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7 PM COMPILATION

June, 2025

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Regulating India's Virtual Digital Asset (VDA) Revolution: Bridging Policy with Reality

India is undergoing **a silent financial revolution** — the **rapid adoption and integration of Virtual Digital Assets (VDAs).** India's VDA market is currently navigating a maze of **partial regulations, prohibitive tax regimes, and judicial interventions** — underscoring a significant **dissonance between innovation and oversight.** With the **Economic Survey 2022–23** acknowledging **blockchain's transformative potential,** the urgency to bridge this regulatory gap is now more critical than ever.

What are Virtual Digital Assets (VDAs) and Their Status in India?

1. The Finance Act, 2022 introduced the term **"Virtual Digital Assets" under Section 2(47A)** of the **Income Tax Act, 1961**, a VDA is defined as: **"any information or code or number or token generated through cryptographic means providing a digital representation of value."** This includes **cryptocurrencies, non-fungible tokens (NFTs), and tokenized real-world assets**.

2. These can be used for investment, value exchange, or functioning as a unit of account. **For example, Bitcoin and Ethereum** are **cryptocurrencies**, while **NFTs like digital art pieces are VDAs that represent ownership and uniqueness.**

3. According to *Statista*, **India's digital asset user base is expected to reach 107.3 million by 2025,** reflecting a rapidly expanding market. Moreover, **Economic Survey 2022-23** acknowledged blockchain as a **disruptive technology** capable of transforming **finance, governance, and trade.**

4. In *Internet and Mobile Association of India v. RBI* **(2020),** the **Supreme Court** underscored that a complete ban on VDAs infringes on **Article 19(1)(g),** allowing businesses and startups to resume **VDA-related operations in India.**

5. The **Inter-Ministerial Committee (IMC) in 2019** had suggested banning private cryptocurrencies while enabling a regulated digital currency. However, this draft bill never materialized into law.

What are the Types of Virtual Digital Assets?

1. **Cryptocurrencies:** These are decentralized digital currencies used for peer-to-peer transactions like Bitcoin and Ethereum.
2. **Stablecoins:** Crypto assets pegged to fiat currencies, designed to reduce volatility (e.g., USDT, USDC).
3. **Non-Fungible Tokens (NFTs):** Unique digital collectibles used in art, gaming, and media.
4. **Utility Tokens:** Provide access to specific platforms or services (e.g., BAT, Filecoin).
5. **Security Tokens**: Represent traditional securities like shares in tokenized form. **E.g. Paxos Gold, tokenized RE.**
6. **Asset-backed Tokens**: Represent claims on physical assets like gold or real estate.
7. **Central Bank Digital Currencies (CBDCs):** Digital version of sovereign currency, currently piloted in India.

What are the Legal and Regulatory Framework in India?

1. **Income Tax Act, 1961:** Under *Section 115BBH there is* **30% tax on VDA** income without loss set-off and *Section 194S offers* **1% TDS** on transactions **exceeding ₹10,000.**
2. **Prevention of Money Laundering Act (PMLA), 2002:** VDAs brought under AML/CFT framework in 2023. Covers exchange, safekeeping, administration, and VDA-related services.
3. **Information Technology Act, 2000:** VASPs must maintain KYC and transaction records for five years.

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4. **Companies Act, 2013:** Mandates disclosure of VDA holdings and profits/losses in financial statements.

5. **Advertising Standards Council of India (ASCI):** Mandatory disclaimers for VDA ads highlighting risk and regulatory void.

6. **Judicial Oversight:** The Supreme Court has emphasized that regulation, not prohibition, is the right approach (2020, 2025 observations).

How Other Nations Regulate VDAs?

1. European Union (EU): The *Markets in Crypto-Assets (MiCA)* regulation, effective 2024, ensures consumer protection, stablecoin governance, and market integrity across member states. It mandates licensing for service providers and reserves for asset-backed tokens.

2. Japan: Japan's Financial Services Agency requires exchanges to register, maintain capital reserves, segregate user funds, and comply with stringent AML/CFT norms. Japan's proactive stance enabled quick recovery post the Coincheck hack (2018).

3. Singapore: Under the *Payment Services Act, 2019*, digital token service providers must obtain licenses, adhere to AML/CFT guidelines, and meet consumer protection norms, making Singapore a global crypto hub.

4. UAE (Dubai): Dubai's *Virtual Asset Regulatory Authority (VARA)* governs all VDA activities within its jurisdiction, promoting innovation under clear legal oversight.

What is the Significance of VDAs for India?

1. **Financial Inclusion and Remittances:** VDAs enable low-cost, real-time financial access for unbanked populations. They reduce remittance fees, crucial for India, which received $111 billion in 2022. This promotes inclusion in tier-2 and tier-3 cities. **Example:** Faster, cheaper remittances for rural families

2. **Job Creation and Economic Growth:** The VDA sector is projected to create over 800,000 jobs by 2030 (NASSCOM). It fuels digital entrepreneurship, especially in fintech and blockchain development. This spurs income generation and regional economic uplift. **Example:** 8 lakh crypto jobs by 2030

3. **Startup and Innovation Ecosystem:** India hosts the world's third-largest Web3 developer base, attracting significant VC funding. Regulatory clarity could further boost blockchain, DeFi, and NFT startups. It supports experimentation via innovation sandboxes. **Example:** Polygon raised global Web3 investment

4. **Tax Revenue and Fiscal Gains:** With clear regulations, VDAs can plug tax leakages and generate over ₹60,000 crore annually. Offshore trading currently evades taxation (~₹2,488 crore lost). TDS and capital gains provide structured revenue. **Example:** ₹60,000 crore potential VDA tax

5. **Asset Tokenization and Investment Access:** VDAs allow fractional ownership in high-value assets like real estate and art. This expands investment access to retail investors and enhances market liquidity. Tokenized assets improve capital market depth. **Example:** Fractional real estate ownership enabled

6. **Cross-border Trade and MSME Support:** Blockchain reduces forex costs and paperwork for MSMEs in global trade. Smart contracts offer transparent, trustless settlements and reduce transaction friction. Enhances competitiveness of Indian exports. **Example:** Blockchain cuts MSME forex costs

7. **Governance and Public Service Transparency:** Blockchain ensures immutable records, reducing corruption in welfare schemes, land titles, and supply chains. Pilot projects in Telangana and Andhra Pradesh show success in public recordkeeping. **Example:** Land titles via blockchain verified

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8. **CBDC Integration and Monetary Sovereignty:** VDAs can complement India's e-Rupee rollout, improving transaction traceability and efficiency. Blockchain-based rails enhance digital policy tools and reduce currency leakage. Strengthens RBI's control over digital finance. **Example:** e-Rupee integrated with blockchain rails

What are the Challenges and Risks Associated with VDA's?

1. **Market Volatility and Speculation:** VDAs like Bitcoin and Terra-LUNA have shown extreme price swings, leading to heavy retail losses. This volatility makes them unreliable for savings or payments. Unbacked assets can trigger speculative bubbles. **Example:** Bitcoin dropped 60% in 2022

2. **Cybersecurity Threats and Technological Risks:** Smart contract bugs and protocol failures can lead to massive fund losses. Indian exchanges have faced severe cyberattacks, undermining investor confidence. Insurance and unified security norms remain weak. **Example:** $230 million wiped in 2024 hack

3. **Money Laundering and Illicit Financing:** Pseudonymous transactions allow illicit flows and terror funding, bypassing traditional financial checks. FATF has flagged India's limited AML enforcement on crypto platforms. Lack of KYC norms fuels abuse. **Example:** FATF flagged India's AML gaps

4. **Tax Evasion and Regulatory Arbitrage:** High TDS rates and unclear regulations drive users to offshore exchanges. This results in loss of tax revenue and legal oversight. An estimated ₹2,488 crore evaded in 2022–24. **Example:** ₹2,488 crore lost via offshore trade

5. **Lack of Legal Clarity and Coordination:** India lacks a central VDA law despite multiple regulatory discussions since 2019. Overlapping roles of RBI, SEBI, and MeitY cause ambiguity and weak enforcement. The proposed crypto bill remains pending. **Example:** Crypto Bill still not passed

6. **Bank Disintermediation and Policy Impact:** Wallet-to-wallet VDA transfers bypass traditional banks, reducing deposit bases. This can disrupt monetary policy transmission and credit creation. Risks to financial system stability are growing. **Example:** Wallets bypass banking infrastructure

7. **Consumer Protection and Awareness Deficit:** No statutory grievance redressal exists for VDA fraud victims. Users face risks from Ponzi schemes, misleading ads, and misinformation. ASCI has warned about deceptive VDA promotions. **Example:** No redressal for crypto fraud victims

8. **Capital Flight and Financial Stability Risks:** Offshore trading, driven by regulatory arbitrage, leads to capital outflows. Unregulated VDA flows can weaken the rupee and disrupt RBI's capital controls. Data gaps limit real-time surveillance. **Example:** Offshore trading fuels capital flight

What can be the Way Forward?

1. **Enact Comprehensive Legislation:** India must move beyond fragmented taxation to a unified Digital Asset Regulation Bill. It should align with global frameworks like MiCA and FATF to ensure legal clarity. This will strengthen investor protection and market integrity. **Example:** MiCA law passed by European Union

2. **Establish a Dedicated Regulator:** Create a nodal body such as a "Digital Assets Regulatory Authority (DARA)" or assign responsibility to the Ministry of Finance. This would streamline coordination and eliminate inter-agency overlaps with RBI, SEBI, and MeitY. **Example:** VARA established in Dubai, 2022

3. **Support Self-Regulatory Organisations (SROs):** Encourage industry-led SROs to define ethical standards, resolve disputes, and ensure compliance. These bodies can act as the first layer of accountability and sectoral discipline. **Example:** AMFI regulates mutual fund conduct

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4. **Revamp the Crypto Tax Regime:** Reduce TDS to 0.01% to prevent flight to offshore platforms. Align crypto taxation with STT/CTT norms and allow for loss offsetting to encourage legitimate domestic participation. **Example:** 1% TDS causes offshore migration

5. **Launch Regulatory Sandboxes:** Enable startups and innovators to test blockchain applications under regulatory supervision. This approach balances innovation and risk management, following models from Singapore and the RBI. **Example:** RBI launched fintech sandbox in 2021

6. **Mandate Cybersecurity and Insurance Standards:** Introduce compulsory audits, incident disclosures, and exchange insurance funds. Circuit breakers and CERT-IN compliance should be mandatory for all Indian VASPs. **Example:** CERT-IN norms enforced in April 2022

7. **Promote Consumer Awareness Campaigns:** Run mass education drives on VDA risks and safe practices, modelled after AMFI's campaigns. Empower users with knowledge to counter fraud and misinformation. **Example:** AMFI's "Mutual Funds Sahi Hai" ads

8. **Foster Global Regulatory Collaboration:** Engage actively with FATF, G20, IMF, and BIS to standardize policies and ensure legal cross-border VDA operations. This would also help India shape future global crypto norms. **Example:** G20 urged crypto policy harmonization

Conclusion:

India stands at a pivotal moment in its digital economic journey. A regulatory vacuum, however, **breeds uncertainty, drives capital offshore, and limits innovation.** A **future-ready, innovation-friendly, and globally harmonized legal framework** will ensure that India not only safeguards its economy but also leads the digital asset revolution. **As digital assets evolve, so must the laws that govern them—for in this convergence lies the future of finance.**

> **Read More: The Hindu**
> **UPSC Syllabus GS-3: Economy**

Changing Geometries of the Battlefield: The Rise of Autonomous Weapons Systems (AWS)

Modern warfare is undergoing a seismic transformation. Among the most prominent drivers of this surge is the exponential growth of **autonomous weapons systems (AWS), including drones, missiles, and robotics. Ukraine's recent "Operation Spider Web,"** which involved launching inexpensive **quadcopters** from within Russia, marks a watershed moment in the evolution of military strategy, highlighting the obsolescence of traditional air defence models.

India too is embracing this shift. The **Indian drone market is projected to grow to $11 billion by 2030, constituting over 12% of the global drone industry (Drone Federation of India, 2024).** Meanwhile, initiatives like **Operation Sindoor** demonstrate India's commitment to integrating **AWS into its strategic arsenal.**

What are Autonomous Weapons Systems (AWS)?

AWS refer to weapon systems that can **select and engage targets with minimal or no human intervention**. According to the **UN Institute for Disarmament Research (UNIDIR), more than 30 countries** are currently developing AWS. These systems span a broad range of technologies and capabilities. These are often classified into:

- **Remotely Operated Systems** (e.g., Predator and Heron drones)
- **Semi-Autonomous Systems** (e.g., Fire-and-forget missiles like India's BrahMos)

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- **Fully Autonomous Systems** (e.g., Loitering munitions with AI decision-making capabilities)

Types:

1. **Drones (Unmanned Aerial Vehicles – UAVs):** From surveillance drones like India's **Nishant to combat drones like the U.S. MQ-9 Reaper**, drones serve diverse military roles. **Loitering munitions** like the **Israeli Harop and Indian ALFA-S, armed drones such as Bayraktar TB2, Predator** are redefining precision strikes.

2. **Swarm Drones:** Employed in **Ukraine's "Operation Spider Web"** — low-cost quadcopters coordinated via AI to infiltrate deep into Russian territory.

3. **Autonomous Ground Vehicles (AGS):** Robotic systems designed for reconnaissance, logistics, or combat roles on land.

4. **Missiles:** Modern ballistic and cruise missiles, such as **the BrahMos and Agni-V**, integrate AI-driven guidance and satellite navigation systems.

5. **Autonomous Missile Systems:** Missiles equipped with AI for target selection and engagement without human input.

6. **Robotics:** Ground robots like Russia's Uran-9 or the U.S. MAARS (Modular Advanced Armed Robotic System) support infantry and reconnaissance.

7. **Autonomous Naval Systems:** India's autonomous underwater vehicles (AUVs) developed by DRDO, and global counterparts like the U.S. Sea Hunter, are transforming naval reconnaissance.

8. **AI and Digital Command & Control:** Integrated AI-based battle networks like **India's IACCS, US's Project Maven.**

Levels of Autonomy Associated with These Systems:

- **Human-in-the-Loop:** Systems that require human input for decision-making.
- **Human-on-the-Loop:** Systems that can operate autonomously but are supervised by humans who can intervene.
- **Human-out-of-the-Loop:** These are **lethal autonomous weapons systems (LAWS)** fully autonomous systems that operate **without human oversight.**

How these Systems are Changing Geometries of the Battlefield in Present Times?

AWS now allow **real-time, low-cost, high-impact warfare from anywhere**—breaking the **geography of conventional frontlines**. Historically, **each phase of military innovation** has reshaped the battlefield:

1. **From Close Combat:** In **WWI machine guns**, created **defensive stalemates** and forced a rethinking of assault tactics. During **WWII Blitzkrieg tactics**, **combining tanks, aircraft, and artillery**, bypassed static defences and emphasized mobility. By the **Cold War** the **V-2 rocket's** marked **the advent of long-range missile warfare. Intercontinental ballistic missiles (ICBMs)** redefined deterrence.

2. **To Remote Strikes: AI-enabled drones**, cyber warfare, and deep-strike capabilities have changed the battle. From **Syria to Nagorno-Karabakh and now Ukraine, drones** have become the dominant tools of **asymmetric warfare**. Ukraine's container-launched drones in **Operation Spider Web** are a textbook example of strategic surprise enabled by **technological decentralization.**

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3. **Emergence of Non-State Actors:** Houthis in Yemen and Hezbollah in Lebanon have used Iranian drones to target sophisticated adversaries. ISIS deployed commercial drones for IED delivery, redefining low-cost warfare.

4. **Collapse of Traditional Defence Doctrine:** Ukraine's **"Trojan Horse" style drone operation** from within **Russian borders exposes vulnerabilities in static air defence systems** and upends decades of doctrine.

5. **India's Response: Operation Sindoor showcased India's Integrated Air Command and Control System (IACCS),** developed by BEL, which links **radars, missile systems, and real-time data feeds** to **intercept aerial threats** including drones.

What is the Significance of AWS for India?

1. **Strategic Deterrence and Second-Strike Capability:** Long-range **drones and hypersonic weapons** will enhance **India's nuclear posture** through credible **second-strike capabilities.** Systems like **Agni-V, BrahMos-II, and loitering munitions** deter conventional and asymmetric threats. These also **support non-nuclear escalation dominance** through swarm drones. **Example:** Agni-V and BrahMos-II extend deterrence.

2. **Border Surveillance and National Security:** UAVs such as **Heron, Rustom-II, and Tapas-BH** provide persistent monitoring of **LAC and LoC**, especially after the 2020 Galwan clash. These are vital across tough terrains in Ladakh, Arunachal Pradesh, and the Northeast. Post-Galwan, India expanded drone deployments along borders. **Example:** Tapas-BH deployed along eastern Ladakh

3. **Counter-Terrorism and Internal Stability:** Drones enable precision strikes in Naxal-affected zones and insurgent hotbeds **in J&K and the Northeast**. AWS minimize collateral damage and human risk during operations. AI-powered drones provide **real-time reconnaissance for surgical missio**ns. **Example:** Drone kills top militant in Pulwama

4. **Disaster Management and Dual-Use Application:** Drones are deployed for **flood mapping, earthquake rescue, and disaster relief delivery.** Their ability to **access hazardous or remote zones reduces respons**e time. In 2023, drones were key **in Odisha cyclone evacuation** planning. **Example:** Drones used post-Odisha cyclone floods

5. **Indigenous R&D and Economic Growth:** India's drone sector is projected to reach **$11 billion by 2030**, supporting Aatmanirbhar Bharat. **DRDO's ALFA-S, HAL's combat UAVs**, and startups like ideaForge are driving innovation. The Drone Federation of India is mobilizing industry expansion. **Example:** Drone Federation targets $11B market

6. **Air Defence and Force Multiplication:** Systems like **IACCS and Akashteer enable real-time tracking** and response against aerial threats. AWS complement manned systems in India's **multilayered air defence**. Automated UAV fleets allow fewer troops to manage wider surveillance. **Example:** Akashteer integrates real-time threat response

7. **Export Potential and Soft Power Projection:** India aims to export **$5 billion in defence hardware** by **2025, including UAVs.** Drones have been sold to Armenia, with export ambitions targeting **Africa, ASEAN, and West Asia.** This bolsters India's global tech profile. **Example:** Drone exports initiated to Armenia

8. **AI Ecosystem and Technological Leadership:** AWS investments are driving India's AI and robotics push **under MeitY's IndiaAI mission**. These platforms **create high-tech jobs, stimulate R&D, and support global norms** on responsible AWS use via G-20. **Example:** DRDO AI Lab boosts AWS innovation

What are Challenges and Risks Associated with AWS?

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1. **Ethical and Legal Dilemmas:** Delegating **lethal decisions to machines challenges** International Humanitarian Law (IHL) and ethics. UN Special Rapporteurs have called for a ban on **Lethal Autonomous Weapons (LAWS).** No global consensus exists under the **UN's CCW framework**. **Example:** UN calls LAWS "morally unacceptable".

2. **Civilian Casualties and AI Errors:** AI misidentification may result in wrongful strikes, raising grave concerns about **civilian safety. U.S. drone strikes in Iraq and Afghanistan** show real-world errors. 2022 **Nagorno-Karabakh** saw multiple drone misfires. **Example:** AI error killed civilians in Kabul.

3. **Accountability and Legal Ambiguity:** No clear legal frameworks exist on liability when autonomous weapons commit war crimes. Command responsibility blurs as machines act independently. India's AWS operations lack domestic legislative backing. **Example:** No law governs AWS accountability yet.

4. **Cybersecurity and Tech Vulnerability:** AWS systems are highly vulnerable to hacking, spoofing, and electronic warfare. **CERT-IN flagged 30+ drone vulnerabilities** in 2024. Compromised AWS may be turned against original operators. **Example:** CERT-IN flagged major drone flaws.

5. **Arms Race and Regional Instability:** Unregulated AWS development by major powers may trigger an arms race. China's rapid advances in **swarm drones and hypersonic systems concern India.** Asia risks destabilization without arms control regimes. **Example:** China tests AI swarm drone fleets.

6. **Dependence on Foreign Technology:** India relies heavily on Israeli and **U.S. ISR components,** risking strategic vulnerabilities. This compromises autonomy in deployment and maintenance of AWS. Aatmanirbhar push is slowed by tech import needs. **Example:** Israeli Heron drones dominate ISR ops.

7. **Job Loss and Skill Gaps:** Widespread automation may reduce roles for traditional personnel in defence sectors. At the same time, India faces shortages in **AI-skilled military technicians.** AWS may deepen socio-economic disruption in armed forces. **Example:** AI replacing conventional infantry scouts.

8. **Terrorism, Privacy & Environmental Risks:** Terror groups like ISIS and Houthis use commercial drones for attacks. Over-surveillance **risks civil liberties, while drone debris impacts ecosystems**. Lithium battery pollution from drone crashes is rising. **Example:** 2021 Jammu drone attack on base.

What can be the Way Forward?

1. **Clear Legal and Ethical Framework:** India must enact a dedicated **"Autonomous Weapons Regulation Act"** aligned with **International Humanitarian Law** and **UN GGE norms.** Human-in-the-loop principles should be mandated to ensure human oversight in lethal decisions. An **AI Ethics Council for Defence** under **NITI Aayog** can guide responsible use. **Example:** UN GGE recommends human control norms

2. **Strengthen Indigenous R&D and Innovation:** Enhance **DRDO, BEL, and start-up partnerships** through **iDEX and** the **Defence Innovation Organisation. Budget 2024-25** should allocate a dedicated AWS innovation fund to reduce foreign tech dependence. Collaborations with IITs and IISc can boost AI-AWS synergy. **Example:** iDEX supports 80+ defence tech startups

3. **Cybersecurity and Operational Resilience:** Fortify **CERT-IN and establish an Integrated Cyber Defence Command** to shield AWS systems from hacking and spoofing. Enforce regular vulnerability audits and red teaming. AI explainability and traceability should be mandated in AWS codes. **Example:** CERT-IN flagged 30 drone vulnerabilities

4. **Military Doctrine and Skill Development:** Integrate AWS modules into training at **NDA, IMA, and War Colleges to shape modern doctrines.** Launch AWS-specific AI and robotics courses under Skill India and Defence University. Upskilling is key to safe and strategic AWS deployment. **Example:** Army AI Centre launched in 2023

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5. **Global Norm Setting and Diplomacy:** India should lead global AWS governance at forums like the **UN's Conference on Disarmament, G-20, and QUAD**. Promote responsible innovation and non-proliferation of LAWS. Use platforms like I2U2 and BIMSTEC for regional alignment. **Example:** India led G-20 AI ethics agenda

6. **Public-Private Partnerships and Civil Tech Transfers:** Expand Defence Corridors in UP and Tamil Nadu to support dual-use AWS applications. Promote PPPs through schemes **like TDF and DRDO Young Scientist Labs.** Civil-military transfer can boost agriculture, logistics, and disaster management. **Example:** Drone startups grew 34% in 2023

7. **Robust Export Controls and End-Use Monitoring:** Strengthen AWS export frameworks via MEA's export norms and Defence Procurement Procedure. Ensure tracking of **end-users to prevent misuse by rogue actors.** India must avoid repeating mistakes of dual-use tech exports. **Example:** DPP mandates end-user certification clause

8. **Environmental and Societal Considerations:** Implement green protocols in AWS development to reduce lithium battery waste and carbon footprint. Host public seminars **and media outreach to raise AWS literacy** and ethical discourse. Engage civil society in norm building. **Example:** DRDO hosted AWS ethics workshop 2024

Conclusion: The future of warfare, therefore, hinges not only on adopting these technologies but regulating them responsibly. India stands at a critical juncture where its technological prowess must be matched by strategic foresight. As the b**attlefield geometry transforms from trench lines to data streams,** India's policies must keep pace to ensure peace, preparedness, and prosperity in a rapidly militarizing world.

Read More: The Hindu
UPSC Syllabus GS-3: Internal Security

India's Energy Strategy: Vision, Transformation, and Sustainable Growth

India stands at a crucial juncture in its energy evolution. As the **third-largest producer and consumer** of electricity, with an **installed power capacity of 442.85 GW as of April 30, 2024**, the country is undertaking a monumental energy transition. Power consumption **grew by 9.5% in FY23,** reaching ~**1,500 Billion Units (BU),** indicating robust demand fueled by population **growth, urbanization, and electrification**. According to **the Economic Survey 2023-24, the energy sector is projected to attract investments worth Rs. 17 lakh crore ($205.31 billion) in the next 5-7 years**, and the **National Electricity Plan (2022-32)** outlines the requirement of **Rs. 33.6 trillion ($384.5 billion)** to meet future power demands.

India's roadmap, described as **"a strategy fuelled by vision, powered by energy,"** addresses **the triple challenge of availability, affordability, and sustainability**. As the world's **fourth-largest economy** (surpassing Japan in 2025), India is not just expanding capacity but is reshaping the very foundation of its energy systems, integrating policy reforms, green energy initiatives, and technological innovations. The **Union Budget 2025-26, Economic Survey 2024-25,** and global reports such as **IEA's World Energy Outlook 2023** underscore the centrality of energy in **achieving India's development goals, including net-zero emissions by 2070.**

What is India's Present Energy Status?

India's energy sector is one of the **most diversified globally**, encompassing **coal, oil, natural gas, hydro, nuclear, wind, solar, and biomass.** It is also, the **third-largest energy** and oil consumer, **fourth-largest**

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refiner and **LNG importer, h**ome to **over 96,000 retail fuel outlets and a 25,000 km gas pipeline network.** Noteworthy developments include:

- **Installed Capacity**: As of April 2024, the total installed capacity stood at 442.85 GW, including 125 GW from renewable energy. India's renewable energy goal is to reach **500 GW by 2030.**
- **Rural Electrification**: Through schemes like Saubhagya and Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), over 2 crore households and 18,374 villages have been electrified.
- **Renewable Push**: India has already connected 200 GW of renewable energy (RE) capacity out of its 2030 target of 500 GW.
- **Rooftop Revolution**: PM Surya Ghar: Muft Bijli Yojana aims to bring rooftop solar to 1 crore households, with Rs. 20,000 crore allocated in Budget 2025-26.
- **Exploration and Production (E&P)**: ONGC and Oil India have made over 25 hydrocarbon discoveries across multiple basins, adding over 75 MMtoe and 2,700 MMSCM of gas.
- **City Gas Distribution (CGD)**: Expanded from 55 geographical areas in 2014 to 307 in 2025, with 1.5 crore PNG connections and over 7,500 CNG stations.
- **Biofuel Leadership**: Ethanol blending in petrol surged from 1.5% (2013) to 19.7% (2025), saving ₹1.26 lakh crore in forex and reducing emissions by 643 lakh MT.
- **Energy Infrastructure**: India operates 24,000 km of product pipelines and nearly 96,000 retail outlets. In **National Infrastructure Pipeline**, energy sector accounts for 24% of Rs. 111 lakh crore ($1.4 trillion).
- **International Collaborations**: ONGC-bp partnership and data sharing with the University of Houston enhance global investment and technology transfer.

Key Policy Initiatives:

1. **SAUBHAGYA**: Electrified over 2 crore rural households
2. **Deen Dayal Upadhyaya Gram Jyoti Yojana**: Electrified 18,374 villages
3. **PM-Surya Ghar: Muft Bijli Yojana**: Targeting rooftop solar installations in 1 crore homes with an allocation of Rs. 20,000 crores in Budget 2025-26
4. **SATAT Scheme**: Promoting compressed biogas (CBG); over 100 plants commissioned
5. **Ujjwala Yojana**: Ensuring affordable LPG access

What is India's National Electricity Plan (2022-32)?

The **National Electricity Plan (NEP) serves** as the guiding document for **India's power sector expansion:**

1. **Capacity Addition**: Target of 609 GW by 2031-32, including 500 GW from non-fossil sources. **Peak Demand Forecast**: 277.2 GW by 2026-27 and 366.4 GW by 2031-32.
2. **Investment Needs**: Rs. 33.6 trillion (US$ 384.5 billion) estimated investment.
3. **Private Participation**: Encouragement via Production-Linked Incentive (PLI), Viability Gap Funding (VGF), and 100% FDI allowance.
4. **Coal-Based Capacity**: Expected to increase by 80 GW to ensure baseload reliability.
5. **Nuclear Vision**: Targeting 100 GW nuclear capacity by 2047; Rs. 20,000 crore allocated for Small Modular Reactors (SMRs) in Union Budget 2025-26 to develop 5 indigenous Small Modular Reactors (SMRs) by 2033.

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6. **Green Hydrogen and Renewables**: 8.62 lakh tonnes of green hydrogen production planned with major tenders awarded to Indian firms like L&T.\

7. **Private Sector Participation Encouraged Through:** 100% FDI in power sector, **viability gap Funding (VGF), PLI schemes, and PPP models** and **Production-Linked Incentive (PLI) schemes** for solar modules and battery storage

What is the Significance of Energy Sector for India?

1. **Economic Growth Driver and Industrial Backbone:** Energy generation supports over **55% of India's GDP** activity and underpins industrial and urban expansion. A **1% rise in energy supply boosts GDP by 0.8% (World Bank).** India's GDP **grew 7.8% in 2023, powered by stable energy** access. **Example:** GDP grew 7.8% in 2023.

2. **Massive Employment Generator and Skill Demand:** The **National Electricity Plan** projects a need for **3.78 million energy professionals by 2032.** Green energy transitions and infrastructure expansion will generate **direct and indirect jobs**. Skill development is critical across **thermal, solar, wind, and grid sectors**. **Example:** NEP targets 3.78 million jobs.

3. **Strategic Autonomy and Energy Security:** India spent **$158 billion on energy imports in 2022–23**. Increasing **biofuel, domestic oil, and renewable capacity** reduces dependency on **volatile markets.** The **National Bio-Energy Mission (NBEM)** and **ethanol blending** help ensure energy resilience. **Example:** $158 billion import bill, 2022–23

4. **Inclusive and Equitable Development:** Schemes like **Saubhagya, DDUGJY, and PMUY** electrified 2.86 crore homes and provided 9.6 crore **LPG connections**. Access to clean energy improves **health, productivity, and gender outcomes** in rural areas. Energy access bridges **urban-rural development divides**. **Example:** 2.86 crore homes electrified.

5. **Climate Commitments and Environmental Goals:** The energy sector contributes over **40% of India's CO$_2$ emissions**. As India aims **for 500 GW non-fossil capacity by 2030** and net-zero by 2070, solar, wind, and green hydrogen are central to India's updated NDC targets. **Example:** 500 GW clean energy target 2030.

6. **Innovation, Technology, and Modernization:** Vital for India's **grid digitization, hydrogen R&D, and AI adoption enhance efficiency and resilience**. Projects like **GEAPP in Rajasthan deploy AI** for real-time grid balancing. **Bharat Small Reactors and hydrogen electrolysers** push domestic innovation. **Example:** AI-grid pilot in Rajasthan, 2023.

7. **Strategic Diplomacy and Geopolitical Leverage:** Like India's energy collaborations with **France, UAE, U.S., and Australia cover hydrogen, solar, and nuclear**. As a major market, India influences **global energy pricing and policy (IEA-OPEC dialogues).** Cross-border pipelines like India-Nepal boost regional integration. **Example:** India-UAE hydrogen pact, 2024.

8. **Investment Magnet and Economic Multiplier:** According to **IEA, 2023** India **attracted $68 billion in clean energy investment**. The sector offers Rs. 40 lakh crore investment potential by 2032 (Motilal Oswal). Energy is central to India's $5 trillion economy vision. **Example:** $68 billion clean energy FDI.

What are the Challenges and Risks in India's Energy Sector?

1. **High Import Dependency and Volatility Exposure:** India imports **85% of its crude oil needs,** making it vulnerable to **global price shocks**. The energy import bill touched **$158 billion in 2022–23.** Strategic reserves and diversification remain limited. **Example:** 85% crude oil still imported.

2. **Coal Reliance and Transition Delays:** Coal is projected to contribute **52% of power by 2030,** limiting **decarbonization. Seasonal shortages** impact **81 thermal plants slated for RE**

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replacement by 2026. Renewable push faces resistance from **legacy infrastructure**. **Example:** Coal share 52% by 2030.

3. **Grid Integration and Storage Gaps:** Intermittent **solar and wind energy** strain the **grid's stability. Battery** and **pumped hydro storage** infrastructure is still underdeveloped. Projects like **GEAPP aim to improve AI-driven management** but face scale issues. **Example:** Storage remains underdeveloped nationwide.

4. **Discom Stress and Transmission Losses:** As per **Ministry of Power, 2024** distribution companies have outstanding dues over **₹1.3 lakh crore. AT&C losses** remain high at **~20%, impacting cost recovery.** Reform attempts like **UDAY have yielded** limited success. **Example:** ₹1.3 lakh crore discom dues.

5. **Land Acquisition and Regulatory Hurdles:** Large **RE and nuclear projects** face land disputes and delays due to fragmented land laws. States lack **clear land pooling and resettlement policies**. **Teesta and Dibang** protests illustrate **ecological resistance. Example:** Land disputes stall RE projects.

6. **Investment Deficit and Policy Uncertainty:** IEA estimates India **needs $160 billion annually till 2030** for energy targets. Policy unpredictability and **high capital costs deter private investors**. States' varying tariffs and **PPAs worsen investor confidence. Example:** Needs $160B yearly till 2030.

7. **Technological and Manufacturing Lag:** India lacks domestic **capacity in electrolyzes, high-efficiency solar cells, and grid management tools**. Heavy reliance on imports affects **strategic autonomy and costs. National Green Hydrogen Mission (NGHM)** aims to bridge the gap. **Example:** India lags in electrolyser tech.

8. **Workforce and Climate Vulnerability Challenges:** A skilled manpower gap remains**, with 3.78 million professionals needed by 2032. Heatwaves and erratic rainfall** reduce hydro and thermal plant efficiency. Adaptation planning is still in early stages. **Example:** 3.78 million workforce needed.

What can be the Way Forward?

1. **Diversify and Decentralize Energy Mix:** India **must expand beyond solar and wind to include nuclear, hydro, and biomass** in its energy basket. **Decentralized Renewable Energy (DRE)** like rooftop solar and mini-grids can power rural and remote areas. **PM Surya Ghar Yojana** and **Bastar microgrids** are models. **Example:** Rooftop solar under PM Surya Ghar.

2. **Green Hydrogen and Battery Storage Push:** Scale up the **National Green Hydrogen Mission** and pilot corridors in **Panipat and Numaligarh**. **Boost Battery Energy Storage Systems (BESS)** through **Production-Linked Incentive (PLI) schemes** and **PPP models.** Domestic gigafactories will reduce storage import dependence. **Example:** Panipat green hydrogen project scaled.

3. **Reform Discoms and Strengthen Transmission:** UDAY 2.0 must focus on **smart metering, prepaid billing, and Direct Benefit Transfers (DBT).** A ₹9.15 lakh crore grid expansion plan will **ease RE evacuation. Cutting AT&C losses** is essential for financial health. **Example:** ₹9.15 lakh crore grid plan

4. **Digitalisation and AI-Driven Grid Management:** AI tools like GEAPP in **Rajasthan enhance demand forecasting, load balancing, and outage response. PM Gati Shakti and digital twins** improve asset mapping and coordination. Integrated energy platforms will **future-proof operations**. **Example:** GEAPP pilot in Rajasthan grid.

5. **Land, Water, and Environmental Efficiency:** Floating solar, agrivoltaics, and hybrid leases **(via Oilfields Act 2024) optimise land and water use**. Green buildings and rooftop mandates can help reduce urban energy footprints. Just Transition frameworks must address displaced coal workers. **Example:** Agrivoltaic solar farms in Maharashtra.

6. **Finance and Manufacturing Ecosystem:** Mobilise green finance via **ESG norms and sovereign green bonds (₹80 billion issued in 2023).** Extend **PLI schemes to solar cells, electrolysers, and**

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batteries. Domestic supply chains will reduce cost and import reliance. **Example:** ₹80 billion green bonds issued.

7. **Skilling and Innovation for Just Transition:** NEP projects a demand of 3.78 million energy professionals by 2032. **Energy Innovation Hubs and Skill India** initiatives must bridge technical gaps. **Coal belt reskilling** is critical **under Just Energy Transition models**. **Example:** 3.78 million skilled jobs projected.

8. **Global Partnerships and Regional Energy Diplomacy:** Leverage platforms like **ISA, Mission Innovation, and G-20 to shape** global clean energy norms. Expand **SAARC and BIMSTEC energy corridors** and **OSOWOG**. India's leadership must align with its market potential. **Example:** SAARC grid cooperation under study.

Conclusion:

India's energy sector embodies the country's developmental vision — **"confidence, self-reliance, and strategic foresight."** As noted by the **International Energy Agency (IEA), "India will account for the largest share of energy demand growth globally through 2050."** Also, as the former **Chief Economic Adviser Arvind Subramanian said**, **"Energy is the golden thread that connects economic growth, human development and sustainability."** India is weaving that thread into its development fabric with resilience and resolve.

> **Read More: The Hindu**
> **UPSC Syllabus GS-3: Energy**

Empowering Women in Green Businesses: A Pathway to India's Sustainable Future

As India charts its path toward a **$30 trillion economy and carbon neutrality by 2070,** the intersection **of gender empowerment and climate action** is emerging as a game-changer. According to the **Council on Energy, Environment and Water (CEEW),** green sectors in states like Odisha alone have a market potential of **$23 billion.** However, in 2024, **only 18% of Indian start-ups are led by women**. As **climate change accelerates** and **green innovation becomes indispensable**, empowering women in green enterprises is not just about gender parity — it's **central to achieving India's vision of a sustainable, inclusive, and developed economy by 2047.**

What are Green Businesses and Their Role in India's Growth?

Green businesses are enterprises that create **products, services, and technologies** that reduce **environmental harm** while **ensuring economic viability.** They form a **crucial pillar of the transition** to a **low-carbon, circular, and inclusive economy.** As per the **Economic Survey 2024-25, India's green sector could generate over 3 million jobs by 2030, provided supportive infrastructure, finance, and gender-inclusive policies are in place.** These enterprises contribute to:

● Reducing greenhouse gas emissions like **India's NDCs under Paris Agreement.**

● Achieving **SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation, Infrastructure),** and **SDG 12 (Responsible Consumption and Production).**

● Fulfilling India's **Panchamrit commitments and Net Zero by 2070 roadmap**.

Types of Green Businesses in India:

1. **Renewable Energy**: Solar, wind, and bioenergy firms like **SELCO India**.

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2. **Circular Economy Ventures**: Waste-to-wealth businesses like **Cancrie**, which converts industrial waste to nanomaterials.
3. **Eco-friendly Manufacturing**: Energy-efficient construction (e.g., GRIHA-compliant buildings) and others like bamboo engineering and biodegradable packaging firms.
4. **E-waste Management**: Enterprises like **Attero Recycling**.
5. **Sustainable Agriculture**: Organic input producers and agri-tech players promoting sustainable irrigation or vertical farming.
6. **Sustainable Mobility**: EV manufacturing, e-mobility platforms.

Government Schemes such as **Startup India**, **TIDE 2.0**, **Stand Up India**, **PM-KUSUM**, **Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME), PLI for Battery Storage, and the National Green Hydrogen Mission** are key enablers of such businesses.

Why Women are Needed in the Green Business?

According to **India Energy Outlook 2021** by IEA, clean energy investment in India must grow from **$70 billion to over $160 billion annually to meet 2030 goals** this creates a space ripe for green entrepreneurs. These benefits can be extended to women also. Green businesses **not only offer environmental returns** but also **social and economic dividends,** especially when led by women, **who are statistically more likely to reinvest profits** into **community development.**

What is the Significance Empowering Women in Green Business is Crucial for India's Sustainable Goals by 2047?

1. **Inclusive Economic Growth and GDP Boost: According to McKinsey** empowering women in green sectors **can unlock $770 billion in GDP by 2025.** Women-led MSMEs tend to hire **10–30% more women**, creating **multiplier effects** along with equal **labour force participation** could boost **India's GDP by 18–27%**.
2. **Climate Resilience and Community Adaptation: UNDP and UN Women report** that women are key to grassroots **climate adaptation**. It has been seen that women led enterprises **reinvest earnings into health, water, and education infrastructure**. **Example:** SEWA's solar sisters electrify villages.
3. **Better Financial Performance and Creditworthiness:** Women-led enterprises **show higher repayment rates — 97% as per World Bank and NABARD**. Unlocking green credit for women can transform financing landscapes.
4. **Grassroots Innovation and Green Solutions:** Women **bring local knowledge into sustainable product** innovation **like solar cookstoves, biodegradable pads, and engineered bamboo homes**. Initiatives like **Cancrie (by Mahi Singh) innovate** with **nano-waste materials** for clean tech.
5. **Job Creation** in Emerging Green Sectors: ILO projects 3 million green jobs in India **by 2030**. Women in **EV maintenance, waste management, and renewables** can lead this transition. **Frontier Markets** alone has generated **10,000+ green jobs for rural women**.
6. **Improved ESG and Corporate Governance: As per Boston Consulting Group** companies with greater gender diversity **outperform peers on ESG scores**. IMF also points that women-led governance scores **higher business ethics and sustainability**. This attracts **global green finance** and **improves investor confidence**.
7. **Democratizing Green Technology Access:** Women often lead cooperative, locally-rooted ventures like **Karnataka SHGs distribute solar tech** door-to-door, improving energy equity. Such innovations also reduce **energy poverty and emissions**.

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8. **STEM Education and Role Modeling:** Programs like **Tata Steel's 'Women of Mettle'** and **entrepreneurs like Rashi Gupta of Vision Mechatronics** inspire girls to join green engineering. Education in STEM enhances women's presence in high-tech climate roles.

What are the Challenges and Risks Facing Women in Green Business?

1. **Limited Access to Institutional Finance: According to MoSPI** only **1.1% of women entrepreneurs** accessed institutional finance, while **79% relied on self-funding**. Green sectors require high initial capital this worsen women exclusion. Perceived gender and sectoral risks also reduce their credit flow.

2. **Gender Bias and Investor Stereotyping:** Women entrepreneurs face **deep-seated scepticism** — **"Who is the man behind the scene?"** remains a frequent query. As per **PitchBook Global VC funding** to all-female teams was just **2.3% in 2023**. Also the risk perception skews against both gender and green-tech.

3. **Underrepresentation in STEM and Tech Fields: According to AICTE, 2024** only **19.2% of engineering graduates** in India are women, restricting participation in EVs, hydrogen, and climate tech. **Tech-heavy green industries demand core STEM capabilities** this exacerbates sectoral segregation which perpetuates a skills and leadership gap.

4. **Limited Role Models and Mentorship Access:** A lack of visible women in **climate-tech stifles aspiration** and networking. Platforms like **WEP (Women Entrepreneurship Platform)** remain underutilized at the grassroots. **Vanita Prasad of Revy also highlighted** the vacuum in relatable guidance.

5. **Policy Complexity and Scheme Inaccessibility:** Despite numerous schemes, women entrepreneurs report difficulty in accessing support due to **complex documentation and lack of awareness**. **Cancrie cites** opaque **loan disbursal procedures and digital illiteracy** deepens exclusion.

6. **Cultural Norms and Mobility Barriers: Care work, safety issues, and gender norms** restrict women's mobility, especially in **semi-urban/rural areas.** These limitations reduce exposure to fieldwork, tech labs, and green start-up ecosystems. Social expectations also stunt scale and outreach.

7. **Digital Divide and Market Access Gaps: According to** NFHS-5 only **30% of Indian women** use the internet regularly, restricting access to digital marketplaces and fintech. Women-led SHGs face exclusion from green e-commerce/export channels. This undermines scale and competitiveness.
   8. Low Representation in Decision-Making Ecosystems: As per SEBI, 2024 only 17.6% of board members in Indian listed companies are women. Green economic policies often lack **gender-responsive budgeting and design**. Women's exclusion reduces relevance and impact of sustainability strategies.

What Can Be the Way Forward?

1. **Gender-Responsive Finance and ESG Transparency:** Mandate **annual gender-disaggregated credit** reporting by banks and VCs to **track equity in lending.** Expand green credit lines under **SIDBI, NABARD** and promote **Gender Lens Investing** via **ESG frameworks**. **Example:** SEBI: ESG must include gender metrics.

2. **One-Stop Digital Access for Green Schemes:** Develop an **AI-powered Green Women Entrepreneurs Portal** with regional language support, single-window access to credit, training, and mentorship. Inspired by **Startup India Hub 2.0,** it should integrate central and state schemes for clarity and outreach. **Example:** AI dashboard for women-led green startups

3. **Women-Led Innovation and Challenge Funds:** Launch a **₹500 crore Green Innovation Challenge** to fund climate-tech solutions by women. **Use blended finance and carbon credits** to support

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scalable ventures in areas like bio-remediation, EVs, and sustainable design. **Example:** ₹500 crore fund for women innovators.

4. **STEM Scholarships and Women-Centric Curriculum Reform:** Offer **green-tech fellowships** under schemes like **'Women of Mettle'** and include climate-smart modules in engineering and ITIs. As per **AICTE, 2024** targeted support can bridge the **19.2% gender gap in engineering graduates**. **Example:** Tata Steel's Women of Mettle program.

5. **Decentralized Manufacturing and SHG Integration:** Promote rural **micro-units in bamboo**, **composting, solar devices by integrating SHGs** with government procurement and **GeM**. States like **Tripura** offer scalable bamboo cluster models linked to eco-tourism and green supply chains. **Example:** Tripura bamboo cluster empowers SHGs.

6. **Green Incubators and Mentorship Cells:** Set up **State Renewable Energy Development Agency (SREDA)**-based incubators with dedicated women mentors. Expand NITI Aayog's **WEP and BRICS Bootcamps** for localised access in Tier-2 and Tier-3 towns. **Example:** WEP expands to Tier-2 green hubs

7. **CSR-Funded Bootcamps and Skilling Programs:** Mandate 10% of CSR funds under Schedule VII for green skills training, targeting women-led MSMEs. Replicate models like **Goldman Sachs' 10,000 Women** with a climate innovation focus. **Example:** CSR funds support 10,000 green women

8. **E-Commerce and Procurement Quotas:** Reserve **10% of green public procurement** for women-run MSMEs and add dedicated green categories on GeM, Flipkart, and Amazon. Helps address the market access gap faced by rural SHGs and eco-entrepreneurs. **Example:** GeM adds women's green product section

Conclusion:

To achieve a sustainable **India by 2047,** we must foster not just green innovation but gender equity. Empowering women in green business is not optional—it is foundational to India's future.

Read More: The Hindu
UPSC Syllabus GS-2: Women empowerment

Stampede Disaster Management in India

On June 4, 2025, joy turned into horror as a stampede at the **Karnataka State Cricket Association (KSCA) stadium in Bengaluru** led to the deaths of **11 people and left 47 others** injured. Triggered by an uncoordinated celebration **for Royal Challengers Bangalore's (RCB) IPL victory,** the tragedy unfolded after RCB's unilateral announcement of a victory parade without consulting authorities. According to the **NCRB's report titled 'Accidental Deaths and Suicides in India'**, between **2001 and 2022,** a total of 3,074 lives have been **lost due to stampedes in India**. Of these, **2,169 (70%) were men and 900 (30%) were women.**

What is a Stampede?

1. As per **NDMA's** "**Managing Crowd at Events and Venues of Mass Gathering"** Stampede is a **sudden, uncontrolled rush** or surge of a crowd, often leading to **crushing, suffocation, or trampling, resulting in injuries or fatalities**.

2. Stampedes are **characterized** by **high crowd density or accelerated movements triggered** by panic or excitement. They are man-made disasters typically occurring at **places of mass gathering**, such as **religious sites, railway stations, or events,** due to inadequate crowd management.

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3. Process of a Stampede

Source- NDMA Disaster Guidelines

What are Some Notable Deadly Stampede Disasters in India?

Allahabad Railway Stampede (2013)	Last-minute change in the platform for the pilgrims who had gathered for the Khumbh Mela, created panic and resulted in a stampede. It led to the loss of around 36 lives.
Mumbai pedestrian bridge Stampede (2017)	The stampede at the crowded Pedestrian Bridge connecting the two Mumbai railway stations resulted in the death of 22 people and injured 32.
Mata Vaishnav Devi shrine (2022)	The Stampede at the Mata Vaishno Devi Shrine resulted in the death of 22 people and injured 32.
Hathras Stampede (2024)	During a religious gathering in Uttar Pradesh's Hathras district on July 2, 2024, at least 121 people (almost all women) lost their lives.

What are the major causes of Stampedes in India?
1. Human Factors: These are **behavioral and psychological triggers** that contribute to crowd mismanagement and chaos:

Cause	Explanation
Panic or Fear	Sudden fear (e.g., of fire, explosion, or perceived threat) causes uncontrollable crowd movement. **Example, Dabwali Fire Tragedy (1995).**
Excitement or Euphoria	Intense enthusiasm (as during concerts, sports wins) may lead to irrational rushing. **Example, Bengaluru RCB Parade (2025).**
Impatience or Aggression	Frustration due to delays or lack of access leads to pushing and violence. Example, Sabarimala Stampede (1999)
Wild Rush Behavior	Inward/outward crowd clashes, often to grab freebies or exit quickly. **Example, Elphinstone Footbridge Stampede (2017).**
Panic from Rumors	Rumors like fire, earthquake, or landslide induce fear and uncontrolled stampedes. **Example, Kumbh Mela Stampede (2003).**

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2. Infrastructure Factors: These involve the physical design, condition, and capacity of the venue:

Cause	Explanation
Overcrowding	Inadequate space relative to crowd size increases risk of trampling. **Example, Uphaar Cinema Tragedy (1997).**
Insufficient Facilities	Narrow walkways, blocked exits, or lack of barricades cause bottlenecks. **Example, Sabarimala Tragedy (1999).**
Adverse Conditions	Slippery floors, poor lighting, uneven or muddy terrain increase fall risk. **Example, Sabarimala Tragedy (1999).**
Structural Failures	Collapse of barricades, temporary bridges, or railings escalate crowd panic. **Example, Sabarimala Tragedy (1999).**
Fire/Electrical Failures	Short circuits, fires in enclosed spaces, or failure of extinguishers. **Example, Sabarimala Tragedy (1999).**
Unauthorized Constructions	Encroachments or illegal stalls reduce escape space and visibility. **Example, Sabarimala Tragedy (1999).**

3. Organizational Factors: These relate to poor planning, management, and coordination between responsible agencies:

Cause	Explanation
Inadequate Crowd Management	Lack of trained staff to regulate, guide, or intervene in real-time. **Example, Hillsborough Disaster (1989).**
Insufficient Planning	Poor venue design, no clear exit strategy, or failure to anticipate crowd. **Example, Bengaluru RCB Parade (2025).**
Failure in Communication	No real-time alerts, unclear instructions, or failed PA systems. **Example, Kumbh Mela (2003).**

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Overestimation or Ticket Overselling	More attendees than capacity, creating dangerous densities. **Example, Love Parade Stampede, Germany (2010).**
Locked/Closed Exits	Exits inaccessible in emergencies or used as storage. **Example, Uphaar Cinema Tragedy (1997).**
Lack of Surveillance or Tech	Absence of CCTV, drones, or walkie-talkies to monitor crowd dynamics. **Example,** Hillsborough Disaster (1989)
Poor Inter-Agency Coordination	Miscommunication or delay between police, administration, and event organizers. **Example,** Kumbh Mela Stampede (2003).
Fatigued or Understaffed Police	Prior deployment or inadequate briefing leaves venues unguarded. **Example,** Bengaluru Parade (2025).
Use of Force or Panic Response	Misuse of lathis or tear gas may provoke chaos instead of control. **Example,** Jallianwala Bagh (Historical).

What are the Impact of these Stampedes?

What are the NDMA Guidelines for the prevention of Stampedes in India?

NDMA has prepared '**Suggestive Framework for Preparation of Crowd Management Plan for Events/Venues of Mass Gathering**'. It provides a **proactive, holistic approach** to **prevent and manage stampedes**, emphasizing **planning, preparedness, and response**.

Source- NDMA Document

Before Stampede (Prevention and Preparedness):

1. **Planning and Capacity Building**
   o **Understand Visitors and Stakeholders**: Assess expected crowd (age, gender, motives) and stakeholder roles **(e.g., police, NGOs)** to tailor plans.
   o **Capacity Planning**: Develop long-term infrastructure for religious sites, including staging points, multiple routes, and facilities **(e.g., rest, water)**.
   o **Crowd Control Strategies**: Manage demand-supply gaps by controlling inflow/outflow, using advance registration, and promoting off-peak visits.
   o **Stakeholder Coordination**: Establish a Unified Control System for seamless agency collaboration.
2. **Risk Analysis and Preparedness**:
   o **Identify Threats**: Use historical data and local knowledge to pinpoint risks (**e.g., structural failures, overcrowding).**
   o **Risk Assessment**: Conduct **Failure Mode and Effect Analysis (FMEA)** to prioritize hazards based on severity, frequency, and detection difficulty.

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- ○ **Rapid Venue Assessment (RVA)**: Perform quick audits using 20 yes/no questions to evaluate crowd management practices.
- ○ **Develop Action Plans**: Define actions, responsibilities, timelines, and resources for each threat, considering vulnerable groups.

3. **Information Management**: Provide clear signage, public address systems, and media campaigns to inform visitors about routes, rules, and emergency procedures. Disseminate real-time crowd strength and wait times to manage expectations.

4. **Safety and Security Measures**: Ensure structural safety (e.g., stable barricades, emergency exits) and fire/electrical compliance. Deploy adequate, trained security personnel with CCTV, observation towers, and communication systems. Use barriers strategically to regulate crowd flow.

5. **Facilities and Emergency Medical Services**: Provide accessible medical facilities, ambulances, and trained staff. Plan for water, sanitation, and food to reduce crowd agitation.

6. **Transportation and Traffic Management**: Regulate vehicle access, parking, and shuttle services to prevent congestion. Develop emergency transportation plans for evacuation.

7. **Capacity Building**: Train stakeholders (organizers, police, volunteers) on crowd management, first aid, and **Incident Response System (IRS).** Conduct regular drills, tabletop exercises, and full-scale simulations (Section 8.2).

8. **Legal Compliance**: Adhere to laws like the **Disaster Management Act (2005)** and local regulations **(e.g., UP Melas Act, 1938).** Obtain necessary licenses and approvals for events.

After Stampede (Response and Recovery):

1. **Incident Response System (IRS)**: Activate IRS with a control room and Incident Commander (IC) to coordinate response. Establish Emergency Operations Centres (EOCs) and Incident Command Posts (ICPs) for real-time management. Deploy police, medical teams, and volunteers for rescue and relief.

2. **Emergency Medical Services**: Provide immediate first aid and triage at the venue. Transport victims to hospitals using pre-planned ambulance routes.

3. **Media Management**: Disseminate factual, timely information to prevent rumors. Avoid sensationalism and respect victim privacy.

4. **Relief and Rehabilitation**: Distribute relief supplies (food, shelter) equitably, avoiding rushes. Support psychological recovery through counseling, as implied by addressing societal agony.

5. **Post-Incident Review**: Conduct inquiries to identify causes, as seen in past tragedies. Revise crowd management plans based on lessons learned, updating after major incidents or annually.

6. **Legal Action**: Hold negligent parties accountable, as in Uphaar and Dabwali cases, where courts imposed joint liability.

What are the Challenges in Managing Stampede?

NDMA's Managing Crowd at Events and Venues of Mass Gathering highlighted following:

1. **Structural Limitations:** Religious sites in difficult terrains with narrow, slippery paths and encroachments by vendors exacerbate crowd risks. Inadequate infrastructure like weak barricades multiplies dangers during mass gatherings. **Example:** Wai Satara stampede due to terrain bottlenecks.

2. **Overcrowding and Demand-Supply Gap:** Attendance exceeding venue capacity, especially during peak times, creates chaos. Cultural or religious sensitivities make restricting entries challenging, worsening crowd management efforts. **Example:** Bengaluru Stampede 2025 exceeded stadium capacity.

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3. **Crowd Behavior:** Unruly actions like pushing or rushing for freebies, combined with rumors, escalate chaos. Individuals often follow miscreants, amplifying disorder in crowded environments. **Example:** Kumbh Mela crowd panic triggered stampede.

4. **Inadequate Security and Coordination:** Insufficient deployment of poorly briefed security personnel and coordination gaps between police and local authorities hinder swift responses and crowd control. **Example:** Kumbh Mela lacked police-administration coordination.

5. **Fire and Electrical Hazards:** Non-compliance with fire safety norms in makeshift venues and illegal electrical setups spark panic. Dysfunctional extinguishers worsen rescue operations during emergencies.
    Example: Dabwali tragedy caused panic by fire.

6. **Poor Planning and Implementation:** Inadequate infrastructure development for high-traffic sites and underestimating crowd sizes lead to failed management and unregulated entry at peak times.
    Example: Wai, Satara mishap due to weak planning.

7. **Communication Failures:** Ineffective public address systems and delayed or inaccurate information dissemination amplify panic. Rumors spread faster than official responses, intensifying crises.
    Example: Panic spread rumors worsened Kumbh stampede.

8. **Resource Constraints:** Limited funding for infrastructure upgrades, inadequate medical facilities, and untrained emergency personnel reduce response efficiency and escalate fatalities during stampedes.
    Example: Lack of ambulances worsened Dabwali response.

9. **Legal and Regulatory Gaps:** Temporary permits issued without thorough checks and lax enforcement of safety regulations delay accountability and breed conditions for disasters. **Example:** Non-compliance cited in Uphaar cinema tragedy.

10. **Lack of Public Awareness:** Visitors unfamiliar with emergency protocols or safety measures are more vulnerable during crises, leading to increased casualties and chaos. **Example:** Public unaware of exits in Uphaar tragedy.

What Should be the Way Forward?

1. **CrowdSense Analytics: Deploy AI-driven crowd behavior analytics** that use heat maps, sensors, and drone surveillance to detect dangerous crowd densities, bottlenecks, or abnormal movement patterns in real time, allowing early interventions before panic escalates. **Example:** Kumbh Mela 2024 drone surveillance success.

2. **GeoAlert Systems: Integrate geo-fencing with mobile alert systems** to send instant updates, entry instructions, or emergency evacuation messages to people within a specific area, preventing chaos through timely digital communication. **Example:** Delhi protests 2020 geo-fencing effectiveness.

3. **Timed Access Protocol: Implement digital passes with time-slot allocation** to regulate entry into venues, especially religious or sports events. QR codes, face recognition, and real-time scanning reduce gate congestion. **Example:** Jagannath Yatra used timed entry passes.

4. **Simulation Crowd Modelling: Use computer simulations to predict crowd dynamics** in different layouts, scenarios, or terrain conditions. This helps event planners create safer infrastructure and escape routes. **Example:** London Olympics 2012 crowd simulations used.

5. **Festive Zoning: Encourage decentralized celebrations across multiple zones** instead of concentrating crowds in one location. Parallel sites reduce pressure and improve crowd dispersion management. **Example:** Mumbai Ganesh Visarjan created immersion zones.

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6. **Civil Marshal Force: Train citizen volunteers as crowd marshals** for high-attendance events. These local guides assist with directing foot traffic, calming panic, and providing first-level response. **Example:** Tokyo Marathon uses 10,000+ volunteers.

7. **InfraSafe Audits: Mandate safety audits of all venues** before public gatherings, checking exits, signage, lighting, terrain, and encroachments. Structural compliance reduces physical risk factors. **Example:** IIT-Bombay audited Mumbai railway stations.

8. **Event Licensing Reform: Link event approvals to safety protocols** like police clearance, emergency response plans, and crowd control training. Penalise unlicensed or unsafe mass events. **Example:** Madurai Chithirai festival requires prior NOC.

Conclusion:

The **Bengaluru stadium stampede** was not just a tragedy — it was a symptom of a **larger governance failure**. As former **NDMA Vice-Chairman M. Shashidhar Reddy** once remarked, **"Disasters don't just happen; they are allowed to happen."** Until accountability is enforced and systemic corrections made, such "celebration catastrophes" will continue to repeat.

> **Read More: The Hindu**
> **UPSC GS-3: Disaster Management**

Wind Energy Sector in India – Significance & Challenges – Explained Pointwise

India has a target of achieving 500 GW of non-fossil based electric installed capacity by 2030, including 100 GW from wind. However, the true challenge goes beyond just scaling up & includes securing our installed energy infrastructure & manufacturing its components domestically to prevent cybersecurity threats. In this article, we will look at the status of wind energy sector in India, the benefits the sector presents and the challenges faced by the **Wind Energy Sector in India**.

Source- The Hindu
What is the status of Wind Energy in India?

Fourth globally in installed wind capacity	India ranks fourth globally for installed wind energy capacity. According to the National Institute of Wind Energy (NIWE), India has a wind potential of 1,163.86 GW at 150 meters above ground level.
Wind Energy as percentage of India's installed renewable energy capacity	As of September 2024, India's total installed renewable energy capacity is approximately 200 GW, including large hydro. Wind Power contributes to nearly 47 GW of installed renewable energy capacity in India.
Sates with wind capacity generation potential	Key states for wind capacity include Gujarat, Tamil Nadu, Karnataka, Maharashtra, Rajasthan, and Andhra Pradesh. These states collectively account for over 93% of India's wind power capacity. With 10,603.5 MW of installed wind capacity, Tamil Nadu holds the second-highest capacity in the country.

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Source- MNRE

What are the benefits of Wind Energy?

1. Renewable and Sustainable Energy Source: Wind energy is inexhaustible and it replenishes naturally. This makes it a sustainable power source compared to fossil fuels. **For ex-** Denmark generates nearly half of its electricity from wind energy, thereby securing a steady, renewable energy supply.

2. Reduced Greenhouse Gas Emissions: Wind turbines generate electricity without producing CO_2 emissions. This helps to reduce the carbon footprint and mitigate climate change. **For ex-** In 2021, wind energy in the United States helped avoid approximately 189 million metric tons of CO_2 emissions, equivalent to taking 41 million cars off the road.

3. Energy Independence and Local Economic Growth: Wind power reduces dependence on imported fuels, bolstering energy independence and enhancing energy resilience.

4. Job Creation: Wind energy projects create jobs in manufacturing, installation, maintenance, and operations. **For ex-** India's wind energy sector has created thousands of jobs, with Tamil Nadu alone providing numerous opportunities for local technicians and engineers.

What are the Challenges with the Wind Energy Sector in India?

1. Land Acquisition Issues: Acquiring large tracts of land for wind farms is a complex and time-consuming process in India. This often leads to delays in project implementation and increased costs due to bureaucratic hurdles and land disputes.

2. Intermittency and Unpredictability: Wind energy generation depends on weather conditions. This makes it unpredictable and variable during rough weather conditions such as monsoons.

3. Inadequate Transmission and Grid Infrastructure: India's grid infrastructure is not equipped to handle large-scale integration of wind energy. **For ex-** Curtailment issues in Gujarat and Tamil Nadu due to limited transmission lines connecting wind farms to the main grid.

4. Lack of Updated Policies and Incentives: Older policies do not always accommodate modern technological advancements or the current needs of the sector. **For ex-** Opposition to TN's wind energy policy from wind energy investors for not accounting for older turbines in the wind energy policy.

5. High Initial Costs and Financial Viability: Tamil Nadu turbines installed post-2018 lack a banking facility. This means that energy produced by repowered turbines cannot be banked, affecting the financial feasibility of these projects.

6. Inconsistent Wind Mapping and Resource Assessment: India lacks consistent, high-quality wind resource leading to suboptimal site selection and underutilized resources. **For ex-** In parts of Andhra Pradesh, inadequate wind mapping has resulted in underperforming wind farms.

7. Increased Urbanisation: Habitation growth near wind farms has also impacted the financial viability of the wind energy projects in India.

8. Local Ecological Concerns: The construction of wind farms can disrupt local ecosystems and wildlife habitats. **For ex-** Rajasthan has faced resistance to wind energy installations due to concerns over the impact on bird migratory routes and local wildlife habitats.

9. Cybersecurity threat: In the recent India-Pakistan skirmish (Operation Sindoor), Pakistan media outlet spread a fake news of crippling 70% of India's energy infrastructure. Even though the news was false, but the

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threat is real. There have been various global incidents where cyberattacks have crippled energy grids. The power converters used in wind turbines & solar invertors in solar projects are software-defined assets & they depend upon SCADA (Supervisory Control & Data Acquisition) system – which could be compromised subtly & invisibly. A compromised SCADA system or remote-access breach could disable a wind farm, or multiple sites, in mere seconds.

What are the Government's policies for Wind Energy Sector in India?

National Wind-Solar Hybrid Policy (2018)	The policy aims to encourage hybrid projects that integrate wind and solar power, improving grid stability and reducing dependency on one energy source.
Repowering Policy for Wind Power Projects	This policy focuses on repowering older wind turbines (under 2 MW) with more efficient, higher-capacity turbines to enhance output from existing sites.
Guidelines for Tariff-Based Competitive Bidding (2017)	This policy promotes competitive bidding to drive down wind energy tariffs, encouraging transparency and cost-efficiency in power procurement from wind projects.
National Offshore Wind Energy Policy (2015)	This policy provides a framework to develop offshore wind energy in India's Exclusive Economic Zone. It grants the National Institute of Wind Energy (NIWE) the authority to identify potential offshore sites and support project implementation.
Green Energy Corridor Project	The Green Energy Corridor Project focuses on creating transmission infrastructure to facilitate renewable energy integration into the national grid, including wind energy.
Localisation of manufacturing	According to a proposed amendment, Original Equipment Manufacturers (OEMs) are required to establish R&D facilities in India – this change signals a decisive shift from passive assembly to active domestic innovation in India. The amendment is proposed to eliminate vulnerabilities to external cyberthreats. Moreover, mandating local R&D isn't just about job creation or investment but about creating wind turbine technology designed for India's grid, climate & challenges.

What Should be the Way Forward?

1. Comprehensive and beneficial policy: Commercially beneficial, field-responsive policy should be implemented for long-term investment in wind energy.

2. Promoting Land Use Efficiency: Wind farms can coexist with agricultural or grazing land, allowing dual use and enabling farmers to earn additional income through land leases for wind turbines. **For ex-** In Iowa, USA,

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many farmers lease portions of their land for wind turbines, supplementing their agricultural income without significantly disrupting farming activities.

3. Rapid Deployment and Scalability: Wind farms should be built quickly and scaled to meet local electricity demand. **For ex-** UK's recent rapid expansion of offshore wind energy plants in recent years.

4. Promotion of Hybrid Renewable Projects: Wind-solar hybrid systems can help overcome intermittency issues by ensuring energy availability even during low-wind periods. Such hybrid projects will also help in the maximization of land use and improvement of grid reliability.

5. Cybersecurity:

- Mandatory audit of software stacks & hardware backdoors, especially from OEMs in adversarial jurisdiction (such as China).
- To operate in India, vendors/OEMs must obtain certification & clearance from India authorities & adhere to Govt of India regulations. These regulations should include provisions for force majeure situations, where vendor/OEM-supplied equipment may fail to receive support & patches, potentially leading to significant security breaches & national security risks. This ensures that even in times of geopolitical uncertainty, India's energy infra remains operable, supported & secure.

Conclusion:
India's wind energy sector is poised for robust growth, backed by strong policy support, competitive tariffs, and ambitious targets. Addressing infrastructure, grid, and cybersecurity challenges will be crucial for sustainable expansion and for meeting the country's clean energy goals.

> **Read More: The Indian Express**
> **UPSC Syllabus GS-3: Energy Sector**

Electoral Transparency in India – Significance & Challenges – Explained Pointwise

Recently, the Leader of Opposition (LoP) in Lok Sabha raised objection about the conduct of elections in the 2024 Maharashtra Legislative Assembly elections. He also questioned the process of appointing the Election Commissioners as the Union Govt refused to implement the SC's judgment to include Chief Justice of India in the selection process. Earlier also, different political parties have raised objection about the EVMs. This makes it important to discuss the significance, challenges, various initiatives & way forward related to **Electoral Transparency in India**.

What is electoral transparency?

Electoral transparency refers to the openness, clarity, and accessibility of all processes, information, and funding related to elections, ensuring that citizens, stakeholders, and oversight bodies can scrutinize and trust the integrity of the electoral system. It is a cornerstone of democratic governance, as it enables public oversight, reduces opportunities for corruption, and upholds the legitimacy of electoral outcomes.

What is the significance of electoral transparency?

1. Builds Public Trust and Legitimacy: When the electoral process is open to scrutiny, it instills confidence in voters, candidates, and political parties. This trust is fundamental for the legitimacy of the elected government and the stability of the democratic system.

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2. Ensures Accountability: Transparency holds election management bodies (like the Election Commission of India), political parties, and candidates accountable for their actions. It makes it harder for malpractices to occur unnoticed. **For example:** Public disclosure of election expenditure by candidates and parties allows citizens and watchdog organizations to monitor spending and identify potential violations of cap on election expenditure.

3. Reduces Fraud and Malpractice: Open procedures and clear guidelines minimize opportunities for electoral fraud, rigging, and manipulation. When processes are transparent, fraudulent activities are more likely to be detected and deterred. **For example:** The presence of polling agents from various political parties at polling stations and during vote counting, along with videography, serves as a deterrent to booth capturing, bogus voting, and tampering.

4. Promotes Informed Decision-Making by Voters: Transparency ensures that voters have access to crucial information, such as candidate backgrounds (including criminal antecedents), sources of political funding, and party manifestos. This allows them to make informed choices. **For example:** The mandatory disclosure of assets and liabilities of candidates, enforced by the ECI, helps voters assess the financial standing and potential conflicts of interest of those seeking office.

5. Enhances Participation: When voters perceive the electoral process as fair and transparent, they are more likely to participate actively, whether by registering to vote, casting their ballot, or engaging in political discourse. A sense of fairness encourages civic engagement. **For example:** Easily accessible and regularly updated voter rolls, available for public inspection, allow citizens to verify their inclusion and encourage new voter registration.

6. Safeguards Fundamental Rights: Electoral transparency aligns with fundamental rights such as the right to information (Article 19(1)(a)) and the right to vote. Without transparency, these rights can be undermined. **For example:** The Supreme Court's verdict striking down the Electoral Bond Scheme underscored the public's right to know the sources of political funding, reinforcing the importance of transparency for informed voting.

What are various issues related to electoral transparency in India?

1. Political Funding Transparency: Lack of transparency in the sources of political funding. Anonymous donations make it difficult for citizens to know who is funding political parties, raising concerns about quid pro quo arrangements and corporate influence. The government introduced Electoral Bond scheme, in 2017, to enhance the transparency in political funding. While the government argued it would curb black money by routing donations through formal banking channels, critics (including the Election Commission itself) argued it enhanced opacity. Opaque funding erodes public trust, fosters crony capitalism, and can distort policy-making in favor of anonymous donors rather than public interest.

2. Electronic Voting Machines (EVMs): Opposition leaders have frequently described EVMs as **"black boxes"** because voters cannot independently verify if their vote was accurately recorded and counted as intended by the machine itself. They argue that the internal workings are not sufficiently transparent. The Voter Verifiable Paper Audit Trail (VVPAT) system was introduced to address this by allowing voters to see a paper slip of their vote. However, the ECI currently mandates counting VVPAT slips from only **five randomly selected EVMs** per assembly constituency/segment. The opposition political parties are demanding 100% VVPAT verification with EVM count.

3. Accuracy and Transparency of Electoral Rolls:

- **Duplicate Entries:** Reports of individuals having multiple entries in the voter list, sometimes across different constituencies or even states, raise concerns about potential fraudulent voting.

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- **Deletion of Genuine Voters:** Conversely, many genuine voters, especially migrant workers or those from marginalized communities, find their names missing from the rolls, leading to disenfranchisement.

- **Aadhaar Linkage Controversy:** While the Election Commission sought to link Aadhaar with voter IDs to de-duplicate the rolls, concerns were raised about the voluntary nature of the linkage potentially becoming implicitly mandatory, leading to exclusion due to authentication failures or privacy risks.

- **Abnormal increase in number of voters listed in electoral rolls between the elections:** The LoP raised the issue of abnormal increase in the number of voters between general election & Assembly elections in Maharashtra. The independent investigation has revealed that nearly 4 million new voters were added in just 6 months.

4. Transparency in the Appointment of Election Commissioners: The Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023, changed the selection committee. Previously, a Supreme Court ruling in 2023 had suggested a collegium including the Chief Justice of India, the Prime Minister, and the Leader of Opposition. The new Act replaced the CJI with a Union Cabinet Minister. This has raised concerns that the government will have a majority in the selection committee, potentially impacting the perceived independence of the ECI.

5. Restrictive access to CCTV footage of the polling process: The LoP has also raised the objection that the Conduct of Election Rules 1961 were recently amended to restrict the access to CCTV footage of the polling process. Providing access to the CCTV footage to the nominees of the political parties is important to scrutinize the complaints.

What have been the various initiatives to enhance electoral transparency?

1. Disclosure of Candidate's Assets and Liabilities: Following the Supreme Court's judgment (e.g., *Union of India v. Association for Democratic Reforms, 2002*), the ECI mandated that all contesting candidates file an affidavit disclosing their criminal antecedents, financial assets, liabilities, and educational qualifications.

2. Supreme Court's Ruling on Electoral Bonds: Supreme Court, in its judgment in February 2024, struck down the Electoral Bond scheme as unconstitutional. It directed the State Bank of India (SBI) to disclose all details of electoral bonds purchased and redeemed to the ECI, which then published this data.

3. First Level Checking (FLC) of EVMs/VVPATs: Before every election, EVMs and VVPATs undergo a thorough "First Level Checking" by engineers of the manufacturing PSUs (BEL and ECIL) in the presence of representatives of political parties. This process allows political parties to inspect the machines and verify their integrity before deployment, ensuring transparency at a critical stage.

4. Electoral Roll Management through ERO Net: The ECI launched ERO Net, an online platform that automates the process of electoral roll management, including registration, field verification, and decision support for Electoral Registration Officers (EROs). It aims to minimize errors, prevent duplicate entries, and make the process of voter registration and modification more transparent and efficient.

5. Four Qualifying Dates for Electoral Roll Enrolment: Recent amendments allow citizens turning 18 years on 1st January, 1st April, 1st July, or 1st October to file claims for enrolment, rather than just 1st January. This ensures continuous and more inclusive enrolment, making the electoral roll more representative and transparent.

6. cVIGIL App: The cVIGIL mobile application allows citizens to report Model Code of Conduct (MCC) violations and expenditure-related infractions directly to the ECI with geo-tagged photos/videos. The ECI promises action

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within 100 minutes. It empowers citizens to be vigilant, provides real-time reporting of violations, and ensures quick response from election authorities, making the enforcement of MCC more transparent and effective.

What can be the way forward?

1. Bring Political Parties under RTI: A long-standing demand is to bring all political parties, especially those receiving public funding or significant public interest, under the ambit of the Right to Information (RTI) Act. This would allow citizens to seek information about their finances, including donations and expenditures.

2. Lower Anonymous Donation Threshold: Reduce the threshold for anonymous cash donations significantly, ideally to zero, or at least below the current ₹20,000. All donations, regardless of amount, should be made through traceable digital means (cheque, bank transfer, digital payment).

3. Increased VVPAT Verification: A **scientifically determined, statistically robust sample size** for VVPAT counting should be adopted to ensure a higher degree of confidence in the EVM results. In case of any discrepancy, a full manual counting of VVPAT slips in the affected constituency should be immediately triggered.

4. Real-time Online Updates with Transparency: Make the electoral roll update process more dynamic, allowing for real-time online updates. Ensure that all additions, deletions, and modifications to the electoral roll are published transparently and immediately, allowing for public scrutiny and objections.

5. Publish Voter Rolls and Turnout Data Promptly: The Election Commission should release consolidated, digital, and machine-readable electoral rolls and real-time voter turnout data for all elections. This includes making Form 17C data and CCTV footage from polling booths publicly available to address concerns about discrepancies and build confidence in the process.

6. Access for Observers: Ensure that domestic and international observers, as well as party agents, have unhindered access to polling and counting centers to monitor the process.

Conclusion:
The onus lies on ECI to enhance transparency in the electoral process & strengthen the trust of the voters on the process of electing their representatives through a free & fair elections.

Read More: **The Hindu**
UPSC Syllabus GS-2: Election Process

Inclusive Growth-Explained Pointwise

What is Inclusive Growth? As per OECD (Organisation for Economic Cooperation and Development), **inclusive growth** is economic growth that is distributed fairly across society and creates opportunities for all.

UNDP described it as "the process and the outcome where all groups of people have participated in growth and have benefited equitably from it".

Put simply, it refers to economic development that benefits all segments of society, ensuring equitable opportunities and outcomes for individuals regardless of their socio-economic background or circumstances.

What are the Major Components of Inclusive Growth?

1) **Reduced Poverty-** Inclusive growth strives to reduce poverty by improving the poor's access to opportunities and resources.

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2) **Women's Empowerment-** Since women are frequently left out of economic possibilities, inclusive growth aims to provide them more power through employment, education, and training.

3) **Good Governance-** Transparency, accountability, and efficient institutions that meet the demands of all citizens are essential for inclusive progress.

4) **Education & Skill Development-** Building skills is a crucial component of inclusive growth because it paves the way for people to engage fully in the economy.

5) **Equal Opportunity-** Inclusive growth works to level the playing field for everyone, regardless of socio-economic position, gender, race, or religion.

6) **Access to Basic Services-** Inclusive growth seeks to guarantee that all citizens have access to basic services including healthcare, education, and sanitation. This access should include not only the quantity, but also quality, of these basic services.

7) **Employment Creation-** To combat poverty and advance economic development, inclusive growth aims to increase employment, especially for disadvantaged and marginalised people.

8) **Addressing the Marginalised-** Ensuring participation from all sections of society in the social, economic and political sphere.

9) **Reduction in Income Disparities-** Among the following:

1. Sections of society (Religion, Caste, etc.)
2. Rural-Urban Areas
3. Genders

What is the situation of inclusive growth in India?

- India is now one of the fastest-growing economies globally. However, this growth has not resulted in a corresponding increase in its **Human Development Index (HDI)**. According to the Human Development Report of 2023-24, India ranks 134 out of 193 countries.
- In the **Inclusive Development Index (IDI)**, 2018 compiled by the World Economic Forum (WEF), India ranked 62nd out of 74 emerging countries and was among the least inclusive countries in G20 countries.
- The **"Public good or Private Wealth?" Report 2019**, published by OxFam showed that India's top 10% holds 77.4% of the total national wealth, while the top 1% holds 51.53% of the wealth. The bottom 60% of the population holds only 4.8% of the national wealth.

What are the reasons behind lack of Inclusive Growth in India?

1) **Historical reasons-** Discrimination against certain sections of the society since historic times has affected their access to opportunities and to education, employment and health. Affirmative policies have been restricted to a few beneficiaries.

2) **Gender Inequality-** Females are treated as subordinate to males. Girl education is considered a burden on the family and women have limited choices in employment.

3) **Large-scale informal employment–** 80% of the Indian labour force is employed in the informal sector. Informal sector jobs are more insecure without regular pay and social security benefits. This increases the wage gap between formal and informal sectors.

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4) **Overdependence on Agriculture-** A huge proportion of the population is still dependent on agriculture (~45% of the workforce) but the share of agriculture to the total GDP is falling.

5) **Regional Disparities in Growth-** Growth has been different across sectors and regions. For example, Green Revolution has disproportionately benefitted North-Western India when compared to Eastern India.

6) **Globalisation-** Studies show that globalization and opening up the economy has benefited the rich more than the poor, thus raising inequality.

7) **Jobless Growth-** India experienced job growth of 3% p.a in the 1970s at a time when the economy grew at 3-3.5% p.a but over the last 3 decades the economy grew at over 5-8% p.a but job growth has been close to 1% p.a.

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8) **Government Inefficiencies-** This includes corruption, maladministration, red tapism etc. This prevents the optimum utilization of resources and creation of jobs.

Read More- Inclusive Growth

What are the challenges in ensuring inclusive growth?

1) **Poverty-** The Multidimensional Poverty Index 2024 places India first, with an estimated 23 crore people living in multidimensional poverty.

2) **Uneven Distribution of Resources-** Unfair resource allocation can thwart efforts to create inclusive growth. Examples of unfair resource distribution include wealth, land, and education.

3) **Social and cultural obstacles-** Marginalized groups may encounter social and cultural obstacles that restrict them from accessing opportunities and services, such as discrimination, exclusion, and gender inequity. For instance, Women often face barriers in accessing education, employment, and other opportunities.

4) **Weak institutional capacity-** Policies and programmes aimed at promoting equitable growth may be less effective if there is a lack of proper implementation, infrastructure, functionaries, etc.

5) **Rural-Urban Divide-** Disparities between urban and rural areas persist in terms of infrastructure, access to education, healthcare, and employment opportunities. This gap has still not been bridged.

6) **Unemployment and Underemployment-** Creating enough jobs for the growing workforce, especially in sectors that absorb a large number of people like agriculture and manufacturing, remains a challenge. Many are employed in the informal sector without job security or proper benefits.

7) **Education and Skills Gap-** Access to quality education and skill development is uneven across regions and socio-economic groups. This leads to a lack of skilled workers and limits opportunities for many individuals.

What are the advantages of inclusive growth?

Ensuring inclusive growth leads to many advantages that positively impact both society and the economy. Some key advantages include:

1) **Economic Stability and Sustainability-** Inclusive growth contributes to economic stability by creating a more balanced distribution of wealth. When more people have access to resources and opportunities, it can lead to a more sustainable economic development trajectory.

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2) **Social Cohesion and Stability-** Addressing disparities fosters a more cohesive society. It reduces social tensions arising from inequality, which can lead to a more stable and harmonious community.

3) **Increased Human Capital Development-** When marginalized groups have access to education and skill development, it enhances the overall human capital of the nation. Educated and skilled individuals contribute more effectively to economic growth and innovation.

4) **Expanded Consumer Base-** Inclusive growth expands the consumer base by bringing more people into the formal economy. This leads to increased demand for goods and services, spurring economic growth.

5) **Enhanced Political Stability-** When people feel included in the economic and social fabric of society, it often translates to more stable political environments, reducing the risk of social unrest or conflicts.

6) **Greater Innovation and Creativity-** Inclusive growth brings together diverse perspectives, fostering innovation and creativity. A diverse workforce and society can generate new ideas and solutions to complex problems.

What are various government initiatives to ensure inclusive growth?

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Financial Inclusion	• **Pradhan Mantri Jan Dhan Yojana (PMJDY):** Launched in 2014, this flagship scheme aims to provide universal access to banking services, including savings accounts, credit, insurance, and pensions, to every household. It has significantly expanded the formal banking network, especially in rural areas, and enabled Direct Benefit Transfers (DBT).
	• **Direct Benefit Transfer (DBT):** This initiative aims to transfer government subsidies and benefits directly to the bank accounts of beneficiaries, reducing leakages and corruption, and ensuring that funds reach the intended recipients. It covers a wide range of schemes, including food subsidies, pensions, and scholarships. For e.g. **PM KISAN** – 110mn farmers are now receiving direct income support.
	• **Pradhan Mantri MUDRA Yojana (PMMY):** Launched in 2015, MUDRA provides collateral-free loans up to ₹10 lakh to micro and small enterprises, particularly those run by women, SC/ST, and OBC entrepreneurs. This promotes self-employment and entrepreneurship among marginalized sections.
	• **Atal Pension Yojana (APY):** A government-backed pension scheme that provides a guaranteed pension to subscribers based on their contributions, primarily targeting workers in the unorganized sector to ensure social security in old age.
	• **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) & Pradhan Mantri Suraksha Bima Yojana (PMSBY):** These are affordable life insurance and accident insurance schemes, respectively, designed to provide social security cover to the masses at very low premiums, making financial protection accessible to all.
	• **Kisan Credit Card (KCC):** Provides timely and adequate credit to farmers for their agricultural needs, preventing their reliance on informal money lenders.

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Skill Development and Employment Generation	**Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):** This landmark Act guarantees 100 days of wage employment in a financial year to adult members of any rural household willing to do unskilled manual work. It acts as a safety net, especially for the rural poor, and creates rural infrastructure. **Make in India:** Launched in 2014, with the aim to transform the country into a global manufacturing and design hub as well as support an industrial growth that creates jobs. It led to the strengthening of MSMEs & encouraged Indian entrepreneurs & startups to innovate & establish new business – thus, transforming them from 'job seekers' to 'job creators'. **Skill India Mission:** An umbrella initiative comprising several schemes aimed at skilling, re-skilling, and up-skilling the youth to enhance their employability. **Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** Provides skill training to the youth, focusing on industry-relevant skills. **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY):** Focuses on transforming rural poor youth into an economically independent and globally relevant workforce through skill training and placement. **Jan Shikshan Sansthans (JSS):** Provide vocational training to non-literates, neo-literates, and school dropouts, especially in rural areas. **PM Vishwakarma Yojana:** Launched in 2023, this scheme provides support to traditional artisans and craftspeople (Vishwakarmas) through skill training, toolkits, marketing support, and collateral-free credit. **Pradhan Mantri Employment Generation Programme (PMEGP):** Promotes self-employment through the establishment of micro-enterprises in the non-farm sector by providing financial assistance. **PM SVANidhi Scheme:** Provides affordable working capital loans to street vendors to resume their livelihoods and promotes digital transactions. **National Rural Livelihoods Mission (NRLM) / Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM):** Focuses on organizing rural poor households into Self Help Groups (SHGs) and federations, providing them access to financial services and sustainable livelihood opportunities.

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Education and Human Development	**National Education Policy (NEP) 2020:** Aims to provide universal access to quality education from pre-school to higher education, with a strong emphasis on holistic development, foundational literacy and numeracy, skill development, and inclusive learning environments. **Samagra Shiksha Abhiyan:** An overarching program for the school education sector, extending from pre-school to senior secondary levels, aiming to ensure inclusive and equitable quality education. It specifically targets bridging gender and social category gaps. **Mid-Day Meal Scheme (now PM POSHAN):** Provides hot cooked meals to schoolchildren, improving nutritional status, increasing enrollment and attendance, and reducing dropout rates, particularly among disadvantaged groups. **Rashtriya Uchchatar Shiksha Abhiyan (RUSA):** Aims to improve access, equity, and quality in higher education by providing strategic funding to eligible state higher educational institutions. **Pradhan Mantri Innovative Learning Program (DHRUV):** Identifies and nurtures talented children to help them achieve their full potential.

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Health and Nutrition	**Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PMJAY):** The world's largest health insurance scheme, providing a health cover of ₹5 lakh per family per year for secondary and tertiary care hospitalization to over 10 crore poor and vulnerable families. **National Health Mission (NHM):** Seeks to improve the health outcomes of the population, particularly in rural areas, by strengthening public health infrastructure, promoting maternal and child health, and controlling communicable and non-communicable diseases. **POSHAN Abhiyaan (National Nutrition Mission):** Aims to reduce malnutrition among children, adolescent girls, pregnant women, and lactating mothers through a multi-ministerial convergence approach and technology. **Jan Aushadhi Kendras:** Provide quality generic medicines at affordable prices, making healthcare more accessible and affordable for all. **Healthcare Infrastructure:** Number of medical colleges increased to 780 & AIIMS institution increased to 23.

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Social Protection and Housing	**Pradhan Mantri Awas Yojana (PMAY) – Urban and Rural:** Aims to provide "Housing for All" by 2022 (extended to 2024 for some components), by providing financial assistance for constructing or purchasing houses for eligible beneficiaries, especially those from economically weaker sections. **National Social Assistance Programme (NSAP):** Provides social assistance benefits to the elderly, widows, and persons with disabilities in the form of pensions. **Reservation Policies:** Constitutional provisions and government policies for reservation of seats in education, employment, and legislative bodies for Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs), and Economically Weaker Sections (EWS) to promote affirmative action and social equity. **PM JANMAN (PM-Janjati Adivasi Nyaya Maha Abhiyan):** A targeted initiative for the comprehensive development of Particularly Vulnerable Tribal Groups (PVTGs), focusing on basic amenities, health, education, and livelihoods.

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Infrastructure and Connectivity	• **Jal Jeevan Mission (Har Ghar Jal):** Aims to provide safe and adequate drinking water through tap connections to all rural households by 2024, improving health and reducing the drudgery of water collection.
	• **Pradhan Mantri Gram Sadak Yojana (PMGSY):** Connects unconnected habitations with all-weather roads, improving access to markets, schools, healthcare, and other services in rural areas.
	• **BharatNet Project:** Focuses on providing broadband connectivity to all Gram Panchayats, aiming to bridge the digital divide and enable access to digital services in rural India.
	• **Swachh Bharat Mission (SBM):** Focuses on improving sanitation and hygiene, particularly in rural areas, through the construction of toilets, which has significant health and dignity benefits for all, especially women.
	• Construction of key infrastructure projects connecting the remote areas for e.g. **Chenab & Anji bridges**.
	• **Digital Connectivity:**
	  ○ **Digital India:** An umbrella program focused on transforming India into a digitally empowered society and knowledge economy, which underpins many inclusive growth initiatives by enabling digital delivery of services.
	  ○ Introduction of **Digital Public Infrastructure** like Aadhar & UPI with over 141cr Aadhar registration & 60cr UPI transactions every day.
	  ○ **IndiaAI Mission**: Over 34,000 high-speed computer chips, called GPU, are now available at one-third of global cost.

What should be the Way Forward?

Achieving inclusive growth in India requires a comprehensive and multi-dimensional approach. Here are the steps that can be taken to ensure inclusive growth:

1) **Education and Skill Development-** Improving access to quality education for all, especially in rural and marginalized areas, is crucial. Emphasizing skill development programs that align with market needs can enhance employability.

2) **Employment Generation-** Encouraging sectors that create more jobs, such as manufacturing, services, and entrepreneurship, can help reduce unemployment and underemployment.

3) **Social Protection Programs-** Strengthening and expanding social safety nets like the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), subsidized food programs, and healthcare initiatives can provide a safety net for vulnerable populations.

4) **Financial Inclusion-** Expanding access to banking and financial services, especially in rural areas, can empower individuals and small businesses. Initiatives like Jan Dhan Yojana and Microfinance Institutions can play a significant role here.

5) **Gender Equality-** Promoting gender equality through policies that support education, employment, and entrepreneurship for women can unlock significant economic potential.

6) **Rural Development-** Focusing on agriculture by modernizing techniques, providing better access to markets, and improving infrastructure can spur growth in rural areas.

7) **Policy Reforms-** Implementing policies that promote inclusive growth, such as progressive taxation, land reforms, labour reforms, and policies targeting marginalized communities, can play a pivotal role.

Conclusion:
A holistic approach that addresses these multiple dimensions while considering regional disparities and the diverse needs of the population will be key in moving India toward a path of inclusive growth. Collaboration between government, private sector, civil society, and international organisations is crucial in executing these strategies effectively.

Read More- The Hindu
UPSC Syllabus- GS-3- Inclusive Growth

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Child labour in India- Explained Pointwise

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Child labour is prevalent all over the world, robbing many children of their basic rights to live with dignity, enjoy their childhood & attain their full development potential. Every year, **June 12** is observed as **World Day Against Child Labour** under the auspices of ILO. Its aim is to draw the attention of the world towards the issue of child labour. **SDG Target 8.7** calls on global community to take effective measures to end child labour in all forms by 2025. **Child labour in India** Across the world, there are 160mn children engaged in child labour i.e. nearly one among 10 children. The Africa, Asia & Pacific regions together account for almost 9 out of every 10 children in child labour. India has highest absolute number of child labour in the world.

Source- UNICEF
What is Child Labour? What is the Extent of Child Labour in India?

- **Child Labour:** According to International Labour Organisation (ILO), child labour is a work that deprives children of their childhood, their potential and dignity, and that is harmful to their physical and mental development.

- However, children or adolescents who participate in work that does not affect their health and personal development or interferes with their schooling, is not child labour. **For ex-** Helping their parents at home, assisting family or earning pocket money outside school hours and on holidays.

Child Labour in India Statistics:

Number of Child Labourers in India	According to the last available **Census 2011**, there were 10.1 million child labourers in India. According to the **International Labour Organisation,** India has the highest number of child labourers in the 5-17 age range in South Asia.
NCRB Report on Child Labour	According to NCRB Report 2022, in 2021, around 982 cases were registered under the Child Labour (Prohibition and Regulation) Act, 1986. The highest number of cases were registered in Telangana, followed by Assam.

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Impact of COVID-19 on Child Labour	According to a study by Campaign Against Child Labour (CACL), there has been a significant increase in Child labour in India. According to a new report by the International Labour Organisation (ILO) and UNICEF, the number of children in child labour has increased to 160 million worldwide.
Biggest Employers of Child Labour In India	India's biggest child labour employers are- Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, and Maharashtra. Child labour is preferred in beedi, carpet weaving & firework factories.

What are the Causes of Child Labour in India?

1. Poverty and Indebtedness: Poverty is the greatest cause of child labour in India. For impoverished households, income from a child's work is crucial for his or her own survival or for that of the household. **For ex-** Bonded Labour due to Family Indebtedness.

2. Adult unemployment and under-employment: High prevalence of adult unemployment and under-employment often force children to work to support family.

3. High prevalence of illiteracy and ignorance of parents: Illiteracy and ignorance of the parents put children under the risk of inhuman exploitation.

4. Lack of access to quality education and skills training: Deplorable quality of education and lack of coverage of 15-18 year age group in compulsory education, has led to increase in dropout rates and forced children into child labour.

5. Cultural factors: Children often take up family's traditional work from an early age, contributing to enhancement of Child labour. **For ex-** A Goldsmith's son taking to gold-smithery, or a carpenter's child taking up carpentry from an early age.

6. Social factors: India's differentiated social structure also contribute to child labour. The majority of child labourers in India belong to the marginalised social groups like SCs, STs and the Muslim religious minority.

7. Epidemics and Disasters: Natural disasters, conflicts, and pandemics increase the vulnerability of Children towards forced labour, as they forced to work for survival and are often exploited by traffickers and perpetrators.

What is the impact of the prevalence of Child Labour in India?

1. Impedes Children from gaining skills and education: Child labour impedes children from gaining the skills and education they need to have opportunities of decent work as an adult. This violates their right to life and liberty as provided by the constitution.

2. Health and Physical Risks: Long working hours and hazardous working conditions adversely affects a child's physical & mental health and impairs their intellectual, emotional and psychological development.

3. Negatively affects Human Capital Formation: Child labour diminishes children's ability to accumulate skills and knowledge, thereby affecting their future productivity and income.

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4. Perpetuation of poverty: Child labour is both a cause and consequence of poverty. Household poverty forces children into the labour market to earn money. Thus, the children miss out on an opportunity to gain an education, further perpetuating household poverty across generations.

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5. Obstacle to Socio-Economic Welfare of the country: Presence of a large number of child labourers has long term effect on the economy and it is a serious obstacle to socio-economic welfare of a country. **For ex-** Cancellation of trade pacts on account of human right abuses such as Child Labour.

6. Global reputation: An Australian Parliamentary committee in its recent report has raised concerns over Child Labour in India. According to the Parliamentary report, the mini trade deal (The Economic Cooperation and Trade Agreement (ECTA)) signed between India and Australia, does not recognise international labour rights and disregards environmental standards. The report has also noted that India has a well-documented presence of child and forced labour, which is a form of modern slavery.

What are the International and National Provisions to curb the practice of Child Labour?

International Provisions:

International Labour Organization (ILO) Conventions	The ILO Conventions- **Convention 138** (Minimum age convention) and **Convention 182** (Worst forms of Child Labour Convention) aim to eliminate the malpractice of Child Labour. India has ratified both the Core Conventions of International Labour Organization (ILO).
Declaration of the Rights of the Child, 1959	The Declaration of the Rights of the Child, 1959 aims at elimination of the malpractice of Child Labour.
United Nations Convention on the Rights of the Child (UNCRC), 1989	It sets out different rights of children– civil, political, economic, cultural, social and health. Article 32 states that the government should protect children from work that is dangerous or might harm their health or their education.

National Policy Framework surrounding Child Labour:

Child Labour (Prohibition & Regulation) Act, 1986 (CLPRA)	The Act was passed in 1986, based on the recommendations of the **Gurupadswammy Committee** (1979). The Act aims to prohibit the engagement of children in certain employments and to regulate the conditions of work of children.

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Child Labour (Prohibition and Regulation) Amendment Act, 2016	The Amendment Act completely prohibits the employment of children below 14 years. The amendment also prohibits the employment of adolescents in the age group of 14 to 18 years in hazardous occupations.
National Policy on Child Labour (1987)	It contains the action plan for tackling the problem of Child Labour. It focuses more on rehabilitation of children working in hazardous occupations and processes, rather than on prevention. Its action plan included strict enforcement of CLPRA & implementation of **National Child Labour Project** in areas where there is a high incidence of child labour.
The Right to Free and Compulsory Education Act (2009)	The Act made it mandatory for the state to ensure that all children aged 6 to 14 years are in school and receive free education.
Juvenile Justice (Care and Protection of Children) Act 2000 and Amendment of the Act in 2006	Section 23 (cruelty to Juvenile) and Section 26 (exploitation of juvenile employee) prohibit child labour by children in need of care and protection.

Schemes:

National Child Labour Project (NCLP) Scheme	The Government has initiated the National Child Labour Project (NCLP) Scheme to eliminate all forms of child labour through identification. It also aims to withdraw children from child labour and prepare them for mainstream education along with vocational training.
Pencil Portal	The platform has been launched by the Ministry of Labour and Employment and aims at engaging the Central Government, State Government, District, civil society and the public in eradicating child labour.

Read More- PENCIL Portal

What are the challenges in combating Child labour in India?

1. Issues with Child Labour (Prohibition and Regulation) Amendment Act, 2016:

- The amendment Act has drastically decreased the types of hazardous industries provided in the list. This allows employers in industries like chemical mixing units, cotton farms, battery recycling units, and brick kilns etc. to employ adolescent labour.

- The amendment allows the child to be employed in "family or family enterprises". This promotes child labour in agrarian rural India, where poor families are trapped in intergenerational debt-bondage.

2. Definition of Child: One of the biggest challenges in eradicating child labour is the confusion around the definition of a child, in terms of age, in various laws dealing with child labour. **For ex-** Conflicting age of Child provided in Juvenile Justice Act and Child Labour Act.

3. Lack of proper identity documents: Child labourers often lack school registration certificates and birth certificates, which, creates an easy loophole in the law to exploit. Also, lack of reporting of children of migrant workers working as labourers and domestic help, further aggravates the problem of Child Labour.

4. Weak enforcement of law and poor governance: Weak enforcement of law, lack of adequate deterrence and corruption is a major hurdle in eradicating child labour.

5. Socio-Economic crisis: The economic contraction and lockdowns lead to income reductions for enterprises and workers, promoting child labour.

What should be the Way Forward?

1. Uniformity in Indian Laws dealing with Child Labour: We must aim to bring uniformity in existing Indian laws dealing with child labour. The laws must expand the definition of a child. We must also ensure free and compulsory education (RTE, Act, 2009) for children below 18 years.

2. Police action in case of failure to register child labour: The 52nd report of the Parliamentary Standing Committee on Labour has suggested incorporating provisions for taking action against the police for not registering FIRs in the CLPRA Act, similar to the Protection of Children from Sexual Offences Act, 2012.

3. Social Protection Schemes: There should be concerted effort towards social protection programmes and cash transfers to improve the economic situation of families and to reduce the "need" to send children to work.

4. District-level Funds and National Level Child Tracking Mechanism: The 52nd report of the Parliamentary Standing Committee on Labour has recommended establishing a district-level fund and National Level Child Tracking Mechanism for immediate relief and rehabilitation for child laborers.

5. Raise Awareness: Government with the help of NGOs like Bachpan Bachao Andolan, ChildFund, CARE India, Talaash Association, Child Rights and You should take adequate measures to raise awareness among families and communities. Parental literacy can also play an important role in ensuring that the rights of children are upheld.

Case Study: VELPUR MODEL:

- Velpur Mandal in Nizamabad district in erstwhile Andhra Pradesh (now Telangana), was once notorious for child labour.
- However, in 2001, a drive involving the community was started to ensure that all children in the age group 5 to 15 years went to school & that no child would be engaged as labour in any form.
- In the beginning, the team consisting of highly motivated officials, faced resistance by the locals, but gradually they were able to persuade the locals which eventually not only cooperated with them but transformed their campaign into a movement.
- After a sustained campaign of 100 days, Velpur was declared to be a **"child labour free mandal"**.
- 24 years later, there is 100% retention in school & no child labour in the Mandal.

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- Thus, the Mandal was able to shun child labour due to total control, commitment & involvement of local community.

Conclusion:

Child Labour is a rampant problem in India, despite a plethora of legislations to curb it. It is a humanitarian crisis which tarnishes the international image of India as well as damages its trade prospects. Hence, the malpractice needs to be curbed at the earliest – specially with the involvement of local community to eradicate the menace of child labour from its root.

> **Read More- The Hindu**
> **UPSC Syllabus- Govt Policies and Intervention for Vulnerable Sections**

Judicial Accountability in India – Explained, pointwise

Judiciary forms one of the three pillars of a democracy & derives its authority from the Constitution. However, incidences like a large amount of cash found at the official residence of Justice Yashwant Verma of Delhi High Court after a fire incidence has sparked concern about judicial accountability & independence. In another incidence, Supreme Court dropped its inquiry into the alleged hate speech by Justice Shekhar Yadav of Allahabad HC following the intervention by Rajya Sabha. Such incidences raises the question that: **Who judges the judge?**

What is the meaning of Judicial Accountability?

- **Judicial accountability** refers to the set of mechanisms and obligations that ensure judges and courts are responsible—both personally and institutionally—for their actions, decisions, and conduct, especially when these are contrary to constitutional or legal standards. It is a cornerstone of a fair and just legal system, aiming to balance the independence of the judiciary with the need for transparency, integrity, and public trust.

- The Judiciary in India is not subjected to the same level of accountability as the Executive or the Legislative wings of the Government. The reason is that the **principles of Judicial Independence and Accountability are sometimes regarded as fundamentally opposed to one another**. Judicial independence is considered 'an essential pillar of liberty and the rule of law'. So if Judiciary is made accountable to the Legislature or the Executive it will impact its independence. So special provisions have been provided to ensure judicial accountability.

What is the current framework of Judicial Accountability in India?

- The **Constitution of India** provides for the removal of the judges of the Supreme Court of India and the High Courts for **misbehavior and incapacity** by means of impeachment. The provisions of impeachment have been provided in the **Article 124(4)** (SC Judge) and **Article 217(1)(b)** (HC Judge) of the Constitution. To date, only one impeachment proceeding was initiated against a Supreme Court judge but the procedure failed. Similarly, no High Court Judge has been impeached so far.

- **Judges (Inquiry) Act, 1968** was passed to regulate the investigation procedure and to find proof showing incapacity and misbehavior on the part of the judges of the Supreme Court and the High Courts.

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- **Article 235 of the Constitution** provides for the **'control' of the High Court over the subordinate judiciary**. It provides an effective mechanism to enforce accountability of the lower judiciary.
- **Restatement of Values of Judicial Life (1997):** The Supreme Court of India adopted a Charter called the Restatement of Values of Judicial Life in 1997. It is the restatement of the pre-existing and universally accepted norms, guidelines and conventions observed by Judges. All the High Courts of the country have also adopted the same. The Charter contains guidelines for general behaviour of the Judges. However, it is not an instrument of judicial accountability in strictest terms.
- **In-House Procedure (1999):** A resolution of the Supreme Court in December 1999 declared that an '**in-house procedure**' would be adopted to take action against judges who act against accepted values of judicial life. In case of a complaint against a judge, the procedure allows the Chief Justice of that Court to set up an inquiry with a 3-judge committee. If the allegations are serious, the committee may recommend initiating proceedings for removal.
- **Judicial Standards and Accountability Bill (2010, Lapsed):** Sought to establish an external oversight body (National Judicial Oversight Committee) for complaints and investigations. Passed in the Lok Sabha but lapsed in the Rajya Sabha, so not enacted.

What is the need to enhance Judicial Accountability?

1. It will induce the judges to **improve efficiency** and **deliver quality judgements** thereby **ensuring justice** in the society. There have been several '*shocking*' judgments in recent times e.g., a Bombay High Court Judge ruled that groping a child without 'skin-to-skin contact with sexual intent' does not amount to the offence under the POCSO Act.

2. It will help in ensuring **an impartial functioning** that would **augment public trust** in the institution of judiciary. For instance, a major controversy erupted when a sitting Chief Justice of India was accused of sexual harassment. The CJI, instead of ordering external enquiry, set up an Internal Committee to look into the matter. The CJI himself appointed the Judges, raising concerns of conflict of interest. The Committee absolved him, while the complainant was not allowed to be represented by a lawyer.

3. Backlog of cases: In the **absence of any accountability**, the **pendency of cases has reached unprecedented levels** (> 4 Crore cases in lower courts). Since, Judges are not accountable to the people or to any other organs of the State, no concrete action has been undertaken to address this pendency. Judicial Accountability might have provided an element of external pressure on the Judiciary to reduce pendency.

5. Inadequate existing mechanisms: The current framework, including the **Judges (Inquiry) Act, 1968** and the **in-house procedures**, is cumbersome, opaque, and rarely results in meaningful action; no Supreme Court or High Court judge has ever been impeached for corruption despite several serious allegations. There are several **shortcomings in the in-house procedure**. There is no statutory basis for the procedure. No judge (who faced such committee) has agreed to resign because there was an adverse report by the committee. In some cases, allegations requiring further investigation were dismissed by such committees. No FIR against a sitting judge can be registered without the permission of the Chief Justice of India & in the absence of an FIR, no evidence can be seized for e.g. in the case of burnt notes found from the residence of a sitting judge.

6. Balancing Judicial Independence and Accountability: While judicial independence is vital to prevent undue influence from the executive or legislature, excessive autonomy without robust accountability leads to opacity and potential misuse of power. Judicial independence should not become a shield against legitimate scrutiny; rather, a balanced approach is needed to ensure both impartial justice and answerability.

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7. Preventing Corruption and Misconduct: The absence of effective accountability mechanisms increases the risk of corruption, arbitrariness, and abuse of power within the judiciary. Recent allegations and the rarity of successful prosecutions or impeachments highlight the system's inability to deter or address judicial corruption.

8. The **scope of information** which the courts are willing to share **under RTI is not too wide**. For instance, the Bombay High Court ruled that its 'file notings' on administrative matters are not required to be disclosed under the RTI Act. The reluctance of Judiciary to subject itself to greater transparency became evident when a former CJI remarked that the "*institution of Judiciary can't be destroyed in the name of transparency*".

9. Unlike the executive, the judiciary is **not under any legal obligation to prepare annual reports** or table them before Parliament or the State Legislature. Only the High Courts of Madras, Himachal Pradesh and Tripura had published an annual report in the last few years.

10. There exists **no provision in the Indian Constitution which directs in reviewing the Supreme Court's decision**. Except for the Supreme Court itself, there exists no other body or council to have a check on the decisions passed by the Apex Court.

What are the challenges in enhancing Judicial Accountability?

1. Cumbersome and Ineffective Impeachment Process: The only formal mechanism to remove judges of the higher judiciary is impeachment, which requires a two-thirds majority in Parliament and is limited to cases of "proved misbehaviour or incapacity." This high threshold makes it almost impossible to achieve consensus, especially in a politically charged environment. As a result, **no judge has been successfully impeached since 1993** despite several allegations, highlighting the ineffectiveness of the process.

2. Judicial Independence vs. Accountability: While judicial independence is crucial, excessive autonomy has led to a lack of external scrutiny and fostered a culture of impunity. The judiciary often uses independence as a shield against accountability, undermining public trust in the system.

3. Lack of Transparency in Appointments and Discipline: The **collegium system** for judicial appointments is opaque and lacks public or parliamentary oversight, leading to concerns about nepotism and lack of diversity. Internal disciplinary mechanisms, such as the in-house procedure, are secretive and outcomes are rarely made public, reducing confidence in the system.

4. Immunity and Evasion of Accountability: Judges enjoy significant immunity and can resign before formal proceedings are completed, often retaining post-retirement benefits even after accusations of misconduct. This allows judges to evade accountability, as seen in cases like **Justice Soumitra Sen** and **Justice P.D. Dinakaran**.

5. Absence of Independent Oversight: There is no independent external body to investigate and act on complaints against judges. All oversight is either internal or Parliament-driven, limiting real-time accountability.

What can be the way forward to enhance Judicial Accountability?

1. National Judicial Oversight Committee: Set up a statutory, independent body comprising retired judges, legal experts, and eminent persons from outside the judiciary. This committee should have the authority to investigate complaints of judicial misconduct, ensuring impartiality and transparency without political interference.

2. Reform the Impeachment and Inquiry Process: Make the impeachment process more transparent, time-bound, and accessible. Introduce clear timelines for investigations and public disclosure of proceedings to prevent delays and political obstruction.

3. Mandate Public Disclosure of Judicial Assets: Make it legally mandatory for all judges (Supreme Court, High Court, and District Courts) to publicly declare their assets and liabilities, including those of their spouses and dependent family members, on an annual basis. This should be a statutory requirement, not merely a resolution or voluntary measure.

4. e-Courts and Case Management: Expand digital platforms (like the National Judicial Data Grid) for real-time monitoring of caseloads, pendency, and disposal rates, making judicial performance data publicly accessible.

5. Implementation of RTI in Judiciary: Fully implement the Right to Information (RTI) Act in the judiciary, addressing concerns about delayed responses or denial of information, especially regarding administrative matters and judicial appointments (as upheld by the Supreme Court itself).

6. Annual Report: Parliament **can enact a law that mandates Judiciary to publish an annual report**. This law should clearly outline the expected content of the report and establish a clear timeline for its publication.

7. Review of Contempt of Courts Act, 1971: While necessary to protect the dignity of the courts, the "scandalizing the court" provision of the Contempt of Courts Act is often criticized for its broadness and potential to stifle legitimate criticism. A review to narrow its scope, bringing it in line with global best practices (e.g., in the UK where it has been abolished), could allow for more robust public discourse and constructive criticism of the judiciary without undermining its authority.

8. Performance Review System: Introduce a system for periodic, anonymous, and aggregate performance review of judges, focusing on the quality of judgments, adherence to ethical standards, disposal rates, and judicial temperament. The results, in aggregate, could be made public to promote efficiency and accountability. Individual performance data should be used for internal improvement, not for public shaming.

9. Judiciary under Lokpal: Judiciary **can also be brought under the scope of Lokpal** to enhance accountability as seen in countries like Sweden where judiciary comes under the scope of the ombudsman.

10. Recommendation by Law Commission: Law Commission in its 195th Report recommended Judicial (Inquiry) Bill 2005, establishing National Judicial Council consisting of 5 judges with CJI as the Chairman. The Commission noted that such a practice of enquiry is in line with various international principles like **Siracusa Principles (1981)** & the **Latimer Guidelines for the Commonwealth (1998)**.

Conclusion:
The judiciary, like any other institution, must be held accountable. But the accountability must be enforced within a constitutionally protected framework that ensures independence from political pressures. The rule of law demands not just that justice be done – but that it must be done through proper channels, and equally for all.

Read More: The Indian Express
UPSC Syllabus GS-2: Judiciary

Aviation Safety – Explained Pointwise

India's aviation sector is one of the fastest-growing sector in the world. However, the recent crash of Air India Airline in Ahmedabad into a residential area that led to the killing of more than 240 people & is considered as one of the worst airline disaster. It led us to discuss the importance, challenges, government initiatives related to aviation safety in India.

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What is the importance of Aviation Safety?

1. Passenger Confidence and Public Trust: The most fundamental aspect is ensuring the safety of passengers and crew. A strong safety record instills confidence in the traveling public, encouraging more people to choose air travel. Conversely, even a single major incident can severely erode public trust and negatively impact passenger traffic.

2. Economic Growth and Development:

- **Facilitating Trade and Commerce:** Safe and efficient air transport is vital for business. It enables rapid movement of goods (especially high-value cargo like electronics, pharmaceuticals, and perishables) and personnel, facilitating trade, foreign investment, and the overall economic growth of the country.
- **Supporting the Aviation Industry:** A strong safety reputation helps Indian airlines attract passengers and maintain competitiveness. Accidents lead to grounding of fleets, investigations, and financial penalties, all of which are detrimental to airline profitability and growth.
- **Job Creation:** The aviation sector is a significant employer, directly and indirectly. A safe and growing industry ensures job security and creates new opportunities in airlines, airports, maintenance, manufacturing, and related services.
- **Foreign Direct Investment (FDI):** International investors are more likely to invest in a country's aviation infrastructure and airlines if they perceive a high level of safety and regulatory compliance. A lax safety environment deters foreign capital.

3. Tourism Promotion:

- **International Tourists:** Air travel is the primary mode of transport for international tourists visiting India. A safe aviation system is a prerequisite for a thriving tourism sector, which contributes significantly to GDP and generates employment.
- **Domestic Tourists:** As disposable incomes rise, more Indians are opting for air travel for leisure. Assured safety encourages domestic tourism, connecting various parts of the vast country and boosting regional economies (e.g., through schemes like UDAN).

4. Adherence to Global Standards: India is a signatory to the **Chicago Convention** and a member of the **International Civil Aviation Organization (ICAO)**. Maintaining high aviation safety standards is crucial for meeting international obligations and remaining compliant with ICAO's Standards and Recommended Practices (SARPs).

5. Maintaining Category 1 Status: Countries are periodically assessed by international bodies like the US Federal Aviation Administration (FAA) for their aviation safety oversight capabilities. Maintaining a **"Category 1" rating** (which India currently holds) is essential for Indian airlines to operate and expand services to countries like the US, highlighting the criticality of safety compliance.

What are the challenges related to Aviation Safety?

1. Airport Congestion: Major airports like Delhi and Mumbai are operating near or beyond their optimal capacity, leading to delays and increasing the risk of runway incursions. While new airports and expansions are underway (e.g., Navi Mumbai International Airport), the pace of infrastructure development often lags behind demand.

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2. Air Traffic Management (ATM):

- **ATC Shortage:** There's a significant shortfall of trained Air Traffic Controllers (ATCs) in India. The recruitment and training process is lengthy (2-4 years), and the demand continues to outpace the supply. This leads to overworked controllers, extended shifts, and fatigue, which are known precursors to errors.

- **Outdated Systems:** While modernization efforts are ongoing, some ATC systems might still be grappling with older technology, potentially affecting efficiency and safety in increasingly crowded skies.

3. Pilot Shortage and Training Quality:

- **High Training Costs:** Becoming a commercial pilot in India is extremely expensive, often requiring significant loans, which can deter aspiring pilots.

- **Outdated/Inadequate FTOs (Flying Training Organizations):** Concerns have been raised about the quality of training, outdated aircraft, and insufficient instructor numbers at some Indian FTOs, leading many aspiring pilots to train abroad.

- **Fatigue Management:** Despite DGCA's updated Flight Duty Time Limitations (FDTL), ensuring strict compliance and managing pilot fatigue effectively remains a challenge due to rostering pressures and demand.

4. Shortage of Aircraft Maintenance Engineers (AMEs): The booming fleet requires a proportional increase in skilled AMEs. India faces a shortage, often relying on foreign talent or sending aircraft abroad for major maintenance.

5. Aircraft Maintenance, Repair, and Overhaul (MRO) Ecosystem:

- **Underdeveloped Domestic MRO:** India's MRO facilities are insufficient to meet the needs of its growing fleet. Airlines often have to send aircraft abroad for major checks and overhauls (to Singapore, UAE, Europe), which is costly and results in longer grounding times.

- **Supply Chain Disruptions and Engine Issues:** Recent years have seen significant challenges with global supply chain disruptions for aircraft parts and components. Specifically, issues with certain engine types have led to the grounding of a substantial portion of Indian airline fleets (e.g., Go First's collapse, IndiGo's grounded aircraft), impacting operational capacity and profitability. This directly affects safety as aircraft availability is reduced and older, less fuel-efficient aircraft might be wet-leased as a stopgap.

What have been the government initiatives for Aviation Safety?

1. Bhartiya Vayuyan Adhiniyam, 2024: This is a landmark piece of legislation that came into effect on January 1, 2025, replacing the nearly century-old Aircraft Act of 1934.

- **Modernization:** It modernizes India's aviation system, aligning it with contemporary needs and global standards (like the Chicago Convention and ICAO).

- **Defined Roles for Authorities:** It clearly defines and establishes distinct roles for the three key aviation authorities:
  - **Directorate General of Civil Aviation (DGCA):** The primary regulatory body responsible for safety oversight, licensing, certification, and airworthiness.

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○ **Bureau of Civil Aviation Security (BCAS):** Responsible for civil aviation security.
○ **Aircraft Accidents Investigation Bureau (AAIB):** An independent body specifically mandated to investigate aircraft accidents and serious incidents. This independence from the DGCA is crucial for unbiased investigations.

● **Stricter Penalties:** The Act introduces stricter penalties for safety violations, demonstrating a "zero tolerance" approach towards compromises on safety. This includes provisions for immediate grounding of aircraft that fail to meet safety standards.

2. GAGAN (GPS-Aided Geo-Augmented Navigation): Developed jointly by AAI and ISRO, GAGAN is India's own Satellite-Based Augmentation System (SBAS). Operational since 2015, it enhances the accuracy and integrity of GPS signals, improving navigation, especially for approach and landing, and enabling precision approaches at non-instrumented airports, thereby significantly enhancing safety, particularly in challenging terrains.

3. TCAS (Traffic Collision Avoidance System) and GPWS/EGPWS (Ground Proximity Warning System/Enhanced GPWS): The DGCA mandates the installation and proper functioning of these systems on commercial aircraft to prevent mid-air collisions and controlled flight into terrain (CFIT), respectively.

4. International Collaboration and Compliance: India actively collaborates with international organizations like ICAO and IATA, participating in safety audits (e.g., ICAO's Universal Safety Oversight Audit Program – USOAP) and adopting global best practices and standards to ensure its aviation safety framework remains world-class. India's consistent Category 1 rating from the US FAA is a testament to its efforts in this regard.

What can be the way forward for promoting Aviation Safety?

1. Address Manpower Shortages in DGCA and AAIB:

● **Aggressive Recruitment and Retention:** Expedite recruitment of highly qualified technical personnel (pilots, engineers, ATCs, inspectors) for the DGCA, AAIB, and AAI. Offer competitive salaries and career progression to attract and retain top talent.

● **Specialized Training:** Invest heavily in continuous, advanced training for regulatory staff to keep them updated with the latest aviation technologies, safety management systems, and investigation techniques.

2. Boost Domestic MRO Capabilities:

● **Policy Support:** Continue and enhance policy support (e.g., tax incentives, land availability, streamlined approvals) to attract investment in India's MRO sector.

● **Skill Development:** Link MRO growth with skill development initiatives to ensure a ready supply of certified AMEs and technicians.

● **Reduce Grounding Due to Engine Issues:** Proactively engage with global engine manufacturers to address and resolve recurring engine issues impacting Indian carriers' fleets.

3. Safety Management Systems (SMS) Effectiveness: Ensure that all aviation service providers (airlines, airports, MROs, ATC) have fully functional and effective SMS that are integrated into their daily operations and decision-making. Regulators should audit the effectiveness of these SMS, not just their presence.

4. Wildlife Management: Strengthen wildlife hazard management programs at airports, especially given the high incidence of bird strikes.

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Conclusion:
The core challenge is managing the unprecedented growth of the Indian aviation sector while ensuring that safety standards not only keep pace but also continuously improve. By systematically addressing these areas, India can not only sustain the rapid growth of its aviation sector but also establish itself as a global benchmark for aviation safety.

Read More: The Hindu
UPSC Syllabus GS-3: Transportation Sector

Persons with Disabilities in India- Explained Pointwise

Persons with disabilities (PwD) face challenges on multiple fronts – one of them is related to lack of job opportunities. The private sector does not hire them because of their disabilities & Public Service Commissions are not only unfair towards them but also refuse to acknowledge the existence of certain disabilities.

In this article we will look at the status of persons with disabilities in India. We will also look at the provisions for disabled in India and the challenges faced by them. We will also delve into the way forward for their betterment. **Persons with Disabilities in India**

Who are classified as Persons with Disabilities? What is the status of differently abled people in India?

- **Persons with Disabilities:** According to The United Nations Convention on the Rights of Persons with Disabilities (UN CRPD), Persons with disabilities are the ones who have long-term physical, mental, intellectual or sensory impairments, which hinder their full and effective participation in society on an equal basis with others.

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- **The Rights of Persons with Disabilities Act, 2016**, uses the same definition as the UN CRPD. It further defines '**Person with Benchmark Disability**' as 'A person with not less than 40% of a specified disability'.
- **Expansion of Disabilities in India-** The Rights of Persons with Disabilities Act, 2016 has expanded the types of disabilities from 7 (under the Person with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995) to 21. The act also provides the Union Government the power to add more types of disabilities.

Types of Disabilities

Physical Disability
- **Locomotor Disability**
  - (i) Leprosy cured person; (ii) Cerebral Palsy; (iii) Dwarfism; (iv) Muscular Dystrophy; (v) Acid Attack Victims.
- **Visual Impairment**
  - (i) Blindness; (ii) Low Vision.
- **Hearing Impairment**
  - (i) Deaf; (ii) Hard of Hearing.
- **Speech and Language Disability**.

Intellectual Disability
  - (i) Specific Learning Disabilities; (ii) Autism Spectrum Disorder.

Mental Illness

Chronic Neurological Conditions
  - (i) Multiple Sclerosis; (ii) Parkinson's Disease

Blood Disorders
  - (i) Haemophilia; (ii) Thalassemia; (iii) Sickle Cell Disease.

Multiple Disabilities including Deaf-Blindness

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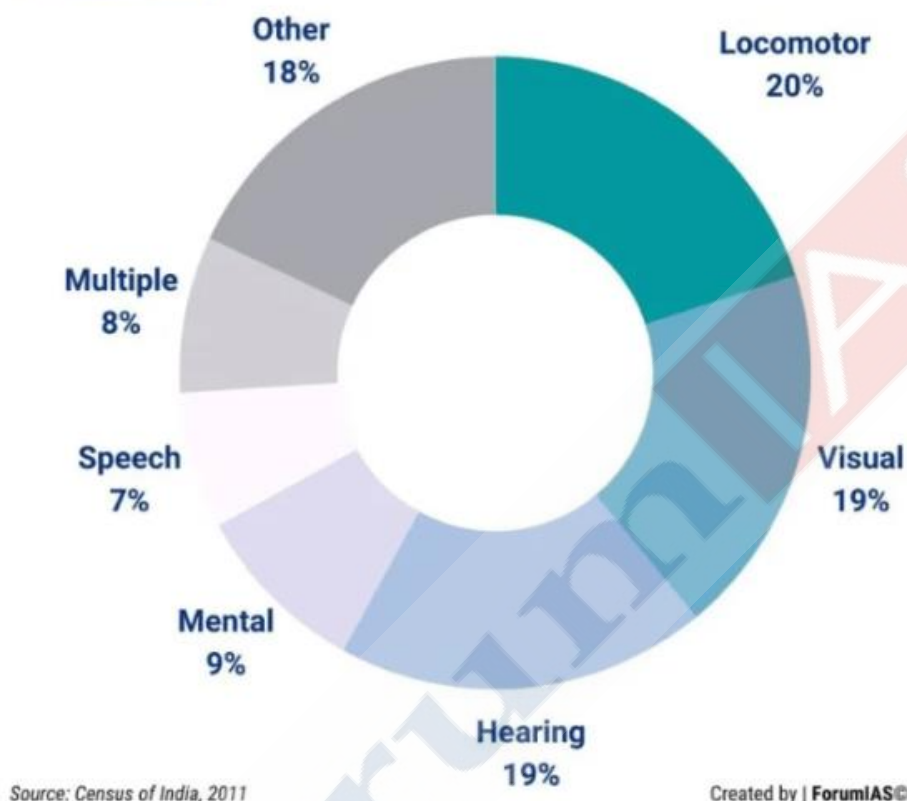
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Data on Disability in India:

a. Number of Persons with Disability in India: In India, there are around 26.8 million persons with disabilities. It constitutes around 2.21% of India's total population (2011 Census). There are around 14.9 million men (2.41% of men) and 11.9 million women (2.01% of women) with disabilities. Disabilities are highest in the age group 10-19 years (46.2 lakh people). 69% (18 million) of persons with disabilities reside in rural areas.

However, a 2019 WHO survey found severe disability prevalence among Indian adults to be 16%.

b. Disability % distribution: 20% of persons with disabilities in India have a disability in movement, 19% have visual impairment, 19% have a hearing impairment and 8% have multiple disabilities.

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PwDs by Disability
Proportion of disabled Indian Population by type of disability

Other
18%

Locomotor
20%

Multiple
8%

Visual
19%

Speech
7%

Mental
9%

Hearing
19%

Source: Census of India, 2011

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What are the provisions for accessibility of persons with disabilities in India?

India as a signatory to the United Nations Convention on Rights of Persons with Disabilities (CRPD)	Article 9 of the CRPD mandates measures to ensure equal access to physical spaces, transportation, communication, and public services. India, as a signatory to the United Nations Convention on Rights of Persons with Disabilities (CRPD), is committed to promoting accessibility.
Rights of Persons with Disabilities (RPwD) Act 2016	The RPwD Act aligns with the CRPD's objectives, and seeks to ensure a dignified, discrimination-free, and equitable life for persons with disabilities. The RPwD Rules (2017) were introduced to establish accessibility standards.

What other provisions have been made for persons with disabilities in India?

Constitutional Provisions:

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Preamble	The Preamble of the Indian Constitution seeks to secure social, economic and political justice to all citizens (which includes persons with disabilities) along with equality of status and of opportunity.
Fundamental Rights	Dignity of the individual is the fundamental notion behind all the fundamental rights guaranteed under the Constitution. All fundamental rights are available to the persons with disabilities.
Directive Principles	Article 41 exhorts the State to make effective provisions for securing the right to work, education and to public assistance in case of unemployment, old age, sickness and disability. Article 46 provides that the State shall promote educational and economic interests of the weaker sections of the people and protect them social injustice and all forms of exploitation.
Schedules of the Constitution	'Relief of the Disabled' is a **State Subject** (Entry 9 in List II) under the Seventh Schedule. **'Welfare of the Disabled and mentally retarded'** is listed as item 26 in the **Eleventh Schedule** and item 09 in the **Twelfth Schedule**.

Legal Provisions:

The Mental Health Act, 2017	It replaced the Mental Health Act, 1987. It has been passed with the objective to provide for mental healthcare and related services for persons with mental illness and to protect, promote and fulfill their rights.
The Rights of Persons with Disabilities (RPwD) Act, 2016	This Act came into force in April 2017, and replaced the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995. It fulfils the obligations to the United National Convention on the Rights of Persons with Disabilities (UNCRPD). The Act has several provisions for the benefit of persons with disabilities. It has increased the magnitude of reservation for Persons with Disabilities from 3% to 4% in government jobs and from 3% to 5% in higher education institutes. It stresses to ensure accessibility in public buildings in a prescribed time frame.

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The Rehabilitation Council of India Act, 1992	It provided statutory status to the **Rehabilitation Council of India** (RCI, established in 1986). The mandate given to RCI is to: a. Regulate and monitor services given to persons with disability. b. Standardize syllabi and to maintain a Central Rehabilitation Register of all qualified professionals and personnel working in the field of Rehabilitation and Special Education.
The National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act, 1999	It has been enacted with the objective to provide for the constitution of a body at the National level for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities. The trust aims to provide total care to persons with mental retardation and cerebral palsy and also manage the properties bequeathed to the Trust. The Trust strives to enable persons with disability to live independently by: (a) Promoting measures for their protection in case of death of their parents. (b) Evolving procedures for appointment of their guardians and trustees. (c) Facilitating equal opportunities in society.

Welfare Programmes:

Accessible India Campaign	It aims for creation of Accessible Environment for PwDs. The aim of the Campaign is to make a barrier free and conducive environment for Persons with Disabilities all over the country. The campaign targets three separate verticals for achieving universal accessibility (a) **Built up environment**; (b) **Transportation ecosystem**; (c) **Information & Communication Technology (ICT) ecosystem**.
Deendayal Disabled Rehabilitation Scheme (DDRS)	DDRS aims to create an enabling environment to ensure equal opportunities, equity, social justice and empowerment of persons with disabilities. Under DDRS, NGOs are provided with financial assistance for running their projects for the rehabilitation of persons with disability.
Assistance to Disabled Persons for Purchase of Aids and Appliances (ADIP)	Its aim is to assist the needy disabled persons in procuring durable and scientifically manufactured appliances. It is implemented by NGOs, National Institutes under the Ministry of Social Justice & Empowerment, and ALIMCO (a PSU that manufactures artificial limbs). It helps promote their physical, social, and psychological rehabilitation by reducing the effects of disabilities and enhancing their economic potential.

Indian Sign Language Research and Training Centre	It promotes the use of sign language and also to develop human resources in the field.
National Institute of Mental Health Rehabilitation (NIMHR)	It aims to work towards capacity building in the field of mental health rehabilitation. It also aims to develop community-based rehabilitation protocols for mainstreaming persons with mental illness who have been successfully cured.
Divyang Protocol and Mission Vatsalya of Haryana	The Haryana Department of Women and Child Development implements the Divyang Protocol and Mission Vatsalya to promote disability inclusion.

What are the Challenges faced by the people suffering from disability?

1. Social Challenges: The following are the challenges faced by the people suffering from disability in India:

- **Discrimination and Inequality:** They face several types of discrimination like reluctance to hire PwDs for employment.
- **Loss of Social Status:** Lack of opportunities results in lack of employment, money etc.
- **Inhuman Treatment:** People suffering from mental illness or mental retardation are subject to social exclusion
- **Loss of Identity:** The identity of PwDs becomes linked with their disability and become a subject of pity.

2. Barriers to Education: There is lack of special schools and trained teachers for children with learning disabilities. Persons with visual impairment lack education materials for their studies. Children with learning disabilities are shunned and not admitted to schools.

3. Lack of adequate Healthcare facilities: The persons with disabilities lack quality healthcare facilities which further marginalizes them.

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Barriers to Healthcare

According to WHO, people with disability encounter a range of barriers in accessing health care

✓ Attitudinal Barriers

* Prejudice, stigma, discrimination by health service providers.
* Service providers lack knowledge about needs of the disabled.
* Women with disability face barriers to sexual, reproductive health services and information.

✓ Physical Barriers

* Lack of appropriate infrastructure to access healthcare facilities like ramps to access passages, doorways, toilets on wheelchairs.
* Fixed-height furniture, including examination beds and chairs, can be difficult for people with disability to use.
* Lack of healthcare facilities in remote areas.

✓ Communication Barriers

* Limited availability of written material or sign language interpreters at health services for persons with hearing impairment.
* Lack of information and prescription in accessible formats, like Braille or large print for persons with vision impairment.

Source: WHO

✓ Financial Barriers

* Over half of all people with disability in low-income countries cannot afford proper health care.
* Inability to afford the costs associated with travelling to a health service and paying for medicine.

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4. Prevalence of Unemployment: Disabled persons have lower employment rates. Private sector is reluctant to hire PwDs due to stereotypes and stigma. It impacts their ability to be financially independent and be self-sufficient.

5. Accessibility: Lack of appropriate disabled-friendly physical infrastructure creates accessibility issues for persons suffering with disabilities. **For ex-** PwDs find it difficult to commute in public transportation, or access buildings.

What are the key highlights of the SC ruling on accessibility for disabled?

The Supreme Court noted a lack of enforcement mechanisms under the RPwD rules. The SC held that the rules offered self-regulatory guidelines.

A report by the National Academy of Legal Studies and Research (NALSAR) has also highlighted the gaps in accessibility for persons with disabilities in India.

Highlights of the NALSAR Report	
Lack of Transport accessibility	There is huge interstate variation in the transport accessibility in India. In Delhi, 3,775 low-floor CNG buses were available for accessible travel, while Tamil Nadu lagged significantly, with only 1,917 out of 21,669 buses accessible for disabled travelling.

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Intersectionality of accessibility with other challenges	The report noted that accessibility challenges were compounded by factors such as caste, gender, and region. For instance, job portals often exclude visually impaired users, and lack of sign language recognition is disadvantageous for individuals with hearing and speech impairments.

The SC ruling on accessibility for the disabled stems from a 2005 writ petition filed by Rajive Raturi, a visually impaired petitioner advocating for safety and accessibility in public spaces.

Key highlights of the ruling:

a. Mandatory Rules to be drafted by the Central government: The Court declared Rule 15(1) of the RPwD Rules ultra vires. The court held that the RPwD rules only provided recommendatory guidelines. It directed the Union government to frame enforceable, "non-negotiable" standards within three months.

b. Stakeholder Consultation: The government must consult stakeholders, including NALSAR's Centre for Disability Studies (CDS), while drafting the rules.

c. Compliance and Penalties: The SC has directed that non-compliance with accessibility standards would be penalized. The penalty will include withholding completion certificates and imposing fines.

What are the SC guidelines to prevent stereotyping and discrimination of Persons with Disabilities?

1. Avoiding Derogatory Language: The court has emphasized on avoiding words that cultivate institutional discrimination, such as 'cripple' and 'spastic'. These words contribute to negative self-image and perpetuate discriminatory attitudes. Also, language and words that individualize the impairment and overlook disabling social barriers, like 'afflicted', 'suffering' and 'victim', should be avoided.

2. Focus on Accurate Representation: The court has held that stereotyping of differently abled persons in visual media and films must end. Creators must focus on providing an accurate representation of disabilities rather than mocking them. Creators should practice the principle of "***nothing about us, without us***," and involve persons with disabilities in the creation and assessment of visual media content.

3. Creative Freedom vs Marginalizing Portrayals: The court has clarified that creative freedom of filmmakers cannot include the freedom to lampoon, stereotype, misrepresent or disparage marginalized communities. If the overall message of the content infringes with the rights of Persons with Disabilities (PwDs), then the right of creative freedom will not be protected.

4. Collaboration with Disability Advocacy Groups: The court has emphasized on collaboration with disability advocacy groups to gain insights and guidance on respectful and accurate portrayals. The training programmes for writers, directors, producers, and actors must be developed to emphasize the impact of portrayals on public perceptions and experiences of PwDs.

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SC Guidelines to prevent Stereotyping of persons with disabilities

Avoiding Derogatory Language	Words that cultivate institutional discrimination, such as "cripple" and "spastic", and words that individualizes the impairment such as "afflicted," "suffering" and "victim" should be avoided. These words contribute to negative self-image and perpetuate discriminatory attitudes.
Accurate Representation	Creators must provide an accurate representation of disabilities rather than mocking them. Creators should practice the principle of "nothing about us, without us," and involve persons with disabilities in the creation and assessment of visual media content.
Creative Freedom vs Marginalizing Portrayals	Creative freedom of filmmakers cannot include the freedom to lampoon, stereotype, misrepresent or disparage marginalized communities.
Collaboration with Disability Advocacy Groups	The film makers should collaborate with disability advocacy groups to gain insights and guidance on respectful and accurate portrayals. Training programmes for writers, directors, producers, and actors should be conducted for real portrayal of challenges of PwDs.

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What Should be the Way Forward?

1. Accommodation and Inclusion: There is a need to identify opportunities to better accommodate people with disabilities in Society- like providing better education, equal opportunity in job, and initiating them to take active part in social and political decision.

2. Greater Social Sensitization: The focus must be on overcoming stigma is necessary in order to facilitate better integration of Persons with Disabilities into the mainstream. People need to be educated and be sensitized about the challenges faced by PwDs. **For ex-** Use of the term "Divyangjan" to address persons with disabilities.

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3. Preventive Measures for early prevention of disabilities: Scaling up The Comprehensive Newborn Screening (CNS) programme under the Rashtriya Bal Swasthya Karyakram for early detection and prevention of disabilities.

4. Interventions in Public Policy: A larger portion of the budget should be allocated to the welfare of disabled people. There ought to be budgeting for people with disabilities in line with the gender budget.

5. Appointments of the Commissioners of Disability: Many States fail to appoint Commissioners on time, as highlighted in a 2021 writ petition (Seema Girija Lal vs. Union of India). The States must be proactive in appointment of the commissioners of disability. The States should appoint experts in law, human rights, social work, and NGOs, rather than civil servants.

6. Proactive role of the Entertainment Sector: The private entertainment sector must address the needs of persons with disabilities, ensuring inclusive recreational spaces and opportunities.

7. Disability-inclusive reforms in Public Service Examination:

- **True Physical Accessibility:** Go beyond just ramps. Ensure all exam centers (including state PSCs and SSC centers) have truly accessible toilets, adequate lighting, lifts, and clear pathways. The lack of accessible washrooms forces many PwDs to limit fluid intake, severely impacting their performance.
- **Accessible Study Materials:** Promote and incentivize the creation of accessible study materials (e.g., in Braille, large print, audio formats, digitally accessible PDFs) for public service exam aspirants. This requires collaboration with coaching institutes and publishers.
- **Contextualizing Aptitude Tests (e.g., CSAT):** As highlighted by PwBD aspirants, time-bound reasoning and numeracy questions (like in CSAT) can disproportionately impact those with certain disabilities, who may have had years of inaccessible education or cognitive processing differences.
- **Scribe Availability:** Ensure that UPSC/PSCs have a robust system to provide qualified scribes in all centers, especially for candidates who cannot arrange one independently.

Read More: The Indian Express

UPSC Syllabus: GS II, Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; Mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

Water Crisis in India – Explained Pointwise

India is experiencing one of the most severe water crises in its history. With only 4% of the world's freshwater resources but home to nearly 18% of the global population, the country faces acute stress in meeting the water demands of its people, agriculture, and industry. By 2030, India's water demand is projected to be twice the available supply, risking severe shortages for millions and potentially impacting the nation's GDP.

What is Water Crisis? What is the situation in India?

Water Crisis: Water crisis refers to the situation where the available potable, safe water in a region is less than its demand. The World Bank refers to water scarcity as a condition when the annual per-capita availability is less than 1000 cubic metres.

Water Crisis Situation in India:

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Water Crisis	**1.** India possesses only 4% of the world's freshwater resources, despite supporting 17% of the world's population.
	2. According to NITI Aayog's "Composite Water Management Index (CWMI)", report India is undergoing the worst water crisis in its history. Nearly 600 million people were facing high to extreme water stress.
	3. India's annual per capita availability of 1,486 cubic meters in 2021 is in the water stress category (less than 1700 cubic meters). As per Govt estimates, this may reduce to 1,341 cubic metres by 2025 and 1,140 cubic metres by 2050.
Lack of Access to Safe Drinking Water	According to NITI Aayog CWMI Report: **a.** 200,000 people die every year due to inadequate access to safe water. **b.** 75% of the households in the country do not have access to drinking water. **c.** 40% of India's population will have no access to drinking water by 2030.
Overexploitation and pollution of Groundwater	**1.** India is the largest groundwater user in the world, with its total use exceeding 25% of the global usage. **2.** Nearly 70% of Ground water is contaminated. India is placed at the rank of 120 among 122 countries in the water quality index.

What are the reasons for the Water Crisis in India?

1. Rising water demand: According to NITI Aayog, India's water demand is increasing at a rapid rate. India's water demand will be twice the available supply by 2030. Also, the rate of depletion of groundwater in India during 2041-2080 will be thrice the current rate.

2. Groundwater use for agriculture: There is high groundwater usage in agriculture due to faulty cropping patterns. **For ex-** Water-intensive paddy cultivation in the states of Punjab and Haryana.

3. Encroachment of Natural Water Bodies: There has been destruction of lakes and small ponds to meet the infrastructure needs of burgeoning populations. **For ex-** Encroachment of lakes in Bengaluru.

4. Climate Change: Climate Change has led to erratic monsoon and reduced water levels in many rivers. This has induced water crisis in India.

5. Discharge of Pollutants: There has been contamination of groundwater resources by the discharge of industrial chemicals, sewers and improper mining activities.

6. Lack of proactive management policies: Water management policies in India have failed to keep pace with changing demands of time. **For ex-** The Easement Act of 1882 granting groundwater ownership rights to the landowner leading to indiscriminate use of water resources.

7. Governance issues:

- Water governance in India has been fragmented. The Centre and the States have their respective departments for governing various issues related to water.
- There have been separate departments for surface water and groundwater. Central Water Commission (for surface water) and Central Ground Water Board (for groundwater).
- Politicization of inter-state disputes by the political parties have hindered the quick resolution of disputes.

8. Detached Citizens: Since water is a free resource, it is not valued by the citizens. Citizens are completely detached from the water issues.

What are the impacts of Water Crisis in India?

1. Economic Impact:

- As per World Bank, India's GDP could decline by as much as 6% by 2050 due to water scarcity.
- Water scarcity will result in decline of food production. This will hamper India's food security and have serious impacts on the livelihood of farmers and farm labourers.
- Decline in industrial production as Industrial sectors such as textiles, thermal power plants etc. may suffer due to water shortage.

2. Ecological Impact:

- Water scarcity may lead to extinction of flora and fauna.
- Heavy metal contamination (Arsenic, cadmium, nickel etc.) and oil spills in rivers and oceans respectively may threaten the marine biodiversity.

3. Social Impact:

- Deterioration of health of children due to intake of contaminated water. It leads to a reduction in human capital.
- The increased out-of-pocket expenditure on medical expenses adversely impacts the poorest and the most vulnerable sections.
- Increased hardships for women like school dropout, 'water wives' to fetch water in drought prone regions.

4. Federal Relations:

- Amplification of the existing inter-state water disputes like Kaveri, Krishna, Godavari. There will be emergence of new disputes in the future.
- There will be a rise in parochial mindset and regionalism among states and may hinder growth of national unity.

5. International Relations: Water scarcity can lead to conflict among nations to get control over the water bodies. **For ex-** Impact on India-China relations due to Chinese building of dams over Brahmaputra river and India-Pakistan relations with India putting the Indus Water Treaty in abeyance.

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Case Study = Bengaluru Water Crisis:

- Water starved Bengaluru is facing the looming threat of Day Zero (when government will shut down water connections for homes and businesses).
- A BBC report, based on UN-projections, had listed Bengaluru in the second position after Brazil's São Paulo among the 11 global cities that are likely to run out of drinking water.

Bengaluru Water Crisis

WATER CRISIS IN INDIA

The World Bank refers to water scarcity as a condition when the annual per-capita availability is less than 1000 cubic metres.

According to NITI Aayog's Composite Water Management Index report, India is undergoing the worst water crisis in its history. Nearly 600 million people are facing high to extreme water stress. About 200,000 people die every year due to inadequate access to safe water.

REASONS BEHIND BENGALURU's WATER CRISIS

1. Reduced Rainfall leading to Empty Water Reservoirs- Water levels in Cauvery Basin reservoirs like Harangi, Hemavathi, and Kabini are at 39% of their total capacity as of 2024 due to deficient North-East Monsoon.

2. Depletion of Groundwater- Excessive extraction of groundwater by the bore wells and lack of proper implementation of rain water harvesting systems.

3. Destruction of natural water bodies- Concretisation and destruction of natural lakes has reduced their storage capacity from 35 tmcft in 1800 to 2 tmcft

4. Mismanagement and Inequitable Distribution- Inefficient water management practices, including wastage, leakage, and unequal distribution of water resources

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What are the government initiatives?

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Jal Shakti Abhiyan (JSA)	It was started in 2019 as a movement for water conservation, recharge, and rainwater harvesting in 256 water-stressed districts. The JSA now covers all 740 districts in the country.
Atal Bhujal Yojana	The programme lays emphasis on the recharge of groundwater resources and better exploitation of the groundwater resources.
Amrit Sarovars	Centre has decided to build 50,000 water bodies (Amrit Sarovar), with an approximate area of one acre, across the country for water conservation.
Nal Se Jal Scheme	The scheme 'Nal se Jal' was started to ensure piped drinking water to every rural household by 2024. It is a component of the government's Jal Jivan Mission. The nodal agency of the scheme will be Jal Shakti Ministry.
Namami Gange Program	It is a comprehensive program with twin objectives of effective abatement of pollution in Ganga (Nirmal Dhara), conservation and rejuvenation of Ganga (Aviral Dhara).
Jal Shakti Ministry	Jal Shakti Ministry has been formed by merging the Ministry of Water Resources, River Development and Ganga Rejuvenation and the Ministry of Drinking Water and Sanitation. Its aim includes: Providing clean drinking water, implementing the Namami Ganga project, resolving the inter-state water disputes, cleaning Ganga.
National Water Policy	The policy focuses on the conservation, promotion and protection of water. It promotes measures like rainwater harvesting for meeting the demand of water.

What should be the Way Forward?

1. Promotion of Water Conservation: Encouraging rainwater harvesting to capture monsoon run-off. Also, traditional water conservation practices like Kudimaramath practice (Tamil Nadu), Ahar Pynes (Bihar), Bamboo Drip irrigation System(North-East) must be revived.

2. Demand-side Management: States can adopt a participatory approach with the involvement of local communities. **For ex-** The Swajal model adopted by Uttarakhand focusing on community-based management of water resources. Revival of Johads in Rajasthan desert by Rajendra Singh (Waterman of India).

3. Nature-Based Solutions: Nature-based solutions refer to the solutions that mimic natural processes to provide human, ecological and societal benefits. **For ex-** Artificial Floodplains to increase water retention, Forest management to reduce sediment loadings.

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4. River Basin Management: River basin management must be done through hydrological-basin approach rather than administrative boundaries. Also, steps must be taken to promote interlinking of rivers, while addressing its environmental concerns.

5. Evidence-based policy-making: We must create robust water data systems with real-time monitoring capabilities. **For ex-** Andhra Pradesh's online water dashboard for mapping of hydrological resources for better policymaking.

6. Implementing the Mihir Shah Committee Report: The Mihir Shah Committee recommendations must be implemented for restructuring the water governance in India:

- Establishing National Water Commission by merging Central Water Commission(CWC) and Central Groundwater Board(CGWB). It would ensure that the surface and the groundwater are taken as a single entity.
- Focusing on management and maintenance of dams rather than construction of dams.
- Adopting a participatory approach to water management.

Conclusion:

India's water crisis is a multifaceted challenge driven by overuse, pollution, mismanagement, and climate change. It threatens health, livelihoods, and the environment. While government schemes like Jal Jeevan Mission and Atal Bhujal Yojana are steps in the right direction, sustained efforts in conservation, efficient use, community participation, and robust governance are essential for a water-secure future.

Read More: The Hindu
UPSC Syllabus GS 1: Issues related to water resources (Geography), GS 3- Environment

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Global Supply chain and India- Explained Pointwise

There are arguments in favour as well as against greater integration of the domestic economy with Global Supply Chains. Some believe that higher global integration exposes a country to global volatility, which will negatively impact the economic growth of the country. Others believe that the positive impacts of being more integrated with the world outweighs & is longer lasting than the negative impacts of being exposed to global shocks.

India is generally considered as an inward-looking economy, however, India has shown a varying trend over the years when it comes to integration with the world.

2000-2010→ Period of rising global integration→ Resulting in higher share of global exports & higher GDP growth rate.

2010-2020→ Period of rising protectionism→ Fall in India's global export share & GDP growth rate.

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SUPPLY CHAIN FLOW

What are Global Supply Chains? What has been the history of its Evolution?

Global Supply Chains: Global supply chains represent the different stages of production of a product or service, which takes place in different regions of the globe. These supply chains dictate the regions for undertaking design, assembly, or production. The supply chain model has dominated industrial production since the 1980s.

Examples of Industries with Global Supply Chains	**Textiles:** Clothing production
	Food processing: Packaged foods manufacturing.
	Complex Industries: Cars, electronics, and pharmaceuticals.

Evolution of Design of Global Supply Chains:
1. From the 1980s to the 2010s, during the height of globalization, supply chains were designed for maximum efficiency (just in time). The products were assembled globally based on cost.
2. With the onset of Pandemic and the national security concerns, the priorities have changed from efficiency (just in time) to resilience (just in case) and security (just to be secure).

New Approach towards design of new Global Supply Chains:
1. Just to be Secure Approach: The "just to be secure" approach should be applied to high-risk sectors like communications and critical infrastructure. It can be done through measures such as audits, inspections, and adherence to security standards.
2. Zero Trust Approach: A "zero trust" approach which assumes that all products are compromised should be used for the most sensitive technologies like military and advanced research. This should be done through strict verification during procurement and continuous monitoring.
3. Just in Case Approach: A "just in case" approach should be applied for less critical technologies. The focus should be on diversifying suppliers and friendshoring to address vulnerabilities.

What are the reasons for the Shift in the Global Supply chains from China?

1. Rising Labour Costs: The significant increase in China's labour costs has made it less attractive for labor-intensive industries like textiles. Countries such as Vietnam, India, and Bangladesh offer the advantage of lower

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wage rates to companies. This has prompted companies to relocate production away from China in these regions.

2. Supply Chain Resilience: The COVID-19 pandemic exposed vulnerabilities in global supply chain's heavy dependence on China. Many firms are adopting strategies like nearshoring and reshoring to enhance resilience against these supply chain disruptions.

3. Geopolitical Tensions: The U.S.-China trade war, tariff hikes imposed on Chinese goods have led to the increased flight of firms from China. **For ex-** Countries like Mexico have surpassed China as the top trading partner for the U.S. in recent years.

4. Strategic Realignments: The formation of new trade alliances and partnerships such as **SCRI** (Supply Chain Resilience Initiative) and **IPEF** (Indo-Pacific Economic Framework) serve as alternatives to Chinese dominance of Global Supply Chains.

5. Regulatory Challenges: The growing apprehension about stricter oversight and rules for foreign companies in China, has also led to the shift of firms of global value chains from China.

Why is India being seen as an alternative to China?

1. Large Domestic Market: India's vast consumer base (approximately 1.3 billion people) presents significant opportunities in sectors like electronics and textiles.

2. Government Initiatives: The launch of Production-Linked Incentive (PLI) scheme, which offers tax breaks and subsidies to foreign firms, has also helped in shifting production base from China to India.

3. Improved Infrastructure: Investments in infrastructure, such as the development of new ports and logistics facilities, have enhanced India's competitiveness in GVC. **For ex-** Development of $900 million container port in Kerala which is expected to significantly improve product delivery times.

4. Trade Agreements: India's fresh push towards more comprehensive FTA 2.0 like the India-UAE CEPA, India-Australia CEPA and India-EFTA FTA has helped in attracting greater FDI in India as part of the Global Value Chain investment.

5. Service Sector Growth: India's excellent growth in IT, back-office work, financial services, and logistics, has been propelling investor's to look at India as part of their China+1 strategy.

What are the examples of rise of India in the GVC?

Tech Transfers & Manufacturing	The production of iPhones in India, and an early technology transfer for the advanced Mercedes-Benz EQS.
Growing Industries	Foxconn is setting up a chip-making fabrication plant in Gujarat. Sectors like automotives and pharmaceuticals are flourishing with the establishment of new plants.
Attractiveness to Foreign Investors	WTO has listed India as the fifth-largest importer of intermediate goods, with a 5% share, by the end of 2022.

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New trade deals	UAE-India FTA partnership and ongoing negotiations with the UK and EU, indicate deep economic integration of India in the GVC.

What should be the way forward for India?

1. Export-Oriented Approach: India should promote export-oriented foreign direct investment to effectively join global supply chains.

2. Trade Liberalization: Trade liberalisation measures, such as increase in the FDI limits for different sectors, will help in enhancing India's profile in Global Value Chains (GVCs).

3. Modern Special Economic Zones: Modern SEZs in PPP mode should be set up to enhance the business environment.

4. Domestic Technological Investment: India should invest in domestic technology to meet international standards in price, quality, and delivery.

5. Skill development: India must invest in tertiary-level education, like STEM fields, for a skilled workforce.

Conclusion:
The potential US tariffs (**'Trump Tariffs'**) are creating ground for external reforms such as lowering of import tariffs levied by India on others, fast-tracking of trade deals etc, if some domestic reforms are also pursued, side by side, such as, deregulation by government, then it can lead to improve in the ease of doing business. Such reforms will not only lead to greater integration of Indian economy into Global Supply Chains, but also become its important node.

Read More: The Indian Express
UPSC Syllabus GS 3: Economy

G7 and India- Significance and Challenges- Explained Pointwise

India is not a member of the G7—a group comprising the **US, UK, Germany, France, Italy, Canada, and Japan**—but has become a regular and influential invitee to its outreach sessions. As of 2025, India has participated in twelve G7 Summit Outreach sessions, with Prime Minister Narendra Modi attending for the sixth consecutive time this year.
India is seen as a major emerging economy, a voice for the Global South, and a critical partner on issues like energy security, technology, climate change, and geopolitical stability. The host country invites India to ensure broader representation and to address global challenges that require cooperation beyond the G7's core membership.

What is G-7? What are the achievements of the Grouping?

G-7 is a group of the most developed and advanced economies of the world. The members of the G7 group are **France, Germany, Italy, the United Kingdom, Japan, the United States**, and **Canada.** Summits are held annually and hosted on a rotation basis by the group's members.

Origin:

- The G-7 originated from the Oil crisis of 1973 and the resulting financial crisis, which forced the leaders of 6 major industrial nations to convene a meeting in 1975.

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- The participating countries were the US, UK, France, West Germany, Japan, and Italy. Canada joined in 1976, leading to the formation of the G-7.
- It was known as the 'G8' for several years after the original seven were joined by Russia in 1997. However, it was renamed as G-7 after Russia was expelled as a member in 2014 following its annexation of the Crimea region of Ukraine.

What is the significance of G7?

1. Grouping of advanced economies: G7 members collectively represent a significant portion of global GDP and trade, giving the group substantial influence over international markets and economic policymaking. As of 2024, they comprise over 44% of world nominal GDP and about 30% of world GDP by purchasing power parity.

2. Forum for Discussing Pressing Global Challenges: While initially focused on economics, the G7's agenda has significantly expanded over the years to encompass a wide range of global issues. These include:

- **International peace and security:** Addressing geopolitical tensions, conflicts (e.g., Russia-Ukraine war), and terrorism.
- **Climate change and energy security:** Coordinating efforts on climate action, clean energy transition, and ensuring affordable and reliable energy access.
- **Global health:** Discussing responses to pandemics, health crises, and strengthening global health systems.
- **Technology and Artificial Intelligence:** Addressing the implications of emerging technologies, including their ethical use and governance.
- **Trade policies and supply chains:** Promoting free and fair trade and addressing disruptions.
- **Development and humanitarian aid:** Coordinating efforts to support developing countries and address humanitarian crises.

3. Symbol of Multilateralism and Shared Values: The G7 members are united by shared values of liberal democracy, pluralism, and free-market economies. The forum reinforces these principles and promotes a rules-based international order.

4. Consensus-Building: While it does not have a permanent secretariat or binding legal authority, the G7 operates by consensus. **Its gatherings are important because they embody the principles of multilateral cooperation and consensus-building among major powers.**

5. Setting Norms and Agendas: The G7 identifies global norms, elevates their importance, and often sets the agenda for broader discussions in other international bodies like the UN, IMF, World Bank, and WTO.

6. Crisis Coordination Platform: The G7 serves as a critical forum for coordinating international responses to global challenges, such as economic downturns, pandemics, wars, and geopolitical tensions.

What are the Challenges faced by the G-7?

1. G7 is not representative in current times: In the initial years, it accounted for 2/3rd of global GDP. However, the G-7 group now accounts only for 1/3rd on PPP basis and less than 50% on nominal basis (market prices). The emerging 7 (E7) economies of India, China, Indonesia, Brazil, Mexico, Russia, Turkey are not part of it.

2. Failure in tackling Global issues: While the G7 issues ambitious pledges and communiqués on various global challenges (climate change, development aid, pandemic preparedness), critics often point to

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inconsistencies in the implementation of these pledges and a lack of accountability for commitments. For instance, progress on phasing out fossil fuels or delivering on climate finance pledges has been seen as slow.

3. Historical Polluters: G-7 accounts for 59% of historical CO2 emissions and pledged phase out fossil fuels. There has been no visible progress of the same and they currently account for twice the CO2 emission than African continent.

4. Trade Conflicts: Trade disputes among G7 members and with other countries disrupt global economic stability. Weakening of rules based of trade regime through WTO and trade wars has active role of G7 countries.

5. Populism and Nationalism: The rise of populist and nationalist movements within G7 countries challenge multilateral cooperation and the G-7 group's commitment to globalism and liberal democratic values e.g. 2025 G7 Summit in Canada highlight difficulties in reaching a joint statement on issues like the Russia-Ukraine war due to differing views, and the early departure of a key leader like the US President further hindered substantive discussions.

6. Divergent National Interests: While united by shared democratic values, G7 members often have differing national interests, particularly on trade, climate policy, and approaches to geopolitical challenges e.g., relations with China or Russia.

7. Rise of the G20 and Other Forums: The G20, which includes major emerging economies, has largely superseded the G7 as the premier forum for global economic governance. This broader representation makes the G20 better suited to address today's interconnected global economic challenges. The proliferation of various multilateral and **"minilateral"** forums means the G7 is no longer the sole or even primary platform for discussing all global issues.

8. Geopolitical Challenges:

- **Russia's War in Ukraine:** While the G7 has shown remarkable unity in its response to Russia's aggression, sustaining this unity amidst economic pressures, energy concerns, and differing views on long-term strategies remains a challenge.
- **Relations with China:** Managing complex relations with China – balancing cooperation on global issues like climate change with concerns over trade practices, human rights, and geopolitical assertiveness – is a continuous challenge for the G7.
- **Middle East Instability:** At the recent summit in Canada, regional conflicts like the Israel-Iran tensions overshadowed other agenda items and highlight the G7's limitations in directly resolving such complex geopolitical crises without broader international involvement. Moreover, the rift between the Presidents of USA & France at the summit also depicted the group as divided & an ineffective force in resolving the regional conflicts. Eventually, G7 was unable to issue a joint statement in this summit on key issues & only a Chair's Summary was issued to deal with the crises at hand. Thus, many terming this year's summit as a '**Failed Summit**'.

What is the significance of India's association with G-7 Countries?

1. India's Economic Significance: According to the IMF, India is one of the fastest-growing economies in the world. India's economy is larger than 5 G-7 member countries – France, Italy, the UK, Canada & now even Japan. India's abundant young and skilled workforce, coupled with its market potential, low manufacturing costs, and favourable business climate, makes it an attractive investment destination.

2. India's growing strategic Importance in the Indo-Pacific: India has emerged as a major strategic partner for the Western G-7 countries. This has helped in containing China's expanding influence, particularly in the Indian Ocean.

3. Addressing Global Crises: Whether it's the Russia-Ukraine conflict, Middle East tensions, or international terrorism, India's nuanced diplomatic approach and its influence among various global actors make it a valuable interlocutor and potential facilitator for conflict resolution and stability.

4. Resilient Supply Chains: As G7 nations seek to diversify and de-risk their global supply chains (especially post-COVID and amidst geopolitical tensions), India emerges as a viable and attractive alternative to China, particularly in manufacturing, electronics, and pharmaceuticals.

5. Regulation of AI: India's leadership in digital public infrastructure (like UPI and Aadhaar) is a model for inclusive digital transformation in developing countries. Its active participation in discussions on AI governance, responsible AI, and preventing deepfakes is highly significant for setting global norms in these rapidly evolving technological fields.

6. Representation for Developing Nations (Voice of Global South): The G7 has been criticized for being an exclusive "rich countries' club." India's consistent presence helps to bridge this gap, bringing the perspectives, challenges, and priorities of the Global South to the table. This is particularly vital for issues like climate finance, development aid, food security, and technology transfer.

What are the Challenges with India's further deepening of engagement with G-7 Countries?

1.Non-inclusion of India as a permanent member:G-7 has an obsolete membership structure which does not include the emerging economies like India. India is always an "invitee" or "outreach partner," not a formal member. This means India doesn't have a permanent seat at the core decision-making table, nor does it participate in all G7 ministerial meetings or preparatory discussions throughout the year. Its influence is limited to the specific outreach sessions it's invited to.

2. Climate Change Responsibilities: While India is committed to climate action, it often pushes for common but differentiated responsibilities, emphasizing the historical emissions of developed nations and their obligation to provide finance and technology. G7 nations, while committed to climate goals, may face domestic political pressures regarding these commitments.

3. Energy Transition vs. Energy Security: India's immediate energy needs are massive, and while it's rapidly expanding renewables, it still relies heavily on fossil fuels. G7 nations often push for faster transitions, while India emphasizes the need for a just transition that balances energy security and affordability for its large population.

4. Relations with Russia: India maintains a neutral stance on the Russia-Ukraine war, advocating for dialogue and diplomacy, and continuing its economic ties with Russia (e.g., oil imports). This position often differs from the unified condemnation and sanctions approach of the G7. While the G7 might appreciate India's role as a bridge, it also puts India in a position where it may face subtle (or sometimes explicit) pressure to align more closely with the G7's stance.

5. Bilateral Issues with G7 Members: Recent G7 summits have highlighted specific bilateral tensions. For example, the **India-Canada relationship** has been strained due to issues like the Hardeep Singh Nijjar killing and concerns about pro-Khalistan elements in Canada. While the G7 summit offers a platform for dialogue, these bilateral issues can overshadow broader cooperation.

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6. Double standards of developed countries on terrorism: Indian PM highlighted the double standards of developed countries on terrorism as, on one hand, they are quick to impose sanctions on certain countries based on their preferences, while on the other hand, they openly reward countries like Pakistan which promote cross-border terrorism.

What Should be the Way Forward?

1. Deepening Economic Ties: Encouraging investment in sectors like renewable energy, technology, infrastructure and enhancing trade liberalization efforts can bolster economic relations between India and G-7 group.

2. Strategic Collaborations: Strengthening defense cooperation through joint exercises, intelligence sharing, and technology transfers can address common security challenges.

3. Multilateral Engagement: India's active participation in G7 forums can contribute to shaping inclusive global governance frameworks. Joint efforts in climate action, focusing on sustainable development and green technologies, can set benchmarks for global environmental policies.

4. Technological Innovation: Collaborative efforts in digital infrastructure development, cybersecurity, and artificial intelligence can drive the next wave of technological advancements. Joint research initiatives in fields like biotechnology, space exploration, and renewable energy can foster innovation.

5. G7 Expansion (Long-Term): While unlikely in the short term, India should continue to subtly advocate for a more representative G7 (or a G7+ model) that formally includes major emerging economies.

Some Key Outcomes of G-7 Group Summit (2025):

1. Critical Minerals Production Alliance: A new Canada-led G7 initiative, the Critical Minerals Production Alliance, was launched. This aims to work with trusted international partners to guarantee supply for advanced manufacturing and defense, strengthening global critical mineral supply chains.

2. Support for Ukraine: G7 Leaders expressed support to achieve a just and lasting peace in Ukraine. They recognized Ukraine's commitment to an unconditional ceasefire and urged Russia to reciprocate.

3. Middle East Stability: Leaders reiterated their commitment to peace and stability in the Middle East, discussing the evolving situation between Israel and Iran, the need for unhindered humanitarian aid to Gaza, the release of all hostages, and an immediate and permanent ceasefire. They called Iran the "principal source of regional instability."

4. Indo-Pacific: The G7 highlighted the importance of a free, open, prosperous, and secure Indo-Pacific based on the rule of law. They stressed the importance of constructive and stable relations with China while calling on China to refrain from market distortions and harmful overcapacity. Concerns were also expressed about China's destabilizing activities in the East and South China Seas and the importance of peace and stability across the Taiwan Strait.

5. AI Adoption and Governance: The G7 agreed to drive secure, responsible, and trustworthy AI adoption across public and private sectors. Canada initiated the **G7 GovAI Grand Challenge** to develop scalable solutions for AI adoption in the public sector and to bridge digital divides. The summit reaffirmed commitments to international AI ethics frameworks.

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6. Wildfire Resilience: Following a year of devastating wildfires globally, a multilateral effort was agreed upon to better prevent, fight, and recover from wildfires. This included initiatives like expanding Canada's WildFireSat mission to monitor global wildfires and sharing data. India also endorsed the **Kananaskis Wildfire Charter.**

Conclusion:

India's evolving relationship with the G7 signifies its growing importance in global economic and strategic affairs. The synergies between India and G7 nations, driven by shared values and mutual interests, present vast opportunities for collaborative growth. As India continues to rise on the global stage, its partnership with the G7 will play a pivotal role in shaping a balanced and inclusive world order.

Read More: The Hindu
UPSC Syllabus- GS Paper 2- Important International Organisations

Critical Mineral Mission of India- Significance and Challenges- Explained Pointwise

Metals & minerals have played a very important role in the evolution of the human civilisation that lead to the naming of important eras on the name of metals like Bronze Age & Iron Age. Similarly, the minerals have also been central to the development of our economy & society for e.g. coal powered the 1st Industrial Revolution in 19th & 20th century, oil fueled the 2nd Industrial Revolution in second half of 20th century & now critical minerals are believed to be driver of 21st century. **Critical Mineral Mission of India**

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What Should be the Way Forward?

What are Critical Minerals? What is the classification criterion and identified list of Critical Minerals in India?

Critical Minerals: Critical minerals are a category of non-fuel minerals and elements which satisfy 2 conditions:

1. **Economic development & National Security** = Essential for economic development and national security as they are vital for development of materials for defense, aerospace, nuclear, and space applications.

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2. **Supply chain vulnerability** = There are associated risk of supply chain vulnerability and disruption with these minerals, due to their lack of availability, and concentration of existence, extraction or processing of these minerals in few geographical locations.

Factors Affecting Criticality:
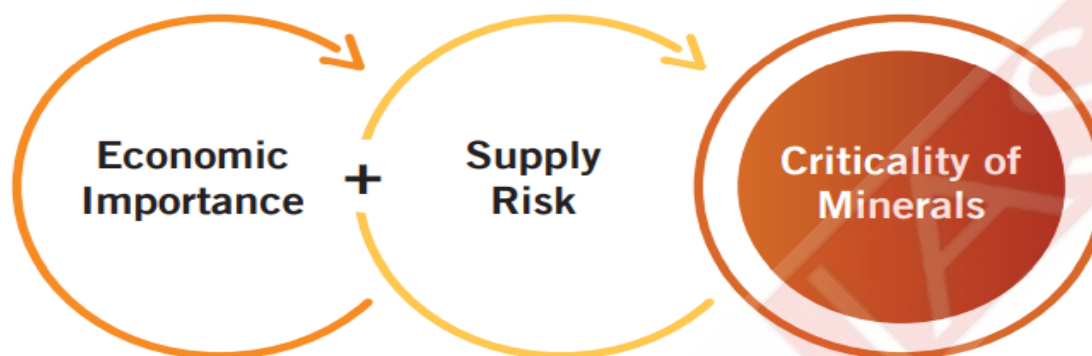
Source- Ministry of Mines

Economic Importance (EI)	Supply Risk (SR)
1. Disruption Potential	1. Governance-weighted Material Concentration
2. Substitutability Index (SI)	2. End-of-life Recycling Rates (EOL-RR)
3. GVA Multiplier Score	3. Import Reliance (IR) and Self-Sufficiency (SS)
4. Cross-Cutting Index (CCI)	4. Substitutability Index (SR)

Critical Minerals identified in India: Government of India identified 30 minerals as Critical in July 2023.

Antimony	Lithium	Strontium
Beryllium	Molybdenum	Tantalum
Bismuth	Niobium	Tellurium
Cobalt	Nickel	Tin
Copper	PGE	Titanium
Gallium	Phosphorous	Tungsten
Germanium	Potash	Vanadium
Graphite	REE	Zirconium

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Hafnium	Rhenium	Selenium
Indium	Silicon	Cadmium

Critical minerals have strategic importance in sectors like defence, agriculture, energy, pharmaceutical, telecom. However, these minerals face supply chain vulnerabilities, due to their lack of availability and concentration in a few geographical locations. Hence, India has been focusing on securing the supplies of critical minerals.

What is the Importance of Critical Minerals for India?

1. Push to India's Economic Development: These Minerals give a push to India's economic development as industries such as high-tech electronics, telecommunications, transport, and defense rely heavily on these minerals. Their growth can lead to job creation, income generation, and innovation in these sectors. **For ex-** India's push to become semiconductor manufacturing hub rests on the availability of these minerals.

2. Energy transition towards Net-zero Emissions: These minerals are the foundation of modern technologies like solar panels, wind turbines and advanced batteries, which will help in energy transition and would give a push to India's goal of net-zero emission by 2070.

3. Competitive Value chain establishment in India: The discovery of critical mineral wealth and identification of areas of their potential use in advanced technologies will help in establishing competitive value chain in India. This would help in attracting foreign direct investments from countries like UK, USA as part of their China+1 strategy.

4. National Security: These minerals are vital for defense, aerospace, nuclear, and space applications due to their usage in development of high-quality and reliable materials capable of withstanding extreme conditions and performing complex functions. These would in turn help in bolstering India's national security.

5. Reducing India's import Bill: Currently most of the critical minerals are imported in India. The exploration and increased production of these minerals would help in reducing India's import burden and Current Account Deficit.

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Sl. No.	Critical Mineral	Percentage (2020)	Major Import Sources (2020)
1.	Lithium	100%	Chile, Russia, China, Ireland, Belgium
2.	Cobalt	100%	China, Belgium, Netherlands, US, Japan
3.	Nickel	100%	Sweden, China, Indonesia, Japan, Philippines
4.	Vanadium	100%	Kuwait, Germany, South Africa, Brazil, Thailand
5.	Niobium	100%	Brazil, Australia, Canada, South Africa, Indonesia
6.	Germanium	100%	China, South Africa, Australia, France, US
7.	Rhenium	100%	Russia, UK, Netherlands, South Africa, China
8.	Beryllium	100%	Russia, UK, Netherlands, South Africa, China
9.	Tantalum	100%	Australia, Indonesia, South Africa, Malaysia, US
10.	Strontium	100%	China, US, Russia, Estonia, Slovenia
11.	Zirconium(zircon)	80%	Australia, Indonesia, South Africa, Malaysia, US
12.	Graphite(natural)	60%	China, Madagascar, Mozambique, Vietnam, Tanzania
13.	Manganese	50%	South Africa, Gabon, Australia, Brazil, China
14.	Chromium	2.5%	South Africa, Mozambique, Oman, Switzerland, Turkey
15.	Silicon	<1%	China, Malaysia, Norway, Bhutan, Netherlands

Table.1 The net import reliance for critical minerals of India (2020) (Source: A report on 'Unlocking Australia-India Critical Minerals Partnership Potential' by Australian Trade and Investment Commission, July 2021)

Source- Ministry of Mines

What are the Challenges with Critical Minerals?

1. Geopolitical and oligopolistic monopoly: The concentration of critical minerals in few countries, has led to geopolitical monopoly with only a few countries dominating these mineral resources. This leads to oligopolistic (domination by a few large firms) markets. **For ex-** Australia controls 55% of lithium reserves, and China has 60% of rare earths.

2. China's dominance in the processing and refining sector: China is a central player in the global critical mineral supply chains, particularly in processing and refining. It accounts for about 60% of worldwide production and 85% of processing capacity. China's dominance leads to political leverage over other countries. It alone can bring global EV industry to a halt by restricting the supply of rare earths – which is happening right now.

3. Geopolitical Risks: The geographical concentration of the these minerals makes them vulnerable to geopolitical risks. Geopolitical tensions, conflicts, trade disputes, or sudden policy changes in those regions can impact their supply. **For ex-** The civil war in Democratic Republic of the Congo, has affected the global supply chain of cobalt, as 70% of the world's reserves of cobalt are located in DRC.

4. Resource Nationalism: The geographical concentration of these minerals has led to resource conflicts. This has increased resource nationalism, and trade fragmentation. **For ex-** Rising resource nationalism in Africa.

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5. Price Volatility: Unlike oil, most critical materials are not widely traded on exchanges, and this limits opportunities to hedge against price volatility. Further, insufficient data on consumption, production, and trade of minerals causes uncertainty, price volatility and delays in investments.

6. Rising Import Bill: Between FY22 and FY23, there has been a 34% rise in imports of critical minerals, totaling nearly Rs. 91,000 crore. India's heavy reliance on imports for these minerals, poses a risk to its industrial and energy security.

7. Environmental Concerns: Mining activities of these can lead to biodiversity loss, land use change, water depletion and pollution, waste contamination, and air pollution. **For ex-** Lithium mining in the fragile landscapes of the Chilean Atacama desert is water-intensive.

8. Long Gestation Period for Alternatives: Development of alternative sources and processing capabilities of critical minerals, like India's plans with Australia, can take over 15 years, delaying self-reliance.

Read More- Critical Minerals Summit

What initiatives have been taken by the Government for Critical minerals in India?

Amendment to Mines and Minerals (Development and Regulation) Act, 1957	Through the MMDR Amendment Act, 2023, the Central Government is empowered to auction blocks of 30 critical minerals. The amendment permits private sector entry through auctions.
FDI liberalisation	In 2019, India has allowed 100% foreign direct investment. Certain minerals which were previously classified as atomic have been reclassified, facilitating private-sector mining.
International Collaboration	India joined the **Mineral Security Partnership**, which is a US led initiative involving 13 countries and the EU. **Khanij Bidesh India Ltd (KABIL)** is assisting Argentina in lithium exploration and discussing lithium and cobalt blocks in Australia.
Institutional Initiatives	The Geological Survey of India has initiated over 250 projects to explore deep-seated critical minerals. India has launched startup challenges to develop advanced processing technologies.
Budgetary Support	**Customs Duty Removal:** Customs duties on 25 critical minerals, such as lithium, nickel, copper, and cobalt, have been removed to enhance domestic manufacturing of advanced technologies like electric vehicles (EVs) and energy storage systems.

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	Concessional Customs Duty Extension: The concessional customs duty of 5% on lithium-ion cells has been extended until March 2026.
Critical Mineral Mission	In the Budget 2024, Critical Mineral Mission has been announced to give a boost to India's critical minerals Sector. Through this mission, India aims to boost the domestic output and recycling of critical minerals like copper and lithium.

Significance of Critical Mineral Mission:

1. Promotion of domestic production and recycling of critical minerals by increasing the capacities of India in terms of refining and processing.

2. Identification of minerals which are critical, which will help the country to plan for the acquisition and preservation of such mineral assets taking into account the long term need of the country.

3. Reduction of India's import dependency as India is 100% import dependent for certain elements.

4. Expedited exploration, overseas mineral acquisition, resource efficiency, recycling of minerals, and finding substitutes through suitable R&D.

1 Supporting economic growth, competitiveness, and job creation

2 Driving research, innovation, and exploration

3 Enhancing global security and partnerships with allies

4 Raw material security for state-of-the-art defence

5 Promoting climate action and environmental protection

Source- Ministry of Mines

What Should be the Way Forward?

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1. Implementation of the recommendations of expert committee on critical minerals: Setting up of the **Centre of Excellence for Critical Minerals** (CECM) as a dedicated wing in the Ministry of Mines. This can be on the lines of CSIRO which is an Australian government corporate entity. The centre of excellence can collaborate with international agencies or Khanij Bidesh India Ltd (KABIL) for the strategic acquisition of foreign assets of these minerals.

2. Push for expansion of Mineral Security Partnership (MSP): Along with India, more countries in the Global South can be part of the alliance, especially critical mineral-rich African countries. The MSP can become an international platform that reports on the status and future of critical mineral markets.

3. Encourage FDI in domestic mining: Rising Foreign Direct Investment (FDI) will not just support businesses like battery and EV manufacturing. It will also bring the expertise of international mining firms to aid in exploring critical minerals for the country's benefit.

4. Investment in beneficiation and processing facilities: India should invest in beneficiation and processing facilities in Africa to promote local economies and sustainable relationships.

5. Path to global leadership: India can emulate Indonesia's success in nickel to become a global leader in these minerals, utilizing access to both domestic and international raw materials.

6. Alignment of mineral incentives: The Production-Linked Incentive (PLI) scheme for minerals should align with global aspirations, creating employment opportunities.

Conclusion:
Critical minerals are the bedrock of the modern technological and sustainable future. Securing their supply is no longer just an economic concern but a fundamental matter of national security. If India is to become a serious player in manufacturing, then it can no longer depend upon mineral supply chains from overseas. As a country which is geologically rich, India has to develop its domestic capabilities to extract minerals – especially critical minerals.

Read More: The Indian Express
UPSC Syllabus- GS Paper-3– Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

India-UK Relations- Significance, Challenges and The way ahead- Explained Pointwise

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The India-UK relationship, rooted in historical ties, has transformed into a **comprehensive strategic partnership**, with both nations striving for deeper collaboration across various sectors. While there's a strong emphasis on trade and security, the relationship is multi-faceted, encompassing defense, technology, education, and robust people-to-people connections.

Source- The Indian Express

What has been the history of India-UK relations?

India and the United Kingdom share a long and complex history of relations that spans centuries.

Colonial Era (1858-1947)	After the rebellion in 1857, India came under direct British rule in 1858. The British monarch became the Empress/Emperor of India.
After Independence	India decided to remain in the Commonwealth of Nations after becoming a Republic in 1950.
Phase of Strained Relationship	India-UK Relations were strained during the Cold War era. India pursued a non-aligned foreign policy while the UK was a NATO ally of the US. The UK opposed India's wars with Pakistan and India's nuclear tests.
Phase of Improvement	With the end of the Cold War and economic reforms in the 1990s, UK became more eager to build economic relations with India. This started a phase of improvement in India-UK relations.

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Phase of Strategic Partnership	The India-UK relationship was upgraded to a Strategic Partnership in 2004. Regular high-level visits and dialogues have strengthened cooperation in areas like trade, investment, defence, and people-to-people links.

Today, India and the UK enjoy a modern partnership bound by strong historical ties and a shared membership in the Commonwealth. The two countries collaborate extensively across a wide range of areas and are working to establish a comprehensive strategic partnership by 2030.

What are the areas of cooperation between India-UK?

1. Geo Political Cooperation: UK supports India's proposal for permanent membership of the UNSC. The UK is also an important interlocutor for India in the EU, G7, G20 and global forums. India-UK political cooperation deepens through institutions and fora such as India-UK Disarmament and Non-Proliferation Dialogue, India-UK JWG on Counter-terrorism and India-UK Foreign Office Consultations.

2. Economic Cooperation: After the establishment of Joint Economic and Trade Committee (JETCO) in 2005, the India-UK economic relations has further deepened:

- The trade between India and the UK has "more than doubled" between 2007 and 2019. The India-UK bilateral trade has increased to USD 20.36 billion in 2022-23.
- In 2022, India was the UK's twelfth largest trading partner, accounting for 2% of the UK's total trade.
- India has invested in 120 projects and created over 5,000 jobs in the UK to become their second-largest source of foreign direct investment (FDI) only behind the United States.
- Ratification of **India-UK FTA** in May 2025.

3. Defense and Security: India and the UK signed the Defence and International Security Partnership (DISP) in November 2015. It provides a strategic roadmap and direction to the evolving India-UK Defence Relations. At present, some 70 companies in the UK supply goods for aircraft and related equipment besides supporting platforms like the Jaguar, Mirage and Kiran aircraft.

4. Nuclear Cooperation: India and UK have signed a Civil Nuclear Cooperation Declaration in 2010 for the promotion and facilitation of cooperation in the nuclear field. In 2015, a Nuclear Collaboration Agreement was signed between the two countries as part of a comprehensive package of collaboration on energy and climate change.

5. Education: India and UK have been closely collaborating in the field of education. This is evident in the following cases:

- The launch of 'UKEIRI Mobility Programme: Study in India' in 2019. Under this Britain's universities collaborate with Indian partners and send UK students to India.
- UK is among the most favoured destinations for Indian students to pursue higher education, with around 50,000 Indian students currently studying in UK.

6. Health: India and UK have been closely cooperating in the field of healthcare management. The close collaboration and association are mentioned below:

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- The successful partnership between Oxford University, AstraZeneca and SII on COVID-19 vaccine has demonstrated the potential of Indian and UK expertise working together to solve international healthcare challenges.
- The two sides are also working on pandemic preparedness, Antimicrobial Resistance (AMR), digital health, Ayurveda and alternative medicines, as well as health worker mobility.

7. Climate and Environment: India-UK Green Growth Equity Fund has been established, which helps in the mobilization of institutional investments in the renewable energy, waste management, electric mobility and environment sub-sectors in India.

8. Cultural Cooperation: India and UK have signed a Memorandum of Understanding on Cultural Cooperation in 2010. The Nehru Centre (TNC), established in 1992 in London, is the cultural outreach of the High Commission of India in UK.

9. Diaspora Collaboration: Around 1.5 million people of Indian origin live in Britain. Indian diaspora are making significant contributions to the British Society. The representation of people from Indian Origin has increased in the British Parliament. The last PM of UK was also of the Indian Origin.

10. Cultural Cooperation: Signing of **Programme of Cultural Cooperation (POCC)** by India & UK. This landmark agreement promises to light up the cultural corridor between the 2 nations, reaffirming their shared creative spirit. The agreement also signals a shared commitment to cross-cultural collaboration & economic growth.

What is the Significance of the close India-UK relations?

1. Geo-Strategic: Deepening of engagement with UK can help India to counter China's rise in the Indian Ocean Region. The UK can use India as an alternative destination to China and its companies can invest in India as part of 'China plus one strategy'. (**China Plus One Strategy:** It is the business strategy to avoid investing only in China and diversify business into other countries).

2. Geo-Political: A healthy relationship between the two is imperative for enhancing cooperation in the Indo-Pacific, Afghanistan, UNSC, G20 and Commonwealth. For ex- India welcoming the UK's accession in the Indo-Pacific Ocean's Initiative under the Maritime Security pillar.

3. Economic: The India-UK FTA will give a further boost to India's labour-intensive sectors, increase Indian service exports, and diversify Indian trade partners. The FTA will boost UK's beverage and automobile industry and UK's investment in India.

> **Read More- India-UK FTA- Explained Pointwise**

4. Climate Change: The deepened India-UK relations will be helpful to achieve the goals of the Paris Agreement and to implement the Glasgow Climate Pact. **For ex-** India and UK have agreed to work for early operationalisation of the Global Green Grids-One Sun One World One Grid Initiative (OSOWOG) under ISA.

What are the Challenges in the relations?

1. Different stands on Russia Ukraine conflict- The U.K has openly criticized the Russian invasion while the same has not yet been done by India. This may emerge as a potential bottleneck in future.

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2. UK's closeness to Pakistan and China- The UK's ties with Pakistan complicate the process of building a closer defence and security with India. U.K. governments have simultaneously supplied India and Pakistan with weapons or curbed weapons exports.

UK and India have also sometimes diverged in their positions towards China's role in the Indian Ocean. While India has been concerned with China's growing influence in the Indo-Pacific region through the Belt and Road Initiative project, the UK by contrast has engaged substantially with Belt and Road.

3. Khalistan Issue: The allegations regarding UK harbouring the issues surrounding Khalistan and Sikh separatism remain as a formidable challenge for deepening of India-UK relations.

4. Slow progress in deepening of Defence Ties: The UK has been slow to adapt to the Indian government's increasingly preferred method of acquisition- through Government-to-Government (G2G) agreements or Foreign Military Sales (FMS) for deals.

5. Extradition Rigidities: Both the countries have an extradition treaty between them. However, speedy expedition is still a far-fetched dream. India has not been able to extradite Vijay Mallya, Nirav Modi and other fugitives from London.

6. Illegal Migrants: There are more than 1 lakh of illegal Indian immigrants in the UK. The UK government has put pressure to send them back but both the countries have not yet signed the migration and mobility agreement.

7. Anti-colonial resentment against Britain: India still suffers from the legacy of Partition like the problem with Pakistan and the issue of Kashmir.

What Should be the Way Forward?

1. Jointly reviving multilateralism and multilateral institutions: India and UK must shed their differences in the stand in the multilateral bodies like WTO and UNFCCC. UK government should stand with the causes of the underdeveloped and developing countries instead of siding with the developed countries.

2. Agreement on "migration and mobility": India and Britain should explore an agreement on "migration and mobility" to facilitate the legal movement of Indians into Britain.

3. Streamlining the extradition process: UK should live up to its commitment to the extradition of Indian fugitives. **For ex-** Nirav Modi should be extradited as his extradition process is almost completed.

4. Deeper defence and security engagement: The UK and India's convergence of interests in the Indian Ocean region offers an important opportunity to increase engagement on defence and security. Hence, both nations should promote standards of transparency and sustainability for infrastructure projects in the Indian Ocean region.

6. Better balancing of relations: The UK should take care for ensuring stronger ties with China and Pakistan are not at the expense of a deeper partnership with India. This will improve India UK relations further.

Conclusion:

The India-UK relationship in 2025 stands at a historic high, driven by the new Free Trade Agreement, expanding strategic cooperation, and shared global interests. Both nations are leveraging their partnership to foster innovation, create economic opportunities, and address global challenges, setting the stage for a more integrated and vibrant bilateral future

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Read More: The Hindu

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UPSC Syllabus- GS 2- India's relation with the developed nations

Farm Subsidies in India-Explained Pointwise

Farm Subsidies in India

Farm Subsidies are **financial assistance or support** provided by the government to farmers/agri-businesses /agricultural organizations to supplement their income to **reduce their input cost**, **stabilise prices**, ensure **food security** & protect them from **unpredictable market & weather conditions**. Farm subsidies constitute about 2% of India's GDP. Total subsidy to farmers amount to 21% percent of their farm income, according to Ministry of Agriculture and Farmer Welfare. **Farm Subsidies in India**

What is the RATIONALE behind Farm Subsidies?

1. Food security: This is often the primary driver. Governments aim to ensure a stable, adequate, and affordable supply of essential food items for their population, especially in countries with large populations like India. Subsidies can encourage farmers to produce sufficient quantities of staple crops, reducing reliance on imports and safeguarding against global food price volatility or supply shocks (e.g., during pandemics or conflicts).

2. Supporting Farmers' Income and Livelihoods: Farming is inherently risky due to unpredictable factors like weather (droughts, floods), pests, diseases, and market price fluctuations. Subsidies provide a safety net, stabilizing farmers' incomes and protecting them from severe financial distress, crop failures, or sudden price crashes.

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3. Addressing Input Costs: Subsidies on inputs like fertilizers, seeds, electricity for irrigation, and credit help reduce the overall cost of cultivation for farmers, making farming more financially viable, especially for small and marginal farmers.

4. Promoting Agricultural Productivity and Modernization: Subsidies can incentivize farmers to adopt modern agricultural practices, high-yielding seed varieties (HYVs), mechanization (tractors, tillers), and efficient irrigation techniques (drip irrigation, sprinklers). This is crucial for increasing overall agricultural productivity and efficiency. Some subsidies or related schemes encourage farmers to invest in on-farm infrastructure like borewells, storage facilities, or cold chains.

5. Price Stabilization and Consumer Welfare: By supporting farmers and ensuring stable production, subsidies can help keep consumer food prices stable and affordable, particularly for low-income households. This is often linked to public distribution systems (PDS) that provide subsidized food grains.

6. Sustainable Practices: Subsidies can be designed to encourage environmentally friendly farming practices, such as organic farming, precision agriculture, water conservation, soil health management (e.g., Soil Health Card scheme), and crop diversification (e.g., promoting millets).

7. Rural Development and Employment: Agriculture is a major source of employment in rural areas. Subsidies help sustain rural economies, create jobs (both on-farm and in allied sectors), and slow down distress migration to urban centers.

What are the TYPES of Farm Subsidies?

Direct Subsidy	Direct subsidies involve **direct cash payments or income transfers** to farmers. Example: **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):** A flagship scheme providing an income support of ₹6,000 per year to eligible farmer families in three equal installments.
Indirect Subsidy	Indirect subsidies reduce the cost of farming inputs or services, or influence output prices, without direct cash payments to farmers. The government typically bears a portion of the cost, making the inputs/services cheaper for farmers. Example: **Fertilizer Subsidy:** The government pays the difference between the actual cost of fertilizer (production/import) and the subsidized price at which it's sold to farmers.
Output Subsidy	This subsidy provides support to farmers on their outputs. Example: **Minimum Support Price (MSP):** The government announces a guaranteed minimum price for certain crops (e.g., wheat, rice, pulses). If market prices fall below MSP, government agencies procure the crops at the MSP, providing a price floor and income assurance to farmers.

What are the BENEFITS of Farm Subsidies?

- **Support Farm Income:** Farm subsidies provide assured income and increase the purchasing power of farmers.

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- **Food Security:** The farm subsidies assure adequate food supply and reduce the chances of food shortage and food inflation.
- **Improvement in HDI:** Improved farm incomes and food security aids in addressing issues like malnutrition, improving overall living standard.
- **Crop diversification:** Incentivising "less focussed" crops where subsidies on the crops having nutritional and environmental benefits are promoted. For example, boost to millet production.
- **Bridge the Income Divide:** According to FAO, 70% of Indian rural households rely mostly on agriculture for a living. Income support for small and marginal farmers bridges the income gap.
- **Technology:** Increased usage of technology and better infrastructure in agricultural activities lead to increased efficiency, increased profitability and reduce distressed migration.
- **Achieve National Goals:** Farm subsidies are crucial levers in the achievement of goals such as achieving the US$ 5 trillion economy status, Sustainable Development Goals (SDG). For example, KUSUM programme (subsidy for solar pumps)

What are the CONCERNS related to Farm Subsidies?

- **Fiscal Burden:** Farm subsidies form about 2% of India's GDP. High amount of farm subsidies, farm loan waivers put excessive burden on Government finances reducing space for capital expenditure.
- **Resource Wastage:** It results in overuse and wastage of resources e.g., subsidized electricity for farms can be misused for personal use.
- **Environmental Degradation:** Fertilizer subsidies have resulted in overuse of Urea and DAP. Overuse of fertlizers leads to eutrophication, water pollution and soil erosion.
- **Increase Inequalities:** Indirect subsidies more beneficial for already rich farmers due to poor targeting.
- **Distorted Cropping Pattern:** Farm subsidies especially the MSP has led to distortion in crop pattern e.g., predominance of wheat and paddy in Punjab/Haryana at the cost of pulses, maize, vegetables etc.
- **Corruption and Leakages:** Farm subsidies are susceptible to corruption and leakages. This leads to welfare loss and additional fiscal burden. Urea meant for farms is diverted to industrial usage or smuggled to neighbouring countries.
- **WTO Concerns:** India's farm subsidies are questioned by the developed nations at the WTO. MSP is considered trade distortionary and breaches the Aggregate Measures of Support (AMS) level limited by the WTO norms.

What can be the WAY FORWARD for Farm Subsidies?

- **Rationalisation:** Farm subsidies should be rationalised according to the demand of programmes based on marketability, affordability and input cost and according to different income groups.
- **Investments:** There is a need to invest more in agriculture R&D, build better infrastructure to create efficient value chains bringing farmer producer organisations (FPO).
- **Incentivise Long-term Capital Formation:** **Kelkar Committee** recommended the phased elimination of subsidies and convert them to capital investments.
- **Credit Eligibility Certificates:** These certificates would enable landless tenant cultivators to obtain agricultural credit.
- **Technology:** Technological improvement like Aadhaar, direct benefit transfer can be used to eliminate inclusion and exclusion errors. The third party verifications of beneficiary will help in eliminating the free riders and leakages.

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- **Legislative Measures:** Contract Farming Act, APMC reforms to reduce dependence on the government.
- **International Measures:** Under the WTO's Nairobi package, developed and developing nations have committed to phase-off export subsidies. Rather than limiting the total agricultural value production, subsidies should be limited depending on individual products such as cotton, wool.

Conclusion:

Farm subsidies have proven to be vital in supporting agriculture and providing income security to farmers. The Government should take steps to rationalize farm subsidies and invest more on capital formation, R&D in agriculture. This will improve agriculture productivity and make agriculture more remunerative.

> **Read More:** The Indian Express, Wikipedia
> **UPSC GS3:** Agriculture

Food Processing Sector-Significance and Challenges- Explained Pointwise

India with its agricultural tradition and diverse climate, holds immense potential for the food processing sector. This industry is not only a cornerstone for the country's economic growth but is also pivotal for ensuring food security, reducing wastage, enhancing farmers' incomes and providing employment opportunities. In order to achieve a developed nation status in the next 25 years, the food processing sector would be crucial in transforming India's primary agriculture sector with enhanced productivity and profitability while ensuring sustainability and resilience. **Growth of Food Processing Sector**.

Source- Yojana

What is Food Processing? What are the reasons behind its growing Demand in India?

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Food Processing involves transforming raw agricultural products into consumable food items, adding value and extending shelf life. Food processing sector has been recognised as a 'sunrise sector' and a key priority industry under the '**Make in India**' initiative.

Type of Food Processing: The can be categorized into primary and secondary products:

1. **Primary products** are made from processed raw materials, like fruits and vegetables.
2. **Secondary products** are created by processing primary food items into new products, such as jams, sauces, and butter.

Main reasons behind the Growth of Food Processing sector in India:
1. Changing lifestyle and food preferences as a result of increasing disposable income. Rising health consciousness among consumers is driving demand for processed and packaged foods that are safe and nutritive.
2. High level of agricultural output: India is the world's largest producer of milk, pulses, and jute. It is also the second largest producer of essential crops such as rice, wheat, sugarcane, groundnut, vegetables, fruits, and cotton.
3. Export opportunities such as proximity to key export destinations, increasing connectivity with the global economy.
4. Proactive government policy & assistance with government interventions like **Mega Food Park Scheme**.

What is the significance of the Food Processing Sector?

1. Increased Contribution to GDP: The food processing sector has emerged as an important segment of the Indian economy in terms of its contribution to GDP. During the last 5 years the sector had grown at an average annual growth rate of around 8.3% as compared to around 4.87% in the agriculture and allied sectors (at 2011-12 prices).

Table 1: GVA by Food Processing Industries (FPI) at Constant Prices (2011-12)

(₹ lakh cr.)

Sr.	Economic activity	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
1	GVA-All India	85.46	90.64	97.12	104.92	113.28	120.34	127.34	132.19	125.85
2	GVA Manufacturing	14.87	15.61	16.84	19.04	20.55	22.09	23.29	22.61	22.48
3	GVA-Agriculture, Forestry, Fishing	15.24	16.09	16.06	16.16	17.26	18.40	18.79	19.82	20.48
4	GVA-FPI	1.30	1.30	1.34	1.61	1.79	1.93	2.36	2.26	2.37

Source: Annual Report 2022-23, MoFPI, GoI

Source- Yojana

2. Employment Generation: This sector is a major employment generator in the country. As per the latest Annual Survey of Industries (ASI) for 2019-20, the total number of persons engaged in the registered food processing sector was 20.32 lakhs. Moreover as per the NSSO 73rd Round, 2015-16, the unregistered units of the sector supported employment for 51.11 lakh workers and constituted 14.18% of employment in the unregistered manufacturing sector.

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Table 4: Number of Persons Engaged in Food Processing Sector

(lakh persons)

Sector	Food Processing Industry*	All Industries	(%) Share of FP sector
Registered (2019-2020)	20.32 lakh	166.21 lakh	12.22
Un-incorporated	51.11 lakh	360.41 lakh	14.18

*Source: Annual Report- FY 2022-23, MoFPI, GoI, *includes food products and beverage segments*

Source- Yojana

3. Large FDI inflow and market size: FDI equity inflows into the food processing sector reached $3.28 billion between 2019-2022. It is the fifth largest sector of the country's economy.

4. Promotes balanced regional development: This industry is a sunrise industry with a consistent demand for locally processed food. This promotes balanced regional development in the country.

5. Women entrepreneurship: The sector provides employment opportunities to rural women in India and also serves as a platform for entrepreneurship. **For ex-** Lijjat papad venture.

6. Nutritional Improvement: Processed foods can be fortified with essential vitamins and minerals, thereby addressing malnutrition and improving public health outcomes.

What are the Government schemes and initiatives for promotion of Food Processing Sector in India?

Pradhan Mantri Kisan Sampada Yojana (PMKSY)	This Central Sector Scheme is being implemented across the country to facilitate the creation of modern infrastructure with efficient supply chain management from farm gate to retail outlet for promotion.
	Under PMKSY, 1,604 projects have been sanctioned, leading to creation of over 250 lakh metric tonnes of annual processing & preservation capacity & more than Rs 22,000cr in private investment.
	It has directly benefitted over 53 lakh farmers & >7.6 lakh employment opportunities have been created.
Pradhan Mantri Formalisation of Food Processing Enterprises (PM-FME)	It was launched in June 2020 under **Atmanirbhar Bharat Abhiyaan** to encourage 'Vocal for Local' in the sector with a total outlay of Rs. 10,000 crore during the period 2020-2025.
	The scheme aims to enhance the competitiveness of individual microenterprises in the unorganised segment of the food processing industry and promote formalisation of the sector.
	This is the first ever Government scheme for Micro Food Processing enterprises and is targeted to benefit 2 lakh enterprises through credit linked subsidies and adopting the approach of 'One District One Product'.

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Food Processing Fund	The Government of India instituted the Food Processing Fund (FPF) in NABARD during 2014-15, with a corpus of Rs. 2,000 crore, with the objective of providing affordable credit to public and private players for setting up of Designated Food Parks (DFPs)
Warehouse Corpus Fund	The fund was set up corpus of Rs. 5000 crore to support State governments, State-owned agencies, and Corporates for the creation of scientific warehouse capacity through financial support.
Production Linked Incentive Scheme	PLI scheme for Food Processing Sector was launched with the aim to generate employment for approximately 2.5 lakh persons in formal sector. The scheme has led to the creation of 3.3 lakh jobs & added more than 67 lakh metric tonnes of processing capacity.
Mega Food Park Scheme	Mega Food Parks are built on a 'cluster' strategy and focus on the development of cutting-edge support infrastructure in a well-defined agri/horticultural zone for the establishment of modern food processing units.
Union Budget 2024-25	Announced the establishment of 50 **multi-product irradiation units** to reduce post-harvest losses & enhance shelf life, **100 NABL-accredited food testing laboratories** to strengthen quality assurance across the value chain & establishment of **National Makhana Board** – aimed at boosting value addition, branding, and global positioning of Makhana from India.

What are the Challenges faced by the Sector In India?

1. Low GVA despite high demand: Despite the increasing demand for processed food and ready-to-eat food in India, the share of the sector in overall GVA has only been 1.88% (2020-21) as against the share of manufacturing at 17.86% and the share of GVA in agriculture at 16.26%.

2. Lack of skilled manpower and modern technology: The availability of skilled manpower has been identified as one of the major challenges facing the industry in India. Many processing facilities use outdated technologies, reducing efficiency and product quality.

3. Infrastructure Bottlenecks: Inadequate cold storage facilities, transportation systems, and processing infrastructure result in post-harvest losses exceeding 30% of produce. The NITI Aayog estimates annual post-harvest losses close to Rs 90,000 crore.

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4. Informalization and Unorganized Segments: The sector has a high concentration of unorganized segments, representing almost 75% across product categories. This causes inefficiencies in the production system.

5. Supply Chain Inefficiencies: Fragmented supply chains with multiple stakeholders and poor coordination lead to delays, waste, and low quality products. **For ex-** Broken supply chain in the agricultural hinterland of Bihar.

6. Regulatory Challenges: Stringent sanitary and phytosanitary (SPS) measures in export markets impede Indian processed food exports. **For ex-** Rejection of Indian processed exports by the EU.

Read More- [Kurukshetra Feb 2024 Summary] Food Storage Infrastructure- Explained Pointwise

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What Should be the Way Forward?

1. Use of Smart technologies: Internet of Things (IoT), Artificial Intelligence (AI) Applications, Robotics and Automation should be used in the food processing sector to increase productivity and decrease wastage.

2. Focus on horticulture and animal products: Special focus must be put on making India a market leader in global trade for at least five value chains- processed fruits and vegetables, processed fish and sea food, meat, dairy products, poultry and eggs by 2047.

3. Skilled Manpower: The food sector must employ more professionals trained in food technology, quality control, processing methods, and food safety management.

4. Better health markers: It must involve better health markers on the packets. The regulatory mechanism governing food safety must be strengthened and properly governed.

5. Tapping the popularity of agricultural products: There is also a need to tap the popularity of various food grains and coarse grains like millets which are gaining increasing importance due to their nutritional benefits and adaptability to various climatic conditions.

Conclusion:
The food processing sector is pivotal for India's economic transformation, farmer income enhancement, reduction of food waste, and rural employment generation. It has the most profound impact on the rural economy. With sustained focus on infrastructure, technology, formalization, and market linkages, India is well-positioned to unlock the full potential of this "sunrise industry" and emerge as a global food processing hub.

Read More- The Indian Express, Wikipedia
Yojana articles Covered- Article 1, 3, 4, 6, and 7
UPSC Syllabus- GS 3- Indian Agriculture

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50 years after the 1975 emergency – Lessons and Way forward – Explained Pointwise

This year marks the beginning of the 50th year since the imposition of Emergency on June 25, 1975. The 21 months period of emergency is considered to be the darkest chapters in the democratic history of Indian republic, saw the suspension of civil liberties, curtailment of press freedom, mass arrests, cancellations of elections, and rule by decree.

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Source- The Indian Express

What are the constitutional provisions behind the imposition of Emergency?

The **emergency provisions** are contained in Part XVIII of the Constitution of India, from Article 352 to 360. These provisions enable the Central government to meet any abnormal situation effectively.

The Constitution stipulates three types of emergencies-
1. National Emergency
2. Constitutional Emergency
3. Financial Emergency

The state of national emergency had been imposed thrice since Independence-
1. During the **wars with China in 1962**.
2. During the war with Pakistan in 1971.
3. Emergency imposed in 1975.

It was the imposition of National Emergency by Indira Gandhi in 1975, that is considered to be the most infamous in the annals of our democracy. 'Internal disturbances' was cited as a major reason by President Fakhruddin Ali Ahmed to impose the Emergency under Article 352 of the Constitution.

Important constitutional amendments enacted during Emergency:

- **38th Amendment Act, 1975** made the President's declaration of Emergency non-justiciable. The amendment barred judicial review of proclamations of emergency made by the President, whether to meet external, internal, or financial threats (under Article 360). The amendment codified and enlarged the state's power to remove fundamental rights from citizens during states of emergency

- **42nd Amendment Act, 1976** was the most significant amendment enacted during the Emergency imposed by Indira Gandhi. It attempted to reduce the power of the Supreme Court and High Courts to pronounce upon the constitutional validity of laws. It gave Parliament unrestrained power to amend

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any parts of the Constitution, without judicial review. After the Janata Party came to power in 1977, they brought the 43rd and 44th Amendments to partially restore the pre-Emergency position.

What is the rationale behind imposition of emergency in India? What are the famous Supreme Court judgements regarding emergency in India?

The rationale behind the incorporation of emergency provisions in the Indian Constitution is to:
a. Safeguard the sovereignty, unity, integrity and security of the country.
b. The democratic political system and the Constitution itself.

Article 356 (Constitutional emergency) was introduced to ensure safety against extreme emergencies and protect legislative processes.
Article 360 (Financial emergency) was added to cushion the country's drastically falling financial position and foreign currency reserves.

Supreme Court judgements on emergency:

Minerva Mills Ltd. vs Union of India (1980)	The Supreme Court held that the power of judicial review cannot be suspended even during an emergency. The basic structure of the Constitution, including the power of judicial review, cannot be abrogated.
S.R. Bommai vs Union of India (1994)	The Supreme Court held that the imposition of President's Rule under Article 356 is subject to judicial review. The Court laid down guidelines and limitations on the use of Article 356.
Bhut Nath Mete vs State of West Bengal (1974)	The Court held that the suspension of fundamental rights under Article 359 does not mean that all legal remedies are barred. Writs can still be filed on grounds of non-compliance with statutory provisions.

These judgments highlight the Supreme Court's evolving stance on balancing the need for strong central authority during emergencies with the protection of individual rights and the rule of law. The Court has sought to limit the misuse of emergency powers while upholding their constitutional validity.

What reasons were given by the government for the imposition of emergency of 1975?

1. Economic crisis: There was a prevailing situation of economic crisis like high unemployment, sluggish industrial growth, rising prices of essential commodities, and a general environment of discontent among the people. This was translating into major disenchantment with the government.

2. Student unrest in Gujarat and Bihar: Agitations against rising prices and corruption was started by the students in Gujarat in 1974. The unrest and protest subsequently spread to Bihar. The defeat of the Congress party in Gujarat was an alarm for the government regarding its unpopularity.

3. JP movement: The JP movement, led by Jayaprakash Narayan, gained national appeal and demanded the dismissal of the Congress government in Bihar. It was supported by opposition parties like the Jan Sangh and

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Bhartiya Lok Dal. This movement galvanized the masses against the regime which was becoming unpopular. *"Sinhasan Khali Karo, Ke Janta Aati hai"* was JP's rallying call during his rallies.

4. Railway strike: The railway employees strike led by George Fernandes in 1974, paralyzed the nation. The strike demanded better service conditions and raised workers' rights issues.

5. Conflict with the judiciary: There was a persistent conflict between the government and judiciary over fundamental rights, the basic structure of the Constitution, and the appointment of the Chief Justice. This languishing conflict between govt and judiciary led to a stalemate.

6. Lack of Internal Democracy: Concentration of power in the hands of one leader, lack of respect for democratic functioning, a culture of sycophancy, corruption in the vital organs of the state also pushed the country towards emergency.

7. Allahabad High Court verdict: The judgment of the Allahabad High Court on June 12, 1975, nullified the election to the Lok Sabha of the then Prime Minister in 1971 on the grounds of abusing official machinery for electoral gains. This judgment served as the final straw and Emergency was proclaimed two weeks later.

What was the effect of the imposition of emergency of 1975?

The imposition of the Emergency by Indira Gandhi in 1975 had significant and far-reaching effects on India. Some of the effect are mentioned below:

1. Suspension of civil liberties: The Emergency allowed the government to suspend fundamental rights enshrined in the Constitution, such as the rights to freedom of speech, assembly, and movement. This led to a brutal crackdown on political opposition and dissent.

2. Arrest of opposition leaders: Prominent opposition leaders like Jayaprakash Narayan, Morarji Desai, Atal Bihari Vajpayee, and L.K. Advani were arrested and jailed under draconian laws like the Maintenance of Internal Security Act (MISA). According to some estimates, over 1 lakh people were arrested or detained during the Emergency under draconian laws like MISA, COFEPOSA (Conservation of Foreign Exchange & Prevention of Smuggling Activities Act) & DISIR (Defence of India Act & Defence of India Rules).

3. Censorship of the media: The media was heavily censored, with the government clearing all news reports before publication. This led to a complete breakdown of press freedom. **For ex-** The Indian Express publishing a blank editorial in protest.

4. Constitutional amendments curtailing powers of judiciary: The 38th and the 42nd Amendment were passed. These reduced the power of the judiciary to review constitutional validity of laws. It also expanded the powers of the central government at the expense of states.

5. Forced sterilization program: The government launched a coercive family planning program that involved forced mass sterilizations, leading to widespread public resentment.

6. Economic impact: The strikes, protests, and political instability during the Emergency severely damaged the Indian economy. This led to high inflation, slow growth, and a decline in living standards.

7. Political backlash: The excesses of the Emergency led to a massive public backlash, resulting in the Congress party's defeat in the 1977 elections. This marked the first time the ruling party had lost power since independence.

What are the judgements and the reports that have criticized emergency in India?

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Several key judgments and commissions have criticized the imposition of Emergency in India by Indira Gandhi in 1975.

ADM Jabalpur v. Shivkant Shukla (1976)	This controversial Supreme Court judgment during the Emergency, by a 4:1 majority, upheld the government's position that the right to life and personal liberty could be suspended during an Emergency. The sole dissenting judge was Justice H.R. Khanna, who was later superseded for the position of Chief Justice. The judgment was widely criticized for reducing the importance of fundamental rights.
Puttaswamy v. Union of India (2017)	In this landmark judgment, a 9-judge bench of the Supreme Court unanimously overruled the ADM Jabalpur judgment. The court ruled that the right to life and personal liberty is an inalienable human right that existed even before the Constitution, and cannot be suspended even during an Emergency.

Shah Commission Report (1978): The Shah Commission, headed by Justice J.C. Shah, was set up after the Emergency to inquire into "excesses" committed during that period. The commission's report was highly critical of the government's actions, including the mass arrest of opposition leaders, censorship of the media, and the forced sterilization program.

What lessons can be drawn from the emergency which will ensure thriving democracy in India?

1. Avoiding despotism: Our Constitution mandates democratic governance based on people's participation, wider consultations and consensus, conformity with the spirit and provisions of the Constitution and compliance with the laws made by the legislature. Despotism has no place in democracy. An elected ruler must rule within the constitutional framework, avoiding personal interest and aggrandizement.

2. Avoid conflict with Judiciary: The executive must not conflict with judiciary. The judgements must be interpreted by the executive from a larger lens. Judgement like the Golaknath, Keshvananda Bharati and Allahabad High Court judgment were viewed from a narrow prismatic lens by the executive.

3. Protecting the fundamental rights of the people: The govt must value and protect the fundamental right to freedom of speech, right to life. Any infringement on fundamental rights guaranteed by the Constitution, is fiercely contested by the people of India through their ballot verdict.

4. Greater Responsibility of Media and civil society: It was famously remarked by L.K. Advani about the media in the period of emergency- *"You were asked only to bend, yet you crawled"*. Hence the civil society and media must play a more responsible role to avoid another emergency in future.

Conclusion:
The period of emergency is considered to be a phase when India's democracy was put on pause & hence, serves as a reminder of the need to protect the rights and freedoms of individuals.

Read More: The Indian Express, Wikipedia

UPSC Syllabus: GS 1- Post Independence History

India-West Asia Relations- Significance & Challenges-Explained Pointwise

West Asia is in the immediate neighbourhood of India & is a very critical region for the development & security of our country. However, the region has historically been a flash point because of conflict between several state & non-state actors from the region as well as involvement of superpowers in the region. The recent war between Israel & Iran and the bombing of Iran's main nuclear sites (**Fordow, Natanz & Isfahan**) by the USA again put the region to the boiling point and has the potential of spilling over of the conflict to other countries in the region (Iran's missile attack on USA's base in Qatar).

What is the SIGNIFICANCE of West Asia for India & vice-versa?

Significance of West Asia for India:

1. Energy Security:

- West Asia is the most crucial region for India's energy security, supplying over 50% of its crude oil imports and a substantial portion of its natural gas (e.g., Qatar supplies over 40% of India's natural gas).
- The secure passage through critical maritime chokepoints like the **Strait of Hormuz** and **Bab el-Mandeb** (connecting the Persian Gulf and Red Sea) is vital for India's energy and trade flows. Any instability in these regions directly threatens India's economic stability.

2. Economic and Trade Ties:

- **Major Trading Partner:** West Asia is a vital trading partner for India, collectively accounting for a significant portion of India's total bilateral merchandise trade (over one-sixth). The UAE is India's third-largest trading partner globally, and Saudi Arabia is fourth.
- **FTAs & Investment:** The India-UAE Comprehensive Economic Partnership Agreement (CEPA) aims to significantly boost non-oil trade. India is also actively pursuing a broader Free Trade Agreement (FTA) with the Gulf Cooperation Council (GCC) as a whole.
- **Market for Indian Goods & Services:** The region is a key market for a wide range of Indian commodities, from agricultural products (like basmati rice, tea) to textiles, electronics, engineering goods, and services (especially IT and healthcare).

3. Large Indian Diaspora and Remittances:

- **Largest Overseas Indian Community:** West Asia hosts the largest concentration of the Indian diaspora, numbering over 9 million. This community plays a crucial role in the region's economy.
- **Vital Remittances:** These expatriates send home billions of dollars annually (accounting for over 55% of India's total remittance inflows), which significantly boosts India's foreign exchange reserves and contributes to household incomes.

4. Connectivity and Geostrategic Importance: West Asia serves as a crucial land bridge for India to access Central Asia, Afghanistan, and potentially Europe.

5. Security and Counter-Terrorism Cooperation: India and many West Asian nations share concerns about radicalization, terrorism, and extremist ideologies. There's increasing intelligence sharing and cooperation on counter-terrorism with countries like Saudi Arabia and the UAE. Joint exercises and task forces have been established to address regional security concerns.

Significance of India for West Asia:

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1. Economic Diversification and Investment: Many West Asian countries (especially the GCC states) are actively pursuing economic diversification away from hydrocarbon dependence, investing heavily in non-oil sectors like technology, infrastructure, tourism, and financial services. India, with its large and growing market, skilled workforce, and tech prowess, is an attractive partner for this diversification. India's massive infrastructure push, growing manufacturing sector, and vibrant startup ecosystem offer lucrative investment opportunities for West Asian sovereign wealth funds.

2. Food Security for West Asia: India can be a reliable source of food products for the arid West Asian nations, contributing to their food security.

3. Skilled Workforce: India provides a vast pool of skilled, semi-skilled, and unskilled labor that is crucial for the infrastructure development, service sectors, and energy industries of West Asian countries.

4. Balancing Influence: India's growing geopolitical weight offers West Asian countries an opportunity to diversify their strategic partnerships and potentially balance the influence of other major powers (e.g., China).

5. Digital Transformation: India's expertise in digital public infrastructure and its rapidly evolving tech ecosystem can offer solutions and partnerships for West Asian countries embarking on their own digital transformation journeys.

6. Tourism: India is a significant source of tourists for West Asian countries, contributing to their growing tourism sectors.

What are the CHALLENGES of the region?

1. Geopolitical Conflicts and Instability:

- **Israeli-Palestinian Conflict:** This remains the core and most enduring source of instability, with profound political, religious, and territorial disputes. Recent escalations (like the Israel-Hamas war and Israeli-Iran direct confrontations) continue to fuel regional tensions and humanitarian crises.
- **Sectarian Divides and Proxy Conflicts:** The historical Sunni-Shia divide, primarily between Saudi Arabia (and its allies) and Iran (and its proxies), fuels numerous proxy wars across the region (e.g., Yemen, Syria, Iraq, Lebanon). These conflicts often involve external powers, exacerbating their intensity and prolonging instability.
- **Great Power Competition:** The region is a theatre for competition between global powers (US, China, Russia) vying for influence, energy resources, and strategic alliances. This often complicates regional dynamics and can prolong conflicts.
- **Non-State Actors:** The rise and persistence of powerful non-state armed groups (e.g., ISIS, Al-Qaeda, Hezbollah, various militias) challenge state sovereignty, contribute to violence, and foster extremism.
- **Nuclear Ambitions:** Concerns about Iran's nuclear program remain a significant source of regional and international tension, raising fears of a regional arms race if other states feel compelled to develop their own nuclear capabilities.

2. External Interference and Influence (Intervention by Global Powers): The military, economic, and diplomatic involvement of major global powers (US, China, Russia, European powers) often complicates regional power dynamics and can exacerbate existing tensions.

3. Safety and Welfare of the Indian Diaspora:

- **Vulnerability to Conflict:** West Asia hosts the largest concentration of the Indian diaspora, numbering over 9 million. Their safety and well-being are paramount for India. Escalating violence or political

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instability directly threatens the safety of these workers, potentially necessitating large-scale and complex evacuation operations (e.g., **Operation Ajay** during the Israel-Hamas conflict, the 1990-91 Gulf War evacuation, **Operation Sindhu** (2025) launched to evacuate Indians from Iran).

- **Labor Exploitation & Welfare:** Despite India's efforts, migrant workers can sometimes face challenges related to labor laws, working conditions, wage disputes, or even legal issues in some West Asian countries.

4. Disruptions to Trade Routes and Supply Chains (Critical SLOCs): The Red Sea, Gulf of Aden, and Persian Gulf are vital Sea Lines of Communication (SLOCs) for India's trade with Europe, Africa, and West Asia itself. Recent attacks on commercial shipping in the Red Sea by Houthi rebels have disrupted vital global trade routes, leading to increased freight and shipping costs, which impact global supply chains and regional economies.

5. Infrastructure Project Delays: Instability can hamper the progress of crucial connectivity projects that India is investing in, such as:

- **Chabahar Port (Iran):** Delays due to regional tensions and the risk of U.S. sanctions affecting partners can impede India's access to Afghanistan and Central Asia.
- **IMEC (India-Middle East-Europe Economic Corridor):** The ongoing Israel-Gaza conflict has notably slowed down this ambitious project, impacting India's plans for new trade corridors.

6. Pakistan factor: India as well as West Asian countries viewing each other through the prism of Pakistan. Pakistan claims to represent the South Asian Muslims & has blocked India's entry into OIC and use it for propaganda purposes.

7. China factor: The growing influence of China in West Asia (e.g., China brokering the Saudi-Iran peace deal) presents a challenge to India's strategic space and requires India to reassess its regional engagements to protect its interests.

What have been the various INITIATIVES by India for boosting ties with West Asia?

1. LOOK WEST POLICY: Adopted in 2005 with the aim to take the relationship beyond just *shared past* to *shared challenges* in the present & a *shared future*. It is complemented by GCC's **Look East Policy** for India.

2. "De-hyphenation": A key aspect of India's approach towards West Asia is the policy of "de-hyphenation," particularly concerning Israel and Palestine. India now pursues strong, independent bilateral relations with both countries based on their individual merits, without letting one relationship be held hostage by the other. This allows India to maintain its traditional support for the Palestinian cause (**2-State Solution**) while simultaneously deepening its strategic partnership with Israel. Simultaneously, India maintains good relations with Iran as well as Saudi Arabia & other Gulf countries – which are important poles in the region.

3. Strategic Partnership Councils/Agreements:

- **UAE:** The **India-UAE Comprehensive Economic Partnership Agreement (CEPA)** signed in 2022 is a landmark achievement, aiming to increase non-oil bilateral trade to $100 billion by 2030. This is complemented by a broader Strategic Partnership.
- **Saudi Arabia:** The establishment of the **Strategic Partnership Council** in 2019 signifies a holistic approach covering political, economic, security, and cultural cooperation.
- **Iran:** India has signed **Tehran Declaration** & **New Delhi Declaration** for cooperation in political, economic & connectivity projects.

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4. Connectivity and Infrastructure Projects:

- **International North-South Transport Corridor (INSTC):** India has heavily invested in the **Chabahar Port in Iran**, which is a crucial gateway for the INSTC. This multimodal corridor aims to connect India to Central Asia, Afghanistan, and potentially Europe, bypassing Pakistan. India recently signed a long-term agreement (10 years) for the operation of Chabahar Port in May 2024, showing its commitment despite challenges.
- **India-Middle East-Europe Economic Corridor (IMEC):** Announced at the G20 Summit in 2023, IMEC is a transformative initiative connecting India to Europe via the UAE, Saudi Arabia, Jordan, and Israel through a network of shipping lanes, railways, and road routes. It is seen as a major counter to China's Belt and Road Initiative and a significant step towards deeper economic integration.
- **Ashgabat Agreement:** India joined this multimodal transport agreement in 2018, further enhancing its connectivity options with Central Asia and the Persian Gulf.

5. Defence and Security Cooperation:

- **Joint Military Exercises:** Regular joint exercises (e.g., naval, air force, special forces) with countries like Oman, UAE, and Saudi Arabia enhance interoperability and build trust.
- **Maritime Security:** India actively cooperates with West Asian navies to ensure the safety of Sea Lanes of Communication (SLOCs) in the Arabian Sea and Indian Ocean, vital for its energy and trade flows. India has secured access to strategic ports like **Port of Duqm in Oman** for logistical support and military use.
- **Counter-Terrorism and Intelligence Sharing:** Given shared concerns about radicalization and extremism, India has enhanced intelligence sharing and counter-terrorism cooperation with several West Asian states (e.g., Saudi Arabia, UAE).

6. People-to-People and Cultural Initiatives: Promoting Indian culture through Indian Cultural Centres, Yoga Day celebrations, and cultural festivals. The inauguration of the **first Hindu stone temple in Abu Dhabi (BAPS Mandir)** in February 2024 is a significant symbol of tolerance and cultural exchange, reflecting the UAE's openness and India's soft power.

7. Multilateral and New Groupings:

- **I2U2 Grouping:** The formation of the "I2U2" (India, Israel, UAE, USA) in 2022 is a significant strategic development, focusing on joint investments in areas like water, energy, transportation, space, health, and food security. It signifies a new geo-economic and strategic alignment.
- **G20 Engagement:** India's G20 Presidency in 2023 allowed it to engage closely with West Asian members (Saudi Arabia, Turkey) and invitees (UAE) on global issues, further deepening collaboration.
- **BRICS Expansion:** India supported the inclusion of Saudi Arabia, UAE, and Iran into BRICS+, reflecting its interest in strengthening multilateral platforms with key West Asian partners.

What can be the WAY FORWARD?

1. Unlock Investment Potential: Proactively engage with West Asian Sovereign Wealth Funds (SWFs) and private investors, offering well-defined, de-risked investment opportunities in India's infrastructure, logistics, digital economy, manufacturing (especially semiconductors, electronics), and startup ecosystem.

2. Enhancing Connectivity and Geostrategic Reach:

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- **Prioritize IMEC Implementation:** While the Israel-Gaza conflict has posed challenges, India must work with partners (US, UAE, Saudi Arabia, EU) to keep the IMEC project alive. This involves active diplomatic engagement to de-escalate regional tensions and find pragmatic solutions for its multi-modal components.
- **Optimize INSTC via Chabahar:** Ensure the full operationalization of Chabahar Port and its integration into the INSTC network. Address remaining logistical bottlenecks and explore ways to mitigate the impact of external sanctions on the project.

3. Sustained "De-hyphenation": Continue India's policy of engaging deeply and independently with all key players – Saudi Arabia, Iran, UAE, Israel, Qatar, Oman, Egypt, etc. Avoid taking sides in intra-regional rivalries. Position India as a trusted dialogue partner for de-escalation and potential mediation efforts in regional conflicts, given its strong relationships across the spectrum.

4. Countering External Influence: Offer compelling alternatives and partnerships that are transparent, sustainable, and mutually beneficial to counter the growing influence of other global powers (e.g., China's Belt and Road Initiative). Highlight India's model of development, democracy, and technological innovation as a reliable and democratic alternative for regional partners.

5. Deepening People-to-People and Cultural Ties:

- **Indian workers:** Ensure prompt and effective consular support and welfare measures for the large Indian diaspora. Collaborate with West Asian countries on skill development programs tailored to their evolving labor market needs, ensuring Indian workers remain competitive.
- **Soft Power Diplomacy:** Continue leveraging Bollywood, Yoga, and diverse Indian cultural forms. Promote educational and academic exchanges, student mobility, and research collaborations.

6. Strengthen Food Security Corridors: Position India as a stable and long-term supplier of food products (grains, fruits, vegetables, meat) to West Asian nations, aligning with their food security initiatives. Encourage West Asian investments in India's agricultural and **food processing sectors**, creating value chains that benefit both sides.

Conclusion:

India needs to pursue a strategy of **"multi-vector engagement with strategic depth"** when it comes to its relationship with West Asia. This involves balancing traditional interests with new opportunities, navigating geopolitical rivalries with diplomatic agility, and leveraging India's growing economic and technological prowess to forge partnerships that are not just transactional but truly strategic and mutually beneficial in the long term.

Read More: Indian Express, Wikipedia

UPSC GS-2: International Relations

SCO (Shanghai Cooperation Organisation) – Significance & Challenges – Explained Pointwise

In the recently held meeting of SCO Defence Ministers in Qingdao in China, Indian Defence Minister declined to sign the draft statement due to lack of reference to cross-border terrorism & Pahalgam terror attack in J&K. As a result, no joint statement has been issued.

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What is SCO?

- **Shanghai Cooperation Organization (SCO)** is a Eurasian political, economic, international security, and defense organization. It was established on June 15, 2001, in Shanghai, China.
- SCO's roots lie in the **"Shanghai Five"** formed in 1996, consisting of **China, Russia, Kazakhstan, Kyrgyzstan, and Tajikistan**. This group was initially created to address security concerns and manage border issues after the dissolution of the Soviet Union. With the admission of **Uzbekistan** in 2001, the "Shanghai Five" was officially transformed into the SCO.
- At present, SCO comprise of 10 members: **People's Republic of China, Kazakhstan, Kyrgyzstan, Russia,** and **Tajikistan, Uzbekistan, India** and **Pakistan** (both joined in 2017), **Iran** (joined the in 2023), and **Belarus** (joined in 2024).

THE STRUCTURE OF THE SHANGHAI COOPERATION ORGANISATION

What is the SIGNIFICANCE of SCO?

1. Geopolitical and Strategic Influence:

- The SCO is the world's largest regional organization in terms of geographic scope and population. It covers approximately 80% of the Eurasian landmass and about 40% of the world's population.
- Its members range from nuclear powers (Russia, China, India, Pakistan, and now Iran) to resource-rich Central Asian states. This diversity of political systems, economies, and cultures makes it a unique platform for dialogue.

2. Economic and Connectivity Potential:

- SCO member states collectively account for about 30% of global GDP. The inclusion of major economies like India and resource-rich nations like Iran further enhances its economic weight.

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- With the inclusion of Iran, the SCO members control a significant percentage of the world's oil (20%) and natural gas (44%) reserves. The **SCO Energy Club** promotes cooperation between major energy producers and consumers within the bloc.
- SCO emphasizes promoting connectivity and infrastructure development across Eurasia. It aligns significantly with China's Belt and Road Initiative (BRI) (though India has concerns about BRI), promoting projects that enhance trade networks and transportation routes, such as the Central Asia–China Gas Pipeline.

3. Counter-Terrorism and Security: A primary and highly successful initiative of the SCO is its focus on combating terrorism, separatism, and extremism. The **Regional Anti-Terrorist Structure (RATS)** based in Tashkent facilitates intelligence sharing and coordinated efforts against these threats, making it the primary security organization in Central Asia.

4. Regional Stability in Eurasia: The SCO plays a crucial role in maintaining peace, security, and stability across the vast Eurasian region, particularly in Central Asia, which is strategically vital. While not always directly intervening, the SCO provides a platform for its members to discuss and coordinate approaches to regional issues, including the instability in Afghanistan.

5. Platform for Dialogue: The SCO provides a crucial platform for high-level political and security dialogue among its diverse members, including those with bilateral tensions (e.g., India-China, India-Pakistan). This can help in de-escalating tensions and fostering understanding.

6. Consensus-Based Decision Making: While dominated by China and Russia, the SCO's consensus-based decision-making process means that all members (including India) have a voice, even if it sometimes leads to slower action.

7. Quad vs. SCO: India's membership in the Quadrilateral Security Dialogue (Quad) with the US, Japan, and Australia, which is often seen as a grouping to counter China's influence, creates a delicate balancing act. Thus, India maintains its strategic autonomy by being part of both "pro-Western" and "non-Western" blocs.

What are the LIMITATIONS/CHALLENGES of SCO?

1. Internal Conflicts and Bilateral Tensions:

- **India-China Border Disputes:** Ongoing border disputes and geopolitical tensions between India and China (e.g., the Ladakh standoff) frequently spill over into SCO discussions, making it difficult for the two major powers to fully cooperate on broader issues.
- **India-Pakistan Animosity:** The historical animosity and persistent issues between India and Pakistan create a challenging environment for consensus-building. India often expresses concerns about cross-border terrorism emanating from Pakistan, which Pakistan may try to deflect or downplay within the SCO forum.
- **Central Asian Border Disputes:** Conflicts and border disputes between Central Asian member states (e.g., Kyrgyzstan-Tajikistan) can also affect regional stability and divert the SCO's focus.
- **Lack of Conflict Resolution Mechanism:** The SCO lacks a formal and effective mechanism for resolving disputes between its member states, which means bilateral tensions often fester and can impede collective action.

2. Dominance of China and Russia: There is an inherent power imbalance within the organization, with China and Russia being the dominant players. This can lead to concerns among other members about

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disproportionate influence and decision-making, particularly from China due to its growing economic might e.g. The official languages of SCO are Russian & Chinese.

3. Lack of a Free Trade Area: Despite discussions, the SCO does not have a comprehensive free trade agreement among its members. This limits its potential for deep economic integration compared to other blocs like ASEAN or the EU.

4. "Anti-Western" Perception: Despite its claims of being an open and non-aligned organization, the SCO is often perceived by Western countries as a grouping aimed at challenging the US-led global order and a potential counter to NATO. This perception can limit its ability to engage with Western partners on global issues.

5. BRI Concerns: China's Belt and Road Initiative (BRI), particularly the China-Pakistan Economic Corridor (CPEC) which passes through Pakistan-Occupied Kashmir (PoK), remains a major sovereignty concern for India. While all other SCO members endorse BRI, India remains isolated in its opposition, which limits its participation in some economic connectivity initiatives within the SCO framework.

6. Limited Mandate: While expanding, the SCO's primary focus remains on security (the "three evils" of terrorism, separatism, extremism). This strong emphasis sometimes overshadows other crucial areas like economic and cultural cooperation, which could offer broader benefits.

What can be the WAY FORWARD?

1. Strengthening Trust and Dialogue: While the SCO is a multilateral forum, its most immediate utility for managing internal tensions often lies in providing opportunities for high-level bilateral meetings on its sidelines (e.g., India-China, India-Pakistan). These informal channels can be crucial for de-escalation and addressing specific grievances.

2. Unified Stance on Terrorism:

- **Zero Tolerance, No Double Standards:** The SCO must unequivocally condemn terrorism in all its forms and manifestations, without any justifications or differentiation between "good" and "bad" terrorists.
- **Actionable intelligence sharing:** SCO needs to actively utilize the **Regional Anti-Terrorist Structure (RATS)** for intelligence sharing, capacity building, and joint exercises & also push for RATS to be more effective and less susceptible to political maneuvering by individual members.

3. Deepening Economic and Connectivity Initiatives:

- Identify specific sectors for enhanced cooperation, such as energy (including renewables), agriculture (food security), pharmaceuticals, and digital technology, where members have complementary strengths.
- **Leverage Existing Corridors:** Fully utilize and expand existing and nascent corridors like INSTC, promoting their integration with regional transport networks.
- **Digital Connectivity:** Emphasize digital infrastructure development, cross-border e-commerce, and digital payment systems to foster seamless economic interaction e.g., sharing India's UPI success, digital public infrastructure models.

4. Non-Traditional Security Threats:

- **Counter-Narcotics:** Enhance cooperation through RATS to combat illicit drug trafficking, which often funds terrorism and organized crime in the region.

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- **Cyber Security:** Push for joint initiatives and capacity building in cybersecurity, a growing threat to all member states.
- **Disaster Management:** Promote cooperation in disaster response and humanitarian assistance, drawing on India's expertise and resources.
- **Climate Change:** Advocate for greater cooperation on climate change mitigation and adaptation strategies, particularly given the shared environmental challenges like water scarcity and desertification in the region.

Conclusion:

For India, the SCO remains a platform of both opportunities and constraints. Thus, India needs to devise a strategy that is **assertive on core national interests (like terrorism and sovereignty), pragmatic in economic engagement, and diplomatically nimble in balancing competing geopolitical currents.**

Read more: **The Indian Express, Wikipedia**
UPSC GS Paper-2: International Relations

Poverty Line Estimation – Explained Pointwise

Recently, the World Bank has announced a major revision to global poverty estimates, raising the **International Poverty Line (IPL)**. It raised the IPL from **$2.15/day (2017 PPP)** to **$3.00/day (2021 PPP)** (which at PPP-Exchange Rate for Indian Rupee in 2025 is Rs 20.6), thus, it comes out to be **Rs 62/day** for India. While the change led to a global increase in the count of extreme poverty by **125 million**, **India emerged as a statistical outlier in a positive direction**. Based on this update, it is now stated that only 5.75% Indians live under extreme poverty (down from 27% in 2011-12).

What is a POVERTY LINE?

- A **poverty line** is a defined threshold that determines the minimum level of income or consumption necessary for an individual or household to meet basic living needs such as food, shelter, and clothing. Those whose income or consumption falls below this line are considered to be living in poverty.
- The poverty line defines the minimum income or consumption level required to sustain a decent standard of living. It helps classify people as poor or non-poor and guides efforts to improve living conditions and eradicate poverty.
- The poverty line may be based on **absolute measures** (fixed minimum needed for survival, e.g., the World Bank's $1.90 per day) or **relative measures** (defined in relation to the median income or living standards within a society).

India's Poverty Line Analysis:

Alagh Committee (1979)	Developed the poverty lines for rural and urban areas based on **nutritional requirements** (2400 kcal for rural, 2100 kcal for urban). These calorie norms were subsequently accepted by the Planning Commission.

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Lakdawala Committee (1993)	Recommended using **Consumer Price Index for Agricultural Labourers (CPI-AL)** for rural areas and **Consumer Price Index for Industrial Workers (CPI-IW)** for urban areas to update state-specific poverty lines. It emphasized that poverty estimates should be based on consumption expenditure surveys conducted by the National Sample Survey Organization (NSSO).
Tendulkar Committee (2009)	It moved away from a solely calorie-based model and recommended a more comprehensive "Poverty Line Basket" that included **private expenditure on health and education**, in addition to food and other basic necessities.
	It also recommended a uniform poverty line basket across rural and urban areas, though with different monetary values.
	Based on its methodology, the Tendulkar Committee estimated the poverty line for 2011-12 at:
	• ₹816 per capita per month for rural areas (~₹27.2 per day) • ₹1,000 per capita per month for urban areas (~₹33.3 per day)
	Using this line, India's poverty rate was estimated at **21.9%** (25.7% rural, 13.7% urban), meaning approximately 26.93 crore people were below the poverty line.
Rangarajan Committee (2014)	Constituted to review the Tendulkar methodology, this committee proposed higher poverty lines, considering a slightly different consumption basket.
	Poverty Line:
	• ₹972 per capita per month for rural areas (~₹32.4 per day) • ₹1,407 per capita per month for urban areas (~₹46.9 per day)
	Based on these lines, the Rangarajan Committee estimated India's poverty rate to be **29.5%** for 2011-12, significantly higher than the Tendulkar Committee's estimate. However, the Indian government did not officially adopt the Rangarajan Committee's recommendations, meaning the Tendulkar Committee's estimates (for 2011-12) remained the last official poverty figures for a long time.
World Bank	The World Bank's current extreme poverty line is **$2.15 per day (2017 PPP)**.
	Recently, the World Bank announced a revision to **$3.00 per day (2021 PPP)**. At the 2025 PPP rate, this translates to roughly **₹62 per day** for India.
	Using the World Bank's updated line, about **5.75% of Indians live in extreme poverty** as of 2025, a sharp decline from 27% in 2011–12.

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NITI Aayog	**National Multidimensional Poverty Index (MPI):**
	Unlike a purely income/consumption-based poverty line, the MPI measures poverty across multiple dimensions (health, education, and living standards) using 12 indicators (e.g., nutrition, schooling, cooking fuel, sanitation, electricity, housing, assets, bank accounts). NITI Aayog's recent reports (based on NFHS data) show a significant reduction in multidimensional poverty in India: ● From **29.17% in 2013-14 to 11.28% in 2022-23**, with approximately 24.82 crore people escaping multidimensional poverty in 9 years. ● Rural poverty showed a larger decline than urban poverty in this period. ● This provides a more holistic picture of deprivation beyond just monetary income.

TABLE 1

VARYING ESTIMATES OF INDIA'S POVERTY RATE (IN %)

METHOD	2011-12	2022-23
Tendulkar methodology@	21.90	9.9*
World Bank's latest poverty line for lower middle-income countries [int-$4.2 a day (Rs 87 a day)]#	57.70	23.90
World Bank's latest poverty line for upper middle-income countries [int-$8.30 a day (Rs 171 a day)]#	92.50	82.10
Bhalla and Bhasin (using World Bank's int-$1.9 a day poverty line)^	12.20	2.00

@ The last officially recognised methodology on poverty estimates (2009) | # 2021 PPP estimates | ^2017 PPP estimates **Note:** *In purchasing power parity terms, 1 international dollar is equal to Rs 20.6*
Source: *World Bank, Bhalla et al (2024), Indian Express Research*

TABLE 2

INDIA'S POVERTY LINE (PER PERSON PER DAY), IN CONTEXT

₹62	World Bank's poverty line for abject poverty in India. In 2022-23, 7.5 crore Indians (5.25% of total population) lived at this level or less
₹63	Price of a litre of Amul milk in 2022
₹87	World Bank's poverty line for "lower middle-income" countries, such as India. In 2022-23, 34.23 crore Indians (that is, 23.89% of all Indians) lived below this daily expenditure level
₹171	This is the World Bank's poverty line for "upper middle-income" countries. In 2022-23, 117.57 crore (or 82.7% of India's population) lived below this daily expenditure level

Source – Indian Express

What is the IMPORTANCE of Poverty Line?

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1. Quantifying the Problem: The primary importance of a poverty line is to provide a quantifiable measure of poverty. It helps answer the fundamental question: "How many people are poor in India?" This headcount ratio is crucial for understanding the scale of the challenge.

2. Tracking Progress: By establishing a benchmark, the poverty line allows the government and researchers to monitor the effectiveness of various development programs and policies over time. A decline in the percentage of people below the poverty line indicates progress in poverty alleviation efforts.

3. Targeting Welfare Schemes: This is perhaps the most direct and critical function of the poverty line. A vast array of government welfare programs are specifically designed to benefit households identified as **Below Poverty Line (BPL)**. These include:

- **Public Distribution System (PDS):** Providing subsidized food grains (rice, wheat) through ration cards to BPL families under the National Food Security Act (NFSA).
- **Housing Schemes:** Programs like Pradhan Mantri Awas Yojana (PMAY) for both rural and urban areas aim to provide affordable housing to the poor.
- **Employment Guarantee Schemes:** While MGNREGA is universal, the poverty line can still inform the identification of most vulnerable households within villages.
- **Social Security Pensions:** Schemes like the National Social Assistance Programme (NSAP) provide pensions to the elderly, widows, and disabled persons identified as BPL.
- **Health Schemes:** Ayushman Bharat – PM Jan Aarogya Yojana provides health insurance coverage to the poorest and most vulnerable families.

4. Evaluating Economic Growth: The poverty line helps assess whether economic growth is "inclusive" or "pro-poor." If GDP is rising but the poverty rate is stagnant or increasing, it signals that the benefits of growth are not reaching the most vulnerable sections of society.

5. Constitutional and Legal Mandates: The Indian Constitution enshrines the goal of a just and equitable society. While not explicitly mentioning a "poverty line," the efforts to define it align with the Directive Principles of State Policy, which call upon the state to promote the welfare of the people by securing a social order in which justice, social, economic, and political, shall inform all the institutions of national life. Poverty estimation helps in fulfilling this mandate.

6. International Comparisons: While India has its own methodologies, international poverty lines (like the World Bank's $2.15/day PPP) allow for global comparisons, showing India's relative standing in poverty reduction efforts compared to other developing nations.

What are the CHALLENGES related to Poverty Line?

1. Defining "Basic Needs": What constitutes "basic needs" is inherently subjective and changes with societal development, expectations, and inflation. The monetary value chosen for the poverty line can seem arbitrary, and even small changes to the line can drastically alter the number of people classified as poor.

2. Exclusion of Essential Non-Food Items: Earlier poverty lines were heavily weighted towards food. While later committees (like Tendulkar and Rangarajan) included health and education, critics argue that the allocation for these vital services often remains insufficient, assuming the state provides most of it for free, which isn't always the case or of adequate quality. Also, what was considered essential years ago (e.g., specific food items) might change, and new necessities (e.g., mobile phones, basic internet access for education/work) might emerge. Updating these baskets is a complex and politically charged exercise.

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3. Lack of Official Poverty Line Updates: The government has not officially updated or declared new poverty lines based on a domestic methodology since the Tendulkar Committee's 2011-12 figures. This has created a vacuum. The Household Consumption Expenditure Survey (HCES), conducted by NSSO, is crucial for updating poverty estimates. The 2017-18 HCES data was withheld due to "data quality issues,. The latest HCES (2022-23/2023-24) has been released, providing updated consumption expenditure data, but official poverty lines based on this are yet to be finalized.

4. Debate Over Actual Poverty Trends: There's ongoing debate among economists and researchers about whether poverty has truly declined as rapidly as some estimates suggest. Factors like demonetization, the COVID-19 pandemic, and concerns about unemployment and real wage stagnation have led some to argue that progress might have slowed or even reversed for some sections.

5. Regional Disparities: India is a vast country with enormous variations in prices, living costs, and access to public services across states and between rural and urban areas. A single national poverty line (or even state-specific lines adjusted by a national index) may not accurately reflect the ground reality in diverse regions.

What can be the WAY FORWARD?

1. Mandate for a Modern Basket: The government should immediately constitute a new expert committee, similar to the Tendulkar and Rangarajan committees, but with a broader and more contemporary mandate. This committee should define a "Poverty Line Basket" (PLB) that truly reflects the minimum requirements for a dignified life in 21st-century India. The committee should recommend a mechanism for **periodic revision and updating** of the poverty line (e.g., every 3-5 years) to account for inflation, changes in consumption patterns, and evolving societal standards.

2. Leverage the Latest HCES Data (2022-23): The HCES data should be fully utilized to derive poverty lines and estimates at **state-specific, rural-urban, and potentially even sub-state levels**, reflecting the vast economic and cost-of-living disparities across India.

3. Embrace a Multi-Tiered Approach to Poverty Measurement: India should move beyond the debate of a single poverty line. A multi-tiered framework would be more appropriate:

- **Extreme Poverty Line:** Aligned with the World Bank's international poverty lines (e.g., the revised $3.00/day PPP) for international comparisons and to track progress on SDG 1.
- **National Poverty Line:** A domestically derived, consumption-based line reflecting the minimum for a dignified life. This could be akin to a "basic needs" poverty line.
- **Vulnerability Line/Near-Poor Line:** A line slightly above the national poverty line to identify households that are not officially "poor" but are highly vulnerable to falling into poverty due to economic shocks (e.g., illness, job loss, climate events). This group also needs policy attention.

4. Strengthen Multidimensional Poverty Index (MPI): The MPI should be officially recognized as a primary and **complementary** tool for poverty measurement, not a replacement for a consumption-based line. Use MPI to identify specific deprivations (e.g., sanitation, cooking fuel, education access) at granular levels (district, block) to design targeted, multi-sectoral interventions. Continuously improve the data sources and frequency for MPI calculation (e.g., by integrating HCES data with NFHS and other administrative data).

Conclusion:

By establishing a robust, multi-tiered poverty measurement framework, leveraging new data and technology, and ensuring transparency in the process, India can refine its understanding of poverty, strengthen its welfare programs, and accelerate its journey towards becoming a truly inclusive and developed nation.

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> **Read More:** The Indian Express, Wikipedia
> **UPSC GS-2: Poverty**

Fertiliser Sector in India – Significance & Challenges – Explained Pointwise

Diammonium Phosphate (DAP) is a critical fertiliser containing Phosphorus which is required by the crops during early stages of root & shoot development. Farmers usually apply at the time of sowing, along with the seeds. China has been the top supplier of DAP to India, however, it has recently put restrictions on its exports, thus triggering a shortage of DAP in India.

Fertilizers are essential for India's agricultural productivity, helping to sustain high crop yields for a large and growing population. India is one of the world's largest producer, consumer & importer of fertilisers in the world. This article explores the role of the fertiliser sector, its associated challenges, and the policy reforms required to address these critical issues.

Source- PSU Watch

What is the SIGNIFICANCE of fertiliser sector in India?

1. Ensure the availability of essential soil nutrients: The fertiliser sector has played a crucial role in sustaining India's agricultural output by ensuring the timely availability of essential nutrients such as nitrogen (N), phosphate (P), and potash (K) through both domestic production and imports. According to recent reports Indian soils suffer from acute deficiencies in essential nutrients which are listed below. These nutrient deficiencies severely affect soil fertility and crop yields:

Nitrogen Deficiency	Less than 5% of Indian soils have adequate nitrogen levels, essential for healthy plant growth.

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Phosphate Deficiency	Only 40% of soils are sufficient in phosphate, an important nutrient for root development and flowering.
Potash Deficiency	32% of soils are deficient in potash, which is crucial for plant disease resistance and overall growth.
Organic Carbon Deficiency	Just 20% of soils have adequate organic carbon, which is necessary for improving soil structure and water retention.
Micronutrient Deficiencies	Soils in India also suffer from deficiencies of micronutrients such as Zinc, Iron, Sulphur, and Boron, which are critical for optimal plant growth.

2. Driving India's Agricultural Dominance: The efforts of the fertiliser industry in supplying critical nutrients have helped India maintain its status as a global agricultural powerhouse. Between 2020-21 and 2022-23, the country exported 85 million tonnes of cereals while providing near-free grain to over 813 million people during the pandemic.

3. Sustainability Initiatives: The fertiliser sector encourages the use of advanced products like slow-release fertilisers and those fortified with micronutrients to enhance efficiency and reduce environmental impact.

4. Education and Awareness: The sector works closely with farmers to educate them about proper fertiliser application techniques, soil testing (Soil Health Card), and nutrient management for maintaining soil vitality.

What are the CHALLENGES related to fertilisers in India?

1. Imbalanced Fertiliser Use: A major issue in Indian agriculture is the overuse of nitrogen (N) fertilisers, especially urea, while other essential nutrients like phosphorus (P) and potassium (K) are underused. *For e.g. in Punjab, nitrogen use is 61% higher than recommended, but under uses potash by 89% and phosphate by 8%.* This imbalance results in green fields but lower crop yields, as plants need all three nutrients for optimal growth.

2. Low Nutrient Use Efficiency (NUE): The efficiency of fertiliser use in India is very low, with only 35-40% of fertilisers being absorbed by crops. The rest is wasted or lost to the environment, such as nitrogen escaping as nitrous oxide, a harmful greenhouse gas. This inefficiency leads to higher costs for farmers and environmental harm.

3. Issues related with fertiliser subsidy:

- **Nutrient Imbalance**: By focusing heavily on urea, the subsidy system has encouraged an imbalanced use of fertilisers, with nitrogen being overused and phosphate and potash underused. This imbalance harms soil health and reduces agricultural productivity in the long run.
- **Financial Strain on the Government**: Fertiliser subsidies are a significant financial burden on the government, amounting to ₹1.88 lakh crore, or nearly 4% of the Union budget. This high expenditure diverts resources away from other critical sectors, such as health and education.

4. Environmental Harm: Excessive and imbalanced fertilizer use has severe environmental consequences:

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- **Groundwater Contamination:** Leaching of excess nitrates into groundwater, posing health risks (e.g. "blue baby syndrome").
- **Water Body Eutrophication:** Runoff of nitrogen and phosphorus into surface water bodies (lakes, rivers) leads to algal blooms, depleting oxygen and harming aquatic life.
- **Greenhouse Gas Emissions:** Nitrous oxide (N_2O), a potent greenhouse gas, is emitted from agricultural soils due to nitrogenous fertilizer use, contributing to climate change. Ammonia volatilization also contributes to air pollution and acid rain.
- **Soil Degradation:** Long-term overuse of chemical fertilizers can alter soil pH, increase salinity in some areas, and negatively impact soil microbiology and structure.

5. Fertiliser Diversion and Smuggling: A significant portion (20-25%) of subsidised urea is diverted for non-agricultural uses or smuggled out of the country. This deprives farmers of necessary fertilisers and strains government finances.

6. Neglect of Micronutrients: Micronutrients like zinc, boron, and iron are often overlooked, despite their crucial role in plant growth. Their deficiency is widespread and contributes to the decline in soil health and agricultural productivity.

7. High import dependency & Global volatility = India does not produce enough fertilizers or their raw materials to meet its domestic demand:

- **DAP:** DAP is India's 2nd most consumed fertiliser (Annual avg sale = 103.4 lt). A significant portion of the consumption comes from imports (57 lt) (because India has limited rock phosphate deposits). China has been one of the top supplier of phosphate fertiliser to India. However, China has put curbs on its exports – to ensure that its farmers has access to the product first & also to meet the growing demand for phosphate in production of EV batteries. It resulted into shortage of key fertiliser DAP in India.
- **MOP (Muriate of Potash):** India is **100% dependent on imports** for MOP, as there are no domestic potash reserves. Similarly, India imports about 90% of its phosphatic fertilizers.
- **Vulnerability to Global Price Fluctuations:** This heavy import dependence makes India highly vulnerable to geopolitical events (like the Ukraine-Russia conflict, Gaza crisis), supply chain disruptions, and fluctuations in international prices of fertilizers and their raw materials (e.g., natural gas, phosphoric acid, rock phosphate). This directly impacts the cost of fertilizers for farmers and the government's subsidy bill.

What are the various GOVERNMENT INITIATIVES related to fertilisers in India?

1. Fertiliser Subsidy: The government provides a subsidy to fertiliser producers so farmers can buy fertilisers at lower prices. The subsidy covers the difference between the cost of making or importing the fertiliser and the price farmers pay. Subsidy on 3 basic fertilisers in India- **Urea**, **DAP** and **Muriate** of Potash (MOP) is discussed below:

- **Subsidy on Urea**: Urea is the most widely produced and used fertiliser in India. It is subsidised only for agricultural use. The government pays a subsidy based on the cost of production at each plant, and urea is sold at a fixed Maximum Retail Price (MRP).The subsidized MRP of 45 kg bag of urea is Rs.242 per bag (exclusive of charges towards neem coating and taxes applicable).
- **Subsidy on Non-Urea Fertilisers**: Non-urea fertilisers, such as DAP and MOP, are generally sold at market prices, but the government has recently regulated them due to global price increases

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(especially after the Russia-Ukraine war). These fertilisers are covered under the **Nutrient-Based Subsidy (NBS) Scheme**. The MoP is being sold at Rs 1,500-1,600 per bag, while the price of DAP is Rs 1,350 per bag.

Fertiliser subsidy schemes:

Urea Subsidy Scheme	**a.** Under the Urea Subsidy Scheme, urea is sold at a statutorily notified uniform MRP (Maximum Retail Price). Farmers pay a subsidised price of ₹242 per 45 kg bag of urea, significantly lower than the market price. **b.** The difference between the cost of production/importation and the retail price is paid to the urea manufacturer/importer by the government as a subsidy
Nutrient-Based Subsidy (NBS) Scheme	**a.** The NBS scheme was introduced in 2010 to address the nutrient imbalance in Indian agriculture. **b.** Under this scheme, fertilisers are provided at subsidised rates based on the nutrients they contain, namely nitrogen, phosphate, potash, and Sulphur. **c.** Fertilisers fortified with secondary and micronutrients are also given additional subsidies. However, urea is excluded from the NBS scheme.

2. Direct Benefit Transfer (DBT) of Fertilizer Subsidy: 100% subsidy on various fertilizer grades is released to fertilizer companies **after actual sales are made to farmers** by retailers through Point of Sale (PoS) machines. Farmers are identified through their Aadhaar card at the retail outlet. The aim is to improve transparency, reduce diversion, ensure the subsidy reaches the intended beneficiaries, and track real-time sales data.

3. Boosting Domestic Production and Self-Sufficiency:

- **Revival of Closed Fertilizer Units:** A major focus has been on reviving defunct or sick urea fertilizer plants to increase domestic production capacity and reduce import reliance for e.g. Hindustan Urvarak & Rasayan Limited (HURL), Ramagundam Fertilizers and Chemicals Ltd (RFCL), Talcher Fertilizers Limited (TFL).
- **New Urea Policy (NUP) – 2015:** For existing gas-based urea units, this policy aimed at maximizing indigenous urea production, promoting energy efficiency, and rationalizing the subsidy burden. It has led to a significant increase in indigenous urea production.
- **Potash Derived from Molasses (PDM):** To reduce 100% import dependence for Potash, indigenous production of Potash Derived from Molasses has been encouraged and included under the NBS scheme.

4. Promoting Balanced Fertilizer Use and Soil Health:

- **Neem-Coated Urea (NCU):** The government mandated 100% neem-coating of all indigenously produced and imported urea.
- **Soil Health Card (SHC) Scheme:** Promotes soil test-based and balanced use of fertilizers, reduce overuse of chemical fertilizers, save costs for farmers, and improve soil health and productivity.

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- **Promotion of Bio-fertilizers and Organic Manures:** Schemes like **Paramparagat Krishi Vikas Yojana (PKVY)**, **National Project on Organic Farming (NPOF)**, **Mission Organic Value Chain Development for North-Eastern Region (MOVCDNER)**, and **Bhartiya Prakritik Krishi Padhati (BPKP)** provide assistance and promote the use of organic fertilizers and bio-fertilizers.

5. PM Programme for Restoration, Awareness Generation, Nourishment, and Amelioration of Mother-Earth (PM-PRANAM): States/UTs receive a grant equivalent to 50% of the fertilizer subsidy saved by reducing chemical fertilizer consumption (Urea, DAP, NPK, MOP) compared to the average of the previous three years. This grant is to be used by states to promote alternative fertilizers and related assets.

6. One Nation, One Fertilizer (ONOF) / Pradhan Mantri Bhartiya Jan Urvarak Pariyojana (PMBJP): Standardize fertilizer brands, reduce farmer confusion, reduce criss-cross movement of fertilizers (thus saving freight subsidies), and ensure a uniform appearance and quality perception for subsidized fertilizers.

7. Nano Fertilizers: The government is actively promoting the adoption of nano-fertilizers, particularly Nano Urea Liquid e.g. IFFCO Nano Urea Liquid.

What can be the WAY FORWARD?

1. Rationalizing the Subsidies: The government should bring urea under the Nutrient-Based Subsidy (NBS) scheme to balance the prices of nitrogen, phosphate, and potash. This will encourage balanced fertiliser use and reduce reliance on urea.

2. Deregulating Fertiliser Prices: Allowing market forces to set fertiliser prices can remove distortions caused by price controls. Farmers should receive direct income support, such as digital coupons or cash transfers, to purchase fertilisers based on their needs.

3. Promoting Micronutrient Use: To address micronutrient deficiencies, the government should promote fertilisers enriched with micronutrients. Encouraging balanced fertiliser use, including micronutrients, is crucial for better soil health and crop yields.

4. Improving Nutrient Use Efficiency (NUE): Improving NUE is essential, which can be achieved through precision farming, better soil testing , and using technology to apply fertilisers more efficiently.

5. Direct Income Support to Farmers: Explore replacing product-specific subsidies with a system of direct income support to farmers (like PM-KISAN, but specifically tied to fertilizer use or nutrient management). This would empower farmers to choose the right fertilizers based on their soil needs, reduce distortions, and prevent diversion.

6. Diversify Import Sources: Reduce over-reliance on a few countries for raw materials (rock phosphate, phosphoric acid) and finished fertilizers (MOP, DAP). Forge long-term agreements and joint ventures with resource-rich countries beyond traditional partners, including those in West Asia, Africa, Latin America, and other regions.

7. Integrated Nutrient Management (INM): Vigorously promote INM, which combines chemical fertilizers with organic manures, bio-fertilizers, and green manures, to improve soil health and reduce reliance on synthetic inputs.

CONCLUSION:
India needs to build a fertilizer sector that is not only robust and self-sufficient but also environmentally

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responsible, fiscally sustainable, and ultimately contributes to long-term agricultural prosperity and food security.

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