2 and 3

Answer: B

Mains Question:

Q. The Essential Commodities Act, 1955 plays a crucial role in ensuring the availability and price stability of essential goods in India. However, frequent government interventions may distort market mechanisms. Critically examine the relevance of the Essential Commodities Act in the context of recent economic reforms and market liberalization (250 words)

EMPOWERING THE RURAL BACKBONE: THE STRATEGIC EVOLUTION OF INDIA'S ALLIED SECTORS AND MARKET INTEGRATION

WHY IN THE NEWS?

- The focus on India's allied agricultural sectors has gained significant momentum following the release of a comprehensive progress report on March 1, 2026, which detailed the transformative growth in livestock and fisheries. This renewed attention is further bolstered by the Union Budget 2026–27, which reflects a substantial commitment to the sector. Specifically, the Department of Animal Husbandry & Dairying received an allocation of ₹6,153.46 crore, a 16 percent increase from

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the previous fiscal year. Similarly, the fisheries sector saw a record allocation of ₹2,761.80 crore, aimed at consolidating India's leadership in aquaculture and seafood exports. These fiscal measures, alongside the implementation of the Rules and Guidelines for Sustainable Harnessing of Fisheries (2025), signal a strategic shift toward formalising and modernising the allied sectors to ensure long-term livelihood resilience and national nutritional security.

INDIA'S AGRICULTURAL

- India's agricultural landscape is undergoing a profound transformation, moving beyond traditional crop cultivation to a more diversified and resilient model. Allied sectors—comprising livestock, dairy, poultry, and fisheries—have emerged as the new engines of rural growth, contributing significantly to the agricultural Gross Value Added (GVA) and providing a buffer against the uncertainties of traditional farming. Over the last decade, these sectors have maintained a steady Compound Annual Growth Rate (CAGR) of 3-5%, driven by robust domestic demand and targeted government interventions.
- **The statistics underscore India's global dominance:** the nation is the world's largest producer of milk, accounting for approximately 25 percent of global output. It also holds the second-largest position in fish and egg production and ranks fourth globally in meat production. This shift is not merely statistical but reflects a strategic move by rural households to manage seasonal income fluctuations and climate variability by adopting multiple livelihood options.
- However, for these sectors to reach their full potential estimated to triple by 2047 the focus must now shift toward next-generation reforms. While productivity has increased, the next frontier lies in strengthening market access and value chains. Connecting small-scale producers to organised markets and enhancing processing capabilities are crucial steps to ensure that the gains of the "Blue" and "White" revolutions are sustainable and inclusive.

ROLE OF LIVESTOCK AND FISHERIES IN THE INDIAN ECONOMY

The economic footprint of livestock and fisheries is vast and vital for rural stability. Between FY15 and FY24, the sector's GVA increased by nearly 195 percent, showcasing its rapid expansion. Fisheries alone contribute 7.43 percent to the agricultural GVA, supporting over 30 million livelihoods. Unlike the seasonal nature of crops, livestock and fisheries provide regular and predictable cash flows; for instance, daily milk sales and multiple fish production cycles offer sustained employment and liquidity to rural families.

These sectors are central to the goal of doubling farmers' income. By integrating livestock with crop cultivation, households benefit from a circular resource use (utilising crops for fodder and livestock waste for manure), which reduces dependence on expensive external inputs. Furthermore, they are pillars of nutritional security, providing essential protein through milk, eggs, and fish. Per capita milk availability in India has reached 485 grams per day, far exceeding the global average.

Socially, the sector is a powerful tool for women's empowerment and the upliftment of marginal farmers. Approximately 150 million farmers are sustained by the dairy sector, many of whom are smallholders or women who gain bargaining power through cooperatives and Self-Help Groups (SHGs).

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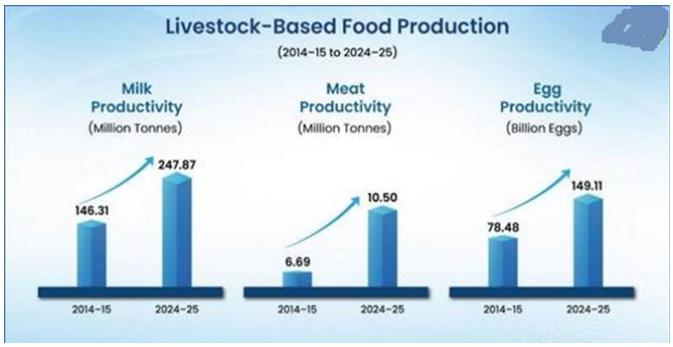
Economically, the export potential is massive; seafood exports alone have more than doubled in the last decade, reaching ₹62,408 crore and touching over 130 countries. This reinforces the "Blue Economy" as a strategic priority for earning foreign exchange and ensuring inclusive growth.



KEY CHALLENGES IN THE SECTOR

Despite the growth, several hurdles prevent the sector from achieving its maximum efficiency.

A. **Structural Challenges** Production remains largely fragmented, with millions of small producers operating independently, making it difficult to achieve economies of scale. While productivity has risen, many indigenous breeds still show lower yields compared to global benchmarks, though recent genetic gains are narrowing this gap. Additionally, climate variability poses a significant threat, affecting land use and the availability of feed and fodder. Health risks remain a constant concern, with disease outbreaks such as Foot and Mouth Disease (FMD), Brucellosis, and avian flu capable of causing devastating productivity losses.

B. **Infrastructure and Market Challenges** The "last mile" remains the weakest link. There is a persistent inadequacy in cold chain networks, which leads to high post-harvest losses, particularly in the highly perishable fisheries sector. India's processing capacity, while growing, still lags behind production; for example, current daily milk processing stands at 660 lakh litres, with a target to reach 100 million litres by 2028–29. Poor last-mile connectivity and a lack of rural storage facilities often leave farmers dependent on middlemen, resulting in poor price realisation and a disconnect from formal, organised markets.

C. **Institutional and Policy Gaps** Historically, livestock and fisheries have faced credit constraints, as traditional banking was often geared toward crop loans. While the extension of Kisan Credit Cards (KCC) has helped, a gap remains in reaching the most remote producers. Insurance penetration for livestock is still relatively low, leaving farmers vulnerable to sudden animal loss. Furthermore, the informal nature of livestock trade and the slow formation of organized farmer collectives in some regions hinder the ability of small producers to negotiate better prices or access modern technology.

GOVERNMENT INITIATIVES AND REFORMS

The Government of India has launched a suite of mission-mode projects to address these challenges.

- **Rashtriya Gokul Mission (RGM):** Focuses on conserving indigenous breeds and enhancing productivity through artificial insemination. To date, 14.56 crore inseminations have been conducted, benefiting 5.62 crore farmers.
- **National Livestock Mission (NLM):** Aims at boosting entrepreneurship and improving the production of meat, eggs, and fodder.
- **National Animal Disease Control Programme (NADCP):** Targets 100% vaccination against FMD and Brucellosis. It has successfully reduced FMD outbreaks from 132 cases in 2019 to just 6 in 2025.
- **PM Matsya Sampada Yojana (PMMSY) & FIDF:** These are the bedrocks of fisheries reform, funding over 27,000 transportation units and thousands of fish markets to bridge infrastructure gaps.
- **KCC Extension:** The extension of the Kisan Credit Card to animal husbandry and fisheries has provided essential working capital, with over 39 lakh applications sanctioned in animal husbandry alone.
- **Critical Evaluation:** These schemes have been highly effective in solving productivity and health issues, as evidenced by the 27% rise in average bovine productivity and the near-elimination of certain diseases. However, market access remains a work in progress. While the e-NAM and digital platforms are being integrated, the physical infrastructure (like cold storage) in

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remote areas still needs rapid scaling to keep pace with the massive production increases.

STRENGTHENING MARKET ACCESS: THE WAY FORWARD

To move toward a truly market-integrated model, a multi-pronged approach is required.

- **Value Chain Development** Investing in integrated cold chain networks is non-negotiable to reduce waste. Expanding processing and branding efforts will allow farmers to capture a higher share of the consumer rupee. Developing export-oriented clusters for marine products and processed meat can further tap into global demand.
- **Digital and Institutional Reforms** The formation of Farmer Producer Organizations (FPOs) and Fish Farmer Producer Organizations (FFPOs) is essential to aggregate produce and provide smallholders with bargaining power. Digital tools like Pashu Aadhaar (a 12-digit unique ID for livestock) and the National Fisheries Digital Platform (NFDP) will enhance traceability and transparency, making it easier for producers to access credit and insurance.
- **Infrastructure Push Priority** must be given to rural storage and refrigerated transport to ensure that perishable goods reach urban centres in peak condition. For the fisheries sector, enhancing port infrastructure and deep-sea fishing capabilities will strengthen India's position in the global seafood value chain.
- **Financial and Insurance** Reforms Expanding livestock insurance penetration is vital for risk mitigation. Encouraging microfinance support for women's SHGs can drive grassroots entrepreneurship in poultry and dairy.
- **Sustainability and Climate Resilience** Adopting climate-smart livestock practices and sustainable aquaculture—such as the rules notified for the EEZ in 2025—will ensure long-term ecological balance. Continued investment in breed improvement and genetic technology will help develop animals that are more resilient to heat and disease.

CONCLUSION

The allied sectors are no longer merely "supplementary" to Indian agriculture; they are central to the nation's agricultural transformation. Their stable growth and massive contribution to the GVA make them indispensable for achieving Atmanirbhar Bharat and the vision of a robust Blue Economy. By transitioning from subsistence-oriented production to market-integrated, commercially viable models, India is not only doubling farmers' income but also ensuring inclusive rural growth and national nutritional security.

The convergence of productivity-led growth, digital innovation (like the Bharat Pashudhan Portal), and institutional support has created a resilient rural economy. As India moves forward, continued reform-oriented actions focused on value addition, traceability, and infrastructure will be the key to unlocking the full potential of these sectors, ensuring they remain the bedrock of sustainable livelihoods for millions of farmers

Prelims question:

Q. Consider the following statements regarding the progress of India's allied agricultural sectors by 2025–2026:

1. India accounts for approximately 25 per-cent of global milk production.
2. The National Animal Disease Control Programme (NADCP) successfully reduced Foot and Mouth Disease (FMD) outbreaks to zero by 2025.
3. Pashu Aadhaar is a 12-digit unique identification system used to record livestock health and breeding.

Which of the statements given above are correct?

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

Answer: (c)

Mains Question:

Q. "Evaluate the role of digital public infrastructure and institutional frameworks in transitioning India's livestock and fisheries

from subsistence to market-integrated models. What structural bottlenecks persist ? (250 words)

INDIA'S DIGITAL BLUEPRINT: REVOLUTIONISING THE EASE OF DOING BUSINESS.

WHY IN THE NEWS?

The Government of India recently released a comprehensive progress report (March 2026) titled "The Digital Blueprint for Ease of Doing Business," highlighting the transformative impact of digital public infrastructure (DPI) on the national economy. Key milestones include the National Single Window System (NSWS) granting over 8.29 lakh approvals and the Unified Payments Interface (UPI) processing a staggering 21.70 billion transactions in January 2026 alone. This update underscores India's shift toward a "Digital-First" regulatory environment aimed at achieving a $5 trillion economy.

DIGITAL TRANSFORMATION: THE ENGINE OF BUSINESS GROWTH

India has fundamentally reimagined its economic landscape by positioning digital transformation as a vital engine for business growth. Through flagship initiatives such as Digital India and Startup India, the government has pushed for a paradigm shift in regulatory simplification, replacing archaic paper-based processes with seamless, real-time digital interfaces.

Ease of Doing Business (EoDB) is more than a mere ranking; in the context of India's economic aspirations, it represents a conducive investment climate where entrepreneurship can thrive without the stifling weight of bureaucratic inertia. It encompasses the entire business lifecycle from entry and registration to operational expansion and eventual exit. By harmonising central and state-level reforms through integrated digital platforms, India now offers a world-class gateway where data flows effortlessly across departments, significantly reducing the time and cost of doing business.

CONCEPTUAL FRAMEWORK: DIGITAL GOVERNANCE AND EODB

Digital governance refers to the application of Information and Communication Technology (ICT) to deliver government services, exchange information, and integrate various standalone systems. In public administration, it serves as a tool for transparency, efficiency, and accountability by removing the "human interface" that often leads to delays or corruption.

Technology-led reforms act as the backbone of modern governance. For instance, the Goods and Services Tax Network (GSTN) serves as a synchronised interface for over a crore of taxpayers, ensuring effortless electronic invoicing and a transparent fiscal framework. Similarly, the digitisation of the Insolvency and Bankruptcy Board of India (IBBI) processes facilitates faster dispute resolution and asset recovery. These digital platforms ensure that "regulations" are no longer hurdles but "facilitators," providing entrepreneurs with an efficient and reliable gateway to growth.

KEY DIGITAL REFORMS IMPROVING EASE OF DOING BUSINESS

India's digital reform agenda is multifaceted, spanning across clearance systems, taxation, and corporate compliance:

- **Single Window Digital Clearance Systems:** The National Single Window System (NSWS) is a landmark reform that guides businesses in identifying and applying for approvals through a single gateway. It integrates 32 Central Departments and 32 State Governments,

offering access to over 698 central and 7,435 state approvals. Additionally, the PARIVESH 3.0 portal has revolutionised environmental clearances by using AI-enabled support and inter-ministerial dashboards to enhance predictability and efficiency.

- **Digital Taxation Ecosystem:** The GSTN platform has unified India's indirect tax landscape, processing over ₹102.91 lakh crore in payments as of January 2026. Complementing this is the E-Way Bill system, which replaced multiple state-level permits with a single electronic document, effectively removing static border check posts and reducing transport time.
- **Digital Corporate Compliance:** The MCA21 Version 3 project is an AI-driven initiative for the registry and incorporation of companies. Features like e-Scrutiny and e-adjudication ensure end-to-end digital compliance. The SPICe+ Form further simplifies entry by consolidating 10 essential procedures—including DIN allotment, PAN, and GSTIN—into a single integrated web form.
- **Financial Digital Infrastructure:** The Unified Payments Interface (UPI) has become the world's largest retail fast-payment system, handling 21.70 billion transactions in a single month (January 2026). This, alongside the c-KYC (Central Know Your Customer) Registry, reduces the burden of repetitive documentation for financial transactions.
- **Logistics and Procurement:** PM Gati Shakti provides a unified digital platform with over 1,700 data layers for integrated infrastructure planning. Furthermore, the Government e-Marketplace (GeM) has digitised public procurement, recording over ₹4 lakh crore in order value in FY26.

IMPACT ON ECONOMIC GROWTH AND ENTREPRENEURSHIP

The digitisation of governance has led to a surge in enterprise expansion. The Udyam Registration Portal has facilitated over 7.71 crore registrations, supporting an estimated 33.97 crore jobs as of February 2026. This paperless, self-declaration-based system has empowered the MSME sector, which is the bedrock of Indian entrepreneurship.

Investor confidence is at an all-time high, driven by the transparency of platforms like ICEGATE for customs and the e-CoO 2.0 system for trade efficiency. India's fintech leadership is also evident globally, with UPI now live in over eight countries, including the UAE, Singapore, and France. These reforms are critical milestones toward the goal of a $5 trillion economy, fostering an environment where startups can scale rapidly through open networks like ONDC (Open Network for Digital Commerce), which promotes inclusivity by reducing dependency on monopolistic platforms.

CHALLENGES AND STRUCTURAL CONSTRAINTS

Despite significant progress, several structural constraints remain:

- **Digital Divide:** While urban centres thrive, rural areas still face infrastructure gaps in high-speed internet connectivity, affecting the local uptake of digital reforms.
- **Cybersecurity:** As the volume of data grows, ensuring the confidentiality and integrity of information is paramount. While the government adheres to ISO 27001 standards, the evolving nature of cyber threats requires constant vigilance.
- **Regulatory Overlap:** There can be friction between various ministries and state versus central regulations. Although the Business Reforms Action Plan (BRAP) encourages states to simplify procedures, implementation remains uneven across different regions.
- **Data Privacy:** The transition to AI-driven models like MCA21 V3 necessitates a robust data protection framework to prevent the misuse of sensitive corporate and personal information.

GLOBAL COMPARISON AND BEST PRACTICES

India's journey can be compared to global leaders:

- **Estonia:** Known for its "e-Estonia" model, it has digitised nearly 99% of public services. India's API Setu and DPI approach mirror this by allowing different systems to "talk" to each other.
- **Singapore:** Renowned for its efficient regulatory framework, Singapore's "Networked Trade

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Platform" is a benchmark India is approaching with the National Logistics Portal (Marine).

- **Lessons for India:** India can adopt more "pro-active" service delivery where the government anticipates business needs based on data trends, moving from a "request-based" to a "delivery-based" model.

WAY FORWARD

To sustain this momentum, the following policy directions are suggested:

- **Strengthening Infrastructure:** Expanding the PM GatiShakti data layers to the district level (D-BRAP) to ensure last-mile connectivity and infrastructure planning.
- **AI-Based Monitoring:** Utilising AI and Machine Learning for real-time regulatory monitoring and e-adjudication, as initiated in MCA21 V3.
- **Integrated Portals:** Further linking GeM with TReDS (Trade Receivables Discounting System) to enhance MSME liquidity and ensure quicker financing.
- **Cooperative Federalism:** Strengthening the Business Reforms Action Plan (BRAP) to ensure that "Aspirer" states (like Uttar Pradesh and Kerala in previous cycles) transition into "Top Achievers" through knowledge sharing.
- **Capacity Building:** Training the bureaucracy to handle cognitive chat-bots and interactive dashboards effectively to resolve grievances faster.

CONCLUSION

India's digital reforms have fundamentally transformed the business environment, making approvals, registration, and trade processes seamless and efficient. Enhanced transparency and real-time data flow have replaced the bottlenecks of the past with a robust digital infrastructure that fosters innovation and reduces compliance costs. As India continues to refine its digital blueprint, it is not only improving its domestic business climate but also positioning itself as a secure, efficient, and highly attractive global business hub. The balance between innovation, regulation, and inclusivity will be the cornerstone of India's economic transformation in the coming decade.

Prelims question:

Q. With reference to India's digital initiatives to improve the 'Ease of Doing Business', consider the following statements:

1. The National Single Window System (NSWS) integrates approval processes across all 28 States and 8 Union Territories in India.
2. The MCA21 Version 3 is an AI-driven platform that includes features such as e-adjudication and a cognitive chatbot-enabled helpdesk.
3. The Udyam Registration Portal for MSMEs is a paperless, self-declaration-based system that is integrated with the GSTN and CBDT databases.
4. India's Unified Payments Interface (UPI) is currently live and operational in over 15 countries globally.

Which of the statements given above are correct?

A) 1 and 2 only B) 2 and 3 only

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

Answer: B) 2 and 3 only

Mains Question:

Q. "Digital Governance has emerged as the cornerstone of India's strategy to enhance its Ease of Doing Business (EoDB) and achieve the goal of a $5 trillion economy." Critically analyse this statement with reference to the role of Digital Public Infrastructure (DPI) and the Business Reforms Action Plan (BRAP). (250 words, 15 Marks)

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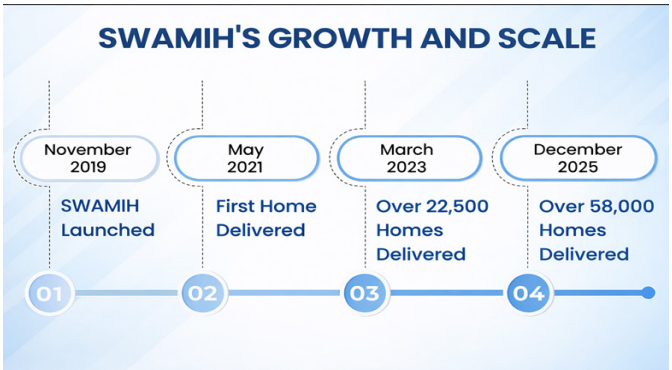
SWAMIH: A POLICY LIFELINE FOR INDIA'S HOUSING SECTOR

WHY IN THE NEWS ?

SWAMIH is in the news due to the announcement and upcoming rollout of SWAMIH Fund-2 in Budget 2025-26 and the milestone completion of thousands of stalled housing units, aimed at reviving stressed real estate projects and providing relief to homebuyers.

INTRODUCTION

India's real estate sector, a major driver of economic growth and urbanisation, has faced persistent challenges from stalled housing projects. These unfinished developments have left millions of homebuyers in distress, tied up capital, and slowed allied industries. The Special Window for Affordable and Mid-Income Housing (SWAMIH) Investment Fund, launched in 2019, emerged as a targeted solution providing last-mile financing to revive viable stalled projects. Often hailed as a "policy lifeline," SWAMIH has delivered thousands of homes, generated employment, and restored confidence in the sector.



BACKGROUND OF STALLED HOUSING PROJECTS AND SECTOR CHALLENGES

The stalled housing crisis intensified post-2013 due to policy shifts and economic shocks. Pre-RERA (2016), developers often diverted buyer funds, leading to over-leveraging. Demonetisation (2016), GST rollout (2017), and RERA's escrow and registration norms caused widespread liquidity issues. The 2018 IL&FS crisis further restricted NBFC lending, while bureaucratic delays, land disputes, cost escalations, and COVID-19 disruptions compounded problems.

Key challenges included:

Funding shortages for last-mile completion (projects 70–80% done but lacking final funds).

- Project delays leading to insolvency under IBC.
- Impact on homebuyers middle-class families paying EMIs while renting elsewhere, with estimates of 4–5 lakh affected buyers and ₹10+ lakh crore locked capital.
- Economic fallout job losses in construction (a major employer), reduced demand for cement/ steel, lower GST/stamp duty revenues, and dampened GDP contribution.
- This crisis eroded trust in real estate, highlighting the need for focused financial rescue rather than broad subsidies.

OBJECTIVES, STRUCTURE, AND FUNCTIONING OF THE SWAMIH FUND

Launched in November 2019 after Union Cabinet approval, **SWAMIH** is an Alternative Investment Fund (AIF) Category II under SEBI, managed by **SBI Ventures Limited (formerly SBICAP Ventures).**

Objectives:

Launched in November 2019 after Union Cabinet approval, SWAMIH is an Alternative Investment Fund (AIF) Category II under SEBI, managed by SBI Ventures Limited (formerly SBICAP Ventures).

Objectives:

Provide last-mile debt financing to complete stalled, RERA-registered affordable/mid-income projects.

Deliver homes to distressed buyers without fiscal bailouts.

Revive construction, create jobs, and stimulate economic multipliers.

Restore sector confidence by prioritising completion.

Structure and Corpus The fund raised over ₹15,531 crore (exceeding the ₹12,500 crore target) from Government of India, PSU banks, and LIC. It functions as a debt vehicle offering priority financing (senior to other creditors) rather than equity.

Functioning Projects undergo rigorous due diligence for viability, net-worth positivity, and RERA compliance. Funds are disbursed in tranches tied to milestones, with strict escrow and monitoring. This blended finance model balances commercial

returns with social impact, focusing on brownfield revival for faster, cost-effective delivery.

ACHIEVEMENTS AND IMPACT OF THE SWAMIH FUND

SWAMIH has achieved remarkable success. As of December 15, 2025 (latest detailed data; March 2026 PIB update notes continued progress):

Approximately 61,000 homes delivered across 110 projects (including over 7,000 EWS/rehabilitation units).

Over 58,596 homes completed in recent reports, with expectations exceeding 1 lakh homes total, benefiting over 2.38–4 lakh people.

Unlocked ₹37,400 crore+ capital across 127 projects (over 90 million sq ft, 44% LIG/MIG).

Generated over 36,000 jobs (skilled/unskilled, including 3,500 permanent).

Boosted allied industries: demand for 20+ lakh tonnes cement, 5.5+ lakh tonnes steel.

Contributed ₹6,900 crore+ in government revenues (GST, stamp duty).

Environmental gains: over 1.06 lakh trees added.

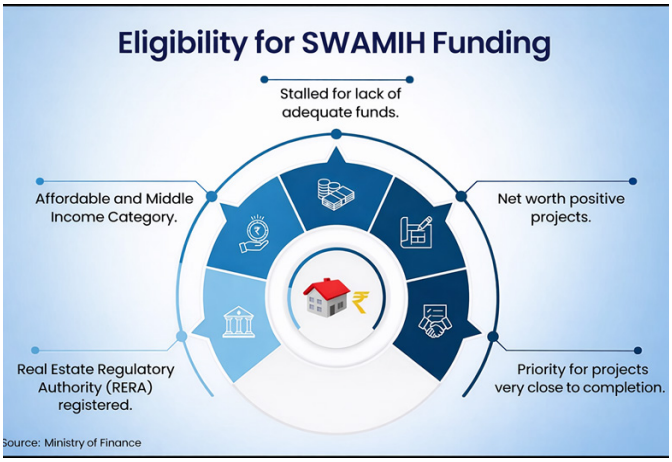
Full corpus commitment by December 5, 2025, with strong exits and partial capital returns (including to Government).

These outcomes highlight SWAMIH's multiplier effect reviving projects sustains supply chains, local economies, and buyer trust.

SWAMIH WITHIN INDIA'S BROADER HOUSING POLICY ECOSYSTEM

SWAMIH complements flagship schemes under the Ministry of Housing and Urban Affairs:

- **Pradhan Mantri Awas Yojana–Urban (PMAY-U) (2015) focuses on new supply via four verticals:** Beneficiary-Led Construction (BLC), Affordable Housing in Partnership (AHP), In-Situ Slum Redevelopment (ISSR), and Credit-Linked Subsidy Scheme (CLSS). It has sanctioned over 1.25 crore houses historically.
- **PMAY-U 2.0 (launched September 2024) targets 1 crore additional houses for urban poor/middle-class.** Recent updates (February 2026 CSMC) approved 2.88 lakh+ houses (e.g., 1.66 lakh BLC, 1.09 lakh AHP, 12,846 ARH). It emphasises demand-driven delivery, women/underprivileged focus, and extensions to 2025+ for completions.
- **Affordable Rental Housing Complexes (ARHCs)** (restructured as Affordable Rental Housing vertical under PMAY-U 2.0) addresses rental needs for migrants, EWS/LIG, workers, and women. Implemented via two models: converting vacant government houses (Model-1: 5,648+ units) and new PPP construction (Model-2: 82,000+ approved, thousands completed). Complexes offer single/double-bedroom units or dormitories for 25+ years at affordable rates near workplaces.
- **SWAMIH** serves as the revival/completion arm, rescuing existing stalled inventory while PMAY-U/2.0 and ARHC create fresh ownership/rental supply. This integrated approach regulation (RERA/IBC), new builds (PMAY), rentals (ARHC), and revival (SWAMIH) advances "Housing for All" efficiently.



ANNOUNCEMENT AND STATUS OF SWAMIH FUND-2 (UNION BUDGET 2025–26)

Announced by Finance Minister Nirmala Sitharaman on February 1, 2025, SWAMIH Fund-2 features a ₹15,000 crore corpus as a blended finance facility (government, banks, private investors). It aims to complete another 1 lakh stalled units, accelerating relief for middle-class buyers facing dual EMIs/rents.

As of March 2026:

Contours finalised; seed capital (₹1,500 crore) allocated in 2025–26 Budget.

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Discussions/webinars held (e.g., March 2025 MoHUA webinar, September 2025 stakeholder meetings).

Expected operationalisation soon, building on SWAMIH-1's success (full commitment, strong execution).

Recent Budget 2026–27 mentions (e.g., ₹650 crore allocation to SWAMIH ecosystem) indicate continued support.

RECOMMENDED FUTURE MEASURES:

- Integrate technology (prefab, green building) for faster/sustainable completions.
- Strengthen RERA enforcement and single-window approvals to prevent stalling.
- Expand PPPs and institutional finance for ownership/rental segments.
- Link housing with urban planning (transit-oriented development, Smart Cities) and skilling.
- Address regional disparities via demand surveys and climate-resilient designs.
- Balance ownership (PMAY) with rental growth (ARHC) while monitoring fiscal efficiency.

CONCLUSION

SWAMIH has transformed a deep crisis into tangible progress delivering homes, jobs, revenues, and confidence without moral hazard. By focusing on viable last-mile gaps, it exemplifies precise, outcome-driven governance and proves targeted intervention can unlock private capital and economic multipliers.

Its importance lies in restoring trust in real estate, protecting middle-class savings, and sustaining urban growth. SWAMIH Fund-2's expansion will further scale this impact.

Prelims question:

Q. Consider the following statements regarding the Special Window for Affordable and Mid-Income Housing (SWAMIH) Investment Fund:

1. It was launched in 2019 to provide last-mile financing exclusively for completing viable stalled affordable and mid-income housing projects that are RERA-registered.
2. As of December 2025, the Fund has delivered approximately 61,000 homes across 110 projects and generated over 36,000 jobs.
3. SWAMIH Fund-2, announced in the Union Budget 2025-26 with a proposed corpus of ₹15,000 crore, aims to complete an additional 1 lakh housing units and is fully operational as of March 2026.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 2 only

(c) 2 and 3 only (d) 1, 2 and 3

Answer: (b) 1 and 2 only

Mains Question:

Q. Discuss the background of the stalled housing crisis, the structure and key achievements of the SWAMIH Fund (as of early 2026), and evaluate the potential role of SWAMIH Fund-2 in sustaining the revival of the affordable and mid-income housing sector. Suggest measures to strengthen such initiatives for long-term urban housing security.

(250 words)

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INDIA'S RISE AS A GLOBAL HEALTH POWERHOUSE: ADVANCING UNIVERSAL HEALTH COVERAGE AND BIOPHARMACEUTICAL LEADERSHIP

WHY IN THE NEWS?

In early 2026, India marked significant milestones in its healthcare journey, including the launch of a nationwide HPV Vaccination Programme (February 2026) to combat cervical cancer and the unveiling of the Strategy for AI in Healthcare for India (SAHI). Furthermore, the Union Budget 2026–27 increased allocations for the Pradhan Mantri Jan Arogya Yojana and introduced the Biopharma SHAKTI initiative, signaling a strategic shift toward advanced biomanufacturing.

DEFINING THE CONCEPT

India's transformation into a Global Health Powerhouse refers to its multi-dimensional progress in achieving Universal Health Coverage (UHC) through affordable healthcare delivery, digital public infrastructure, and its emergence as a primary global supplier of vaccines and generic medicines. It represents a shift from a "disease-battling" nation to a "health-providing" leader for the Global South.

BACKGROUND AND CONTEXT

- **Historical:** Less than a century ago, India was battling widespread endemic diseases. Today, it has transitioned into a global medical tourism hub with over 600,000 medical tourists in 2024.
- **Constitutional:** The healthcare mandate is rooted in the Directive Principles of State Policy (Part IV), which task the State with improving public health as a primary duty.
- **International:** India's role as the "Pharmacy of the World" grew significantly during the COVID-19 pandemic, where it demonstrated its capacity to integrate indigenous research with large-scale production through vaccines like Covaxin and Covishield.

SIGNIFICANCE AND IMPORTANCE

- **Universal Health Coverage (UHC):** Through Ayushman Bharat, India provides the world's largest publicly funded health insurance, covering secondary and tertiary care for the bottom 40% of the population.
- **Global Supply Chain Resilience:** India provides 20% of global generic medicines and 55–60% of UNICEF's vaccines, acting as a critical security net for global health.
- **Preventive Healthcare:** A shift toward "Wellness" is evident through 184,235 Ayushman Arogya Mandirs (AAMs), which have conducted millions of screenings for non-communicable diseases like hypertension and diabetes.
- **Specialized Manufacturing:** The bioeconomy, valued at $165.7 billion in 2024, is projected to reach $300 billion by 2030, reflecting a move toward high-value biologics.

CONSTITUTIONAL AND LEGAL DIMENSIONS

- **Right to Health:** While not explicitly a fundamental right, the Supreme Court has interpreted the Right to Life (Article 21) to include the right to health, supported by the DPSP (Article 47).
- **Regulatory Framework:** The Central Drugs Standard Control Organisation (CDSCO) and the National Regulatory Authority (NRA) met WHO indicators for functional vaccine regulation in 2024, ensuring India's medical exports meet global safety standards.

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ECONOMIC AND SOCIAL IMPACT

- **Financial Protection:** PM-JAY has saved families over ₹1.25 lakh crore in out-of-pocket expenditure (2024–25).
- **Inclusive Growth:** The Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) provides generic medicines at 50–90% lower rates, saving citizens ₹30,000 crores over the past decade.
- **Health Equity:** Targeted interventions like the National Sickle Cell Anaemia Elimination Mission have screened over 26.1 million individuals in tribal areas.

TECHNOLOGICAL INTEGRATION: AI AND INNOVATION

India is the first nation in the South-Eastern region to launch a dedicated Strategy for AI in Healthcare (SAHI).

- **Predictive Analytics:** AI tools are used in TB management to predict treatment failure, resulting in a 27% decline in adverse outcomes.
- **Last-Mile Logistics:** The i-DRONE initiative enables vaccine and blood delivery to mountainous and hard-to-reach terrains.
- **Tele-Health:** Tele MANAS provides 24×7 digital mental health support in 20 languages, handling over 3.28 million cases.

KEY ISSUES AND CHALLENGES

- **Specialist Shortages:** Despite a 130% increase in MBBS seats over 11 years, the shortage of specialists remains a hurdle, which the government is attempting to bridge via AI triaging.
- **Regulatory Capacity:** As India moves into biologics and biosimilars, there is a constant need to upgrade the Central Drugs Standard Control Organisation to handle complex regulatory approvals.
- **Infrastructure Gaps:** While thousands of AAMs have been built, ensuring consistent staffing and quality across all 744 integrated public health laboratories remains a logistical challenge.

WAY FORWARD

- **Strengthening Biopharma Ecosystem:** Expedite the Biopharma SHAKTI initiative to establish India as a global biomanufacturing hub.
- **Expanding Medical Education:** Continued upgrading of existing medical colleges and establishment of new NIPERs to meet demand for specialized human resources.
- **Digital Deepening:** Full integration of the Ayushman Bharat Digital Mission across private and public sectors to ensure seamless digital health lockers for all citizens.
- **PPP Models:** Leveraging the Integrated Medical Hubs announced in Budget 2026–27 to enhance diagnostic and rehabilitation services through private sector partnerships.

CONCLUSION

India's healthcare trajectory reflects the synergy between Constitutional values of social justice and modern technological innovation. By aligning domestic goals such as the National Sickle Cell Anaemia Elimination Mission with global Sustainable Development Goals (SDG 3), India is fostering inclusive growth. As the nation advances toward Viksit Bharat 2047, its robust digital architecture and pharmaceutical strength ensure that India remains not merely a "Pharmacy of the World" but a comprehensive "Provider" for the Global South, embodying the spirit of Atmanirbhar Bharat.

Prelims question:

Q. With reference to India's healthcare initiatives, consider the following statements:

1. Pradhan Mantri Jan Arogya Yojana provides health coverage of ₹5 lakh per family per year for secondary and tertiary care.
2. Ayushman Bharat Digital Mission aims to create a unified digital health infrastructure through ABHA IDs.
3. Central Drugs Standard Control Organisation is responsible for regulating drug approvals and vaccine standards in India.
4. Pradhan Mantri Bhartiya Janaushadhi Pariyojana provides free medicines to all citizens.

Which of the statements given above are correct?

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(a) 1, 2 and 3 only (b) 1 and 4 only

(c) 2, 3 and 4 only (d) 1, 2, 3 and 4

Answer: A

Mains Question:

Q. India is transitioning from being the 'Pharmacy of the World' to becoming a 'Global Health Powerhouse.'" Examine this statement in the context of Universal Health Coverage (UHC), technological innovation, and biopharmaceutical advancement. Also discuss the key challenges and suggest measures to strengthen India's healthcare ecosystem (250 words)

KISAN CREDIT CARD: FUELING GROWTH IN AGRICULTURE AND STRENGTHENING FARMERS' ACCESS TO CAPITAL.

WHY IN THE NEWS?

Recently, the Kisan Credit Card (KCC) scheme has taken centre stage in India's agricultural policy discourse due to its massive scale and recent digital transformations. The scheme has reached a significant milestone with over 7.72 crore active KCCs nationwide, facilitating an outstanding credit flow of approximately Rs. 10.2 lakh crore. The government has recently enhanced the financial safety net for farmers by increasing the collateral-free loan limit to Rs. 2 lakh and raising the overall crop loan limit under the Modified Interest Subvention Scheme (MISS) to Rs. 5 lakh. Furthermore, the successful integration of the Kisan Rin Portal (KRP) and the ongoing KCC Saturation Drive under Atmanirbhar Bharat have brought the scheme into the spotlight as a primary engine for rural financial inclusion and agricultural modernization.

ABOUT KISAN CREDIT CARD (KCC) SCHEME.

Institutional credit serves as the lifeblood of Indian agriculture, a sector that remains the backbone of the national economy. With approximately 46.1 per cent of the Indian population dependent on agriculture and allied activities for their livelihoods, ensuring a steady, affordable, and timely flow of capital is essential for national food security and rural stability. Without access to formal credit, farmers often fall into the trap of informal moneylenders who charge exorbitant interest rates, leading to a cycle of debt and poverty.

To address these systemic challenges, the Government of India introduced and subsequently modernized the Kisan Credit Card (KCC) scheme. The primary objective of the KCC is to provide a single-window credit delivery system that offers farmers adequate and timely support for their requirements. This includes short-term credit for crop cultivation, post-harvest expenses, and even investment credit for allied activities like animal husbandry and fisheries. By streamlining the lending process, the KCC aims to empower farmers with the financial flexibility needed to manage their production cycles efficiently and transition toward more productive farming practices.

BACKGROUND AND EVOLUTION OF KISAN CREDIT CARD SCHEME

The **Kisan Credit Card Scheme was launched in 1998** with the visionary goal of simplifying the way farmers accessed short-term institutional credit. Initially, the scheme focused almost exclusively on crop production, helping farmers purchase inputs like seeds and fertilizers. It was implemented through a robust network involving NABARD (National Bank for Agriculture and Rural Development) and a variety of banking institutions, including Commercial **Banks, Regional Rural Banks (RRBs), and Cooperative Banks.**

Over the decades, the scheme has undergone significant evolution to meet the changing needs of the agrarian economy. A major milestone occurred in 2006–07 with the **launch of the Interest Subvention Scheme (now MISS),** which made credit significantly more affordable. The most transformative shifts, however, have occurred recently. In 2018–19, the government expanded the KCC facility to include fishers and fish farmers to meet their working capital needs. This was followed by the Revised Kisan Credit Card (2020) scheme, which adopted a more holistic approach. It moved beyond simple

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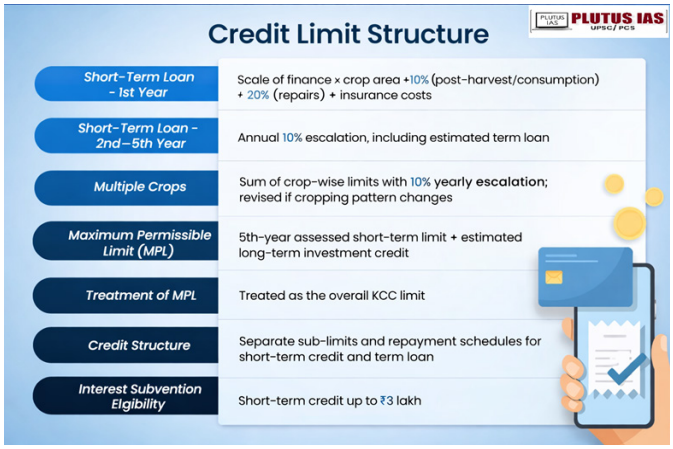
transaction-based lending to provide integrated support for cultivation, allied activities, and even household consumption needs. Today, the scheme is supported by a diversified delivery architecture involving 457 onboarded banks, ensuring that credit reaches the grassroots level across all Indian states.

KEY FEATURES OF THE KISAN CREDIT CARD SCHEME

The KCC scheme is defined by its farmer-centric features designed to remove traditional barriers to formal finance.

- **Simplified Credit Access:** The government has introduced a simplified one-page application form. To further ease the process, many details are pre-filled using records from the PM-KISAN portal, requiring farmers to only provide land records and crop information.
- **Flexible Repayment and Structure:** The KCC offers a revolving credit facility with a validity of up to five years. This allows farmers to withdraw and repay funds as per their production cycles and cash flows.

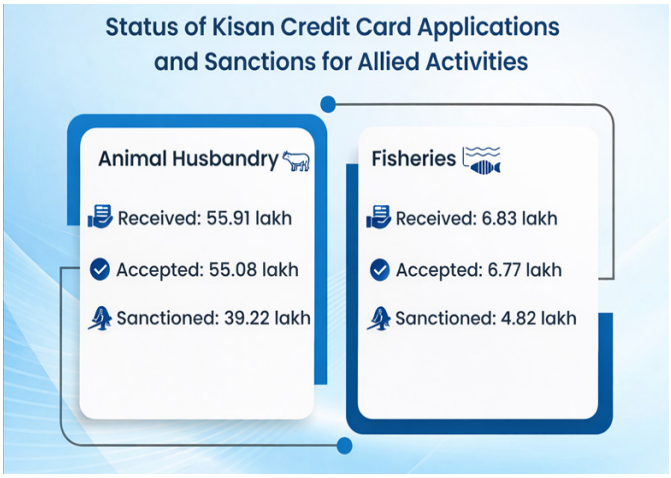


- **Interest Subvention Benefits:** Under MISS, farmers can access short-term loans up to Rs. 3 lakh at a base interest rate of 7%. For those who repay on time, an additional 3% subvention is provided, bringing the effective interest rate down to just 4%.
- **Broad Coverage:** The scheme provides a composite credit limit. For marginal farmers, this limit (ranging from Rs. 10,000 to Rs. 50,000) covers post-harvest requirements, consumption expenses, and small investments independent of land valuation.
- **Digital Integration:** The modern KCC is RuPay-enabled, facilitating digital payments and reducing cash dependence. Additionally, the Kisan Rin Portal (KRP) serves as a unified digital platform that integrates farmer profiles and loan disbursement data, ensuring transparency in interest subvention claims.

ROLE OF KCC IN STRENGTHENING AGRICULTURAL GROWTH

The KCC scheme has become a cornerstone of agricultural productivity and financial resilience in India. By providing affordable institutional credit, it allows farmers to invest in high-quality seeds, fertilizers, and modern farm equipment, which directly leads to improved yields and higher incomes.

One of the most significant impacts of the KCC is the reduction of dependence on informal moneylenders. By offering collateral-free loans up to Rs. 2 lakh, the scheme has significantly reduced entry barriers for the most vulnerable. It plays a vital role in the financial inclusion of small and marginal farmers, who currently hold approximately 76 percent of all agricultural credit accounts.



Furthermore, the expansion of the KCC to allied sectors has diversified rural income streams. In the animal husbandry sector, for example, the scheme saw an exceptionally high acceptance rate, with 39.22 lakh applications sanctioned out of 55.9 lakh received. In the fisheries sector, 4.82 lakh applications have been sanctioned, indicating a successful conversion of demand into actual financial support for fish farmers.

Finally, the KCC acts as a tool for risk management. In the event of natural calamities, the scheme allows

for interest-free periods of up to one year, which can be extended to five years in cases of severe disasters. This flexibility enhances the financial resilience of farmers against climate-related and market risks, contributing to long-term sectoral stability.

CHALLENGES AND LIMITATIONS

Despite its successes, the KCC scheme faces several hurdles that prevent it from reaching its full potential. While the government has launched extensive IEC (Information, Education, and Communication) campaigns, low awareness remains a challenge in remote regions where farmers may not fully understand the digital components or the subvention benefits.

A critical limitation is the reach among **tenant farmers, oral lessees, and sharecroppers**. Although the scheme officially includes them, these groups often struggle to provide the necessary land documentation or lack the formal recognition required by some bank branches. This leads to regional disparities, where states with better land record digitization show much higher KCC penetration than those lagging behind.

Procedural delays can also occur at the branch level. While the central government has simplified the form to a single page, some banks may still require additional documentation, leading to friction in the application process. Additionally, there are ongoing concerns regarding loan misuse, where credit intended for agricultural production might be diverted to non-productive household consumption, potentially leading to over-indebtedness if not monitored carefully. While the KCC provides for consumption needs, balancing this with production goals is a constant challenge for credit administrators.

GOVERNMENT INITIATIVES AND RECENT MEASURES

The Government of India has been proactive in addressing the gaps in the KCC framework through several high-impact initiatives.

- **KCC Saturation Drives:** Under the Atmanirbhar Bharat Abhiyan, the government conducts nationwide drives to ensure every eligible farmer is covered. These drives include weekly district-level camps specifically targeting those in animal husbandry and fisheries.
- **Digitization via Kisan Rin Portal:** Launched in September 2023, the Kisan Rin Portal (KRP) has revolutionized KCC implementation. It enables automated processing of interest subvention claims, reducing settlement delays and enhancing transparency for both banks and farmers.
- **PM-KISAN Linkage:** The KCC application process has been integrated with the PM-KISAN portal, allowing banks to use existing verified data to speed up the onboarding of new borrowers.
- **Enhanced Limits:** For the 2025–26 period, the government significantly increased lending limits. The crop loan limit under MISS rose from Rs. 3 lakh to Rs. 5 lakh, and the fisheries limit similarly increased to Rs. 5 lakh, reflecting a strong policy commitment to the allied sectors.

WAY FORWARD

To further strengthen the KCC framework, several reforms could be implemented. **First,** there must be a concerted effort to expand access for tenant farmers and sharecroppers by moving toward a "cultivator-based" identification system rather than a strictly "owner-based" one. This could involve leveraging Farmer Producer Organizations (FPOs) to act as intermediaries for credit delivery.

Second, the integration of fintech and digital credit delivery should be accelerated. While the Kisan Rin Portal is a great start, further end-to-end digitization from application to disbursement can eliminate the remaining procedural delays. This should be coupled with strengthening financial literacy through grassroots outreach, ensuring farmers understand how to use RuPay cards and manage their revolving credit effectively.

Finally, better monitoring and targeted credit distribution are essential. Using data analytics from the Kisan Rin Portal, the government can identify regions with low penetration and deploy "mobile credit vans" or dedicated saturation camps to bridge the gap. Ensuring that credit is aligned with the specific cropping patterns and agro-climatic zones of each region will make the credit more "productive" and reduce the risk of over-indebtedness.

CONCLUSION

The Kisan Credit Card scheme has evolved from a simple credit tool into a robust financial ecosystem

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that supports the diverse needs of the Indian farmer. By providing affordable, timely, and flexible capital, it has not only increased agricultural productivity but also acted as a shield against the predatory practices of informal lenders. The recent digital reforms and the expansion into allied sectors like dairy and fisheries signify a shift toward a more inclusive and modern agrarian economy. As India strives for sustainable agricultural growth and rural prosperity, the continued strengthening of the KCC framework through digitization, saturation drives, and policy innovation will remain essential for achieving long-term agrarian stability and ensuring that no farmer is left behind in the journey toward a Viksit Bharat

Prelims question:

Q. With reference to the Kisan Credit Card (KCC) scheme, consider the following statements:

1. The scheme provides credit only to owner-cultivators, excluding tenant farmers and sharecroppers.
2. The collateral-free credit limit for KCC borrowers has been enhanced to Rs. 2 lakh effective from January 1, 2025.
3. Under the Modified Interest Subvention Scheme (MISS), the effective interest rate for farmers who repay on time is 4%.
4. The KCC facility was extended to fishers and fish farmers in the year 2018–19.

Which of the statements given above are correct?

(a) 1 and 2 only (b) 2 and 3 only

(c) 2, 3, and 4 only (d) 1, 2, 3, and 4

Answer: (c) 2, 3, and 4 only

Mains Question:

Q. s"The Kisan Credit Card (KCC) scheme has evolved from a transaction-based lending tool into a holistic financial instrument for rural India." In this context, discuss the impact of recent digital interventions and the inclusion of allied sectors in strengthening the financial resilience of farmers.

(250 words)

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