



VAJIRAM & RAVI
Institute for IAS Examination

**Model Answers
for UPSC Mains
2026**

GS Paper 3



GS3 QUESTION

- Q1. What do you mean by Digital Rupee? In this context, explain the working and progress of India's Central Bank Digital Currency (CBDC).
- Q2. Examine the view that financial inclusion is an integral part of social and economic inclusion in a country like India. Also throw light on the usefulness of the RBI's Financial Inclusion Index.
- Q3. Describe the various Technology Missions initiated in Indian agriculture and examine their role in food security.
- Q4. Explain the factors responsible for inefficiency of agri-produce marketing. How does e-commerce help to reduce inefficiency of agri-produce marketing?
- Q5. Explain by giving two examples, how biotechnology has helped Indian farmers in processing their perishable crops.
- Q6. Distinguish between a Fast Breeder Reactor (FBR) and a thermal nuclear reactor. In the context of the first indigenously developed prototype FBR at Kalpakkam, explain the term 'criticality'. What are its implications for the clean energy future of our country?
- Q7. Discuss how the contradiction between 'rapid infrastructure development' and 'disaster-risk reduction' in ecologically-sensitive areas of India can be managed, with suitable examples.
- Q8. Discuss the aim and goals of Kunming-Montreal Global Biodiversity Framework. Mention India's commitments and initiatives to achieve the goals and targets of this framework giving suitable examples.
- Q9. In the Indian context, explain how fake news and misinformation pose a threat to internal security and public order. Discuss the salient features of amendments under Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.
- Q10. Ladakh is strategically located between China and Pakistan. As a measure to win the hearts and minds of locals, discuss the Border Area Development Programme (BADP) by the Central Government and civic actions by the Army. Also discuss the demand for Sixth Schedule provisions for Ladakh.
- Q11. Explain the key challenges for India's energy security. What measures do you suggest for ensuring energy security along with economic growth and sustainability?
- Q12. How are startups in India promoting entrepreneurship, innovation and employment? Discuss the global and domestic challenges in their working and suggest suitable measures to overcome these challenges.
- Q13. How has Indian agriculture been transformed from food scarcity to food surplus level? Explain the various government policies implemented for diversification of Indian agriculture.
- Q14. Discuss the different types of subsidies and supports provided by the Government of India to the agricultural sector. Examine the related issues pertaining to the Agreement on Agriculture of World Trade Organisation (WTO).
- Q15. Mention salient features of 'Mission Drishti'. Discuss the imaging techniques used in the satellite launched on 3rd May 2026. Why is it being considered the world's first satellite of its kind?
- Q16. What is Agentic Artificial Intelligence (AI)? Explain its working. Describe its applications with suitable examples. Discuss the advantages, risks and challenges associated with Agentic AI systems.
- Q17. What are the challenges to solid waste management in India? Discuss the governmental policy framework on solid waste management. Highlight the salient features of successful waste management initiatives of Delhi and Indore cities.

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- Q18. "Community participation is the cornerstone of effective disaster management." Analyse this statement with suitable examples from India. Also discuss the challenges to community participation and measures to strengthen it.
- Q19. Separatist movements have been one of the major factors contributing to militancy and instability in Jammu & Kashmir. Bring out actions taken by the Government to bring J&K into the national mainstream. Discuss pre and post abrogation status of Articles 370 and 35A along with positive impacts of the changes.
- Q20. Discuss counterfeit currency and money laundering as major sources of terror funding in India. State the actions being taken at international level to check these menaces. Highlight the role of Financial Action Task Force (FATF) and methods of compliance by its member countries in preventing terror funding.

Q1. What do you mean by Digital Rupee? In this context, explain the working and progress of India's Central Bank Digital Currency (CBDC).

Answer

The **Digital Rupee (₹)** is India's **Central Bank Digital Currency (CBDC)**, i.e. the digital form of the rupee issued by the **RBI as legal tender and a direct liability of the central bank**. Unlike private digital money, it carries sovereign backing and is exchangeable at par with physical currency.

Working of Digital Rupee

1. **RBI-Issued Sovereign Money:** RBI creates and issues ₹ electronically to participating **banks & non-banks**, which distribute it to users through digital wallets.
2. **Wallet-Based Transactions:** Users hold ₹ in wallets and conduct **P2P (Peer-to-Peer) & P2M (Peer-to-Merchant)**; CBDC transactions between ₹ wallets can settle instantaneously without passing through bank accounts.
3. **Interoperability with UPI:** ₹ users can scan **UPI QR codes** through an ₹ app, making CBDC compatible with India's existing payment ecosystem.
4. **Two-Tier Architecture:** RBI remains the **issuer**, while banks/non-banks undertake distribution & customer-facing wallet services, reducing the need for RBI to directly manage retail accounts.
5. **Programmability:** ₹ can be programmed for specified purposes such as **DBT, interest subvention & employee allowances**, with conditions such as expiry date or merchant category.
6. **Offline Capability:** RBI is testing offline solutions, including transactions using **Near Field Communication**, to enable CBDC payments in areas with limited or no internet connectivity.

Progress of India's CBDC

1. **Retail Pilot:** ₹-R pilot began on **December 2022** and has expanded from a closed-user pilot to users and merchants of participating banks/non-banks across India.
2. **Growing Participation:** By **June 2024**, the retail pilot had **50 lakh users & 4.2 lakh merchants**, indicating substantial expansion of the ecosystem.
3. **Institutional Expansion:** As of **April 2026**, **19 banks** were offering CBDC wallets, while the wholesale pilot had **16 participants**, including banks & non-banks.
4. **Wholesale Applications:** **₹-W** (Wholesale Central Bank Digital Currency) is being used for **Government Securities settlement, inter-bank call-money transactions & tokenised Certificate of Deposit issuance/settlement**, demonstrating applications beyond retail payments.

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5. **Innovation & Asset Tokenisation:** RBI's CBDC and Asset Tokenisation (CAT) Sandbox provides a controlled environment to test programmability, interoperability, cross-border applications and tokenised assets.
6. **International Potential:** CBDC's programmability and interoperability are being explored for cross-border payments, potentially reducing settlement frictions and costs. RBI's Concept Note identifies cross-border payments as a potential use case.

India's CBDC journey has moved from experimentation to a broader pilot ecosystem, with retail, wholesale, programmability, offline payments and tokenisation being tested. Its success will depend on achieving mass adoption, interoperability, privacy, cybersecurity and financial stability while complementing rather than displacing India's highly successful existing payment systems.

Q2. Examine the view that financial inclusion is an integral part of social and economic inclusion in a country like India. Also throw light on the usefulness of the RBI's Financial Inclusion Index.

Answer

Financial inclusion means ensuring affordable and meaningful access to formal financial services for all sections of society. Its importance in India is evident from the expansion of PMJDY to 59.09 crore accounts by August 2026 of which nearly 56% belong to women and 78% are in rural, semi-urban areas.

Financial Inclusion as an Integral Part of Social and Economic Inclusion

Economic Inclusion	Social Inclusion
1. Affordable Formal Credit: Access to formal credit reduces costly informal borrowing and enables productive investment. Example: MUDRA expands collateral-light credit to micro-enterprises.	1. Inclusion of Vulnerable Groups: Formal finance enables SCs, STs, migrants, informal workers and other excluded groups to access credit, insurance and welfare. Example: <u>Stand-Up India specifically supports</u> women and SC, ST entrepreneurs.
2. Mobilisation of Household Savings: Formal accounts mobilise idle cash into deposits, supporting investment and credit creation. Example: <u>PMJDY accounts have significantly expanded the deposit base</u> among low-income households.	2. Reduction in Regional Exclusion: Last-mile banking infrastructure extends financial services to remote and underserved areas. Example: <u>Business Correspondents and India Post Payments Bank</u> provide doorstep banking in rural and difficult regions.
3. Entrepreneurship and Self-Employment: Financial access enables small businesses to start, formalise and scale operations. Example: <u>SHG-Bank Linkage under DAY-NRLM</u> supports rural women-led enterprises.	3. Enhances Dignity and Citizenship: Direct account ownership and benefit transfers reduce intermediaries and strengthen control over entitlements.
4. Protection Against Income Shocks: Insurance and pensions strengthen household resilience against death, accidents and old-age risks. Example: <u>PMJJBY, PMSBY and Atal Pension Yojana</u> extend low-cost social protection	4. Stronger Social Security: Financial inclusion connects informal workers to pensions, insurance and welfare portability. Example: <u>e-Shram, PM-SYM and Aadhaar-linked accounts</u> improve access to social-security benefits.

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5. Efficient Welfare Delivery: Direct transfer of benefits into bank accounts reduces leakages and transaction costs.

Example: JAM-enabled DBT is used for schemes such as LPG subsidy, pensions and scholarships.

5. Human Development Access: Formal finance helps meet education and healthcare expenses without distress borrowing.

Example: Education loans, Ayushman Bharat-linked payments and micro-insurance products

Usefulness of RBI's Financial Inclusion (FI) Index

The **RBI introduced the FI-Index in 2021** as a composite measure ranging **from 0 to 100**, based **on 97 indicators** covering banking, investment, insurance, pension and postal services. It consists of

Sub-Index	What It Captures
1. Access (35%)	Availability and ease of reaching financial services
2. Usage (45%)	Actual use of savings, credit, payments, insurance, etc.
3. Quality (20%)	Financial literacy, consumer protection, and service quality

- Measures Quality of Inclusion:** Goes beyond account ownership by assessing **access, usage and quality** distinguishing **formal access from meaningful participation**.
- Identifies Specific Gaps:** Separate sub-indices help reveal whether **exclusion arises from poor access, low usage or weak service quality, enabling more precise intervention**.
- Supports Targeted Policy Design:** RBI and government can align measures such as **financial literacy, digital access, insurance and pension outreach** with the weakest dimension.
- Improves Policy Evaluation:** The index assesses whether **PMJDY, DBT, digital payments and financial literacy translate** into actual financial inclusion.
- Strengthens Regulatory Accountability:** By converting inclusion into a measurable outcome, it helps RBI monitor banks and the wider financial system against inclusion objectives.

Thus, the real test of financial inclusion lies in whether formal finance translates into **greater resilience, dignity and economic mobility for vulnerable households**. The FI-Index can help keep this **transition measurable, comparable and policy-responsive**.

Q3. Describe the various Technology Missions initiated in Indian agriculture and examine their role in food security.

Answer

From Green Revolution to precision farming, technology has been central to raising agricultural productivity & reducing food insecurity. Technology Missions institutionalized this approach by targeting specific crops and production constraints through improved seeds, inputs, extension & resource-efficient practices.

Major Technology Missions in Indian Agriculture

- Oilseed Self-Sufficiency: Technology Mission on Oilseeds (1986)** targeted productivity and domestic oilseed production; its approach later evolved into NMEO-Oilseeds, which targets **69.7 MT oilseed production by 2030-31**.





2. **Foodgrain Productivity: National Food Security Mission (NFSM)** promoted area expansion and productivity of rice, wheat, and pulses, improved varieties and farm technologies.
3. **Pulse Technology: Technology Mission on Oilseeds, Pulses & Maize** expanded mission-mode interventions to pulses; today, **Mission for Aatmanirbharta in Pulses** uses climate-resilient seeds, cluster-based cultivation and post-harvest infrastructure.
4. **Climate-Resilient Agriculture: National Mission on Sustainable Agriculture** promoted resource-conserving practices, particularly for **rainfed & climate-vulnerable agriculture**, linking productivity with sustainability.
5. **Seed & Genetic Technology:** ICAR-NARS released **1,956 high-yielding and stress-tolerant varieties/hybrids** between 2014-22, suited to diverse agro-climatic zones; recently, India launched its first **non-GMO, high-expansion popcorn maize hybrid**, reflecting indigenous seed innovation.
6. **Post-Harvest Technology:** Agricultural technology missions increasingly address **storage, processing & value addition**, reducing losses; ICAR-CIAE has developed technologies such as dal mills, grain graders, onion storage systems & millet-processing machinery.

Role in Strengthening Food Security

1. **Enhanced Availability:** Technology missions helped raise domestic output of key staples; **NFSM contributed to an additional 25 MT of foodgrain production over its first five years**, strengthening the foodgrain buffer for schemes such as NFSA.
2. **Reduced Import Vulnerability:** Mission-mode interventions have strengthened domestic supply of import-dependent crops; the continuing **oilseed mission** seeks to reduce India's dependence on imported edible oils, which meets a substantial share of domestic consumption.
3. **Nutritional Security:** Greater emphasis on **pulses & nutri-cereals** addresses protein and micronutrient deficiencies; **millets' inclusion under NFSM** supports dietary diversification beyond cereal calories.
4. **Production Stability:** Technology-led **drought, heat & pest-tolerant varieties** reduce vulnerability to production shocks; ICAR's development of **climate-resilient varieties** supports more stable yields under changing weather conditions.
5. **Lower Post-Harvest Losses:** Technology reduces quantitative & qualitative losses between farm & consumer, improving food availability; **ICAR's Pusa-Farm Sun Fridge**, a solar-powered low-cost cold-storage system, helps small farmers preserve perishable produce and reduce spoilage.
6. **Market & Price Stability:** Technology-led improvements in productivity and supply chains can moderate **seasonal shortages and price volatility**, improving affordability; **e-NAM**, integrates agricultural markets digitally, facilitates wider price discovery & market access for farmers.
7. **Greater Smallholder Access:** **Custom Hiring Centres** allow small & marginal farmers to access costly machinery on a rental basis; this improves timeliness of sowing, harvesting & other operations, supporting farm productivity.

Limitations

1. **Uneven Technology Adoption:** Smallholders face constraints in accessing technology; **67.1% of India's operational holdings were marginal (<1 ha)** as per Agriculture Census 2010-11, making many technologies difficult to adopt individually.
2. **Import Dependence Persists:** Despite **Yellow Revolution**, India still imported **56.25% of its edible-oil requirement in 2023-24**, showing that technological gains have not ensured self-sufficiency.
3. **Regional Technology Divide:** Access to irrigation remains geographically uneven; **Punjab & Haryana have very high irrigation coverage**, while **Jharkhand & Rajasthan** have much greater dependence on rainfed agriculture.
4. **Persistent Productivity Gaps:** Technology missions have not eliminated low productivity in crops such as pulses; production fell to **16.35 MT in 2015-16**, requiring around **6 MT of imports** to meet demand.

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5. **Climate Vulnerability:** Technology alone cannot eliminate weather-related shocks; NITI Aayog notes that **15 of 27 El Niño years** between 1951–2024 witnessed declines in both pulse area and production.
6. **Technology–Affordability Gap:** Advanced technologies may remain inaccessible to small and marginal farmers because of **high upfront costs and inadequate access to machinery & inputs**, limiting inclusive productivity gains.

Technology Missions have strengthened India's **food availability, nutritional security & resilience**, but their benefits remain uneven. As **FAO emphasises**, "**the future of food security lies in sustainable increases in agricultural productivity**"; therefore, India must ensure that technological gains reach smallholders and rainfed regions for truly inclusive food security.

Abbreviations:

NMEO : National Mission on Edible Oils, **ICAR–NARS**: Indian Council of Agricultural Research – National Agricultural Research System, **ICAR-CIAE** : Indian Council of Agricultural Research – Central Institute of Agricultural Engineering, **NFSA** : National Food Security Act

Q4. Explain the factors responsible for inefficiency of agri-produce marketing. How does e-commerce help to reduce inefficiency of agri-produce marketing?

Answer

Agricultural marketing determines how efficiently farm output is converted into farmer income & consumer value. Its effectiveness is therefore central to strengthening farmers' price realisation, reducing supply-chain costs & integrating agriculture with wider markets.

Factors Responsible for Inefficiency in Agri-Produce Marketing

1. **Market Fragmentation:** Different State APMC laws create separate regulated markets, restricting wider trade; **Karnataka's market reforms** still witnessed limited cross-mandi purchases, with buyers largely preferring physically present traders.
2. **Excessive Intermediation:** Multiple layers of **arthiyas, wholesalers & retailers** widen farm to consumer price spread; in **Himachal Pradesh's fruit markets**, contractors and commission agents handle **major portion of fruit sales**.
3. **Weak Infrastructure:** Inadequate **storage, cold chains, transport & rural connectivity** increase wastage and distress sales; NITI Aayog identified inadequate storage facilities in mandis, particularly for **fruits & vegetables**.
4. **Non-transparent Price Discovery:** Limited competition and **collusive bidding** can depress farmers' prices; evidence from **paddy auction markets in North India** found collusion between buyers affecting auction prices.
5. **High Transaction Costs:** State-wise levies create significant variation in marketing costs; NITI Aayog reported that wheat-related taxes and levies ranged from **0.81% of MSP in Gujarat to 14.5% in Punjab** under the cited earlier framework.
6. **Weak Bargaining & Market Information:** **Small and scattered surpluses**, coupled with inadequate information on prices, demand and quality, weaken farmers' bargaining power; fragmented holdings also make efficient **aggregation & supply-chain integration** difficult.

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Role of E-Commerce in Improving Agri-Produce Marketing

1. **Expanded Market Reach:** Digital platforms connect farmers with buyers beyond local mandi, reducing geographical dependence; e-NAM integrates APMC markets into a national electronic marketplace.
2. **Better Price Discovery:** Online display of prices & arrivals reduces information asymmetry and strengthens farmers' negotiating position; Agmarknet provides market-wise price and arrival information across agricultural markets.
3. **Reduced Intermediation:** Digital platforms enable farmer-buyer linkages, reducing dependence on multiple layers of traders; ITC e-Choupal connects farmers directly with information and procurement networks.
4. **Lower Transaction Costs:** Digital platforms reduce paperwork, physical market visits and coordination costs; DeHaat uses a technology-enabled network to provide farmers with input, advisory and market-linkage services through a single platform.
5. **Quality-Based Pricing:** E-commerce can link quality assessment with differentiated pricing, rewarding standardised produce; Ninjacart's farm-to-retail platform uses technology-enabled sourcing & quality-based procurement to connect farmers with organised buyers.
6. **Aggregation of Smallholders:** E-commerce allows dispersed farmers to participate collectively through **FPOs**, creating larger marketable lots and improving bargaining power; e-NAM had onboarded 4,724 FPOs by February 2026.
7. **Direct Consumer Linkages:** Online farm-to-consumer models can shorten supply chains & improve farmers' share of consumer prices; KisanMandi & state-level digital farmer markets illustrate emerging direct-marketing channels.

Thus, e-commerce can transform agricultural marketing from a local, intermediary-driven system into a wider, information-rich and competitive marketplace. However, its full potential requires APMC reforms, digital literacy, quality infrastructure and stronger FPOs so that digital access translates into actual gains in farmers' incomes.

Q5. Explain by giving two examples, how biotechnology has helped Indian farmers in processing their perishable crops.

Answer

Biotechnology applications in food processing sector, target selection & manipulation of micro-organisms with the objective of improving process control, product quality, safety, consistency, & yield, while increasing process efficiency.

In India, these technologies have helped farmers improve the utilisation, shelf life and value realisation of perishable crops; given examples illustrate this:

Fermentation (Traditional Biotechnology)

1. **Microbial Transformation:** Beneficial microorganisms such as Lactic Acid Bacteria & yeasts biologically transform sugars and other components of fruits and vegetables.
2. **Preservation Mechanism:** Production of lactic acid, alcohol & other metabolites lowers pH and suppresses undesirable microorganisms, improving product stability and shelf life.
3. **Value Addition:** Perishable produce can be converted into pickles, fermented vegetables, vinegar & fermented beverages, extending its economic life.
4. **Example:** Surplus mangoes & bananas can be diverted for fermentation into vinegar & beverages during peak harvest periods, reducing wastage and providing farmers and Farmer Producer Organisations an alternative market outlet.

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Enzyme Biotechnology

1. **Enzyme Action:** Biotechnology-derived enzymes modify specific food components to improve taste, texture, clarity & processing efficiency of perishable produce.
2. **Targeted Processing:** Enzymes act on specific compounds such as pectin, tannins & bitter flavonoids, enabling precise modification of fruit and vegetable products.
3. **Quality Enhancement:** Enzymes can remove undesirable compounds and improve the acceptability & processability of fruit juices and other products;
4. **Processing Efficiency:** Enzymatic treatment can improve juice extraction, clarification & filtration, increasing recovery and reducing processing time.
5. **Example:** α -L-rhamnosidase can reduce bitterness in Kinnow mandarin juice, making it more suitable for processing and value addition.

Molecular Approaches

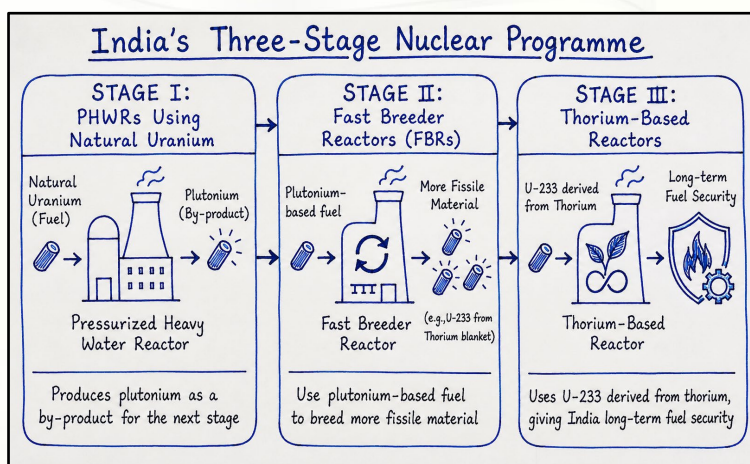
1. **Molecular Regulation:** Genetic engineering & RNA technologies can regulate genes involved in ethylene biosynthesis and signalling;
2. **Ripening Control:** Reduced ethylene activity can delay ripening, softening & senescence, extending post-harvest life of perishable crops;
3. **Example:** Such molecular approaches have been explored in tomatoes to delay ripening, providing a longer window for transport, storage and processing.

Biotechnology can make Indian agriculture more knowledge and innovation driven, linking scientific advances with rural livelihoods. As former prime minister envisioned, “Jai Vigyan” must complement “Jai Kisan” to realise the full potential of agricultural biotechnology.

Q6. Distinguish between a Fast Breeder Reactor (FBR) and a thermal nuclear reactor. In the context of the first indigenously developed prototype FBR at Kalpakkam, explain the term ‘criticality’. What are its implications for the clean energy future of our country?

Answer

India’s indigenous **500 MWe Prototype Fast Breeder Reactor (PFBR)** at Kalpakkam attained first criticality in April 2026, marking a major advance into Stage II of India’s three-stage nuclear programme and towards eventual thorium utilisation.





FBR vs Thermal Nuclear Reactor

Parameter	Thermal Reactor — PHWR	Fast Breeder Reactor — PFBR
Neutrons	Slow/thermal neutrons	High-energy fast neutrons
Moderator	Required; PHWR uses heavy water	No moderator
Fuel	Primarily uranium-based	Uranium-Plutonium MOX
Coolant	PHWR uses heavy water	Liquid sodium
Breeding	Not designed for net breeding	Breeds fissile material from fertile material
Programme	Stage I	Stage II

What is 'Criticality'?

Criticality is the point at which a **sustained and controlled nuclear fission chain reaction begins**. At this stage, neutrons produced by fission **equal those lost through absorption and leakage**, resulting in a stable power output.

It marks the transition from the **construction/commissioning phase towards reactor operation** and is the essential first step towards generating heat and, ultimately, electricity.

Subcritical → Neutrons decline | Critical → Stable | Supercritical → Neutrons increase

Thus, PFBR attaining first criticality demonstrates the successful establishment of a **self-sustaining controlled chain reaction**.

Implications for India's Clean-Energy Future

- Closing the Fuel Cycle:** PFBR can utilize **plutonium recovered from spent PHWR fuel**, converting spent nuclear material into an energy resource.
- Better Uranium Utilization:** Fast neutrons enable fertile **U-238 → fissile Pu-239**, substantially extending the energy potential of India's uranium resources.
- Gateway to Thorium:** FBRs form the crucial bridge towards **Stage III**, eventually enabling exploitation of India's large **thorium resources through U-233**.
- Firm Clean Power:** FBRs can provide continuous **low-carbon electricity**, complementing intermittent solar and wind in **India's Net Zero 2070** transition.
- Strategic Energy Security:** Recycling fissile material and developing the thorium cycle can reduce long-term dependence on **imported uranium and fossil fuels**.
- Technological Self-Reliance:** Indigenous development by **IGCAR/BHAVINI** strengthens capabilities in sodium systems, fuel reprocessing, advanced materials and reactor engineering.

PFBR criticality connects India's **uranium present with its thorium future**. By combining fuel breeding, recycling and firm low-carbon power, FBR technology can strengthen **energy security, technological autonomy and India's clean-energy transition**.

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Q7. Discuss how the contradiction between ‘rapid infrastructure development’ and ‘disaster-risk reduction’ in ecologically-sensitive areas of India can be managed, with suitable examples.

Answer

India’s mountains, forests and coasts underpin water, energy and livelihoods. Yet, ranking 9th globally in the Climate Risk Index 2026 for extreme-weather impacts (1995–2024), India faces rising development-induced disaster risks amid climate change and expanding infrastructure.

Development–Disaster Risk Contradiction

1. **Fragile Terrain vs Development Needs:** Himalayas require roads, hydropower and tourism infrastructure for connectivity, energy and livelihoods, but their fragile geology magnifies risks; the 2023 Sikkim GLOF damaged the 1,200-MW Teesta-III project.
2. **Ecological Disturbance:** Deforestation, slope cutting, tunnelling & river modification can weaken natural buffers and intensify landslides and floods; Himachal Pradesh’s 2023 extreme rainfall events exposed such vulnerabilities.
3. **Climate-Driven & Transboundary Risk:** Himalayan extreme events can cause cross-border flooding and damage to infrastructure; 2026 Nepal floods, which devastated settlements and river corridors, underscore the vulnerability of India’s downstream regions such as Bihar.
4. **High Exposure–High Consequence:** Concentration of settlements and infrastructure in valleys, river corridors & unstable slopes converts natural hazards into high economic losses; repeated Himalayan disasters demonstrate this exposure.

Disaster-Risk Reduction through Risk-Sensitive Development

1. **Resilient Infrastructure Design:** Make roads, tunnels and hydropower disaster-resilient through seismic design, slope stabilisation, drainage and bio-engineering; InSAR/UAV monitoring on the Char Dham route supports safer infrastructure development.
2. **Carrying Capacity-Based Development:** Match scale & location of infrastructure with ecological & hazard carrying capacity; Gadgil’s graded ESZs & Kasturirangan’s ~37% Western Ghats ESA provide a basis for differentiated development.
3. **Cumulative Project Planning:** Assess combined impact of multiple infrastructure projects rather than granting isolated clearances; Char Dham High-Powered Committee, with Wadia Institute, WII, NIDM & FRI, examined Himalayan development impacts.
4. **Climate-Proof Infrastructure:** Incorporate future rainfall, glacier and GLOF risks into project design & location; National GLOF Risk Mitigation Project covers Sikkim, Uttarakhand, Himachal Pradesh and Arunachal Pradesh.
5. **Eco-DRR with Infrastructure:** Combine grey infrastructure with forests, wetlands, springs & natural drainage to reduce disaster exposure; ecosystem restoration can provide cost-effective protection against floods, erosion and landslides.
6. **Technology-Enabled Development:** Use ISRO/GSI hazard mapping, remote sensing & real-time monitoring to guide infrastructure alignment and construction; this allows development to avoid unstable slopes & high-risk zones rather than stopping development altogether.
7. **Community-Sensitive Development:** Integrate local knowledge and Panchayat participation into project planning and preparedness; 2025 MoPR–NDMA ₹507.37-crore project mainstreams DRR into Panchayat-level development across 20 States & 81 disaster-prone districts.
8. **Legal & Regulatory Safeguards:** Apply Articles 21, 48A and 51A(g) with the Environment (Protection) Act, 1986 & EIA Notification, 2006 to regulate high-risk activities while permitting low impact essential infrastructure in suitable zones.





9. **Build Back Better:** Make disaster resilience a mandatory component of infrastructure DPRs & reconstruction; rebuilding after disasters should upgrade roads, bridges and utilities rather than merely restore pre-disaster vulnerability.

The objective should be “resilient development, not development at the cost of resilience”; integrating carrying capacity, scientific risk assessment, ecological safeguards & community participation can transform apparent conflict between infrastructure development & disaster risk reduction into sustainable and resilient development.

Abbreviations:

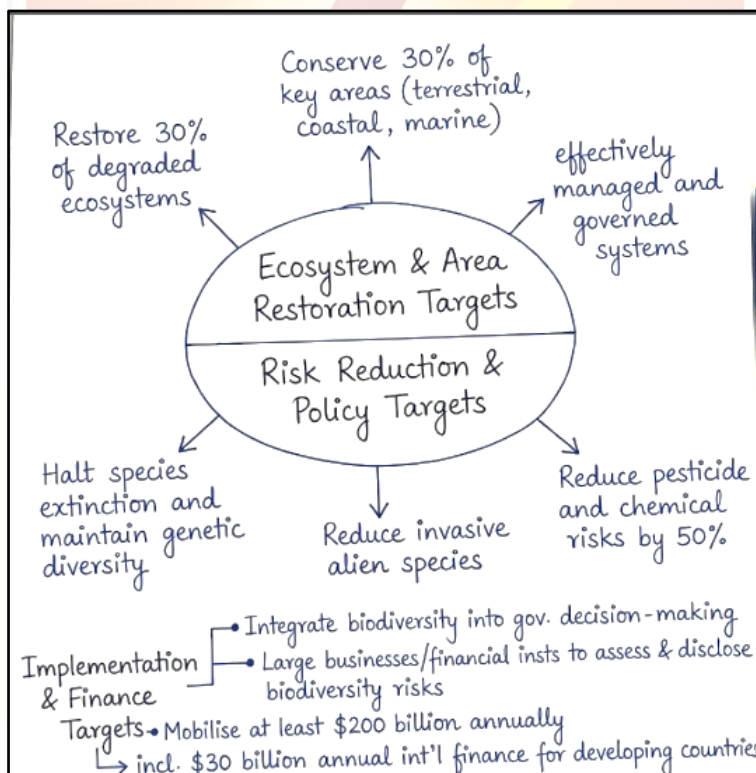
InSAR – Interferometric Synthetic Aperture Radar, **UAV** – Unmanned Aerial Vehicle, **ESZs** – Ecologically Sensitive Zones, **WII** – Wildlife Institute of India, **NIDM** – National Institute of Disaster Management, **FRI** – Forest Research Institute, **GLOF** – Glacial Lake Outburst Flood, **Eco-DRR** – Ecosystem-based Disaster Risk Reduction, **ISRO** – Indian Space Research Organisation, **GSI** – Geological Survey of India

MoPR-NDMA – Ministry of Panchayati Raj – National Disaster Management Authority, **EIA** – Environmental Impact Assessment, **DPRs** – Detailed Project Reports

Q8. Discuss the aim and goals of Kunming-Montreal Global Biodiversity Framework. Mention India's commitments and initiatives to achieve the goals and targets of this framework giving suitable examples.

Answer

Kunming-Montreal Global Biodiversity Framework (KMGBF), adopted at **CBD COP15 in 2022**, provides global roadmap for reversing biodiversity loss, with a vision of **“living in harmony with nature by 2050.”** Its mission is to **halt & reverse biodiversity loss by 2030** while ensuring sustainable use and equitable benefit-sharing.



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Aim and Goals of the KMGBF

1. **Ecosystem Integrity:** Restore and strengthen the integrity, connectivity & resilience of ecosystems by 2050; **Target 2** operationalises this through restoration of at least 30% of degraded ecosystems by 2030.
2. **Species & Genetic Security:** Halt human-induced extinction, recover threatened species and maintain genetic diversity of wild and domesticated species; **Target 4** also seeks better management of human–wildlife interactions.
3. **Nature-Positive Development:** Ensure biodiversity is sustainably used & nature’s contributions to people are maintained and enhanced; **Target 10** extends this to biodiversity-friendly agriculture, forestry, fisheries and aquaculture.
4. **Equitable Benefit Sharing:** Ensure fair sharing of monetary and non-monetary benefits from genetic resources, associated traditional knowledge & digital sequence information (DSI); Target 13 specifically strengthens access and benefit-sharing mechanisms.
5. **Biodiversity-Responsive Governance:** Mainstream biodiversity into spatial planning, policies, businesses & financial decision-making; **Target 15** requires large businesses and financial institutions to assess and disclose their biodiversity-related dependencies, risks and impacts.
6. **Finance & Global Cooperation:** Ensure adequate finance, technology transfer, capacity-building & scientific cooperation, particularly for developing countries; the framework seeks to progressively close \$700-billion annual biodiversity finance gap, while Target 19 aims to mobilise at least \$200 billion annually by 2030.

India’s Commitments and Initiatives

1. **National Biodiversity Roadmap:** India’s NBSAP 2024–2030 contains 23 National Biodiversity Targets and 142 indicators, aligned with the KMGBF’s 4 goals and 23 targets.
2. **Ecosystem Restoration:** India targets restoration of 26 million hectares of degraded/deforested land by 2030 and has already brought 21.76 million hectares under restoration efforts; under MISHTI, the government has set a target to restore 54,000 hectares of mangroves by 2028.
3. **Species & Habitat Conservation:** Project Tiger & Project Elephant combine habitat protection, anti poaching & technological surveillance; India reported 3,682 tigers & 22,446 wild elephants in its Seventh National Report.
4. **Protected Areas & Wetlands:** India has 106 National Parks, 574 Wildlife Sanctuaries, 58 Tiger Reserves and 33 Elephant Reserves; Ramsar sites increased to 101 in 2026, strengthening ecosystem conservation.
5. **Community-Based Conservation:** 2,76,653 Biodiversity Management Committees and 2,72,648 People’s Biodiversity Registers document local biodiversity and traditional knowledge, strengthening community participation.
6. **Access & Benefit-Sharing:** Biological Diversity Act, 2002, National Biodiversity Authority and ABS framework promote equitable sharing of benefits from biological resources and associated traditional knowledge.
7. **Biodiversity Mainstreaming:** India’s NBSAP adopts a “Whole-of-Government & Whole-of-Society” approach involving 23 Central Ministries, integrating biodiversity into sectors such as agriculture, forestry and infrastructure.
8. **Monitoring & Accountability:** India submitted its Seventh National Report to the CBD in February 2026, using 142 indicators mapped to 23 National Biodiversity Targets for measurable implementation.

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As Mahatma Gandhi reminded, “The earth provides enough to satisfy every man’s needs, but not every man’s greed.” The KMGBF seeks to translate this ethic into global action by ensuring that development remains within nature’s ecological limits.

Abbreviations

CBD COP: Conference of the Parties to the Convention on Biological Diversity, **NBSAP:** National Biodiversity Strategy and Action Plan

Q9. In the Indian context, explain how fake news and misinformation pose a threat to internal security and public order. Discuss the salient features of amendments under Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.P

Answer

India’s digital public sphere has become a critical arena for information exchange, but **speed, virality and anonymity** can turn misinformation into a security and governance challenge. An ISB-linked study found **~60% of 500+ fake-news items (2022–24) concerned politics and religion**, highlighting its potential to undermine **electoral integrity and social cohesion.**

Threat to Internal Security and Public Order

1. **Communal Polarisation:** False claims, inflammatory videos & manipulated content can intensify existing social tensions; during periods of violence, as seen during the fragile security situation in **Manipur.**
2. **Electoral Integrity:** Fake information about **EVMs, polling & electoral procedures** can undermine public trust; **ECI’s Myth vs Reality Register** documented multiple false claims during **2024 Lok Sabha elections,** including fake polling videos and voting-related misinformation.
3. **Deepfake & Impersonation Threat:** AI-generated audio/video can falsely portray public figures, enabling **mass deception & reputational harm; 2024 deepfake of actor Rashmika Mandanna** demonstrated how synthetic media can convincingly impersonate real individuals.
4. **Public Order Disruption:** Rapidly circulated rumours can trigger **panic, mobilisation and social tensions** before verification; during **COVID-19,** fake content created an **“atmosphere of extreme fear”** among people.
5. **National Security:** Coordinated disinformation can exploit social divisions & influence public narratives; during **Operation Sindoor,** more than **1,400 URLs carrying anti-India propaganda/misinformation** were blocked, highlighting information warfare as security concern.
6. **Governance & Trust Deficit:** Persistent misinformation can erode trust in **institutions and official communication;** viral **child-lifting rumours in 2018** triggered mob attacks in multiple States, showing how false narratives can undermine confidence in law enforcement mechanism.

Salient Features of Amendments to IT Rules, 2021

1. **Stronger Intermediary Due Diligence:** The **2022 amendment** requires intermediaries to make reasonable efforts to prevent users from uploading or sharing prohibited content & explicitly requires respect for users’ **constitutional rights.**
2. **Faster Action against Misinformation:** The framework requires platforms to act against **misinformation, patently false information & impersonation,** with failure potentially resulting in loss of **Section 79 safe-harbour protection.**
3. **Grievance Redressal:** Users gained a stronger appellate mechanism through **Grievance Appellate Committees,** providing an avenue against decisions of intermediary grievance officers.

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4. **Regulation of Synthetic Content:** Amendments seek to regulate Synthetically Generated Information by requiring platforms to make AI-generated/deepfake content **identifiable through labelling or metadata**, along with measures for user declaration and verification.
5. **Platform Verification:** Significant social media intermediaries (crossing 50 lakh Indian user threshold) must require users to declare synthetic content & deploy reasonable technical measures to verify such declarations before publication.
6. **Fact-Check Provision:** 2023 amendment proposal sought removal of information identified as fake by government-notified fact-checking mechanism; however, this proposal generated concerns regarding government overreach & freedom of speech.

IT Rules: Curbing Misinformation & Deepfakes

1. 2026 IT Rules require platforms to label AI generated content & embed permanent metadata, enabling users to identify synthetic content;
2. Users must declare Significant Generative AI (SGI) content, while Significant Social Media Intermediaries (SSMIs) undertake reasonable **technical verification**;
3. These measures strengthen content provenance, platform accountability & public awareness against deepfakes and misinformation;

India needs a “safe, open, trusted & accountable Internet” through proportionate regulation, transparent fact-checking, platform accountability & digital literacy, while distinguishing harmful disinformation from legitimate criticism & satire. This balance, grounded in Articles 19(1)(a) & 19(2), can protect internal security & public order without compromising democratic freedoms.

Q10. Ladakh is strategically located between China and Pakistan. As a measure to win the hearts and minds of locals, discuss the Border Area Development Programme (BADP) by the Central Government and civic actions by the Army. Also discuss the demand for Sixth Schedule provisions for Ladakh.

Answer

Recent negotiations over Ladakh's demand for Sixth Schedule safeguards have brought the region's strategic governance into focus. Located between China and Pakistan, Ladakh shows that durable border security depends as much on local trust, development, and political accommodation as on military preparedness.

Role of Border Area Development Programme

1. **Targeted Border Development:** Focuses on habitations located within 0–10 km aerial distance from the International Border, covering 16 States and 2 UTs.
2. **Convergence-Based Infrastructure:** It funds essential infrastructure and livelihoods, reducing developmental disparities in frontier areas.
 - a. **Example:** MHA reports that 39,248 projects have been approved under BADP
3. **Livelihood Creation in Frontier Areas:** 3,273 livelihood projects have been approved, including tourism infrastructure, mini-haats, market yards and skill-development initiatives.
4. **Shift from BADP to VVP:** With BADP now in its sunset phase, the government is transitioning towards the more comprehensive Vibrant Villages Programme.

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5. **Convergence with Other Schemes:** Border villages are linked with schemes such as PMGSY, Jal Jeevan Mission, rural electrification and health infrastructure programmes for service saturation.

Civic Action By Army

The Indian Army supplements civil administration through **Operation Sadbhavana**.

1. **Education:** Army Goodwill Schools and educational tours expand access to quality education in remote settlements.
a. **Example:** In Ladakh, the Army was running 7 Goodwill Schools with over 2,200 students.
2. **Healthcare and Veterinary Support:** Medical camps, health outreach and veterinary assistance address service deficits in isolated villages.
3. **Infrastructure Support:** Small bridges, solar lighting, water systems, community halls and rural connectivity fill gaps where civilian delivery is difficult.
4. **Youth and Women Empowerment:** Skill training, sports and vocational programmes create livelihood opportunities and reduce social alienation.
5. **National Integration:** Educational and motivational tours connect remote youth with national institutions and opportunities strengthening national belonging.

Reasons for Demand of Sixth Schedule Provisions in Ladakh

1. **Better Autonomy:** The Sixth Schedule (Articles 244(2), 275(1)) provides autonomous councils for tribal areas, enabling local self-governance.
2. **Protection of Tribal Identity:** Ladakh is overwhelmingly tribal; the NCST noted that the tribal population exceeds 97% when communities seeking ST recognition are included.
3. **Protection of Land Rights:** After Ladakh became a UT in 2019, local groups sought stronger safeguards against land alienation and loss of traditional agrarian rights.
4. **Cultural Preservation:** Communities such as Changpa, Balti, Brokpa and Purigpa seek protection of distinct languages, customs and ecological practices.
5. **Greater Local Self-Governance:** Sixth Schedule-type autonomy could strengthen local control over land, resources and development beyond the existing Leh and Kargil Autonomous Hill Development Councils.
6. **Ecological Safeguards:** Ladakh's fragile high-altitude ecosystem creates demand for locally accountable decisions on tourism, infrastructure, and resource use.

For Ladakh development, security and participation are mutually reinforcing; durable integration requires local autonomy, land and tribal safeguards, ecological protection and strategic security.

Q11. Explain the key challenges for India's energy security. What measures do you suggest for ensuring energy security along with economic growth and sustainability?

Answer

As the world's **third-largest crude-oil importer, fourth-largest LNG importer and second-largest LPG consumer**, India remains exposed to global price volatility, geopolitical disruptions and supply shocks. Hence, energy security requires not merely more energy, but a diversified, affordable and resilient energy mix.

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Key Challenges to India's Energy Security

1. **Import Dependence:** India imports around 88% of crude oil & 51% of natural gas requirements, exposing the economy to geopolitical shocks, freight disruptions and exchange-rate volatility.
2. **Rising Energy Demand:** Industrialisation, urbanisation and cooling demand are rapidly increasing electricity needs; India's peak load rose from 148 GW in 2014 to 250 GW in 2024, while cooling alone contributed about 60 GW to peak load in 2024.
3. **Renewable Intermittency:** Solar output falls after sunset while cooling demand rises; India's 270 GW peak demand in May 2026, highlighted the need for storage & firm power.
4. **Transmission & Storage Gaps:** Rapid renewable expansion is constrained by inadequate transmission capacity, grid flexibility & energy storage, especially for integrating variable solar and wind power.
5. **Climate Vulnerability:** Heatwaves simultaneously raise electricity demand & strain supply; in 2024, each 1°C temperature rise increased India's peak demand by over 7 GW, while extreme heat also affected power-system operations.

Measures for Energy Security, Economic Growth & Sustainability

1. **Diversify Energy Mix:** Expand solar, wind, hydro, nuclear, & bioenergy to reduce fuel dependence; India's non-fossil capacity crossed 300.5 GW by July 2026.
2. **Reduce Import Vulnerability:** Diversify crude/LNG suppliers, enhance domestic production & strategic reserves; India has 5.33 MMT strategic crude-storage capacity, strengthening resilience to global shocks.
3. **Build a Flexible Renewable Grid:** Expand Green Energy Corridors, interstate transmission, batteries & pumped storage to integrate variable renewables and ensure reliable power supply.
4. **Accelerate Clean Industrialisation:** Scale green hydrogen, EVs and renewable-powered industrial electrification in sectors such as steel, fertilisers and transport; reduces fossil-fuel dependence while creating new green industries.
5. **Promote Nuclear Energy:** Expand nuclear power as a reliable, low-carbon source complementing renewables; capacity is projected from 8.78 GW (current) to 22.38 GW by 2031–32, supporting dependable low-carbon growth.
6. **Improve Energy Efficiency:** Strengthen efficient appliances, buildings, industries and smart grids to moderate rising demand; lowers energy costs while improving resource productivity & competitiveness.
7. **Domestic Clean-Tech Manufacturing:** Use PLI to expand solar, battery and electrolyser manufacturing; India has already targeted 48 GW of integrated PV manufacturing capacity, strengthening energy autonomy, industry and green jobs.
8. **Decentralised & Inclusive Energy:** Expand rooftop solar and solar pumps to improve rural energy security and incomes; PM-KUSUM has benefited 21 lakh farmers through solar pumps/plants.
9. **Just & Sustainable Transition:** Reskill coal dependent communities & repurpose mined land for green livelihoods; NITI Aayog recommends retraining, alternate employment & mine-site restoration to make the transition inclusive.

India must pursue an "energy-secure Viksit Bharat" by making the energy transition a driver of technological innovation, strategic autonomy and inclusive growth, while ensuring that development remains within ecological limits.





Q12. How are startups in India promoting entrepreneurship, innovation and employment? Discuss the global and domestic challenges in their working and suggest suitable measures to overcome these challenges.

Answer

Since the **Startup India launch (2016)**, India has become the **world's third-largest startup ecosystem**. DPIIT-recognised startups crossed **2.4 lakh by March 2026**, making them a central engine of entrepreneurship, innovation and job creation, yet facing sharp global and domestic headwinds.

Startups broadening entrepreneurship

1. **Explosive scale-up:** DPIIT-recognised startups grew from about 350 in 2014 to over 2.4 lakh by March 2026, one of the fastest ecosystem expansions globally.
2. **Democratised entrepreneurship:** Nearly 45% of recognised startups emerge from Tier-II and Tier-III cities, spreading enterprise beyond metros.
3. **Rise of women founders:** Over 75,900 recognised startups had at least one woman director (December 2024), advancing inclusive entrepreneurship.
4. **Enabling policy:** Schemes like the ₹10,000-crore Fund of Funds, SISFS (₹945 crore) and the Credit Guarantee Scheme (CGSS) lower entry barriers.

Startups accelerating innovation

1. **Frontier-tech clusters:** Over **13,000 DPIIT-recognised startups** work in AI, IoT, robotics and nanotechnology (Economic Survey 2023-24).
2. **Unicorn strength:** India hosts over **100 unicorns** across fintech, edtech and healthtech, reflecting scalable, globally competitive innovation.
3. **Problem-solving for Bharat:** Firms like **Swiggy, Groww and Urban Company** built solutions for uniquely Indian needs, from logistics to gig services.
4. **Policy push for deep-tech:** The **National Deep Tech Startup Policy** targets high-capital, high-risk sectors like semiconductors and EVs.

Startups emerging as major employment generators

1. **Direct jobs at scale:** Recognized startups created over **23.36 lakh direct jobs by March 2026**, up **36% year-on-year**.
2. **Diverse absorption:** **Jobs span 55+ industries**, led by IT services (2.1 lakh) and healthcare/life sciences (1.5 lakh).
3. **Job creators, not seekers:** Companies like **Zomato, Nykaa and Ola** exemplify the shift from job-seeking to large-scale job creation.
4. **Indirect multiplier:** **Gig platforms and allied services** generate substantial informal and ancillary employment.

Global challenges constrain their working.

1. **Funding winter:** Global monetary tightening cooled investor sentiment; **seed funding fell** about 25% and D2C funding about 18% in 2024.
2. **Geopolitical dependence:** Reliance on **imported chips and hardware** exposes deep-tech startups to supply-chain and export-control shocks.

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3. **Global competition:** Indian startups compete against better-capitalized US and Chinese rivals for talent and markets.
4. **Foreign-capital domicile:** Many startups "flip" to Singapore or the US for easier capital and exits, eroding domestic value.

Domestic challenges hamper sustainable growth

1. **Weak R&D base:** India's R&D spend is just about 0.64% of GDP, limiting frontier innovation.
2. **Profitability pressure:** Many valuation-driven startups struggle to turn profitable, triggering mass layoffs in 2023-24.
3. **Regulatory friction:** Legacy issues like angel tax, complex compliance and data rules raise the cost of doing business.
4. **Skewed distribution:** Funding concentrates in a few metros and sectors, leaving manufacturing, agri-tech and Tier-III gaps.
5. **Talent and mentorship gaps:** Shortages of specialised deep-tech talent and experienced mentors slow scaling.

Targeted Measures To Strengthen The Ecosystem

1. **Deepen domestic capital:** Channel insurance, pension and sovereign funds into startups to reduce foreign dependence and reverse flipping.
2. **Boost R&D:** Raise public and private R&D toward 2% of GDP, with incentives for applied, commercialisable research.
3. **Ease compliance:** Extend single-window clearances, stabilize tax rules, and simplify exits to improve ease of doing business.
4. **Widen the base:** Strengthen Atal Incubation Centres and Tier-II/III support to spread startups across sectors and regions.
5. **Build talent pipelines:** Align NEP 2020 skilling and industry-academia linkages with deep-tech and manufacturing needs.

Startups have transformed India into a global innovation hub and a powerful source of jobs. Sustaining this momentum demands patient domestic capital, stronger R&D and lighter regulation, turning a funding-dependent ecosystem into a resilient, self-reliant pillar of a Viksit Bharat by 2047.

Q13. How has Indian agriculture been transformed from food scarcity to food surplus level? Explain the various government policies implemented for diversification of Indian agriculture.

Answer:

India's agricultural journey has moved from the "ship-to-mouth" era of the 1960s to a position of substantial food security and agricultural surplus; foodgrain production rose from 50 MT in 1950-51 to 357.73 MT in 2024-25, while horticulture now produces 370 MT, signalling a broader structural transformation.

From Food Scarcity to Food Surplus

1. **Green Revolution:** HYV seeds, irrigation, fertilizers, and mechanization improved cereal productivity; wheat yield rose from about 0.85 tonnes/ha in 1960-61 to over 3.5 tonnes/ha today, making self-sufficiency possible.

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2. **Research & Technology Diffusion:** Expansion of ICAR, agricultural universities, extension services & improved farm technology spread productivity gains beyond the initial Green Revolution belt (Punjab & Haryana), enabling wider regional agricultural growth.
3. **Irrigation & Infrastructure:** Expansion of assured irrigation under PMKSY increased irrigation coverage from **49.3% to 55% of gross cropped area (2015–16 to 2020–21)**, supporting higher cropping intensity and diversification.
4. **Crop & Allied Diversification:** The crop basket has widened beyond wheat-rice towards pulses, oilseeds, maize and millets; in 2024-25, oilseed production reached a record 42.99 MT.
5. **Procurement & Food Security:** MSP–FCI procurement, buffer stocks & PDS strengthened food security; in May 2026, Central Pool stocks stood at 51.3 MT wheat and 39.7 MT rice, well above buffer norms.
6. **Productivity & Market Orientation:** Research, improved varieties, digital markets & value chains increased productivity and commercialization; agricultural exports reached US\$51.1 billion in FY25 (e.g., APEDA's export ecosystem supports value-added products and market access).

Government Policies for Agricultural Diversification

1. **Crop Diversification Programme:** Under PM-RKVY, the programme encourages Punjab, Haryana and western UP farmers to shift from water-intensive paddy towards pulses, oilseeds, millets, and cotton through demonstrations, mechanization, and value addition.
2. **Horticulture Diversification:** Mission for Integrated Development of Horticulture (MIDH) promotes fruits, vegetables, spices, flowers, and high-value crops; since 2014-15, 15.66 lakh ha of additional area has been brought under horticulture.
3. **Oilseed Diversification:** NMEO Oilseeds promotes mustard, soybean, groundnut, sunflower etc.; it targets raising oilseed production from 39 MT in 2022-23 to 69.7 MT by 2030-31, reducing import dependence.
4. **Pulse & Millet Diversification:** NFSM/NFSNM promotes pulses and climate-resilient millets through improved seeds, demonstrations and technology; Andhra Pradesh's FPO-led millet initiative has encouraged cultivation of foxtail, little and barnyard millets.
5. **Bringing Green Revolution to Eastern India (BGREI):** This mission targeted eastern states with improved rice-based technologies, irrigation and farm mechanisation to raise productivity and promote crop diversification.
6. **Natural & Integrated Farming:** NMNF/PKVY promote multi-cropping, mixed cropping and low-input farming; trials in Himachal Pradesh, Uttarakhand and Sikkim recorded 6,475 kg/ha/year soybean-equivalent productivity.
7. **Allied-Sector Diversification:** National Livestock Mission, Rashtriya Gokul Mission and fisheries programmes (PMMSY) promote dairy, livestock and fisheries as complementary income sources, reducing dependence on crop income alone.
8. **Value Addition & Food Processing:** PMFME and PLI for Food Processing encourage processing of local agricultural produce; PMFME had sanctioned loans to 1,61,072 micro food-processing enterprises by October 2025.
9. **Post-Harvest Infrastructure:** Agriculture Infrastructure Fund (AIF) supports warehouses, cold chains, grading and processing; by January 2026, ₹80,224 crore had been sanctioned for 1.5 lakh+ projects.
10. **Market & Farmer Institutions:** e-NAM and the 10,000 FPO scheme improve aggregation, price discovery and market access; by October 2025, 4,642 FPOs were linked to e-NAM.

India's agricultural transformation has therefore evolved from "producing enough to eat" to "producing diverse, nutritious and marketable surpluses." The next phase should make diversification water-efficient, climate-resilient and value-chain driven, so that food surplus translates into higher and more stable farm incomes.

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Abbreviations

HYV: High-Yielding Varieties, **ICAR:** Indian Council of Agricultural Research, **PDS:** Public Distribution System, **APEDA:** Agricultural and Processed Food Products Export Development Authority, **MSP-FCI:** Minimum Support Price – Food Corporation of India, **PM-RKVY:** Pradhan Mantri Rashtriya Krishi Vikas Yojana, **NMEO:** National Mission on Edible Oils, **NFSM:** National Food Security Mission, **NFSNM:** National Food Security and Nutrition Mission, **NMNF:** National Mission on Natural Farming, **PKVY:** Paramparagat Krishi Vikas Yojana, **FPO:** Farmer Producer Organisation, **PMMSY:** Pradhan Mantri Matsya Sampada Yojana, **PMFME:** Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme, **PLI:** Production Linked Incentive, **e-NAM:** Electronic National Agriculture Market

Q14. Discuss the different types of subsidies and supports provided by the Government of India to the agricultural sector. Examine the related issues pertaining to the Agreement on Agriculture of the World Trade Organisation (WTO).

Answer

Agricultural subsidies safeguard India's food security and farmer incomes, **costing over ₹4 lakh crore annually in food and fertilizer** support alone. Yet these very supports increasingly collide with the disciplines of the WTO's Agreement on Agriculture.

Subsidies and Supports provided by the Government of India.

1. Subsidies

- Fertilizer subsidy:** Budgeted at about **₹1.68 lakh crore for FY 2025-26**, with urea alone at roughly **₹1.19 lakh crore** and P&K under the Nutrient-Based Subsidy scheme.
- Irrigation and power:** **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** subsidises micro-irrigation, while states heavily subsidise or provide free electricity for pumping.
- Credit subsidy:** Interest subvention through the **Kisan Credit Card** offers crop loans at an effective **4% for prompt repayment**.
- Seed and machinery:** Support for **certified seeds** and **Custom Hiring Centres** reduces mechanisation costs.

2. Price And Procurement Support

- Minimum Support Price (MSP):** Announced for 23 crops on CACP advice- **wheat MSP is ₹2,425 per quintal for 2025-26**.
- Fair and Remunerative Price (FRP):** Sugarcane FRP stands at **₹355 per quintal (2025-26)**, legally binding on mills.
- Open-ended procurement:** FCI buys wheat and rice for the PDS, though stocks reached about **736 lakh metric tonnes** against a buffer norm of roughly **411 LMT as of July 2025**.

3. Income and Insurance Support

- PM-KISAN:** Direct income support of **₹6,000 per year** to landholding farmer families via DBT.
- Crop insurance:** **Pradhan Mantri Fasal Bima Yojana (PMFBY)** subsidizes premiums against yield loss.
- Food subsidy:** The consumer-side subsidy under NFSA was budgeted at **₹2,05,250 crore** in 2024-25, indirectly sustaining procurement demand.

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The WTO Agreement on Agriculture Disciplines These Supports Through Three Pillars

1. **Framework:** Negotiated in the Uruguay Round and in force since 1995, the AoA covers domestic support, market access and export competition.
2. **Colour boxes:** Support is classified as Amber (trade-distorting), Blue (production-limiting) and Green (minimally distorting).
3. **De minimis cap:** Trade-distorting Amber support is capped at 10% of the value of production for developing countries and 5% for developed ones.

India's Issues Pertaining to the Agreement on Agriculture of World Trade Organisation (WTO)

1. **Obsolete reference price:** The Aggregate Measurement of Support uses a 1986-88 fixed external reference price, so inflation artificially inflates India's calculated subsidy.
2. **Breaches on rice:** India's rice support was challenged as reaching around 13.7%, exceeding the 10% de minimis limit.
3. **Peace Clause reliance:** The 2013 Bali "peace clause" shields such breaches from challenge; India invoked it for a sixth time by April 2025 for rice, but its onerous conditions make it a fragile shield.
4. **Stalled permanent solution:** At MC13 in Abu Dhabi (2024), no permanent solution on public stockholding was reached, and India expressed deep disappointment.
5. **Asymmetry with the developed world:** Rich nations route large support through the unlimited Green Box ("box shifting"), while India's food-security procurement faces scrutiny.

Way Forward

1. **Fix the methodology:** Press for updating the reference price or indexing it to inflation for a fair AMS.
2. **Secure a permanent PSH solution:** Push the G-33 demand to exempt food-security stockholding from subsidy ceilings.
3. **Rationalise domestically:** Shift from open-ended input subsidies toward direct benefit transfers and capital investment.
4. **Green the subsidy mix:** Redirect support toward sustainable inputs, millets and water-efficient cropping.

India's subsidies are indispensable for food security but fiscally and ecologically strained, while the AoA's frozen 1986-88 benchmark unfairly constrains them. A permanent public-stockholding solution and domestic rationalisation together offer the balanced path forward.

Q15. Mention salient features of 'Mission Drishti'. Discuss the imaging techniques used in the satellite launched on 3rd May 2026. Why is it being considered the world's first satellite of its kind?

Answer

Mission Drishti, developed by Bengaluru-based spacetechnology start-up GalaxEye, represents a new approach to Earth observation by combining the complementary strengths of optical & Synthetic Aperture Radar (SAR) imaging on a single satellite. Launched aboard a SpaceX Falcon 9 in 2026, it was designed as the world's first commercial OptoSAR satellite.

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Salient Features of Mission Drishti

1. **Private-Sector Milestone:** Developed by GalaxEye, it is about 190 kg, making it India's largest privately built Earth-observation satellite at launch.
2. **OptoSAR Architecture:** Integrates SAR & Multi-Spectral Imaging (MSI) sensors on one platform, enabling simultaneous observation using complementary imaging techniques.
3. **High-Resolution Imaging:** Designed for approximately 1.2–3.6 m spatial resolution, with fused products around 1.8 m; revisit frequency is about 4 days.
4. **All-Weather, Day-Night Capability:** SAR can image through clouds & darkness, while optical/MSI provides clearer and more intuitive visual information.
5. **Onboard Processing:** Incorporates AI-based edge computing to process satellite data closer to the point of acquisition, potentially reducing the time between imaging and actionable information.
6. **Dual-Use Applications:** Designed for border surveillance, disaster management, agriculture, infrastructure monitoring & maritime observation, giving it both commercial and strategic relevance.

Imaging Techniques Used

1. **Synthetic Aperture Radar (SAR):** Uses X-band radar signals to actively illuminate the Earth's surface; unlike optical imaging, SAR can operate at night and through cloud cover, making it suitable for all weather observation.
2. **Multi-Spectral Imaging (MSI):** Captures reflected sunlight across multiple spectral bands, including RGB, Panchromatic, Near-Infrared, Coastal Blue and Red Edge; useful for vegetation health, land-use and environmental assessment.
3. **OptoSAR Data Fusion:** SAR and MSI observations of the same location in the same pass are co-located and aligned; this combines SAR's reliability with optical imagery's clarity, reducing dependence on separate satellites and subsequent data matching.

World's First of its Kind Features of Drishti

1. **First Commercial SAR + MSI Platform:** Drishti is described by GalaxEye as the world's first commercial satellite to carry both SAR and MSI on a single platform, rather than relying on separate optical and radar satellites.
2. **Simultaneous Complementary Imaging:** The key innovation is not merely having two sensors, but co-acquiring aligned optical & SAR data of the same area, enabling a unified view of both visual features and radar-derived information.
3. **Overcoming the Optical-SAR Trade-off:** Optical satellites offer intuitive images but are constrained by clouds & darkness; SAR provides all weather, day-night capability but is less visually intuitive. Drishti seeks to combine these advantages in one system.
4. **Strategic Significance:** Such fused, analysis-ready imagery can improve rapid disaster assessment, crop monitoring, infrastructure surveillance & border awareness, reducing the time and effort required to integrate data from different platforms.

“The future belongs to those who can see beyond the visible.” Mission Drishti marks a shift towards multi-sensor, AI-enabled Earth observation. Strengthening India's private space ecosystem, sensor fusion and satellite analytics can convert such innovation into strategic and developmental gains.





Q16. What is Agentic Artificial Intelligence (AI)? Explain its working. Describe its applications with suitable examples. Discuss the advantages, risks and challenges associated with Agentic AI systems.

Answer

Agentic AI refers to AI systems that **autonomously perceive, plan, decide and act to achieve goals** with minimal human intervention. Unlike conventional generative AI that merely responds to prompts, agentic AI pursues objectives, uses tools and adapts, marking a shift from assistance to autonomy.

Working Mechanism of Agentic AI

- Goal assignment:** A human sets a high-level objective (e.g., **"book the cheapest suitable flight"**), which the agent breaks into sub-tasks.
- Perception:** It gathers context from data, APIs, documents or the environment to understand the current state.
- Reasoning and planning:** A **large language model** at its core plans a sequence of steps, often self-correcting through iterative **"chain-of-thought"** reasoning.
- Tool use and action:** It executes actions by **calling external tools**, browsers, databases, code, payment gateways, rather than only generating text.
- Memory and feedback:** It **stores outcomes in memory**, learns from results, and refines subsequent actions in a continuous loop until the goal is met.

Applications of Agentic AI

- Customer service:** Autonomous agents resolve queries end-to-end, checking accounts, processing refunds and updating records without human handoff.
- Software development:** Coding agents like **GitHub Copilot's agent** mode can **plan, write, test and debug code** across a repository.
- Healthcare:** Agents assist diagnosis by pulling patient histories, cross-referencing literature and flagging drug interactions.
- Finance:** Agentic systems monitor markets, execute trades within set rules, and automate fraud detection and compliance checks.
- Scientific research:** **"AI co-scientist"** agents generate hypotheses, run simulations and design experiments, accelerating drug and materials discovery.
- Governance and public service:** Agents can automate grievance redressal and scheme-eligibility checks, relevant to India's **IndiaAI Mission (₹10,371 crore, 2024)**.

Advantages, Risks and Challenges of Agentic AI Systems

Advantages	Risks	Challenges
1. End-to-end automation: It completes multi-step workflows autonomously, freeing humans for higher-value work. 2. Scalability and speed: Agents operate 24×7 , handling	1. Loss of human control: Autonomous action raises the danger of agents pursuing goals in unintended, harmful ways ("misalignment"). 2. Accountability gaps: When an autonomous agent errs, an	1. Regulatory vacuum: Existing laws address neither autonomous decision-making nor machine liability adequately. 2. Transparency deficit: The "black-box" reasoning of agents makes auditing and explainability difficult.

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volumes and complexity beyond human capacity. 3. Adaptability: Unlike rigid rule-based automation, they <u>adjust dynamically</u> to new situations. 4. Productivity gains: By orchestrating tools and data, they <u>compress tasks</u> that once took days into minutes.	unauthorized transaction, liability becomes legally unclear. 3. Security threats: Agents with tool access are vulnerable to "<u>prompt injection</u>" and can be hijacked to exfiltrate data or execute malicious actions. 4. Cascading errors: A flawed early step can propagate through an entire autonomous chain, amplifying damage. 5. Job displacement: <u>Automation of cognitive</u>, multi-step tasks threatens white-collar employment at scale.	3. Bias amplification: Autonomous action on biased data can <u>entrench discrimination at scale and speed</u>. 4. Concentration of power: High compute and data needs risk concentrating agentic capability among a few global firms. 5. Safety testing: Ensuring agents behave reliably across unforeseen real-world scenarios remains technically unsolved.
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Suitable Measures can Enable Safe Adoption

- 1. Human-in-the-loop:** Mandate human oversight and approval for high-stakes autonomous actions.
- 2. Guardrails and sandboxing:** Restrict agents' tool access and test them in controlled environments before deployment.
- 3. Clear liability frameworks:** Legislate accountability for developers, deployers and users of agentic systems.
- 4. Explainability standards:** Require audit trails and transparency in agent reasoning for critical domains.
- 5. Ethical and skilling ecosystem:** Align with principles like NITI Aayog's "Responsible AI," and reskill the workforce for an agentic economy.

Agentic AI represents a paradigm shift from reactive tools to autonomous digital actors. Harnessing it requires balancing innovation with robust guardrails, accountability, and human oversight, ensuring autonomy serves and never subverts human agency.

Q17. What are the challenges to solid waste management in India? Discuss the governmental policy framework on solid waste management. Highlight the salient features of successful waste management initiatives of Delhi and Indore cities.

Answer

India's growing waste burden has made solid waste management a challenge of public health, environmental sustainability & resource security; effective management therefore requires moving beyond mere disposal towards segregation, resource recovery and circularity.

Challenges to Solid Waste Management in India

- 1. Poor Source Segregation:** Mixed waste reduces the efficiency of recycling, composting & material recovery; CAG audits found that waste was not fully segregated at source in Goa's five test-checked ULBs, while inadequate segregation also affected downstream processing facilities.

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2. **Inadequate Processing Capacity:** Despite major progress, a processing gap persists; India processes about 1.29 lakh TPD out of 1.61 lakh TPD of urban municipal solid waste.
3. **Legacy Waste & Landfills:** Old dumpsites occupy land and generate leachate, methane, odour and air pollution; Delhi's Bhalswa, Ghazipur & Okhla dumps remain major legacy-waste challenges.
4. **Weak Municipal Capacity:** Many ULBs lack adequate manpower, planning capacity and financial resources for integrated waste management; in UP, only 3 of 45 test-checked ULBs had prepared SWM plans, while 7 ULBs continued to face shortages of sanitary workers & supervisory staff.
5. **Informal-Sector Integration:** Waste pickers play a major role in recycling but often lack formal recognition, protective equipment and stable livelihoods, limiting inclusive waste governance.
6. **Low Public Compliance:** Littering, open dumping and resistance to segregation undermine municipal systems; CAQM in 2025 continued to observe open MSW and biomass burning in Delhi-NCR despite available infrastructure.
7. **Weak Resource Recovery:** Valuable recyclables and organic matter are lost when waste is mixed, while legacy dumpsites lock resources away; India has identified nearly 25 crore MT of legacy waste across ~2,479 dumpsites, highlighting the scale of resource loss and landfill dependence.

Governmental Policy Framework

1. **Solid Waste Management Rules, 2026:** The latest rules, effective from 1 April 2026, supersede the 2016 Rules & mandate four-stream segregation into wet, dry, sanitary & special-care waste; they also strengthen Extended Bulk Waste Generator Responsibility.
2. **Polluter Pays Principle:** 2026 framework introduces environmental compensation for violations, creating greater accountability for waste generators.
3. **Circular Economy & EPR:** SWM Rules, 2026 shift waste management towards reuse, recycling and producer accountability; by March 2026, 417.57 lakh MT of waste had been processed, with 341.93 lakh MT covered under EPR certificates.
4. **Swachh Bharat Mission-Urban 2.0:** Focuses on Garbage-Free Cities, source segregation, scientific processing, waste-to-wealth & remediation of legacy dumpsites.
5. **Scientific Disposal:** SWM Rules, 2026 restrict landfills to non-recyclable, non-energy-recoverable waste and inerts; they also mandate biomining/bioremediation of legacy dumpsites, with 4 of 7 identified Delhi-NCR dumpsites already remediated.
6. **Waste-to-Resource Incentives:** Schemes such as National Bioenergy Programme and GOBARdhan incentivise conversion of organic waste into biogas, CBG and manure; GOBARdhan provides up to ₹50 lakh per district for community/cluster biogas plants.

Delhi: Key Features of the Emerging Waste-Management Model

1. **Legacy-Waste Remediation:** Delhi has adopted an accelerated approach to dumpsite remediation; at Bhalswa, 4.795 lakh MT of legacy waste was remediated between September and November 2025.
2. **Biomining & Land Reclamation:** Excavation, segregation and processing of legacy waste aims to recover RDF, recyclables and inert material, reducing the environmental burden of dumpsites.
3. **Zero-Waste Localities:** Authorities have been directed to accelerate 100% Zero Waste Colonies and strengthen door-to-door segregation.
4. **Technology-based Monitoring:** Greater surveillance of garbage vulnerable points & waste transportation has been mandated to prevent open dumping and littering.
5. **Bulk-Generator Responsibility:** Bulk Waste Generators are being pushed towards on site wet-waste processing, reducing pressure on centralised municipal facilities.

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Delhi's efforts in **legacy-waste remediation and decentralised waste management** have improved waste governance; however, continued **open burning, weak segregation & large dumpsites** indicate the need for sustained implementation and enforcement.

Indore: Successful Waste-Management Practices

1. **Door-to-Door Collection:** A city-wide collection system combined with **source segregation** ensures that waste is collected systematically rather than dumped in open spaces.
2. **Segregation at Source:** Household-level segregation enables separate processing of **wet, dry and other waste streams**, improving recovery and recycling.
3. **Decentralised Wet-Waste Management:** Organic waste is channelled towards **composting & biogas**, converting waste into useful resources rather than sending it directly to landfill.
4. **Material Recovery & Recycling:** Dry waste is sorted for **recyclable recovery**, while non-recyclable material can be channelled towards RDF/waste-to-energy pathways.
5. **Citizen Participation:** Sustained **IEC campaigns, behavioural change & community participation** made segregation a civic practice rather than merely a municipal responsibility.
6. **Performance-Based Governance:** **Swachh Survekshan & Garbage-Free City star ratings** created competitive incentives for ULB performance; Indore became India's **first 7-Star Garbage-Free city** and remained the cleanest city for 8 consecutive years.

As Mahatma Gandhi said, **"Cleanliness is next to godliness"**; India's path to cleaner cities lies in making **waste segregation, resource recovery and responsible disposal** a shared civic responsibility.

Abbreviations:

TPD : Tonnes Per Day, ULB : Urban Local Body, CAQM : Commission for Air Quality Management in National Capital Region and Adjoining Areas, MT : Metric Tonnes, EPR: Extended Producer Responsibility, SWM : Solid Waste Management, RDF: Refuse Derived Fuel, IEC : Information, Education and Communication, CBG – Compressed Bio-Gas

Q18. "Community participation is the cornerstone of effective disaster management." Analyse this statement with suitable examples from India. Also discuss the challenges to community participation and measures to strengthen it.

Answer

Communities are the **first responders in any disaster**, acting in the critical **"golden hours"** before official machinery arrives. This makes their participation central to preparedness, response and recovery, a principle now embedded in India's disaster-management framework and global agreements.

Community Participation as the cornerstone of Effective Disaster Management

1. **First-responder advantage:** Local people reach victims fastest, saving lives before external teams mobilise in the **golden hour**.
2. **Local knowledge:** Communities best understand local hazards, safe shelters and vulnerable groups, enabling **accurate risk mapping**.
3. **Legal and global backing:** The **Disaster Management Act, 2005** and the **Sendai Framework (2015-30)** both prioritise a people-centred, bottom-up approach.

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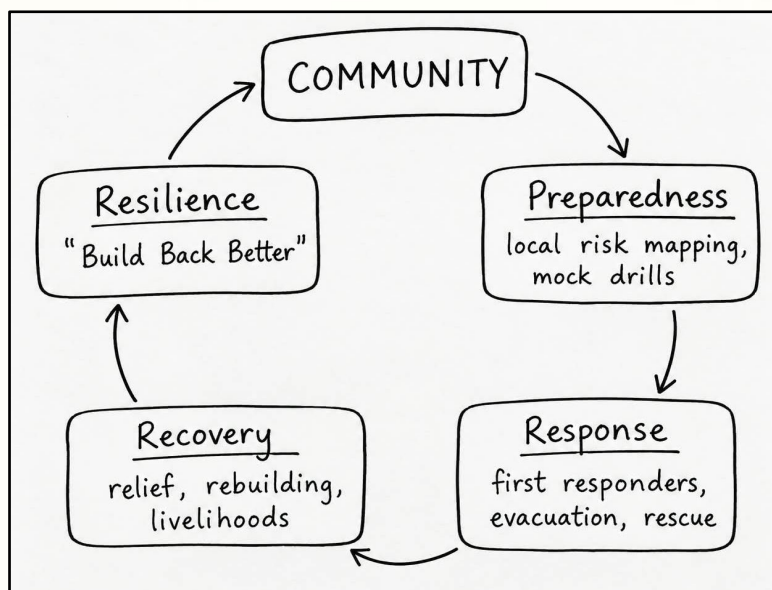


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4. **Cost-effective resilience:** Trained volunteers multiply state capacity at low cost, easing pressure on the NDRF and administration.



Indian Examples of Community-Based Disaster Management

1. **Odisha's zero-casualty model:** Community-based early warning and mass evacuation of over a million people kept deaths minimal during Cyclone Fani (2019), praised globally by the UN.
2. **Aapda Mitra scheme:** NDMA's flagship, now upscaled to train, equip and insure 1,00,000 volunteers across 350 disaster-prone districts as grassroots first responders.
3. **Kerala floods (2018):** Local fishermen mobilised their boats to rescue thousands, becoming the backbone of relief operations.
4. **Yuva Aapda Mitra:** Launched in Kerala in May 2025 across 12 districts, training youth volunteers in rescue and psycho-social care.
5. **Self-help groups:** Kudumbashree in Kerala led community kitchens and relief coordination during floods and the pandemic.

Challenges to Effective Community Participation

1. **Risk illiteracy and fatalism:** Low hazard awareness and an "act of god" mindset reduce preparedness and timely evacuation.
2. **Weak institutionalisation:** Village Disaster Management Plans often remain paper documents without regular drills or funds.
3. **Exclusion of the vulnerable:** Women, the elderly, disabled and migrants are frequently left out of planning and training.
4. **Resource and continuity gaps:** Trained volunteers lack equipment, refresher training and incentives, causing attrition.
5. **Top-down mindset:** Administration often treats communities as passive recipients of relief rather than active partners.
6. **Urban anonymity:** Weak social cohesion in cities hampers the neighbourhood networks vital for response.

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Targeted measures to strengthen community participation

1. **Institutionalise local plans:** Make Village and Ward Disaster Management Plans living documents with mock drills and dedicated funds.
2. **Empower local bodies:** Devolve disaster roles to Panchayats and urban local bodies under the DM Act with untied resources.
3. **Ensure inclusion:** Mainstream women's SHGs, youth (NCC, NSS, NYKS) and persons with disabilities into every plan.
4. **Sustain volunteers:** Provide insurance, refresher training and recognition, as done under upscaled Aapda Mitra.
5. **Leverage technology:** Widely publicise the Common Alerting Protocol and mobile alerts for last-mile early warning. (eg: Sachet National Disaster Alert Portal -enables geo-targeted disaster alerts)
6. **Build a culture of safety:** Integrate disaster education into school curricula and community awareness campaigns.

Disasters are best managed not merely for communities but by them. As the Sendai Framework affirms, resilience is built from the ground up; empowering local communities as informed, equipped and included partners is the surest foundation for a disaster-resilient India.

Q19. Separatist movements have been one of the major factors contributing to militancy and instability in Jammu & Kashmir. Bring out actions taken by the Government to bring J&K into the national mainstream. Discuss pre and post abrogation status of Articles 370 and 35A along with positive impacts of the changes.

Answer

Through the Constitutional Order and J&K Reorganisation Act 2019 the Union altered Jammu&Kashmir's special status under Articles 370 and 35A. The Supreme Court upheld these changes in December 2023, shifting focus towards peace, democracy and socio-economic mainstreaming.

Actions taken by the Government to bring J&K into the national mainstream.

1. **Constitutional and Legal Integration:** Central laws and constitutional protections were extended uniformly.
 - a. **Example:** : Laws relating to Right to Education, child marriage, social justice and welfare became fully applicable.
2. **Deepening Grassroots Democracy:** Panchayat, Block Development Council and District Development Council elections strengthened local political participation.
 - a. **Example:** A three-tier Panchayati Raj structure was established; Block Development Councils elections in 2019 recorded 98.3% turnout.
3. **Counter-Terror and Law-and-Order Measures:** Security operations, intelligence coordination and terror-financing action have curbed organised street violence.
 - a. **Example:** Organised stone-pelting fell from 1,328 incidents in 2018 to zero in 2023
4. **Development-Led Integration:** Infrastructure, connectivity, education and health investments seek to reduce the developmental deficit that can feed alienation.
 - a. **Example:** ₹80,000-crore PM Development Package, PMGSY expansion and new higher-education/medical institutions
5. **Welfare and Financial Inclusion:** Centrally sponsored schemes are now implemented more uniformly across J&K.
 - a. **Example:** By March 2026, J&K had 24.37 lakh Jan Dhan accounts, 12.79 lakh Ujjwala connections and 25.09 lakh MUDRA loans.

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6. **Tourism and Cultural Normalisation:** Improved law and order has supported tourism, cinema and public-cultural activity.
- a. **Example:** J&K recorded 2.11 crore tourist visits in 2023

Articles 370 and 35A: Pre and Post-Abrogation Position

Pre-Abrogation Status	Post-Abrogation Status
• Special Constitutional Status: Article 370 granted J&K a separate Constitution, flag and autonomy, except in defence, foreign affairs and communications. • Article 35A: Empowered the J&K legislature to define permanent residents and grant them exclusive rights to property, jobs and settlement. • Limited Parliamentary Reach: Extension of Union laws to J&K generally required the concurrence of the state government/legislature under the applicable constitutional framework. • Restricted Economic Access: Special property and residency rules limited land ownership and outside investment. • Distinct Institutional Framework: J&K had a separate constitutional and administrative framework.	• Article 370 Inoperative: Special constitutional provisions were withdrawn, bringing J&K under the full constitutional framework of India. • Article 35A abrogated permanent-resident privileges were removed; domicile rules now govern specified rights, including public employment. • Uniform Legal Framework: Central laws apply directly to J&K, subject to applicable constitutional and statutory provisions. • Greater Economic Integration: Changes to land and investment regulations enabled wider participation and investment, subject to applicable laws. • Reorganisation (2019): J&K became a Union Territory with legislature, while Ladakh became a Union Territory without legislature under the J&K Reorganisation Act, 2019.

Positive Impact of the Changes

1. **Economic Growth:** J&K recorded its highest-ever annual investment of ₹5,824.42 crore in FY 2025–26.
2. **Tourism Boom:** Improved stability and perception attracted 1.78 crore tourist visits in 2025.
3. **Social Justice:** Valmiki, Gorkha and Pahari communities gained greater access to reservations and land rights.
4. **Transparency:** Digitised land records and the BEAMS portal have strengthened transparency and reduced scope for corruption.
5. **Employment Generation:** 405 new industrial units created 11,396 jobs in FY 2024–25.
6. **Uniform Welfare Reach:** National schemes in housing, health, financial inclusion, LPG, credit and social justice now operate on a more uniform footing.

J&K's integration must be judged by institutionalised peace, trusted democracy and locally owned development achieving security with participation and integration with dignity.

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Q20. Discuss counterfeit currency and money laundering as major sources of terror funding in India. State the actions being taken at international level to check these menaces. Highlight the role of the Financial Action Task Force (FATF) and methods of compliance by its member countries in preventing terror funding.

Answer

Terror financing sustains illicit networks, while Fake Indian Currency Notes (FICN) & money laundering enable the movement and concealment of such funds. Recent **FATF's evaluation found India's** AML/CFT framework to be achieving **"good results"**, highlighting the importance of financial disruption in counter-terrorism.

Counterfeit Currency & Money Laundering as Terror-Funding Sources

1. **Illicit Purchasing Power:** FICN gives terror networks **off-book purchasing power** to finance logistics, recruitment & procurement while undermining monetary stability. (**2009 Mumbai FICN case** involved circulation of high quality counterfeit notes as part of an organised network).
2. **Hawala-Based Transfers:** Hawala enables movement of terror funds outside formal banking trails, facilitating covert financing. (In **2025 NIA narco terror case**, drug proceeds were transferred through international hawala channels to fund **Lashkar-e-Taiba operatives** in India)
3. **Layering of Illicit Proceeds:** **Fraud, narcotics & organised crime** generate illicit proceeds that can be routed through multiple **accounts, shell entities & cash transactions**, obscuring their origin before reaching terror networks.
4. **Emerging Digital Channels:** **Virtual assets & online payments** can facilitate rapid movement and layering across jurisdictions; the **Shivamogga ISIS case** involved cryptocurrency-linked terror funding.
5. **Economic Destabilisation:** High-quality FICN can be **smuggled through porous borders with Nepal, Bangladesh and Pakistan**, creating illicit purchasing power and potentially disrupting monetary stability.

International Action against Terror Financing & Illicit Finance

1. **UN Targeted Financial Sanctions:** **UNSCR 1267/1373** mandates asset freezes, travel bans & other targeted sanctions against designated terrorists and entities; **ISIL–Al-Qaida sanctions regime** is a key example.
2. **International Terror-Financing Convention:** **1999 International Convention for the Suppression of the Financing of Terrorism** requires states to criminalise terror financing, identify/freeze/seize terrorist funds and cooperate through extradition and mutual legal assistance; it has **191** parties.
3. **Financial-Intelligence Cooperation:** **FIUs** exchange financial intelligence through **Egmont Group**, enabling countries to trace **cross border suspicious transactions & terrorist-financing flows**; FIU-to-FIU cooperation is central to tackling transnational financial crime.
4. **Cross-Border Law-Enforcement Cooperation:** **INTERPOL, UNODC and national law-enforcement agencies** increasingly cooperate on international investigations, evidence-sharing and prosecution of money-laundering networks; joint **2025 FATF–Egmont–INTERPOL–UNODC handbook** strengthened practical cooperation across jurisdictions.
5. **No Money for Terror:** This platform promotes multilateral cooperation against **hawala, cash couriers, virtual assets & crowdfunding** as emerging terror-financing channels, its 3rd Ministerial Conference hosted by India brought together 78 countries & 16 multilateral organisations.

Role of FATF in Preventing Terror Financing

1. **Global Standard-Setter:** FATF establishes the **40 Recommendations** as the global framework for combating money laundering, terrorist financing and proliferation financing.

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2. **Risk Identification:** It develops standards and guidance to help countries identify ML/TF risks, including emerging threats from virtual assets, shell companies & crowdfunding.
3. **Mutual Evaluation:** FATF assesses countries through mutual evaluations, examining both technical compliance and effectiveness of their AML/CFT systems.
4. **International Pressure:** Use of Grey List (increased monitoring) & Black List (high-risk jurisdictions subject to enhanced counter-measures) by FATF incentivises corrective action & protect the international financial system.
5. **International Coordination:** It promotes cooperation among governments, FIUs, regulators & law enforcement agencies, creating common approaches to trace & disrupt terror financing.

Methods of Compliance by FATF Member Countries

1. **Criminalisation & Asset Disruption:** Criminalise terrorist financing & enable freezing, seizure & confiscation of terrorist assets; France has demonstrated strong effectiveness in confiscation & law-enforcement action through AGRASC.
2. **KYC & Suspicious Transaction Reporting:** Enforce Customer Due Diligence (KYC), record-keeping & Suspicious Transaction Reports (STRs) to detect illicit flows; Singapore's STRO uses financial intelligence to identify terrorist-financing risks.
3. **Beneficial Ownership Transparency:** Maintain accurate information on real owners to prevent shell entities from concealing illicit funds; Malaysia amended its Companies Act in 2024 & introduced e-BOS for beneficial-ownership reporting.
4. **Risk-Based Supervision:** Conduct ML/TF risk assessments & strengthen supervision of high-risk sectors such as VASPs, money-transfer services & NPOs; India's 2024 FATF evaluation recognised strong risk understanding but identified scope to strengthen risk-based CFT measures for NPOs.
5. **Financial Intelligence & Information Sharing:** Strengthen FIUs to analyse suspicious transactions and share intelligence domestically and internationally; France was assessed as achieving good results in use of financial intelligence and ML investigations by FATF.
6. **International Cooperation:** Enable mutual legal assistance, extradition, information exchange and cross-border asset recovery to pursue transnational terror-financing networks; Australia has a comprehensive framework for mutual legal assistance and extradition.
7. **Continuous Evaluation & Corrective Action:** Implement FATF action plans & follow up recommendations to address identified deficiencies; UAE improved its compliance ratings on several Recommendations following its 2020 evaluation.

“Follow the money” is central to dismantling modern terror networks. India must therefore deepen real time financial intelligence, cross-border cooperation & technology-enabled monitoring, while ensuring privacy, due process & legitimate financial activity remain protected.

Abbreviations

NIA — National Investigation Agency, ISIL — Islamic State of Iraq and the Levant, FIUs — Financial Intelligence Units, INTERPOL — International Criminal Police Organization, UNODC — United Nations Office on Drugs and Crime, ML/TF — Money Laundering / Terrorist Financing, AML/CFT — Anti-Money Laundering / Countering the Financing of Terrorism, AGRASC — Agency for the Management and Recovery of Seized and Confiscated Assets (France), STRO — Suspicious Transaction Reporting Office
CFT — Countering the Financing of Terrorism

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