



CSB IAS ACADEMY

The Road Map to Mussoorie...



Dear Aspirants,

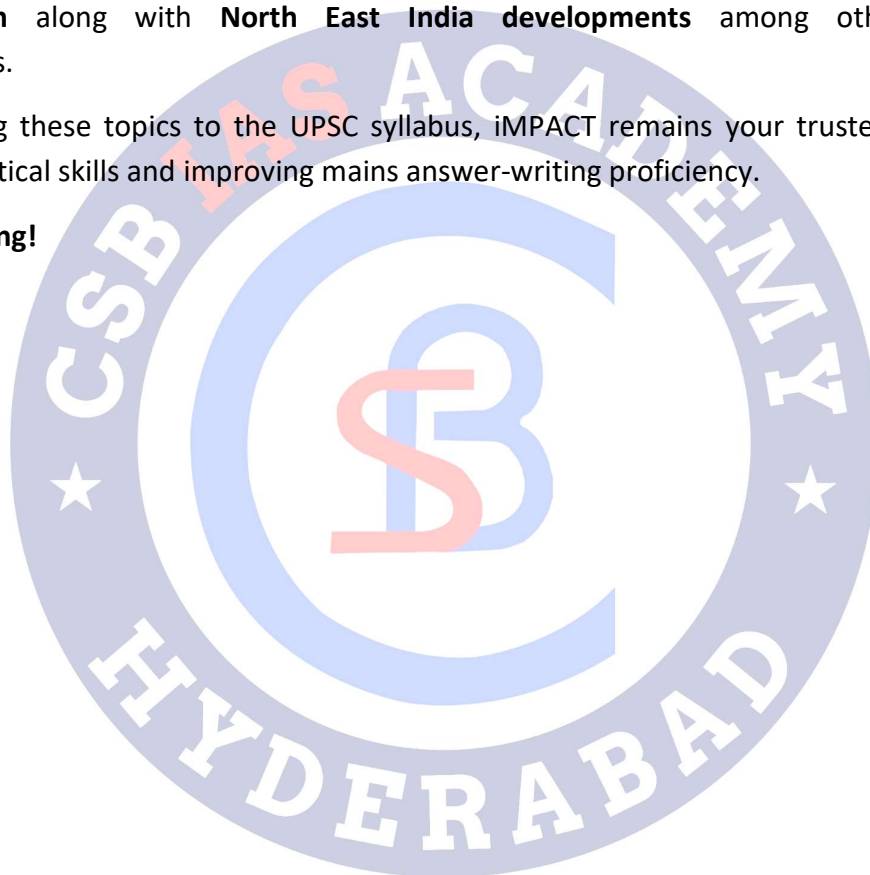
Welcome to the May edition of CSB IAS's iMPACT. As the intensity of Civil Services Mains preparation rises with Prelims just got over, this edition brings you key insights into critical issues shaping India's political, economic, and social landscape.

This month, we cover important topics such as **early arrival of monsoon, the issues surrounding official language debate, India-Africa relations, India's air defence systems and about Minimum support price.** We also analyse **Caste census, National Security doctrine and Defence indigenisation** along with **North East India developments** among other significant developments.

By connecting these topics to the UPSC syllabus, iMPACT remains your trusted resource for refining analytical skills and improving mains answer-writing proficiency.

Happy Learning!

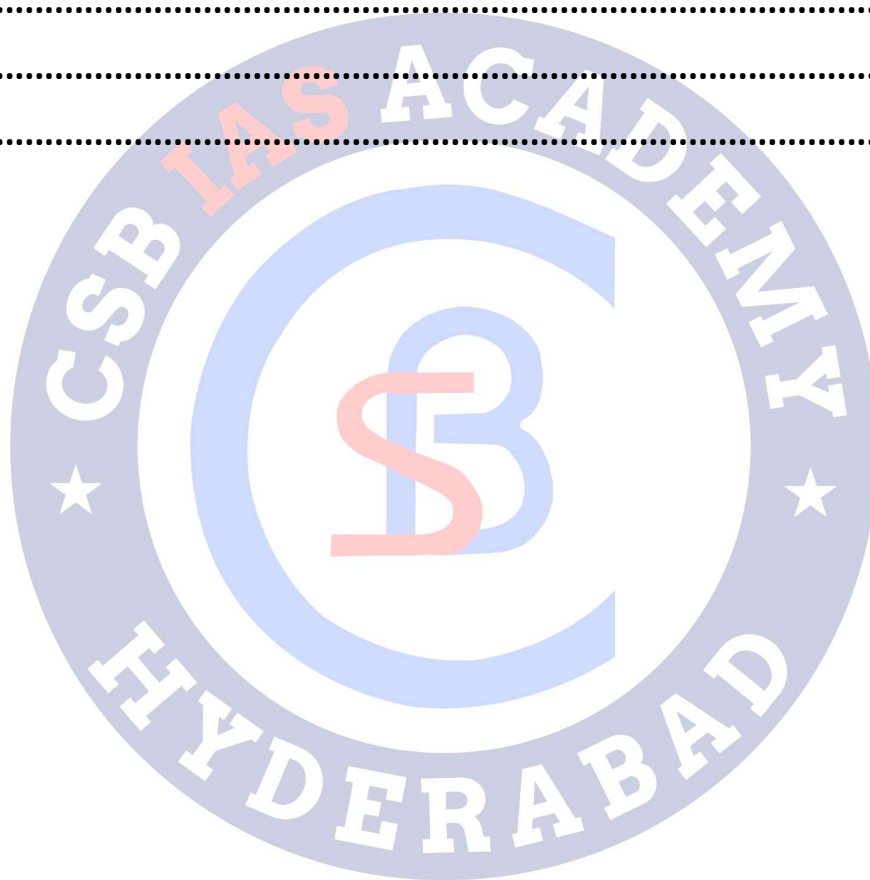
Team CSB IAS



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GENERAL STUDIES-I



1. COAL SECTOR

IMPACT ANALYSIS

SYLLABUS:

GS 1 > Geography >> Resources

REFERENCE NEWS:

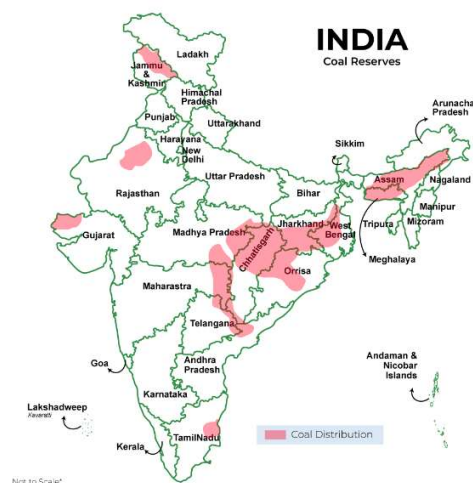
India's coal sector, pivotal to its rising energy needs and economic ambitions, is undergoing a transformative shift. With per capita electricity consumption at just 1.10 MWh—well below the global average—coal remains crucial to powering India's \$5 trillion and future \$35 trillion economy.

The sector is embracing digitization through the DigiCoal initiative, deploying AI, drones, and 5G to enhance transparency, safety, and efficiency. The upcoming coal trading exchange aims to streamline access and ensure fair price discovery. Once marred by inefficiency, the coal industry is now modernizing rapidly, positioning India as a future leader in the global mining economy.

COAL IN INDIA:

Coal is a readily combustible, black or brownish-black **sedimentary rock**, predominantly made of **carbon**.

- India is the **2nd largest consumer of coal**. India is also the **2nd largest producer of coal** with 5th largest geological reserves of coal in the world.
- India imported about 260 million tonnes of coal in FY 2023-24, dominated by non-coking coal (~77% of total imports).
- **Gondwana coal makes up to 98 per cent of the total reserves and 99 per cent of the production of coal in India.**
- The carbon content in Gondwana coal (250 million years old) is less compared to the Carboniferous coal (350 million years old) which is almost absent in India.
- Tertiary coal is 15 to 60 million years old. Carbon content is very low. Mainly confined to the extra-Peninsula- Jammu and Kashmir, Himachal Pradesh, Assam, Arunachal Pradesh etc. Tamil



Nadu and the union territory of Pondicherry also bear tertiary coal reserves in the form of lignite.

- Peat is confined to few areas only, occurring mostly in Nilgiri hills, Kashmir valley (in the alluvium of Jhelum), Kolkata suburbs peat beds and in Ganga delta.

SIGNIFICANCE OF COAL SECTOR IN INDIA:

Energy Security & Power Generation

- **Primary Source of Electricity:** Coal accounts for 74% of India's power generation, making it the backbone of the energy sector.
 - **NTPC (India's largest power producer)** relies heavily on coal, operating **thermal plants like Vindhyachal (4,760 MW), the largest in India.**
- **Base Load Energy Reliability:** Unlike solar and wind, coal provides **continuous power supply**, essential for **industrial and residential needs.**
 - **Darlipali Super Thermal Power Plant (Odisha, 1,600 MW)** ensures **stable power supply to eastern India.**

Industrial Growth & Steel Production

- **Essential for Steel & Cement Industries:** Coking coal is vital for steel production, while non-coking coal fuels cement and aluminium industries.
 - Tata Steel and JSW Steel import coking coal from Australia due to India's limited reserves. India imports **85% of its coking coal needs**, making domestic coal production crucial for reducing costs.
- **Boosts Infrastructure Development:** Cement production (used in roads, buildings, and railways) depends on coal-fired kilns.
 - UltraTech Cement, India's largest cement producer, uses coal-based energy for 70% of its operations.

Employment Generation & Rural Development

- **Direct & Indirect Job Creation:** The coal sector employs **millions of people** in mining, transportation, and processing industries.
 - **Coal India Limited (CIL) alone employs over 2.5 lakh workers**, making it India's largest public-sector employer.
- **Development of Coal-Rich Regions:** Coal mining develops remote areas by creating townships, hospitals, and schools when they act as growth poles.
 - Korba (Chhattisgarh) and Dhanbad (Jharkhand) have grown into major industrial hubs due to coal mining.

Economic Growth & Revenue Generation

- **Contribution to GDP:** Coal contributes **over 1.5% to India's GDP** through mining, power, and industrial applications.
 - **Odisha earns over ₹15,000 crore annually from coal royalties and taxes.**
- **Reduces Energy Import Dependency:** India imports oil and gas but is self-sufficient in coal, reducing its trade deficit.
 - **Coal production saved India over \$20 billion in energy imports in 2023.**
- **Enhancing Energy Security:** Indigenous coal production reduces reliance on expensive LNG and crude oil imports.
 - Coal-based Ultra Mega Power Projects (UMPPs) like Mundra (Gujarat) help meet India's growing energy demands.

CHALLENGES OF COAL PRODUCTION IN INDIA:

Poor Infrastructure & Inefficiencies in Mining

- **Outdated Mining Technology:** Most coal mines use open-cast mining, which is less efficient and environmentally harmful.
 - **Jharia coalfield (Jharkhand)** faces frequent underground fires due to outdated mining methods.
- **Low Coal Quality & High Ash Content:** Indian coal has **35-45% ash content**, reducing efficiency and increasing pollution.
 - **Singrauli coal (Madhya Pradesh)** has high ash, affecting power plant efficiency.
- **Transport & Logistics Bottlenecks:** 60% of coal is transported via rail, but inadequate rakes lead to supply shortages.
 - **Korba (Chhattisgarh)** mines face transport delays due to lack of railway connectivity.

High Import Dependency on Coking Coal

- **Limited Domestic Reserves:** India imports **85% of its coking coal** for steel production, increasing costs.
- **Trade Deficit & Supply Risks:** Importing coal adds to **India's trade deficit**, making the economy vulnerable to **global price fluctuations**. India **spent \$20 billion on coal imports in 2023**, despite having the world's 5th largest reserves.

Environmental & Social Challenges

- **Deforestation & Land Degradation:** Coal mining destroys forests and displaces local communities.

- Hasdeo-Arand forests (Chhattisgarh) face destruction due to coal mining expansion.
- **Air & Water Pollution:** Coal-based power plants contribute to 50% of India's industrial emissions.
 - Ennore thermal plant (Tamil Nadu) has polluted local water bodies, affecting fisheries.
- **Health Hazards for Workers & Local Communities:** Coal mining causes lung diseases like pneumoconiosis and TB among workers.
 - Dhanbad (Jharkhand) reports high cases of coal dust-related respiratory diseases.

Bureaucratic & Policy Delays

- **Land Acquisition & Rehabilitation Issues:** Acquiring land for coal mining faces resistance from tribals and locals.
 - Adani's coal mine in Godda (Jharkhand) faced protests over displacement.
- **Slow Approval & Environmental Clearances:** Coal projects often take years to get clearances, delaying production.
 - Chennai Neyveli Lignite expansion took over 7 years for approvals.

Geopolitical & Supply Chain Disruptions

- **China's Dominance in Coal & Critical Minerals:** China controls global coal supply chains, affecting Indian imports of mining equipment. China's supply restrictions in 2021 increased global coal prices, impacting India's power sector.
- **Coal Price Volatility in Global Markets:** India is highly vulnerable to fluctuations in global coal prices. Russia-Ukraine war led to a 50% rise in global coal prices, straining Indian power plants.

Future Energy Transition & Policy Uncertainty

- **Shift to Renewable Energy:** India is committed to Net-Zero emissions by 2070, reducing long-term coal demand.
- India's renewable energy target and India's coal production hike is hyphenated development and present a climate change mitigation- development paradox.
- **Uncertainty in Coal Sector Reforms:** Privatization of coal mining is slow, limiting investment in modern technology. Only 10% of new coal blocks auctioned since 2020 have started production.

WAY FORWARD:

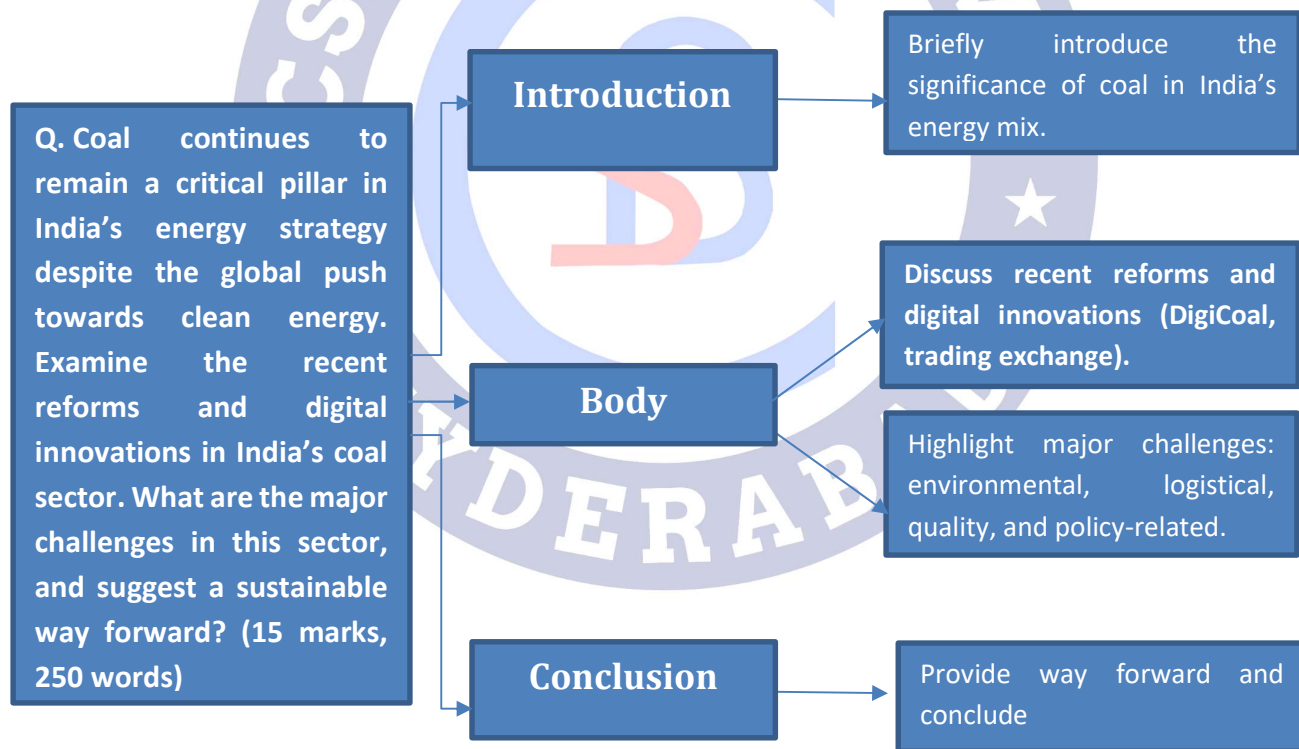
- **Transition to Advanced Mining Techniques:** Adopt underground coal gasification (UCG) and coal beneficiation to improve efficiency and reduce waste. China's Shenhua Group uses UCG to extract deeper coal reserves with minimal land disruption.
- **Automation & AI in Coal Mining:** Use AI-driven monitoring, autonomous drilling, and drone-based mine surveys to reduce labour risks and improve productivity. Australia's Rio Tinto mines use autonomous trucks and AI-driven logistics to increase efficiency.
- **Development of Washeries & Coal Beneficiation:** Install coal washeries to reduce ash content and improve quality, reducing pollution from power plants. Germany's Ruhr Valley coal plants use advanced washing techniques to enhance fuel efficiency.
- **Develop Indigenous Coking Coal Reserves:** Invest in Jharia (Jharkhand) & Raniganj (West Bengal) for coking coal exploration to reduce import dependence. China has reduced coking coal imports by enhancing deep mining techniques in Shanxi province.
- **Strategic Coking Coal Reserves & Joint Ventures:** Develop long-term supply agreements with Australia, Russia & Mongolia to ensure stable pricing. Tata Steel signed a long-term coking coal supply agreement with Australian miners to stabilize costs.
- **Railway & Inland Waterway Expansion:** Enhance rail-coal linkages and invest in dedicated freight corridors (DFCs) for coal transport. The Eastern DFC project improves coal movement from Jharkhand and Odisha to power plants.
- **Boost Coastal Shipping & Conveyor Belt Systems:** Use conveyor belts for direct mine-to-power plant transport, reducing pollution and transport time. Adani's coal conveyor system in Mundra (Gujarat) reduced logistics costs by 30%.
- **Mine Reclamation & Green Coal Mining:** Ensure abandoned mines are repurposed for afforestation, solar farms, or tourism projects. Germany's Lusatia coal mine was converted into a lake and eco-tourism destination.
- **Carbon Capture & Clean Coal Technology:** Invest in carbon capture, utilization, and storage (CCUS) to cut emissions from coal-fired plants. Norway's Mongstad Plant successfully uses CCUS to trap 80% of emissions.
- **Shifting Towards Coal Gasification & Liquefaction:** Increase coal gasification projects for cleaner energy production. Talcher (Odisha) is developing India's first coal gasification plant for cleaner fuel production.
- **Speed Up Mine Auctions & Private Investment:** Encourage global companies to invest in Indian coal mining through easier FDI norms. China's coal privatization increased efficiency and reduced wastage.
- **Improved Land Acquisition & Community Compensation:** Ensure fair compensation, rehabilitation, and social benefits for displaced communities. The Coal Bearing Areas (Amendment) Bill aims to fast-track land acquisition for coal projects.

- **Hybrid Energy Models: Coal + Solar + Wind:** Use coal-based power plants with integrated solar/wind energy to reduce carbon intensity. NTPC has set up hybrid coal-solar power plants in Madhya Pradesh.
- **Gradual Transition to Cleaner Energy Sources:** Limit coal dependency by diversifying into nuclear, hydro, and renewables. Australia has begun phasing out coal by replacing older plants with hybrid power stations.

PRACTICE QUESTION

Q. Coal continues to remain a critical pillar in India's energy strategy despite the global push towards clean energy. Examine the recent reforms and digital innovations in India's coal sector. What are the major challenges in this sector, and suggest a sustainable way forward? (15 marks, 250 words)

APPROACH



MODEL ANSWER

India's coal sector, long criticized for inefficiency and environmental degradation, is undergoing significant transformation. With **per capita electricity consumption at 1.10 MWh**, far below the

global average of 3.42 MWh, coal remains vital to achieving India's economic ambitions, including the vision of a **\$5 trillion economy by 2027** and a **\$35 trillion economy by 2047**. Coal contributes to over **74% of India's electricity generation**, making it indispensable for energy security.

Recent Reforms and Innovations in the Coal Sector:

1. **DigiCoal Initiative:** Digitisation of coal mines using **5G, AI, drones, and GPS** for real-time monitoring and safety. Creation of **digital twins** of mines to enhance planning and efficiency.
2. **Coal Trading Exchange:** India's first coal trading platform is set to launch, enabling **transparent pricing, seamless access, and stable supply** to industries.
3. **Privatization and Commercial Mining:** Auctioning of coal blocks to private players since 2020 to boost competition and efficiency.
4. **Clean Coal Technologies:** Investments in **coal gasification** (e.g., Talcher project), **carbon capture**, and **coal beneficiation** to reduce environmental footprint.

Challenges Facing India's Coal Sector:

1. **Environmental and Health Hazards:** Mining leads to **deforestation and displacement** (e.g., Hasdeo Arand forests). Coal-based power plants contribute to **50% of industrial emissions**. Respiratory diseases are prevalent in coal towns like **Dhanbad**.
2. **Inefficient Mining and Poor Infrastructure:** Heavy reliance on **open-cast mining**, outdated methods (e.g., Jharia coal fires). **High ash content (35–45%)** in Indian coal reduces efficiency.
3. **Logistics and Supply Chain Bottlenecks:** **60% of coal moves by rail**, but lacks sufficient rakes and connectivity (e.g., Korba delays). Limited **washeries** reduce quality for power use.
4. **Import Dependence and Geopolitical Risks:** India imports **85% of its coking coal**, adding to the trade deficit. Volatile global prices due to wars and supply disruptions (e.g., Russia-Ukraine conflict).
5. **Policy and Regulatory Delays:** Land acquisition and clearances (e.g., Neyveli expansion) take years. Community resistance and poor rehabilitation (e.g., Adani's Godda project).

Way Forward: A Sustainable and Balanced Coal Strategy

1. **Modern Mining Technologies:** Promote **Underground Coal Gasification (UCG)** and **autonomous mining systems** (e.g., used by Rio Tinto in Australia).

2. **Improve Logistics Infrastructure:** Expand **Dedicated Freight Corridors (DFCs)** and **coastal shipping**. Use **conveyor belt systems** (e.g., Adani's Mundra plant) to cut costs and emissions.
3. **Coal Quality Enhancement:** Invest in **coal washeries** to reduce ash and improve efficiency (as in Germany's Ruhr Valley).
4. **Reduce Import Dependence:** Explore **Jharia and Raniganj** for domestic coking coal. Secure long-term supply from **Australia and Russia** (as done by Tata Steel).
5. **Green Transition Models:** Adopt **hybrid power models** (coal + solar/wind) like NTPC in Madhya Pradesh. Use **carbon capture, utilisation and storage (CCUS)** for emissions control.
6. **Mine Reclamation and Community Development:** Repurpose abandoned mines for **solar farms, afforestation, eco-tourism** (e.g., Lusatia mine, Germany). Ensure **fair compensation and social benefits** under the **Coal Bearing Areas (Amendment) Bill**.
7. **Boost Private Participation:** Streamline FDI norms and auction processes for coal blocks. Attract global investment with policy certainty and fast-track clearances.

India's coal sector is at a critical juncture—balancing **energy security, economic growth, and environmental sustainability**. While coal will remain central in the near term, its long-term viability depends on **modernisation, cleaner technologies**, and a **phased integration with renewable energy sources**. A just transition backed by **inclusive policies and innovation** can transform coal from a legacy liability to a strategic asset in India's developmental journey.

2. EARLY ARRIVAL OF MONSOON

IMPACT ANALYSIS

SYLLABUS:

GS 1 > Geography > Climatology

REFERENCE NEWS:

- Monsoon rains hit the coast of Kerala on **May 24, eight days earlier than usual**, marking the **earliest arrival in 16 years**.

MORE ON NEWS:

- The normal date of onset in **Kerala is June 1**, following which the southwest monsoon typically advances to **Maharashtra by June 6** and then onto the **Mumbai coast by June 11**.
- This year, the India Meteorological Department (IMD) announced the onset of monsoon in Kerala on May 24, the earliest since 2009.
- Also, the southwest monsoon travelled from **Kerala to Maharashtra within 24 hours**, reaching **Maharashtra on 25th May** and **Mumbai on 26th May**.
- A **cyclonic circulation over the Arabian Sea** led to the development of a low-pressure area that aided monsoon progression.
- IMD recently released its updated forecast for monsoon 2025.
- IMD has projected **106% of the Long Period Average (LPA)** rainfall for the June–September 2025 monsoon season, revised up from 105% in April.
 - Rainfall between **105–110% of LPA** is considered “**above normal**”.
 - June 2025 is also forecasted to witness “**above normal**” rainfall, estimated to be over **108% of the LPA**.

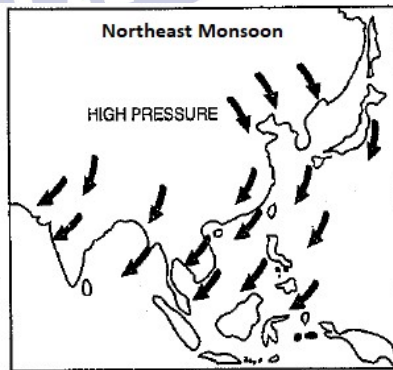
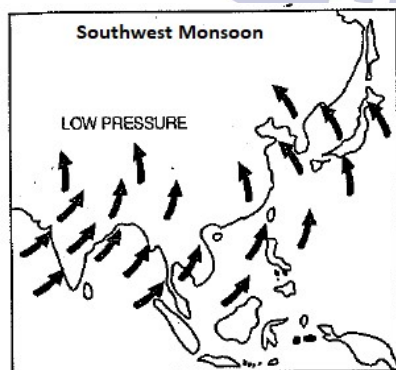
What is the Long Period Average (LPA)?

- The **LPA is the 50-year average** (currently 1971–2020) of monsoon rainfall for June to September.

- As of 2022, the LPA stands at **87 cm** (870 mm).
- The IMD uses this benchmark to categorize monsoon as:
 - Normal: 96–104% of LPA
 - Below Normal: 90–96%
 - Above Normal: 104–110%
 - Deficient: <90%
 - Excess: >110%
- LPA varies across regions, from **61 cm in Northwest India** to over **143 cm in the Northeast**.
- **The LPA is updated every 10 years**, in accordance with WMO norms.

MONSOON:

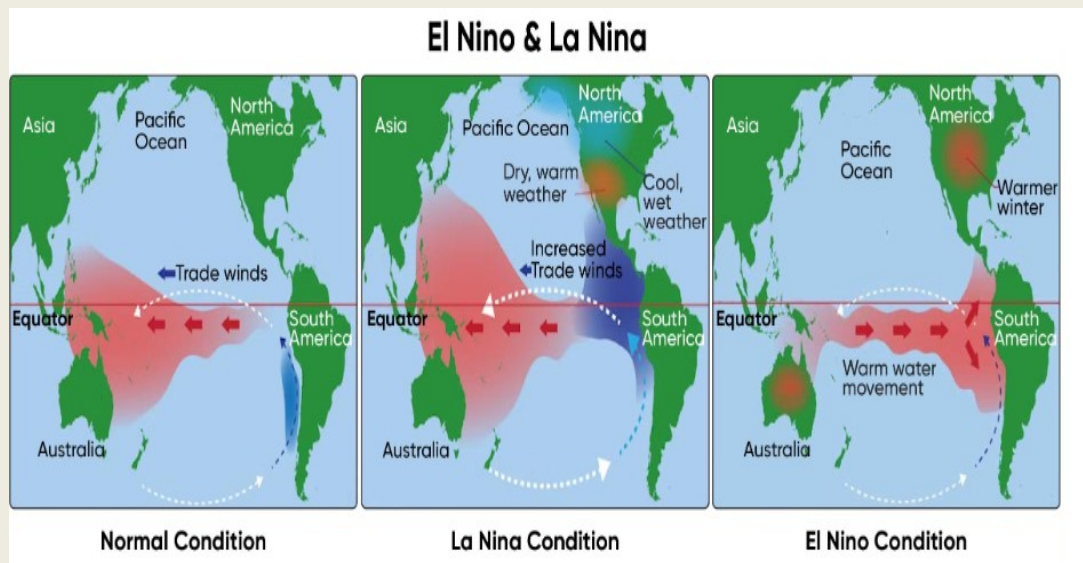
- The term monsoon has been derived from the **Arabic 'mausin' or from the Malayan 'monsin' meaning 'season'**.
- Thus the monsoons are basically **seasonal winds that reverse their direction** according to the **change in season**.
- They blow:
 - **From sea to land (southwest monsoon)** during summer (wet season)
 - **From land to sea (northeast monsoon)** during winter (dry season)
- In other words, the monsoon is a **double system of seasonal winds**, that is, the sum of **summer and winter winds**.



KEY FEATURES OF THE INDIAN MONSOON:

- **Seasonal Reversal of Winds:** The most defining feature: **winds reverse direction** with the change in season.
- **Uneven Onset and Withdrawal:** Monsoon **arrives in a staggered manner** across the Indian subcontinent (e.g., Kerala by June 1, covering India by July). **Withdrawal is more gradual**, beginning from northwest India around mid-September.
- **Associated with Rainfall:** The **southwest monsoon** brings about **75% of India's annual rainfall**.
- **Breaks in Monsoon:** Rain does **not occur continuously**; there are **intermittent dry spells** known as "breaks" in the monsoon.
- **Influence of Physiographic Factors:** Features like the **Himalayas, Western Ghats, and the Tibetan Plateau** influence the intensity, spread, and direction of rainfall.
- **Influence of Global Phenomena:** Phenomena like **ENSO (El Niño-Southern Oscillation)**, **Indian Ocean Dipole (IOD)**, and **Madden-Julian Oscillation (MJO)** impact monsoon strength and variability.

- **ENSO (El Niño–Southern Oscillation):** ENSO is a periodic variation in sea surface temperatures and pressure in the Pacific Ocean that influences monsoon strength. **El Niño weakens the Indian monsoon**, while **La Niña tends to strengthen it** by altering Pacific Ocean temperatures and pressure patterns.



- **IOD (Indian Ocean Dipole):** IOD is a fluctuation in sea surface temperature between the western and eastern Indian Ocean affecting monsoon intensity. **A positive IOD enhances monsoon rainfall over India**, while a **negative IOD suppresses it**, based on sea surface temperature differences in the Indian Ocean.
 - **MJO (Madden–Julian Oscillation):** MJO is a moving pulse of cloud and rainfall in the tropics that can **temporarily enhance or suppress monsoon activity depending on its phase**.
 - **Monsoon is Pulsating in Nature:** The monsoon is **not a steady flow**; it comes in **pulses or surges**, controlled by changes in the **Inter-Tropical Convergence Zone (ITCZ)** and **pressure systems** over land and sea.
- ITCZ (Inter-Tropical Convergence Zone) is a low-pressure belt near the equator where the trade winds of both hemispheres converge, causing rising air and heavy rainfall.
- **Vital for Indian Agriculture:** It is the **lifeline of Indian agriculture**, especially for **rain-fed crops** during the Kharif season.

MECHANISM OF THE MONSOONS:

The origin of monsoons is still shrouded in mystery. Several attempts have been made to explain the mechanism of the monsoon, but no satisfactory explanation is available till date. Over the years, many mysteries of the monsoons have been unravelled, but much remains to be done. The theories regarding the monsoons are generally divided into two broad categories:

- **Classical Theory**, and
- **Modern Theories**

Classical Theory (Thermal Concept)

- Proposed by **Sir Edmund Halley**, this theory attributes monsoons to the **differential heating of land and sea**.
- In summer, land heats up faster creating a **low-pressure area**, attracting moist winds from the ocean (southwest monsoon).
- In winter, the land cools down faster, creating a **high-pressure area**, causing dry winds to blow seaward (northeast monsoon).
- This theory, however, oversimplifies the dynamics and fails to explain monsoon variability.

Modern Theories of Monsoon

a. Jet Stream Theory

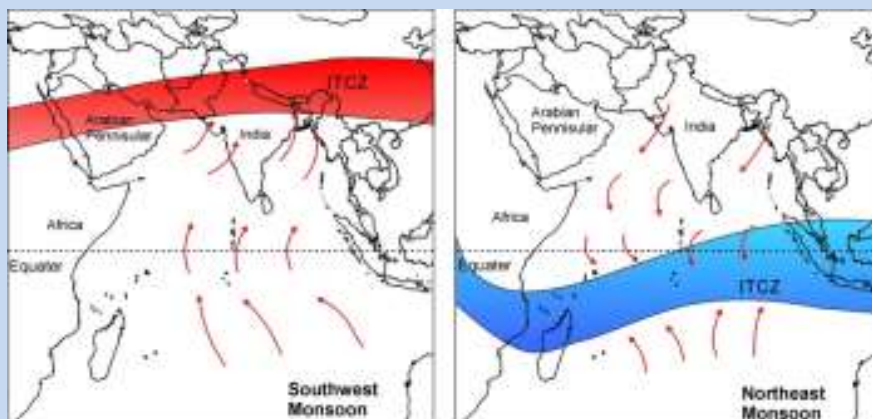
- Monsoon is influenced by **upper-level jet streams**.
- The **subtropical westerly jet** retreats northwards in summer, allowing the development of the **easterly jet**, enhancing monsoon rainfall.

b. Tibetan Plateau Role

- The **Tibetan Plateau** acts as a **heat source** in summer, creating a thermal low that helps draw moist winds toward the subcontinent.
- Also, the **Easterly Jet Stream**, discovered by **P. Koteswaram**, originates here and influences monsoon circulation.

c. Inter-Tropical Convergence Zone (ITCZ) & Air Mass Theory

- The **ITCZ** shifts northward during summer, bringing in the **southeast trade winds** that get deflected (Coriolis effect) and reach India as **southwest monsoons**.



- The zone is often referred to as the **monsoon trough** when over India

d. Teleconnections: ENSO, IOD & MJO

- **ENSO**: El Niño weakens, and La Niña strengthens the monsoon.
- **IOD**: Positive IOD enhances, while negative IOD suppresses Indian monsoon.
- **MJO**: A moving system in the Indian Ocean; its favorable phases amplify monsoon activity.

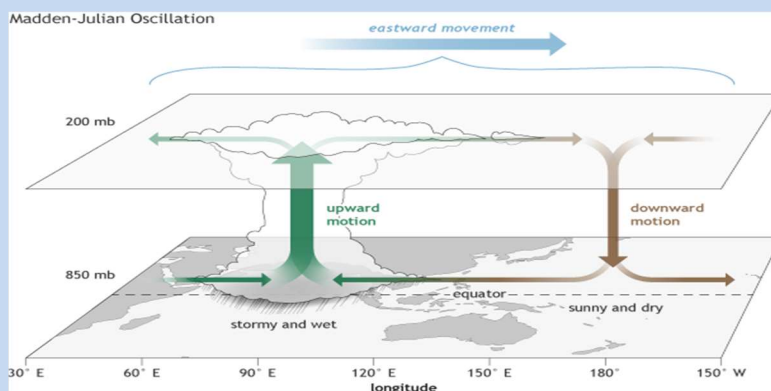
WHY DID THE MONSOON ARRIVE EARLY IN 2025?

- **Active Madden-Julian Oscillation (MJO):**

- The MJO, a moving system of wind, cloud, and pressure disturbances, was in a **favorable phase (phase 4** with an amplitude greater than 1) over the Indian Ocean during May 2025.
- This **enhanced convection and rainfall activity**, accelerating the monsoon's onset over Kerala and its **rapid progression northward**.

MADDEN-JULIAN OSCILLATION (MJO)

The MJO is a large-scale system of clouds, rainfall, winds, and pressure that moves eastward around the equator, completing a cycle approximately every 30–60 days. It comprises alternating phases of enhanced and suppressed convection, affecting tropical weather patterns globally.



Phases of MJO and Their Impact on Indian Monsoon:

The MJO cycle is divided into 8 phases, each representing its position relative to longitudinal regions:

- Phases 1–3: Located over Africa and the western Indian Ocean; these phases can suppress monsoon activity over India.
- **Phases 4–6: Situated over the eastern Indian Ocean and the Maritime Continent; these phases enhance monsoon rainfall in India.**
- Phases 7–8: Over the western Pacific Ocean; generally, these phases have a neutral or suppressive effect on the Indian monsoon.

When the MJO is active over the Indian Ocean (particularly in Phases 3–5), it strengthens convection and low-pressure systems, boosting monsoon rainfall in India. Conversely, during its suppressed phases or when located over the Pacific Ocean, it can lead to weaker monsoon spells or breaks.

○

- **Strengthened Cross-Equatorial Flow and Somali Jet:**

- An intensified **cross-equatorial flow**, particularly the **Somali Jet**, transported **significant moisture** from the Indian Ocean towards the Indian subcontinent.
- This robust **low-level jet stream** played a crucial role in the early and vigorous onset of the monsoon.

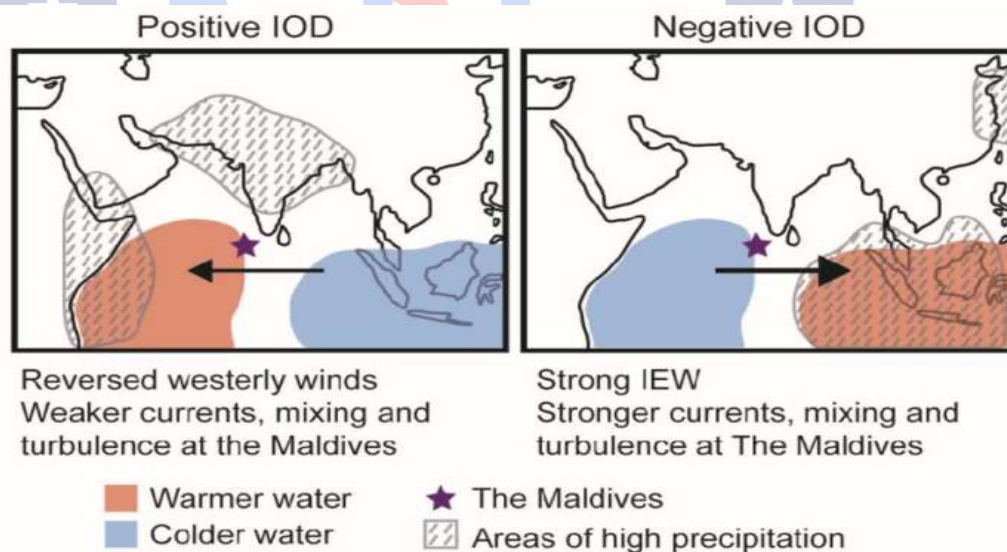
The Somali Jet Stream is a low-level, **moisture-laden wind current** that blows from the southwest over the Arabian Sea **during the monsoon**, playing a crucial role in transporting moisture to the Indian subcontinent.

- **Transition from El Niño to Neutral ENSO Conditions:**

- The weakening of El Niño conditions and the transition towards a neutral ENSO phase reduced the suppressive effects on the monsoon. This shift contributed to the favorable conditions for an early monsoon onset.

- **Positive Indian Ocean Dipole (IOD):**

- A developing positive IOD phase, characterized by warmer sea surface temperatures in the western Indian Ocean, enhanced the monsoon's strength and contributed to its early arrival.



- **Formation of Low-Pressure Systems:**

- The development of **low-pressure systems over the Bay of Bengal and the Arabian Sea** in late May facilitated increased moisture convergence and convection over the Indian subcontinent, aiding the monsoon's early onset.

- **Climate Change and Global Warming:**
 - Long-term climate change, **leading to rising sea surface temperatures and altered atmospheric circulation patterns**, may have influenced the timing and intensity of the monsoon, contributing to its early onset in 2025.
- **Favorable Meteorological Indicators:**
 - The India Meteorological Department (IMD) considers specific criteria for declaring monsoon onset, including:
 - **Rainfall:** At least 60% of designated stations in Kerala and surrounding areas recording ≥ 2.5 mm of rainfall for two consecutive days.
 - **Wind Field:** Consistent westerly winds at lower atmospheric levels.
 - **Outgoing Longwave Radiation (OLR):** Values below 200 W/m^2 , indicating active convection.
 - These conditions were met earlier than usual in 2025, leading to the declaration of monsoon onset on May 24.
- **Rapid Advancement Across the Subcontinent:**
 - Following its early onset over Kerala, the monsoon progressed swiftly across southern and central India, reaching Maharashtra and Mumbai ahead of schedule.
 - **A low pressure area in the Arabian Sea, which developed owing to a cyclonic circulation, aided this fast movement** of the southwest monsoon, IMD scientists said. It was this low pressure area that had brought in **heavy pre-monsoon showers in Mumbai** over the past few weeks.

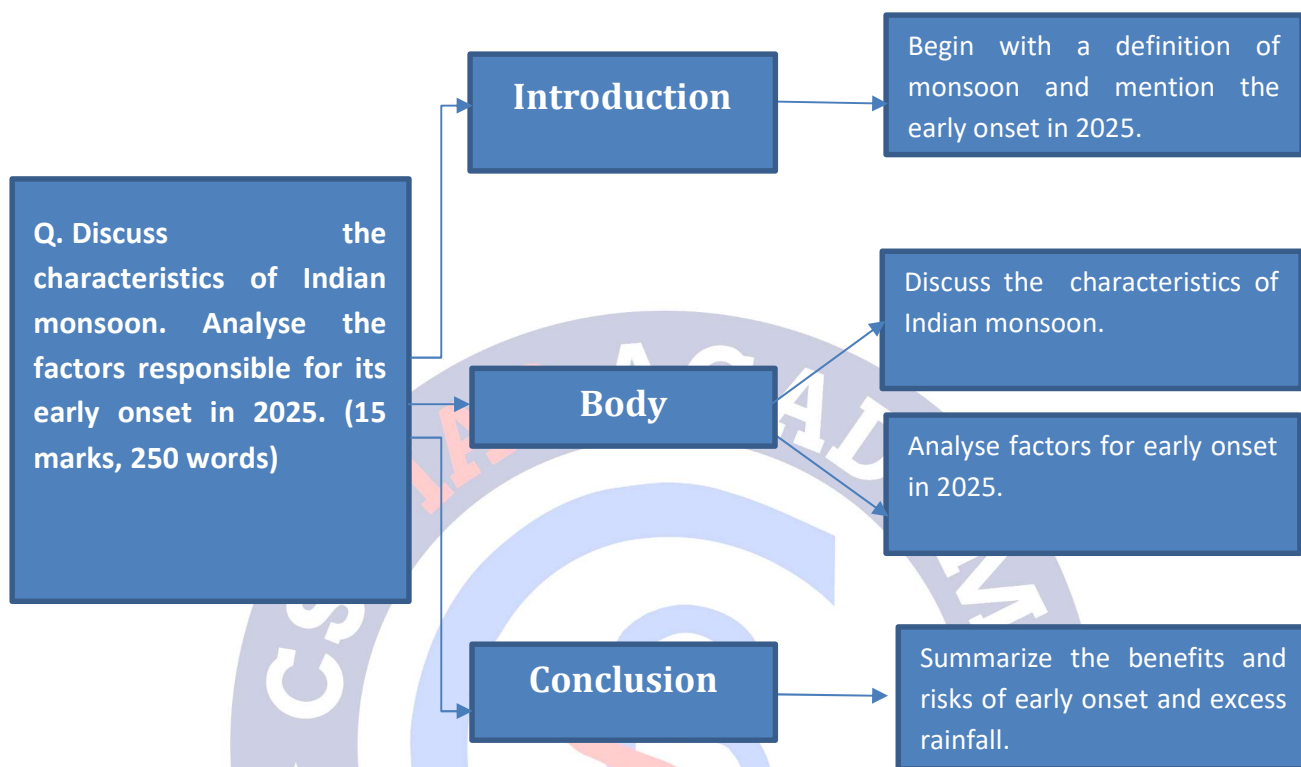
CONCLUSION:

- In summary, the early onset of the 2025 monsoon was the result of a combination of atmospheric dynamics, oceanic conditions, and broader climatic factors aligning to create an environment conducive to the monsoon's premature arrival and rapid progression across India.

PRACTICE QUESTION

Q. Discuss the characteristics of Indian monsoon. Analyse the factors responsible for its early onset in 2025. (15 marks, 250 words)

APPROACH



MODEL ANSWER

Monsoons are **seasonal winds** that reverse direction with the change in season — blowing **from sea to land (southwest monsoon)** in summer and **from land to sea (northeast monsoon)** in winter. According to the **India Meteorological Department (IMD)**, monsoon rains **hit Kerala on May 24, 2025**, marking the **earliest onset in 16 years**. The monsoon further advanced rapidly, reaching **Mumbai by May 26**, much ahead of the normal June 11 date.

Characteristics of Indian Monsoon:

- **Seasonal Wind Reversal:** Winds blow southwest in summer and northeast in winter.
- **Uneven Onset and Withdrawal:** Begins in Kerala (normally June 1) and withdraws gradually from northwest India in mid-September.
- **Concentration of Rainfall:** Southwest monsoon contributes ~75% of India's annual rainfall.
- **Breaks in Monsoon:** Periods of reduced rainfall interspersed with active phases.
- **Influence of Topography:** Himalayas, Western Ghats, and Tibetan Plateau shape rainfall distribution.
- **Influenced by Global Phenomena:**

- **ENSO:** El Niño weakens, La Niña strengthens monsoon.
- **IOD:** Positive IOD enhances, negative IOD suppresses rainfall.
- **MJO:** Certain phases (esp. 3–5) enhance monsoon activity.
- **Pulsating Nature:** Monsoon progresses in bursts, guided by shifts in **ITCZ** and pressure systems.

Factors Responsible for Early Onset of Monsoon in 2025:

1. Active Madden-Julian Oscillation (MJO)

- MJO was in **phase 4** with **amplitude >1** in May 2025, promoting enhanced convection over the Indian Ocean and triggering early monsoon activity.

2. Strengthened Cross-Equatorial Flow and Somali Jet

- A strong **Somali Jet Stream**, part of the cross-equatorial flow, transported high moisture from the Indian Ocean to the Indian coast, intensifying the monsoon current.

3. Transition from El Niño to Neutral ENSO

- Weakening El Niño reduced the suppressive effects on monsoon development, creating favourable conditions.

4. Developing Positive Indian Ocean Dipole (IOD)

- A positive IOD, with warmer waters in the western Indian Ocean, supported increased moisture and rainfall.

5. Formation of Low-Pressure Systems

- Cyclonic circulations and low-pressure areas over the **Arabian Sea** and **Bay of Bengal** enhanced vertical air motion and rainfall potential.

6. Climate Change and Rising Sea Temperatures

- Long-term warming has altered oceanic heat distribution, potentially contributing to the premature trigger of monsoon dynamics.

7. Favourable Meteorological Indicators (as per IMD)

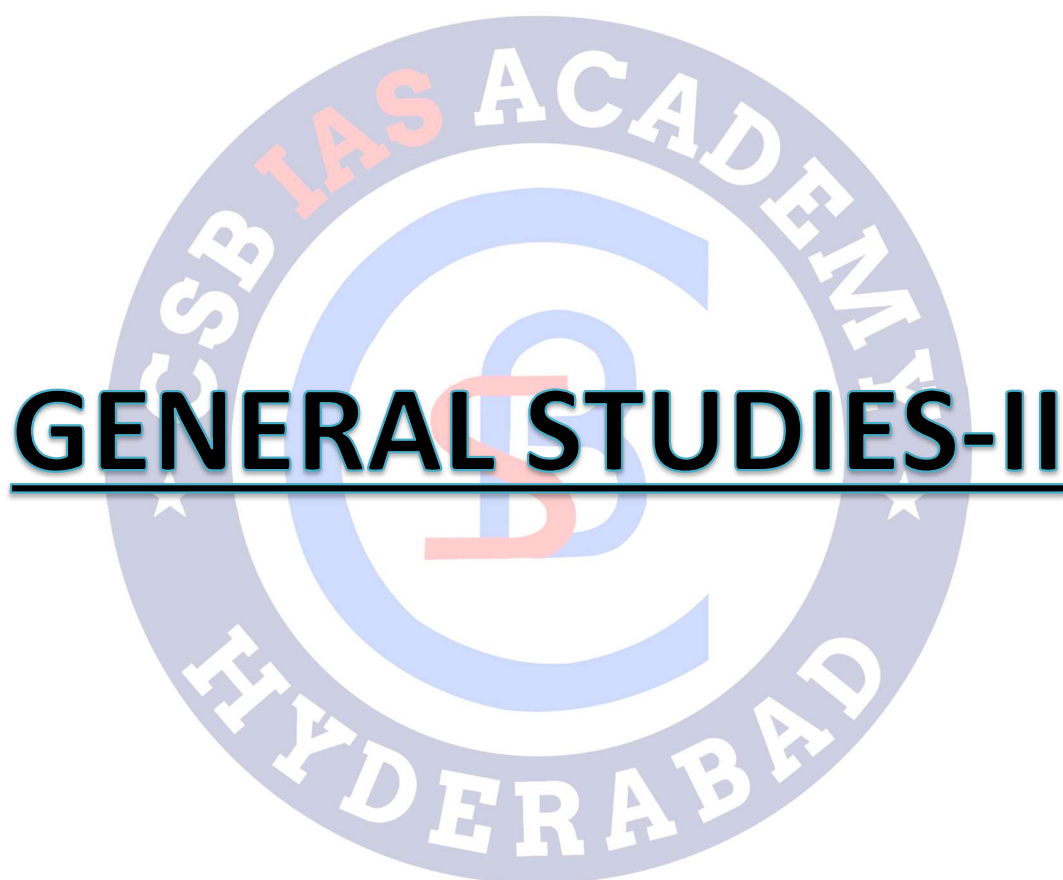
- Early satisfaction of IMD's onset conditions:
 - ≥ 2.5 mm rainfall at 60% of stations,
 - Consistent **westerly winds** at lower levels,
 - **Outgoing Longwave Radiation (OLR)** < 200 W/m².

8. Rapid Progression Across Subcontinent

- The monsoon covered Kerala to Mumbai in just **2 days**, supported by a low-pressure system in the Arabian Sea that also brought **pre-monsoon showers** to Mumbai.

< Include relevant diagrams to enhance your answer.>

The early arrival and predicted above-normal rainfall of the 2025 monsoon bring **potential benefits like timely crop sowing, improved groundwater recharge, and inflation control**. However, **risks include urban flooding, crop damage due to excess rain, and logistical challenges**. Thus, while the monsoon remains a lifeline, its variability calls for robust planning and climate resilience measures.



3. NGO

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Social Justice >> Development Sector

REFERENCE NEWS:

The Centre has asserted that the NGOs engaged in publication-related activities and receiving foreign contribution, will not be able to publish any newsletter and must get a certificate from the Registrar of the Newspaper for India that it does not circulate any news content.

The **Ministry of Home Affairs** has recently announced **new amendments to the Foreign Contribution (Regulation) Rules, 2011** affecting the manner in which NGOs operating in India can receive and utilize foreign funds.

Key Provisions of the New FCRA Rules for NGOs:

- **Ban on Publication Activities:** NGOs involved in publishing must certify with the Registrar of Newspapers that they are *not classified as newspapers*.
- **Financial Disclosure:** Applicants for FCRA registration must submit detailed financial statements and audit reports for the past **three years**.
- **FATF Compliance:** NGOs must **declare** adherence to **FATF Good Practice Guidelines**, aligning with India's financial transparency goals.
- **Foreign Contribution Requirements:** NGOs must provide **commitment letters from donors** and a **project report with expense details** for each foreign donation.
- **Obligations for Deregistered NGOs:** NGOs whose FCRA registration has lapsed or been cancelled must submit an **affidavit** detailing how earlier foreign funds were used.

NON-GOVERNMENTAL ORGANISATIONS:

Non-Governmental Organisations (NGOs) are **voluntary, non-profit groups** that operate independently of government involvement. They work to promote social welfare, development, human rights, environmental conservation, education, health, and other causes in civil society.

NGOs can take the form of:

- **Societies** (under the Societies Registration Act, 1860)
- **Trusts** (under the Indian Trusts Act, 1882 or state-specific laws)
- **Section 8 Companies** (under the Companies Act, 2013 for not-for-profit objectives)

Regulation of NGOs in India: NGOs in India are subject to **multiple layers of regulation**, depending on their activities and sources of funding.

○ **Legal Framework for Registration**

Type	Governing Law	Authority
Society	Societies Registration Act, 1860	Registrar of Societies (State-level)
Trust	Indian Trusts Act, 1882 (or state laws)	Charity Commissioner
Section 8 Company	Companies Act, 2013	Registrar of Companies (MCA)

- **Foreign Contribution Regulation Act (FCRA), 2010:** Regulates **NGOs receiving foreign donations**. Administered by the **Ministry of Home Affairs (MHA)**. NGOs must register under FCRA and use a designated bank account for foreign funds.
 - Must not engage in activities detrimental to national interest.
 - Annual filings of **FCRA returns and audited statements** are mandatory.
 - **FCRA Amendment Act, 2020** introduced stricter norms like mandatory **centralised bank account at SBI, New Delhi** for foreign receipts, prohibits **sub-granting** to other NGOs, restricts **administrative expenses** to **20%** of foreign funds.
- **Income Tax Act, 1961:** NGOs must register under **Sections 12A and 80G** for tax exemption and donor tax benefits. Annual returns and audit reports must be filed with the **Income Tax Department**. Non-compliance can lead to withdrawal of exemptions.
- **Other Oversight Mechanisms**
 - **NITI Aayog's NGO-Darpan Portal:** Voluntary registration platform to enhance transparency and track public-funded NGOs.
 - **CAG and Parliamentary Committees:** Review utilisation of grants to NGOs receiving government funding.
 - **Registrar of Societies/Companies/Charity Commissioners:** Oversee governance and functioning.

SIGNIFICANCE OF NGO IN INDIA

- **Bridging the Governance Gap:** NGOs act as **last-mile service providers**, especially where government presence is weak.
 - **SEWA (Self-Employed Women's Association)** in Gujarat empowers over 2 million women through microcredit, skills training, and health services.

- **Goonj**, during floods and disasters, mobilizes relief materials in underserved rural areas faster than formal agencies.
- **Social Inclusion and Upliftment of Marginalised Groups:** NGOs focus on vulnerable sections such as **SCs, STs, women, children, the disabled**, and LGBTQIA+ communities, promoting **social justice and empowerment**.
 - **Pratham** improves foundational literacy in rural schools. Their Annual Status of Education Report (ASER) is a benchmark in education assessment.
 - **Arman** works for maternal health and sexual health awareness in slum populations.
- **Innovation in Development Models:** NGOs bring **grassroots innovation** in health, education, environment, and livelihoods — often scaling up best practices that governments adopt.
 - **Barefoot College, Rajasthan**, trains rural women to become solar engineers and educators — replicated in 90+ countries.
 - **Aga Khan Rural Support Programme** developed water harvesting systems in Gujarat that inspired Jal Shakti Abhiyan.
- **Strengthening Democracy and Civic Participation:** NGOs promote **accountability, transparency, and participatory governance**. They act as watchdogs and mobilise civil society for policy dialogue.
 - **MKSS (Mazdoor Kisan Shakti Sangathan)** in Rajasthan pioneered the Right to Information (RTI) movement, leading to the enactment of the **RTI Act, 2005**.
 - **Common Cause** and **CPIL** have filed several PILs in the Supreme Court for judicial reforms and civil rights.
- **Disaster Response and Humanitarian Aid:** NGOs are often **first responders during natural disasters**, delivering aid, coordinating shelters, and supporting rehabilitation.
 - **Oxfam India** and **CARE India** played key roles in cyclone Fani (2019) and COVID-19 relief by distributing medical kits and awareness materials.
- **Complementing Government Programmes:** NGOs assist in the **implementation and monitoring** of schemes like Swachh Bharat Abhiyan, Beti Bachao Beti Padhao, and Skill India.
 - **Sulabh International** built over **1.5 million low-cost toilets**, revolutionising sanitation access in rural India.
- **Advocacy and Rights-Based Approach:** NGOs promote legal awareness, file PILs, and push for legislative changes on issues such as **domestic violence, bonded labour, and disability rights**.
 - **CRY (Child Rights and You)** campaigns against child labour and for RTE implementation.
 - **NCPEDP** advocated for the **Rights of Persons with Disabilities Act, 2016**.

CHALLENGES FACED BY NGOS:

Regulatory and Legal Constraints

- **FCRA Restrictions:** The Foreign Contribution Regulation Act (FCRA), 2010 and its amendments (especially in 2020) have tightened access to foreign funding.
- NGOs must open a bank account in SBI Delhi branch, can't sub-grant funds, and face cap on administrative expenses (20%).
- Over **6,000 NGOs lost their FCRA licenses** between 2019 and 2023, including high-profile organisations like **Oxfam India** and **Missionaries of Charity**.

Political and Bureaucratic Interference

- NGOs working on rights-based issues like environment, land, or minority rights often face surveillance or are labelled "anti-national" or "foreign agents".
- **Greenpeace India** faced suspension of its FCRA license and office raids in 2015 for its activism on coal mining and deforestation.

Funding Uncertainty and Dependence

- Many NGOs rely heavily on a few donors (foreign or CSR), making them vulnerable to funding cuts, shifting donor priorities, or bureaucratic delays in fund release.
- **Only 5–10%** of Indian NGOs receive consistent government or CSR support (NITI Aayog 2021 study).
- **CSR funds**, despite growing (₹26,000+ crore in FY2022), are concentrated in a few sectors and NGOs.

Lack of Transparency and Accountability

- Absence of standardised reporting, audited accounts, and impact assessment creates mistrust and allegations of misuse of funds.
- The **CAG** in 2015 flagged major irregularities in NGOs receiving government funds — in one instance, over **80% did not file utilisation certificates**.

Capacity Constraints

- Many grassroots NGOs lack skilled manpower, digital capabilities, legal knowledge, or data systems for monitoring and evaluation.
- According to **Dasra's 2019 NGO landscape report**, only **23% of mid-sized NGOs** had formal HR, finance, or IT teams.

Urban-Rural Disparity

- While urban areas have better NGO penetration and visibility, rural and tribal regions suffer from lack of institutional support and access to credible NGOs.
- During COVID-19, most relief operations in tribal belts had to be coordinated by **government machinery**, with limited NGO support on ground.

Limited Engagement with Government and Policy

- Absence of structured platforms for NGO–government collaboration limits their role in policy-making and scheme implementation.
- Despite initiatives like **NITI Aayog's NGO-Darpan**, many NGOs report minimal dialogue with line ministries.

Perception and Trust Deficit

- Increasing public and official scrutiny, combined with media narratives of corruption or foreign influence, reduces donor and community trust.
- Media coverage of NGO scams (e.g., child adoption trafficking or fake shelter homes) damaged the credibility of the sector as a whole.

WAY FORWARD:

Rationalise and Simplify Regulatory Framework

- **FCRA Reforms:** Replace blanket restrictions with **risk-based compliance** mechanisms. Allow **small NGOs** to receive limited foreign contributions with **relaxed norms**, especially in underserved areas.
 - *UN Special Rapporteur on Freedom of Association* has advised that regulations should not impede the legitimate functioning of civil society.
- **Single-Window Clearance:** Create a **National NGO Facilitation Portal** integrating, FCRA registration, Income Tax exemption (12A, 80G), NGO-Darpan enrolment, to reduce duplication, bureaucratic delays, and compliance burden.

Strengthen Transparency and Accountability

- **Mandatory Public Disclosures:** NGOs receiving government/CSR/foreign funds must publish **Annual Reports, Audit Statements, Impact Metrics** on NGO-Darpan or their own websites.
 - GuideStar India offers a rating system for NGO credibility — this can be integrated into government CSR funding platforms.

- **Third-Party Monitoring:** Appoint **independent audit bodies** (like social audit units) to verify fund utilisation, especially for large NGOs.

Capacity Building and Training

- Establish **State-level NGO Resource Centres** to offer training in fundraising, legal compliance, project management and technology use (e.g., MIS systems)
 - Dasra's Leadership Programs train mid-level NGO leaders in strategic scaling and digital finance.

Promote Government–NGO Collaboration

- **Institutional Partnerships:** Develop **co-management models** for public services in health, education, and nutrition.
 - Arghyam Foundation partners with state water boards for decentralised water governance.
- **Advisory Councils:** Establish **NGO Advisory Councils** under NITI Aayog and in every state to involve NGOs in **policy dialogue, social audits, and scheme feedback loops**.

Encourage Localised and Grassroots NGOs

- Provide **small grant schemes** to promote **tribal, rural, and women-led NGOs** working in Tier-3 and Aspirational Districts.
- Planning Commission (2012) advocated for support to **CBOs (Community-Based Organisations)** for deeper grassroots penetration.

Enhance CSR–NGO Ecosystem Linkages

- Mandate **CSR fund disclosures** on NGO partners and outcomes.
- Create a **government-verified pool of high-impact NGOs** to streamline CSR partnerships.
- Tata Trusts model of partnering with domain-expert NGOs in health, nutrition, and tribal welfare for large-scale impact.

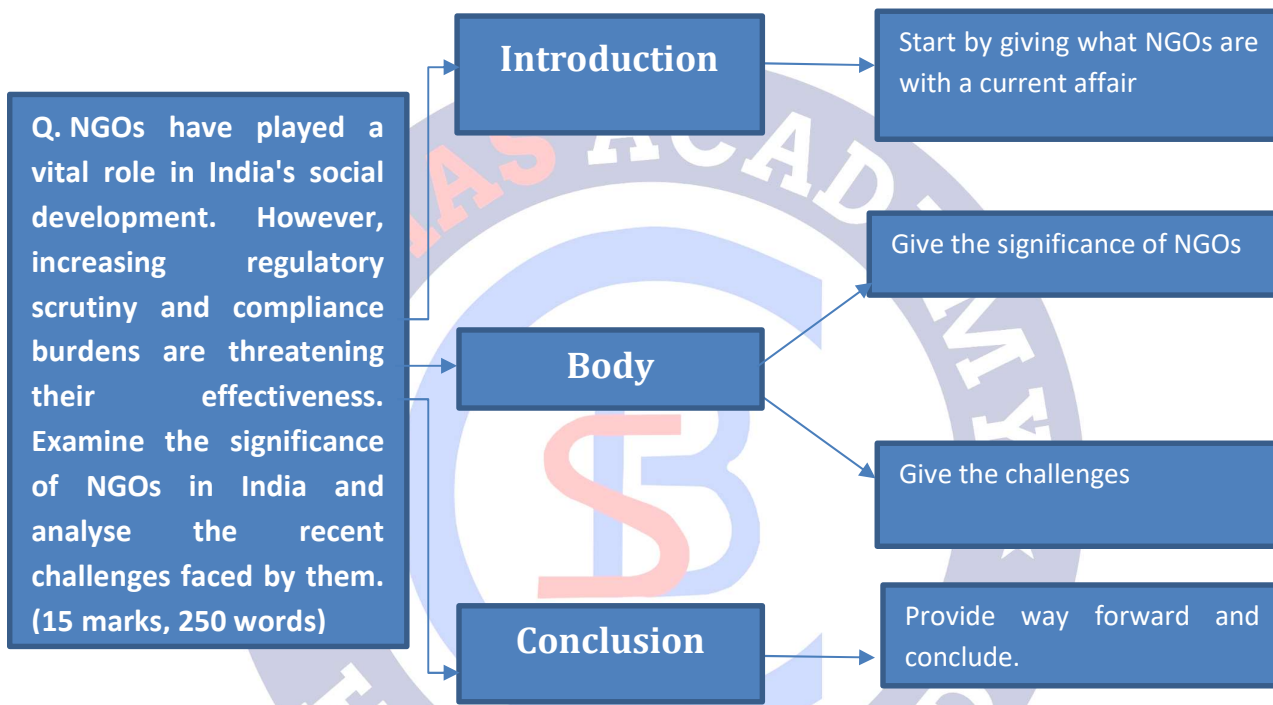
Legislative Codification for Voluntary Sector

- Enact a comprehensive "**Voluntary Sector Regulation and Development Act**" to define NGOs uniformly, protect freedom of association and balance accountability with operational autonomy
- **Second Administrative Reforms Commission (ARC, 2008)** recommended such a law to strengthen collaboration and transparency.

PRACTICE QUESTION

Q. NGOs have played a vital role in India's social development. However, increasing regulatory scrutiny and compliance burdens are threatening their effectiveness. Examine the significance of NGOs in India and analyse the recent challenges faced by them. (15 marks, 250 words)

APPROACH



MODEL ANSWER

Non-Governmental Organisations (NGOs) are non-profit voluntary entities operating independently of the government. In India, they play a critical role in delivering public services, empowering marginalised groups, and enhancing democratic participation.

The **Ministry of Home Affairs** has recently announced **new amendments to the Foreign Contribution (Regulation) Rules, 2011** affecting the manner in which NGOs operating in India can receive and utilize foreign funds.

Significance of NGOs in India:

- **Service delivery and last-mile access:** NGOs like *SEWA* and *Goonj* provide essential services in areas where state capacity is weak.

- **Social inclusion:** Organisations such as *Pratham* and *Arman* address literacy, health, and gender equity.
- **Democracy and rights:** *MKSS* championed RTI; *CRY* and *NCPEDP* advocate for child and disability rights.
- **Innovation and scalability:** *Barefoot College* and *Aga Khan Foundation* have pioneered models in sustainability and water management.

Challenges Faced by NGOs:

- **Regulatory burden:** Over 6,000 NGOs lost FCRA licenses post-2020 amendments that restricted foreign funding and sub-granting.
- **Funding constraints:** Only 5–10% NGOs receive steady CSR or government support (NITI Aayog, 2021).
- **Political interference:** NGOs like *Greenpeace* have faced cancellations and raids due to issue-based activism.
- **Transparency deficits:** CAG found that over 80% of government-funded NGOs failed to submit utilisation certificates.
- **Capacity gaps:** Most small NGOs lack trained staff and digital tools for compliance and impact tracking.

Way Forward:

- **Regulatory reform:** Introduce a risk-based compliance system under FCRA; streamline approvals through a single-window NGO portal.
- **Transparency and rating systems:** Make audited reports and impact metrics mandatory on platforms like *NGO-Darpan* and integrate *GuideStar India* ratings.
- **Capacity building:** Establish state-level NGO resource centres to train in legal, financial, and digital domains.
- **Partnership models:** Institutionalise NGO-government collaborations via advisory councils under NITI Aayog.
- **Legislative clarity:** Enact a “Voluntary Sector Regulation and Development Act” as recommended by the **Second ARC** to ensure balanced oversight.

NGOs form the backbone of participatory democracy and inclusive development. Strengthening their institutional ecosystem with accountability and trust is essential for achieving India's development goals, especially in sectors like health, education, environment, and rights-based advocacy.



4. CASTE CENSUS

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Governance

REFERENCE NEWS:

The Cabinet Committee on Political Affairs (CCPA) headed by Prime Minister Narendra Modi has approved the enumeration of castes in the upcoming Census, bowing to a several decades-old demand and reversing the position that it formally articulated in Parliament four years ago.

Data collected by the Census will impact boundaries of constituencies, reservation for women in elected bodies, and give a fillip to demands for more quotas and their sub-categorisation.

CENSUS IN INDIA:

The **Census of India** is the **largest administrative exercise** conducted in the country to **collect, compile, analyze, and disseminate data** on the population and various socio-economic characteristics.

- A **census** is the total process of collecting, compiling, and publishing demographic, economic, and social data pertaining to all persons in a country or a delimited territory at a specified time.
- **Census Act, 1948** empowers the central government to conduct population censuses and makes it mandatory for citizens to participate.
- The population census is a **Union subject** under **Article 246** of India Constitution. It is listed at serial number 69 of the seventh schedule of the constitution.
- The census is conducted by **Office of the Registrar General and Census Commissioner of India (RGI)** under the **Ministry of Home Affairs**.
- The information collected during the population Census is so confidential that it is **not even accessible to the courts of law**. The confidentiality is guaranteed by the **Census Act, 1948**. The law specifies penalties for both public and census officials for non-compliance or violation of any provision of the Act.

HISTORY OF CENSUS IN INDIA

Ancient and Medieval Period

- **Rigveda (800–600 BC):** One of the earliest references to population records. Indicates that **enumeration practices** existed during Vedic times to assess population size for administrative and military purposes.
- **Arthashastra by Kautilya (3rd century BC):** Emphasized **collection of population statistics** as a state policy for taxation and military recruitment. Advocated **regular household and economic surveys**.
- **Ain-i-Akbari (16th century, Mughal era):** Compiled by **Abul Fazl** under Emperor Akbar. Included comprehensive data on **population, industries, agriculture, wealth, and administrative divisions**. Regarded as an early form of **statistical documentation** in India.

Pre-Independence Period (British Era)

- **1800:** Inspired by England's census system, efforts began in India.
- **1824:** James Prinsep conducted census in Allahabad.
- **1830:** First complete city census in Dacca by Henry Walter.
- **1836-37:** Second census conducted in Madras Presidency.
- **1849:** Government ordered quinquennial population returns across provinces.
- **First Nationwide Census, 1872:** First **non-synchronous census** across British India. Conducted under **Lord Mayo**. Marked the beginning of a coordinated attempt at data collection.
- **First Synchronous Census, 1881:** Conducted under **W.C. Plowden**, the first **Census Commissioner of India**. Considered the **first modern and scientific census** across the Indian subcontinent. Excluded Kashmir and foreign colonies (Portuguese/French India).
- From 1881 onwards, Census has been conducted **every 10 years** without interruption.

Post-Independence Census (1951–Present)

- **1951:** First Census after independence. Captured massive **population displacement** due to Partition.
- **1971:** Introduced **fertility-related questions** for currently married women.
- **1991:** Revised definition of literacy to include individuals aged **7+ years** who can read and write.
- **2001:** Adopted Intelligent Character Recognition (ICR) for digitizing handwritten data; marked a leap in Census technology.
- **2011:** Noted a **decline in population growth** in **EAG States-Empowered action group states** (U.P., Bihar, Jharkhand, MP, Chhattisgarh, Rajasthan, Odisha, Uttarakhand) for the first time.

CASTE CENSUS IN INDIA:

A **Caste Census** refers to the **systematic enumeration of population data by caste categories**, including **Other Backward Classes (OBCs)**, **Scheduled Castes (SCs)**, and **Scheduled Tribes (STs)**.

- **Caste data for SCs and STs** is already collected in every decennial Census. However, **caste-wise enumeration of OBCs and other general castes has not been done since 1931**.
- The **Socio-Economic and Caste Census (SECC) 2011** collected caste data but it was **not released officially** due to concerns about accuracy and verification.
- **Post 1951, the decision to stop collecting caste data was made** to move away from a divisive approach and promote national unity.
- Our Constitution favours conducting a caste census. Article 340 mandates the appointment of a commission to investigate the conditions of socially and educationally backward classes and make recommendations as to the steps that should be taken by governments.

SIGNIFICANCE OF CASTE CENSUS IN INDIA:

- **Evidence-Based Policy Making:** Welfare policies, reservation quotas, and social programs are often implemented without **accurate caste-wise population data**.
 - The **Mandal Commission (1980)** estimated OBCs to be **52%** of the population based on **1931 Census**, the last full caste enumeration.
 - In 2023, the **Bihar caste survey** found OBCs and EBCs together constitute **63%** of the state's population—higher than the national estimate.
- **Rationalization of Reservation Policies:** Helps align **reservations with actual social and educational backwardness**, preventing over-representation or exclusion.
 - The Centre provides **27% reservation for OBCs**, but lacks **official data** on their exact share in the population or their access to benefits.
 - **Justice Rohini Commission (2017)** is working on **sub-categorization of OBCs**, but faces difficulty due to lack of comprehensive caste data.
- **Promotes Social Justice and Inclusion:** Helps identify **intra-group inequalities**, especially within SCs and OBCs, enabling **targeted interventions** for the most backward.
 - National Family Health Survey (NFHS-5) data shows that **marginalized caste groups lag behind** in health, education, and nutrition indicators.
 - Sub-categorization ensures that **dominant sub-castes do not corner the entire benefit** of reservation and welfare schemes.
- **Better Resource Allocation and Planning:** Facilitates **geographically and socially targeted schemes** for education, health, housing, and employment.

- SECC 2011 collected caste data, but the data was **not released**, citing **inaccuracy in 46 lakh castes reported**, highlighting the need for better methodology.
- The **Centre for Policy Research (CPR)** argues that robust caste data is essential for programs like **EWS (Economically Weaker Section) reservations** and **NEP 2020** implementation.
- **Electoral and Political Representation:** Aids in **delimitation of constituencies**, and ensures adequate political representation of marginalized communities.
 - SC/ST reservations in local bodies are based on census data; the same logic can apply to OBCs if data is available.
 - **Supreme Court ruling (2021)** in *Vikas Kishanrao Gawali v. State of Maharashtra* stated that **empirical data is required** to justify OBC reservations in local elections.
- **Empowers State Governments:** Many states like **Bihar, Maharashtra, Tamil Nadu** have demanded a caste census to improve **state-specific policy design**.
 - **Bihar's caste-based survey (2023)** is the first official caste enumeration in India after 1931. It found OBCs: 27.13%, EBCs: 36.01%, SCs: 19.65%, STs: 1.68%
 - Bihar government plans to **realign its welfare programs and quotas** based on this data.
- **Supports Constitutional Goals:** Ensures **equity, representation, and empowerment**—core principles under **Articles 15(4) and 16(4)** of the Indian Constitution.
 - In **Indra Sawhney v. Union of India (1992)**, the Supreme Court upheld the importance of data for implementing reservations for OBCs under Article 16(4).

CHALLENGES OF CASTE CENSUS IN INDIA:

- **Absence of Reliable Caste Data Framework:** There is **no official caste classification system** for OBCs and general categories like there is for SCs/STs.
 - SECC 2011 listed over **46 lakh caste names**, including misspellings and duplications, making it nearly impossible to standardize.
- **Administrative Complexity and Resource Burden:** A caste census would involve **classifying, verifying, and coding thousands of caste names**, many of which have regional variations.
 - Over 3,000 OBC castes exist in India, many with **sub-castes, synonyms, and regional overlaps**, creating huge enumeration challenges.
- **Potential for Social Polarization:** A caste census may **deepen social identities** and **heighten inter-group tensions**, especially in areas where caste-based rivalries are strong.
 - Could be used for **vote-bank politics**, fuelling **competitive caste claims** and unrest.
- **Risk of Political Misuse and Vote Bank Politics:** Caste data may be **manipulated or selectively disclosed** for political gain rather than used for objective policymaking.

- Political parties may use data to **redraw reservation policies** or demand **more quotas**, often without economic or educational criteria.
- **Legal and Constitutional Ambiguities:** The **Census Act, 1948** does not specifically provide for **caste enumeration beyond SCs and STs**. Any caste-based classification must be legally defensible, particularly in the context of **reservations** exceeding the **50% ceiling** (as per the Indra Sawhney case).
- **Lack of Consensus Among States and Centre:** While states like **Bihar, Tamil Nadu, and Maharashtra** have demanded caste census, the **Union Government has refused**, citing administrative and social risks.
 - This has created **federal friction** and **policy confusion** over data collection and usage.
- **Backwardness Assessment Challenges:** Caste data alone may not reflect **economic or educational deprivation**. Over-reliance on caste without **multi-dimensional poverty indicators** may lead to ineffective policy targeting.
- **Data Privacy and Ethical Concerns:** Caste is a **sensitive personal identifier**. Publishing or storing it digitally without safeguards may **violate privacy** and raise **data misuse concerns**. With the rise of digital governance, the **lack of data protection laws** heightens the risk.

WAY FORWARD:

Link Caste Enumeration with Socio-Economic Indicators:

- Collect data on education level, income, occupation, land ownership, access to health and housing.
- This allows for **evidence-based sub-categorization** within caste groups (e.g., Extremely Backward Classes vs. relatively better-off OBCs).

Use Scientific Methods and Standardized Classifications:

- Prepare a **centralized caste classification registry** in consultation with states.
- Use **AI tools and linguistic experts** to map regional variations in caste names.
- Deploy **trained enumerators** and **cross-verification tools** for data accuracy.

Ensure Legal and Constitutional Backing

- Pass a law specifically enabling caste-based enumeration under a **new "Caste Enumeration and Socio-Economic Survey Act"**.
- Ensure data is collected for **social equity purposes**, not to reify caste identities.

Maintain Anonymity, Privacy, and Data Protection

- Frame a **data protection protocol** under the **Digital Personal Data Protection Act (2023)**.
- Ensure caste data is **aggregated and anonymized** before public release.

Use the Data for Targeted Welfare, Not Political Appeasement

- Link caste data with **education, nutrition, and employment indicators**, not electoral arithmetic.

- Use it to rationalize welfare spending, improve inclusion in private sector skilling, design scholarships and social protection

Transparent Public Communication:

- Launch public awareness campaigns to explain the **purpose** of caste enumeration, **how the data will be used, how merit and efficiency will not be compromised.**

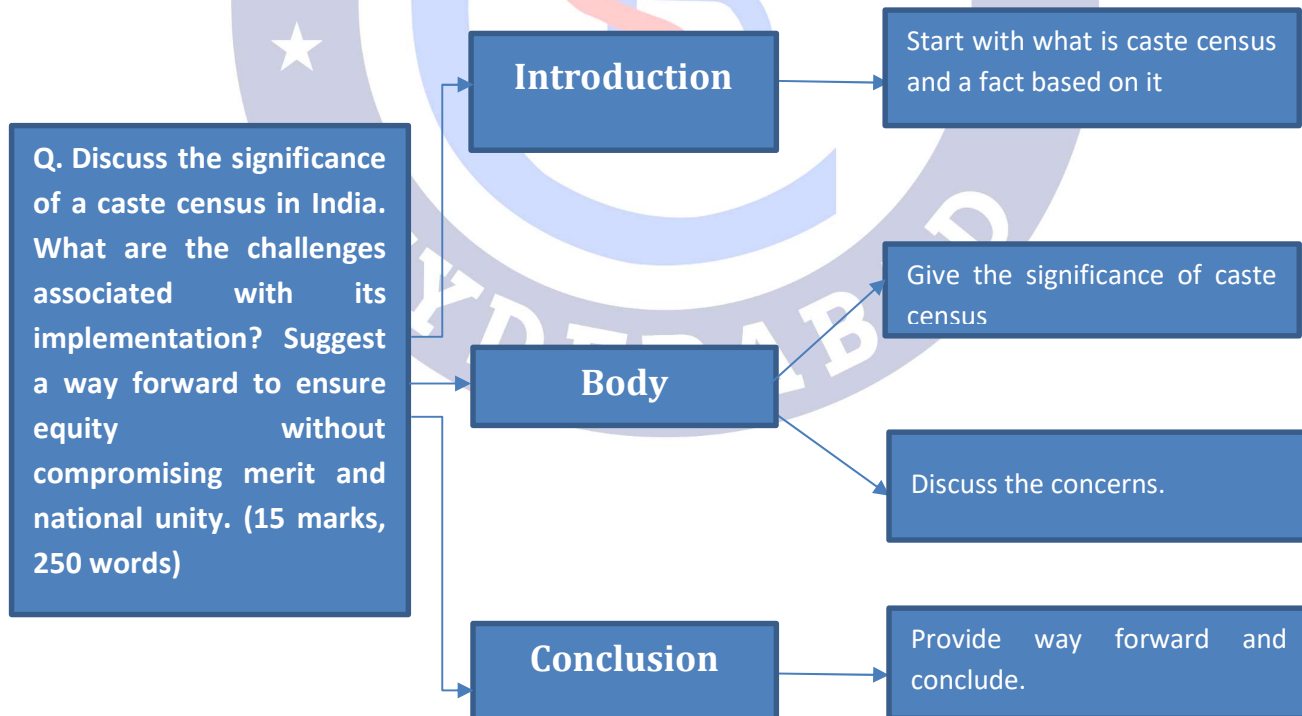
Reaffirm Merit and Efficiency in Parallel

- Combine caste-based data usage with **Economic empowerment schemes, Performance-linked scholarships, Merit safeguards in promotions and recruitment.**
- Caste-based assistance should **complement**, not **replace**, India's commitment to **efficiency, competence, and integrity** in governance and public service.

PRACTICE QUESTION

Q. Discuss the significance of a caste census in India. What are the challenges associated with its implementation? Suggest a way forward to ensure equity without compromising merit and national unity. (15 marks, 250 words)

APPROACH



MODEL ANSWER

A **caste census** refers to the systematic enumeration of India's population by caste categories, including **Other Backward Classes (OBCs)**, **Scheduled Castes (SCs)**, and **Scheduled Tribes (STs)**. While SC and ST data have been consistently collected since independence, the caste-wise enumeration of OBCs has not been conducted since **1931**.

Significance of Caste Census in India

1. **Evidence-Based Policymaking:** The Mandal Commission (1980) estimated OBCs at 52% of the population based on 1931 data. Bihar's 2023 caste survey found OBCs and EBCs together constitute 63% of the state's population.
2. **Rationalization of Reservation Policies:** Helps assess whether existing quotas (e.g., 27% for OBCs) reflect actual population proportions. Supports sub-categorization of OBCs as per the **Justice Rohini Commission (2017)**.
3. **Social Justice and Inclusion:** Helps identify intra-group inequalities to prevent elite capture within caste groups. NFHS-5 data highlights gaps in health and education access among marginalized castes.
4. **Resource Allocation and Targeting:** Accurate caste data helps implement schemes for housing, education, employment more effectively. SECC 2011 collected caste data but it was withheld due to data inconsistencies (46 lakh caste entries).
5. **Electoral Representation:** SC/ST reservations in local bodies are based on census data. A Supreme Court ruling (2021) mandated empirical data for OBC reservations in local elections.
6. **State-Centric Planning:** States like Bihar, Maharashtra, and Tamil Nadu seek caste data to tailor welfare schemes. Bihar's 2023 survey realigned welfare schemes based on actual caste distribution.
7. **Upholds Constitutional Principles:** Article 340 mandates identifying socially and educationally backward classes. Articles 15(4) and 16(4) provide for affirmative action based on backwardness.

Challenges in Implementing a Caste Census

1. **Absence of Standardized Classification:** SECC 2011 found inconsistencies in caste names; over 46 lakh unique entries were reported.

2. **Administrative Complexity:** Verifying thousands of caste names, sub-castes, and synonyms across regions is resource-intensive.
3. **Social and Political Polarization:** Could deepen caste identities, fuelling tensions and vote-bank politics.
4. **Risk of Political Misuse:** Data may be selectively used or distorted for electoral gain rather than for equitable development.
5. **Legal and Constitutional Ambiguity:** The Census Act, 1948 does not mandate OBC enumeration. Indra Sawhney judgment capped reservations at 50%, necessitating data for any extension.
6. **Centre-State Coordination Issues:** Divergence between Centre and states on methodology and objectives hampers consensus.
7. **Data Privacy Concerns:** Caste is a sensitive identifier; digital collection without robust privacy laws risks misuse.
8. **Overemphasis on Caste Alone:** Backwardness is multidimensional; over-reliance on caste may overlook economic and educational indicators.

Way Forward

1. **Conduct Caste Census Separately from Population Census:** Establish a **statutory commission** to conduct a caste and socio-economic enumeration independent of the decadal Census.
2. **Link Enumeration with Socio-Economic Data:** Collect information on income, education, land ownership, access to healthcare, etc., for evidence-based welfare targeting.
3. **Develop a Standardized National Caste Registry:** Create a verified central database in collaboration with states to avoid duplication and ambiguity.
4. **Ensure Legal and Constitutional Backing:** Pass a dedicated law (e.g., *Caste Enumeration and Social Equity Survey Act*) to define scope, purpose, and safeguards.
5. **Protect Data Privacy and Transparency:** Implement safeguards under the **Digital Personal Data Protection Act (2023)**; anonymize and aggregate data for public use.
6. **Avoid Political Exploitation:** Use data for developmental and governance reforms, not to manipulate caste sentiments during elections.

7. **Promote Merit Alongside Equity:** Caste-based support should be complemented by **performance-based scholarships, skill-building, and entrepreneurship schemes** to uphold meritocracy.

A caste census, if conducted with integrity, scientific precision, and legal safeguards, can empower India to **rectify historical injustices, streamline welfare delivery, and foster inclusive growth**. However, it must be ensured that such an exercise is **non-political, transparent, and focused on national development**, thereby balancing **social equity with constitutional values and administrative efficiency**.



5. ALTERNATE DISPUTE RESOLUTION

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Polity >> Judiciary

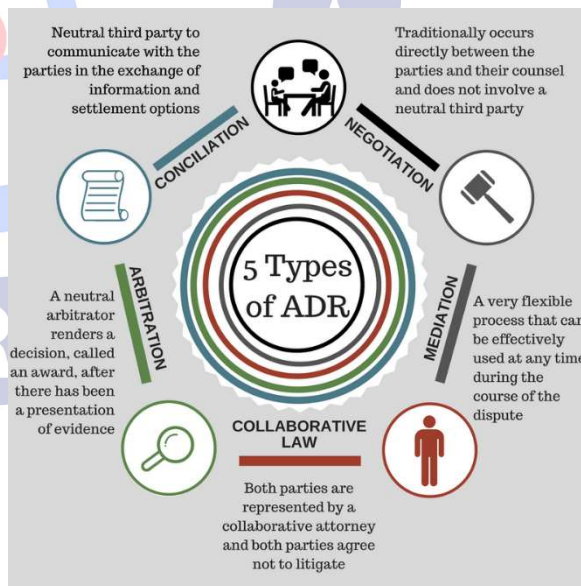
REFERENCE NEWS:

Speaking at the launch of the first national mediation conference organised by the **Mediation Association of India (MIA)**, a pioneering initiative envisioned by Attorney General of India R. Venkataramani, Ms. Murmu hailed the 'long and rich tradition' in India of judicial mechanisms in which out-of-court settlements were more of a norm than exception and added that the colonial rulers 'unfortunately' ignored this exemplary legacy when they imposed an alien legal system.

ALTERNATE DISPUTE RESOLUTION IN INDIA:

Alternate Dispute Resolution (ADR) refers to the processes and techniques used to **resolve disputes outside of the traditional courtroom setting**. ADR includes methods such as arbitration, mediation, conciliation and negotiation.

- India has a long history of ADR, with its roots traced back to ancient times. Traditional methods like Panchayats (village councils) and Nyaya Panchayats were commonly used to **resolve disputes at the community level**.
- During the British colonial period, the Indian legal system began to take a more formal shape, influenced by British legal principles. However, traditional ADR methods continued to coexist.
- The Arbitration Act, 1940, was the first significant legislation governing arbitration in India. It provided a legal framework for arbitration agreements, procedures, and enforcement of awards.
- The concept of **Lok Adalats (People's Courts)** emerged in the 1980s. Lok Adalats are **informal forums where disputes are resolved amicably with the consent of both parties**.



- A major milestone in the evolution of ADR in India was the enactment of the **Arbitration and Conciliation Act, 1996**. This legislation was based on the **UNCITRAL Model Law on International Commercial Arbitration** and aimed to modernize and streamline arbitration procedures.
- In 2004, the **Mediation and Conciliation Rules** were introduced under Section 89 of the Code of Civil Procedure, 1908. These rules provided a structured framework for mediation and conciliation, promoting these methods as effective alternatives to litigation.
- Prominent institutions that give professional ADR include the Indian Council of Arbitration (ICA), the International Centre for Alternative Dispute Resolution (ICADR), and the Mumbai Centre for International Arbitration (MCIA).
- The Supreme Court of India and various High Courts have set up mediation centres and encouraged the use of ADR to resolve disputes. Judicial pronouncements have emphasized the importance of ADR in **reducing the backlog of cases and delivering timely justice**.
- **The Commercial Courts Act, 2015**, aimed to improve the ease of doing business in India by providing a fast-track mechanism for commercial disputes.
- Subsequent amendments to the Arbitration and Conciliation Act, 1996, in 2015, 2019, and 2021, have further refined the legal framework for arbitration in India.
- The **Mediation Act, 2023**, enacted recently, lays down the legal framework for mediation to be adopted by parties to a dispute, especially institutional mediation where various stakeholders have been identified to establish a robust and efficacious mediation ecosystem in the country. The bill establishes the **Mediation Council of India** to promote and regulate mediation services.

MEDIATION ACT, 2023:

Mediation is a voluntary process where disputing parties try to resolve their conflicts with the help of a **neutral third party called a mediator**. The mediator doesn't impose solutions but creates a supportive environment for the parties to find their own resolution. It's a **flexible process** without strict procedural rules, allowing parties to communicate openly and work towards a mutually acceptable agreement.

Mandatory Pre-litigation Mediation

- Parties are required to **first attempt mediation** before approaching courts in **civil or commercial disputes**.
- Exceptions include **criminal matters**, cases involving **non-compoundable offences**, or matters affecting rights of third parties.

Enforceability of Settlement Agreements

- A mediated settlement agreement has the **same status as a court decree**.
- It becomes **binding and enforceable** in any court of law.

Online Mediation Recognized

- The Act provides a legal basis for **online mediation**, allowing virtual hearings and documentation.

Time-bound Process

- Mediation must be completed within **180 days**, extendable by another **180 days** with mutual consent.

Exclusion of Certain Matters

- The following are **excluded** from mediation:
 - Criminal offences
 - Matters involving minors or mentally incapable persons
 - Tax-related issues
 - Matrimonial disputes involving allegations of violence

Mediation Council of India (MCI)

Established under Chapter V of the Mediation Act, the **Mediation Council of India** is a **statutory body** responsible for regulating and promoting mediation in the country.

Functions of the Council:

- **Register mediation institutes and mediators.**
- **Lay down standards for training and certification.**
- Develop a **code of conduct for mediators.**
- Maintain a **national register of mediators.**
- **Accredit mediation service providers**, both online and offline.
- Promote awareness and build **public trust in mediation.**

NEED OF ADR IN THE JUDICIAL LANDSCAPE OF INDIA:

- **Reduction in Case Backlog:** ADR mechanisms, such as arbitration, mediation, and conciliation, have played a crucial role in reducing the backlog of cases in Indian courts.
 - Example: The National Legal Services Authority (NALSA) organizes Lok Adalats, which have settled millions of cases. **In 2020 alone**, Lok Adalats disposed of **approximately 1.2 million cases across the country**, significantly reducing the burden on regular courts.
- **Time Efficiency:** ADR provides a faster resolution of disputes compared to the traditional court system, where cases can drag on for years.
 - Example: Family courts often use mediation to resolve matrimonial disputes quickly. In Delhi, mediation centres have resolved many family disputes within months, compared to years in regular courts.
- **Cost-Effectiveness:** ADR is generally less expensive than litigation, making it an attractive option for individuals and businesses.
 - Example: Companies often prefer arbitration for commercial disputes due to its cost-effectiveness. For instance, the Delhi International Arbitration Centre (DIAC) offers affordable arbitration services, reducing legal costs for businesses.

- **Confidentiality:** ADR processes are private and confidential, which is particularly beneficial in sensitive matters.
 - Example: Companies prefer mediation for intellectual property disputes to keep sensitive information out of the public domain. Successful mediation sessions at the Bombay High Court's Mediation Centre have preserved the confidentiality of trade secrets and business strategies.
- **Flexibility and Party Autonomy:** ADR allows parties more control over the dispute resolution process, including choosing the mediator/arbitrator and tailoring the process to their needs.
 - Example: Many contracts now include **customized arbitration clauses** that specify the rules, venue, and language of arbitration, providing flexibility that traditional courts cannot offer.
- **Preservation of Relationships:** ADR methods, especially mediation and conciliation, focus on **collaborative solutions**, helping preserve relationships between disputing parties.
 - Example: In business partnerships, mediation has successfully resolved conflicts without damaging professional relationships, as seen in the mediation services offered by the Bangalore Mediation Centre.
- **Empowerment of Communities:** ADR empowers communities by providing accessible and culturally sensitive dispute resolution mechanisms.
 - Example : These traditional ADR methods continue to play a vital role in rural areas, resolving local disputes effectively and maintaining social harmony such as Panchayats and Nyaya Panchayats.
- **Enhanced Access to Justice:** ADR increases access to justice by providing alternative forums for dispute resolution, particularly for those who may find the formal judicial system daunting or inaccessible.
 - Example: Initiatives by legal services authorities at the state and national levels promote ADR methods, making justice more accessible to marginalized communities.
- **Specialized Dispute Resolution:** ADR allows for specialized resolution of disputes, with experts in specific fields acting as arbitrators or mediators.
 - Example: The Construction Industry Arbitration Council (CIAC) specializes in resolving construction disputes with experts in engineering and construction law serving as arbitrators.
- **Judicial Efficiency:** By diverting cases from the formal court system, ADR helps improve the overall efficiency of the judiciary.
 - Example: The Commercial Courts Act, 2015, encourages pre-litigation mediation for commercial disputes, enhancing judicial efficiency by reducing the number of cases that go to trial.

CHALLENGES OF ADR FRAMEWORK OF INDIA:

- **Lack of Awareness and Acceptance:** People, especially in rural areas, are not aware of ADR mechanisms or their benefits. There is also a lack of acceptance among certain sections of society and legal professionals.
 - Example: A study by the Vidhi Centre for Legal Policy in 2020 found that a significant percentage of the population was unaware of mediation and arbitration as viable options for dispute resolution.
- **Enforcement Issues:** The enforcement of arbitral awards and mediated settlements can be problematic, leading to delays and additional litigation.
 - Example: In the case of **ONGC v. Saw Pipes Ltd. (2003)**, the Supreme Court of India set a precedent for judicial interference in arbitral awards on grounds of "public policy," which has led to uncertainty and delays in enforcement.
- **Cost Concerns:** Although ADR is generally considered cost-effective, high-quality arbitration services can be expensive, sometimes making them inaccessible for smaller businesses and individuals.
 - Example: Arbitration fees at premier institutions like the International Chamber of Commerce (ICC) or even local institutions can be prohibitively high for many parties.
- **Judicial Intervention:** Excessive judicial intervention in arbitration proceedings undermines the autonomy of ADR processes.
 - Example: The case of **McDermott International Inc. v. Burn Standard Co. Ltd. (2006)** highlighted issues of judicial intervention, where the court extensively reviewed the merits of the arbitral award, leading to delays.
- **Lack of a Uniform ADR Policy:** There is no uniform policy or consistent framework governing ADR practices across different states and jurisdictions in India.
 - Example: Different states have varying rules and support mechanisms for ADR, creating inconsistencies and confusion for parties seeking resolution.
- **Training and Accreditation:** There is a need for standardized training and accreditation for arbitrators, mediators, and conciliators to ensure a high level of professionalism and competence.
 - **Example:** The absence of a national accreditation body leads to a wide disparity in the skills and qualifications of ADR professionals and lack of enough trained professionals
- **Cultural and Societal Barriers:** Cultural and societal attitudes towards dispute resolution can be a barrier, with a preference for traditional litigation over ADR methods.
 - **Example:** In certain communities, there is a distrust of non-judicial mechanisms and a belief that formal court decisions carry more weight and legitimacy.

- **Infrastructure and Technological Barriers:** Inadequate infrastructure and lack of technological adoption hinder the efficiency of ADR processes. Many ADR institutions lack proper technological infrastructure for conducting virtual hearings, which became evident during the COVID-19 pandemic.

WAY FORWARD FOR ADR ECOSYSTEM:

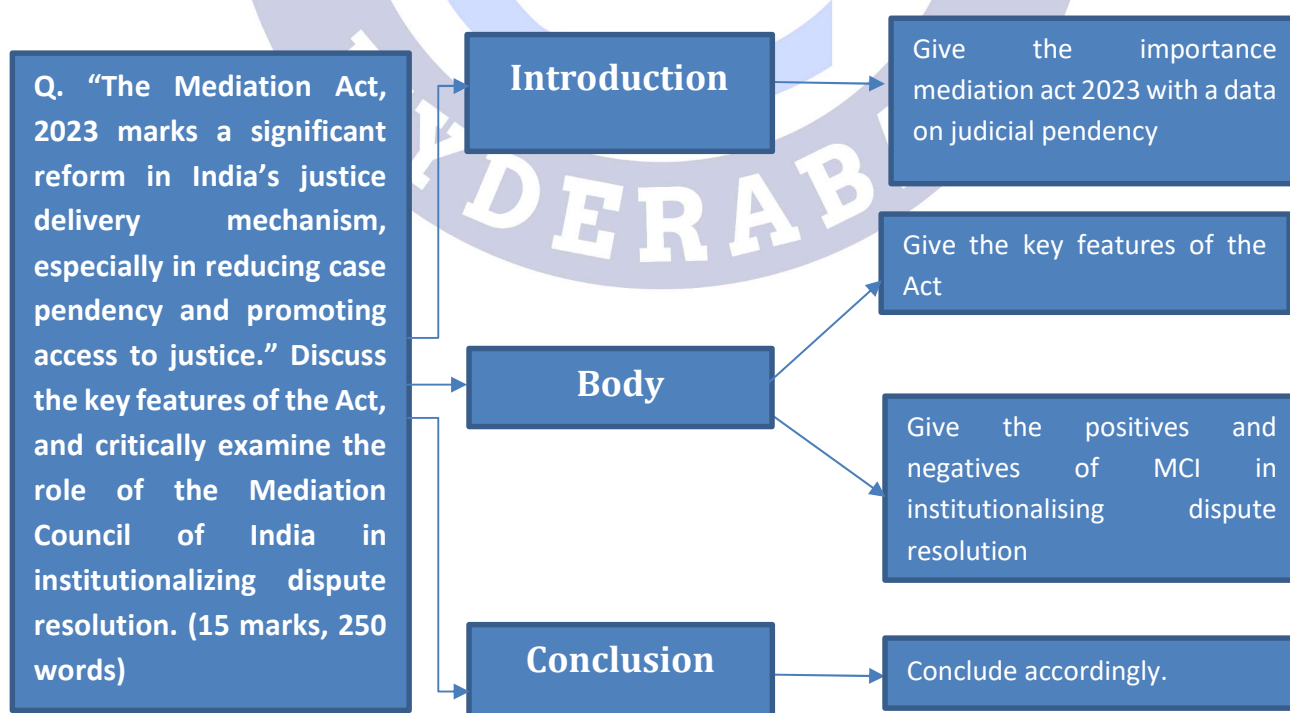
- **Enhancing Awareness and Education:** Introduce ADR modules in law schools and professional legal training programs. Conduct nationwide awareness campaigns to educate the public about the benefits and availability of ADR mechanisms.
 - The UK has integrated ADR education into its legal curriculum and conducts regular public awareness campaigns.
- **Standardizing Training and Accreditation:** Establish a national accreditation body to standardize the training and certification of arbitrators, mediators, and conciliators. Ensure continuous professional development to maintain high standards of practice.
 - The Singapore International Arbitration Centre (SIAC) and Singapore Mediation Centre (SMC) provide rigorous training and certification programs for ADR professionals.
- **Establishing Robust Institutional Support:** Strengthen existing ADR institutions and establish new centres across the country, especially in under-served regions. Provide these institutions with adequate resources, infrastructure, and technological support.
 - The Hong Kong International Arbitration Centre (HKIAC) is renowned for its efficient and well-resourced ADR services.
- **Improving Enforcement Mechanisms:** Reduce judicial interference in arbitral awards by adhering to international standards, such as the **New York Convention**.
 - French courts have a streamlined process for the enforcement of arbitral awards, minimizing delays.
- **Promoting Mediation and Conciliation:** Promote the use of mediation and conciliation in civil and commercial disputes. Implement mandatory mediation for certain types of cases before they proceed to litigation.
 - The US has institutionalized mediation through the Alternative Dispute Resolution Act of 1998, requiring federal courts to offer ADR services.
- **Leveraging Technology:** Develop and implement ODR platforms to facilitate the resolution of disputes online. Encourage the use of video conferencing and digital document management in ADR processes.
 - Online Dispute Resolution (ODR): Platforms like eBay's ODR system resolve millions of disputes annually without physical meetings.
- **Adopting a Uniform ADR Policy:** Formulate a national ADR policy to ensure uniformity and consistency across all states.

- The EU has a unified policy framework for ADR, ensuring consistency across member states.
- **Integrating ADR into the Judicial System:** Institutionalize court-annexed ADR programs, where judges can refer cases to mediation or arbitration.
 - The Canadian judicial system actively integrates ADR processes into court proceedings.
- **Encouraging Public-Private Partnerships:** Foster partnerships between government, private sector, and civil society organizations to promote ADR.
 - The Australian Dispute Resolution Association (ADRA) collaborates with private entities to promote ADR.
- **Providing Financial Incentives:** Offer tax benefits and subsidies for parties opting for ADR. Provide financial support for ADR centres and programs to reduce costs for users.
 - Japan: The Japanese government offers subsidies and financial incentives to promote the use of ADR.

PRACTICE QUESTION

Q. “The Mediation Act, 2023 marks a significant reform in India’s justice delivery mechanism, especially in reducing case pendency and promoting access to justice.” Discuss the key features of the Act, and critically examine the role of the Mediation Council of India in institutionalizing dispute resolution. (15 marks, 250 words)

APPROACH



MODEL ANSWER

India faces an alarming backlog of over **4.5 crore pending court cases** across various levels of judiciary, with an average resolution time of **13 years in civil matters**. **Mediation Act, 2023** represents a landmark step towards institutionalizing mediation in India, while the creation of the **Mediation Council of India (MCI)** is aimed at regulating and standardizing its practice.

Key Features of the Mediation Act, 2023:

- **Mandatory Pre-litigation Mediation:** For all civil and commercial disputes (with specific exceptions), encouraging early resolution.
- **Legally Binding Settlements:** Mediation agreements have the status of a court decree under Section 19, ensuring enforceability.
- **Recognition of Online and Community Mediation:** Encourages hybrid and virtual models, expanding reach to remote and underserved areas.
- **Time-bound Resolution:** Mediation must be completed within **180 days**, extendable by another **180 days**, enhancing predictability.
- **Confidentiality and Neutrality:** The Act ensures non-disclosure of proceedings and protects mediators from liability.
- **Exemptions for Sensitive Cases:** Excludes criminal cases, disputes involving minors or persons with mental incapacity, and tax matters.

Role and Functions of the Mediation Council of India (MCI):

- **Standard Setting and Accreditation:** Registers mediators and mediation service providers. Accredits institutes offering mediation training and maintains a **national register** of certified mediators.
- **Capacity Building and Training:** Mandates minimum standards for training and experience. Promotes continuous professional development and lays out a **code of conduct** for mediators.
- **Public Awareness and Accessibility:** Encourages state governments and stakeholders to run public awareness campaigns. Promotes low-cost and accessible mediation services at the grassroots level.
- **Digital and Inclusive Framework:** Encourages the development of platforms for **online mediation**, particularly important for rural and inaccessible regions.

- **Oversight and Grievance Redressal:** Empowers the Council to set performance metrics, ensure compliance, and address grievances against mediators.

Challenges in Institutionalizing Mediation:

- **Low Public Awareness:** A 2022 survey by Vidhi Centre for Legal Policy noted that less than **15%** of litigants are aware of mediation as a first option.
- **Lack of Skilled Mediators:** India has fewer than **10,000 trained mediators** for a country of 140 crore people.
- **Infrastructural Gaps:** Limited infrastructure at district courts and absence of online platforms hinder expansion.
- **Reluctance of Legal Fraternity:** Many legal professionals resist ADR due to fear of reduced litigation income.
- **Inconsistent Implementation:** State capacities vary widely, leading to non-uniform mediation practices.

Way Forward:

- **Pan-India Awareness Campaigns:** Government, bar councils and civil society must work together to popularize mediation as a legitimate form of justice.
- **Public-Private Partnerships (PPPs):** Collaborate with corporates and academic institutions for mediation training and research.
- **Tech-Enabled Platforms:** Investment in AI-enabled e-mediation portals can improve transparency and reach.
- **Institutional Mediation Centres:** Encourage courts and industries to establish mediation centres within their premises.
- **State-Level Policy Harmonization:** Ensure consistency in rules, fees, and mediator qualifications across states.

The Mediation Act, 2023, supported by a dynamic Mediation Council of India, has the potential to **revolutionize India's dispute resolution ecosystem**. By reducing judicial burden, empowering individuals, and ensuring quicker justice, it can uphold the constitutional promise of **speedy, affordable, and participatory justice for all**. However, its success will depend on how swiftly India bridges the gaps in awareness, infrastructure, and human resources.

6. FOREST RIGHTS

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Social Justice >> Vulnerable Sections of the Society

REFERENCE NEWS:

The 52 tribal families who entered the Nagarhole Tiger Reserve claiming land rights under the Forest Rights Act (FRA) continue to stay put inside the forest as a way of protest. Meanwhile, the forest department is urging them to vacate, citing legal and implementation hurdles.

Over 150 tribes from **Jenukuruba, Betta Kuruba, Yarava and Paniya communities** have occupied the forest land in Nagarhole Tiger Reserve, demanding implementation of the Forest Rights Act (FRA).

FOREST RIGHTS IN INDIA:

Forest rights refer to the rights of forest-dwelling communities—particularly **Scheduled Tribes (STs)** and **Other Traditional Forest Dwellers (OTFDs)**—to access, manage, use, and conserve forest resources for **livelihood, habitation, and cultural practices**.

- These rights are legally recognized under the **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**, commonly known as the **Forest Rights Act (FRA)**.
- **Colonial Period:** British laws like the **Indian Forest Act, 1927** centralized control over forests, criminalizing traditional forest use by local communities.
- **Post-Independence:** **1952 National Forest Policy** continued the legacy of state control, sidelining community rights.
- **Forest Conservation Act, 1980** further restricted local access in the name of ecological conservation.
- **FRA 2006:** Enacted in response to **historic injustices** and **mass evictions**. Recognized the customary and ancestral rights of forest dwellers, correcting colonial-era exclusions.

KEY PROVISIONS OF THE FOREST RIGHTS ACT, 2006:

- **Recognition of Individual Forest Rights:** Recognizes the right to **cultivate forest land** occupied before **13th December 2005**. Land ownership capped at **4 hectares per family**.

- In Odisha, over **4 lakh individual titles** have been granted to tribal households for forest cultivation.
- **Community Forest Rights:** Rights to **use and manage forest resources collectively**, including minor forest produce, water bodies, grazing areas. Includes **Community Forest Resource (CFR) Rights** under **Section 3(1)(i)** for biodiversity conservation and sustainable use.
 - In **Gadchiroli, Maharashtra**, over 1,500 Gram Sabhas have received CFR rights, enabling them to earn crores annually from bamboo and tendu leaf sales.
 - As per MoTA (2023), CFR rights have been recognized over **100 lakh hectares** across India.
- **Habitat Rights for PVTGs:** Special recognition for **Particularly Vulnerable Tribal Groups (PVTGs)** to protect their **traditional habitats**, cultural practices, and mobility.
 - **Baiga and Bhariya tribes** in Madhya Pradesh were among the first to receive habitat rights.
 - Jarawas in Andaman and Nicobar Islands.
- **Right to Minor Forest Produce:** Includes non-timber products like **bamboo, tendu leaves, honey, lac**, and medicinal herbs. Enables communities to **collect, use, trade**, and gain income from MFPs.
 - Under the **Van Dhan Yojana**, tribal SHGs across states like Chhattisgarh and Jharkhand have been trained and supported to value-add and market MFPs.
- **Protection from Eviction:** No eviction of forest dwellers allowed **until the verification and recognition process is complete**.
 - **Supreme Court Order (Feb 2019)** directed eviction of 11 lakh forest dwellers whose FRA claims were rejected. The order was stayed after widespread protests and legal intervention by the Centre.
- **Authority of Gram Sabha (Section 6):** The **Gram Sabha** is empowered to initiate claims for forest rights, verify and recommend claims, protect community resources, manage and conserve forests under CFR rights.
 - In **Similipal, Odisha**, Gram Sabhas have successfully prevented deforestation by asserting their CFR rights and blocking unsanctioned timber extraction.
- **Conservation and Development Rights:** Allows forest dwellers to **protect wildlife, biodiversity, and cultural knowledge**, while using forest resources sustainably.
 - The **Soliga tribe** in Karnataka co-manages the **Biligiri Ranganatha Temple (BRT) Tiger Reserve**, balancing conservation and livelihood.
- **Right to Rehabilitation and Compensation:** For those displaced due to development projects before **13 December 2005**, without proper rehabilitation.
 - Tribals displaced by mining in Andhra Pradesh and Odisha are eligible to claim land under FRA if they were not compensated adequately.

Case	Significance
Wildlife First v. Union of India (2019)	SC initially ordered eviction of over 11 lakh dwellers whose claims were rejected. The order was later stayed due to procedural lapses in claim processing.
Kandha Tribe Case (Orissa HC, 2011)	Affirmed the authority of Gram Sabha under FRA to reject forest diversion for mining (Vedanta's Niyamgiri project).
T.N. Godavarman v. Union of India (1996)	Laid the foundation for defining forests in the legal context, influencing later recognition under FRA.

CHALLENGES IN IMPLEMENTATION OF FOREST RIGHTS IN INDIA:

- **High Rate of Claim Rejections:** Over **44 lakh claims** have been filed under FRA (as of 2023). Roughly **50%** of claims have been rejected in several states, often **without valid reasons or due process**.
 - In Rajasthan, about **59%** of individual forest rights (IFR) claims were rejected (MoTA data, 2021), largely due to lack of land records or GPS mapping.
- **Poor Recognition of Community Forest Rights (CFR):** While CFRs are crucial for tribal self-governance and biodiversity conservation, only a **fraction** of potential areas have been recognized.
 - In **Madhya Pradesh**, less than **10% of CFR potential** has been recognized, despite vast forest areas under tribal use.
 - According to MoTA, by end-2022, **only 16%** of India's CFR potential had been legally recognized.
- **Institutional Resistance and Conflict with Forest Departments:** Forest departments often view FRA as a threat to their control. Many claim rejections stem from **resistance to ceding authority to Gram Sabhas**.
 - In **Similipal (Odisha)**, forest officials blocked Gram Sabhas from claiming rights over forest patches used traditionally by tribal groups.
- **Lack of Awareness and Legal Literacy:** Many eligible claimants are unaware of their rights or the procedures to file claims. **Women's rights**, joint titles, and habitat rights for **PVTGs** are underutilized.

- In **Jharkhand**, community members in PVTG-dominated areas like Santhal Paraganas were unaware of the habitat rights provision (Sec 3(1)(e)).
- **Administrative Apathy and Poor Verification Process: Sub-Divisional Level Committees (SDLCs) and District Level Committees (DLCs)** are often under-resourced and lack training. Claims are rejected due to absence of **written records**, even though FRA accepts **oral evidence and community testimony**.
- **Political and Development Pressures:** Infrastructure and mining projects often displace forest dwellers **without proper implementation of FRA** or consent from Gram Sabhas (as required under PESA and FRA).
- **Statutory Loopholes and Legal Gaps**
 - **Absence of Penal Provisions for Violations:** The FRA lacks **penalties for officials** who illegally reject claims or conduct evictions, making enforcement weak.
 - **Overlap with Indian Forest Act, 1927 and Wildlife Protection Act, 1972:** These laws allow eviction and fines for “encroachments” on forest land, which **contradicts FRA's protection** of pre-2005 dwellers. In tiger reserves like **Sariska** and **Kanha**, eviction notices have been issued despite ongoing claims under FRA.
 - **Weak Legal Enforcement of CFR and Habitat Rights:** While IFR titles are granted more often, **CFRs and habitat rights** lack clarity on boundaries and enforcement mechanisms. No legal framework to support **Gram Sabha-led management plans** or protection of their decisions.
 - **Ambiguity in the Definition of “Other Traditional Forest Dwellers” (OTFDs):** OTFDs must prove **75 years of residence** prior to 2005, which is nearly impossible without historical records. In Maharashtra, many **Van Gujjars** and **shepherd communities** have failed to get recognition despite traditional use.
 - **No Time Limit for Recognition Process:** Although the Act was passed in 2006, there is no **statutory deadline** for completing recognition, leading to delays and policy paralysis.

WAY FORWARD:

Strengthen the Role of Gram Sabhas:

- **Empower Gram Sabhas** under Section 6 of the FRA to be the primary decision-makers in resource management and conservation.
- Ensure **free, prior, and informed consent (FPIC)** for any diversion of forest land.
- **Niyamgiri, Odisha** – Gram Sabhas successfully used FRA to reject a mining project, showing effective decentralized governance.

Implement the Bhuria Committee and Xaxa Committee Recommendations

- **Bhuria Committee (1995):** Emphasized tribal autonomy and local governance in forest and land matters through **PESA**.
- **Xaxa Committee (2014):** Recommended prioritizing **habitat rights for PVTGs**, integrating FRA with **PESA**, **MNREGA**, and **CAMPA**, protecting rights during forest diversion.

Promote Community-Based Forest Management (CBFM)

- Train forest dwellers in **sustainable harvesting**, **fire prevention**, and **biodiversity monitoring**.
- Involve communities in **Joint Forest Management (JFM)** schemes revamped to align with **CFR rights**.
- **Gadchiroli, Maharashtra** – Tribals collectively manage CFR forests, sustainably harvesting bamboo and earning crores annually.

Scientific Mapping and Technology Integration

- Use **GIS**, **drones**, and **remote sensing** to demarcate CFR boundaries transparently.
- Support Gram Sabhas with technical experts for mapping and forest management plans.
- Odisha has piloted GPS-based mapping to support FRA claims with verifiable spatial data.

Convergence with Development and Welfare Schemes

- Link forest rights with **MGNREGA** for asset creation (roads, ponds, bunds), **PMAY-G** for housing on forest land titles, **Van Dhan Yojana** for value addition of minor forest produce

Recognize Habitat Rights for PVTGs

- Fast-track **habitat rights claims** under Section 3(1)(e).
- Ensure ecological buffer zones are maintained in harmony with PVTG culture.
- **Baigas in Madhya Pradesh** were granted habitat rights with a participatory conservation plan.

Legal Reforms and Harmonization

- **Amend Indian Forest Act, 1927** and **Wildlife Protection Act, 1972** to remove contradictions with FRA.
- Insert **penal provisions** for wrongful eviction or arbitrary claim rejection under FRA.

Build Capacity at the Local and Administrative Level

- Train **SDLCs and DLCs** in legal procedures, satellite mapping, and oral history validation.

- Support **NGOs and CSOs** working with tribal communities on legal literacy.
- In Chhattisgarh, FRA-focused capacity building increased the approval rate of community claims significantly.

Ensure Sustainable Livelihoods through Eco-Friendly Enterprises

- Encourage **non-timber forest produce (NTFP)** collection and marketing.
- Promote **tribal cooperatives and SHGs** in honey, bamboo, lac, and medicinal herbs.
- **Chhattisgarh MFP Federation** supports over 23 lakh tribal collectors across 32 forest products, improving income without harming biodiversity.

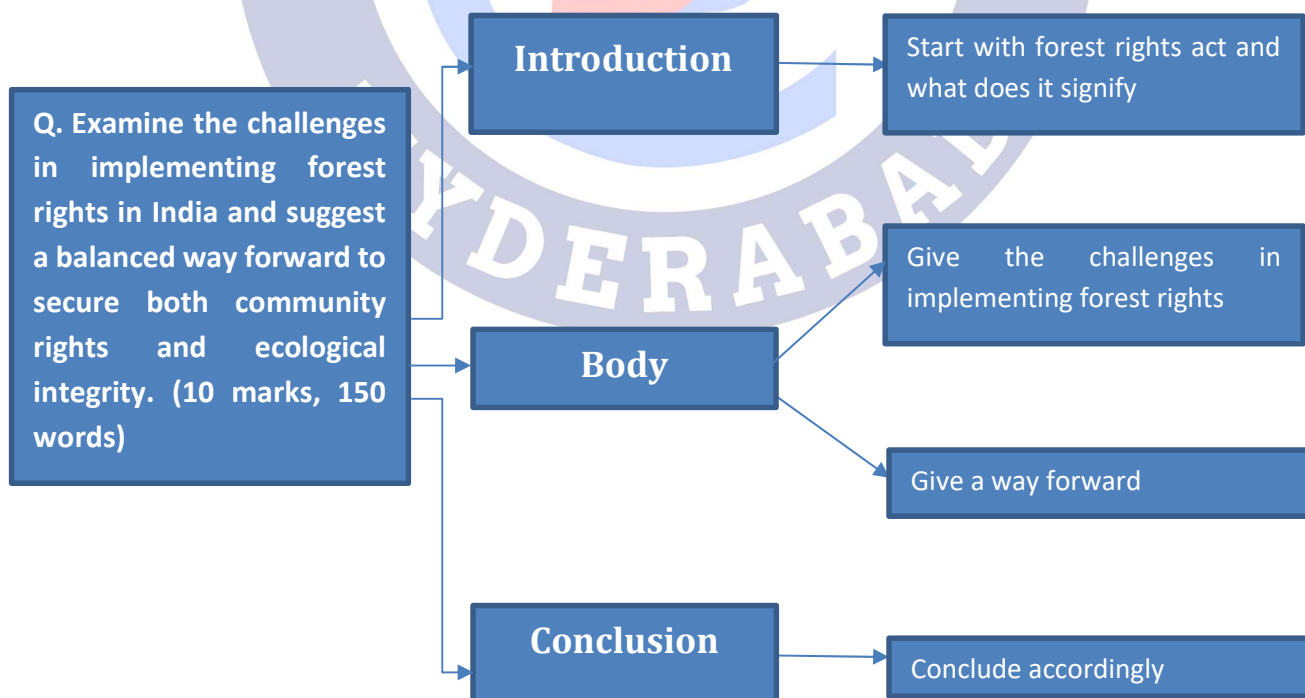
National Dashboard for Monitoring FRA Implementation

- Create a **real-time, transparent dashboard** to track claim status, titles issued, and rejections.
- Enable grievance redress and accountability through the platform.

PRACTICE QUESTION

Q. Examine the challenges in implementing forest rights in India and suggest a balanced way forward to secure both community rights and ecological integrity. (10 marks, 150 words)

APPROACH



MODEL ANSWER

The **Forest Rights Act (FRA), 2006** recognizes the rights of Scheduled Tribes (STs) and Other Traditional Forest Dwellers (OTFDs) to forest land and resources for livelihood, habitation, and cultural practices. It was enacted to redress colonial-era injustices and democratize forest governance.

Challenges in Implementation:

1. **High Claim Rejection Rates:** Over **44 lakh claims filed**, with around **50% rejected**—often without due process. Rajasthan alone saw **59% IFR rejections** due to lack of records.
2. **Poor Recognition of Community Forest Rights (CFRs):** Only **16% of CFR potential recognized** nationally (MoTA, 2022). Madhya Pradesh lags with <10% recognition despite large tribal populations.
3. **Institutional Resistance:** Forest departments view FRA as diluting their control. In **Similipal (Odisha)**, CFRs were blocked despite legal eligibility.
4. **Legal Ambiguity:** Conflicts persist between FRA and older laws like the **Indian Forest Act, 1927** and **Wildlife Protection Act, 1972**.
5. **Lack of Awareness and Documentation:** Oral evidence allowed under FRA is often ignored. **PVTGs and women** remain underrepresented in claims.
6. **Development Pressures:** Mining and infrastructure projects proceed without Gram Sabha consent, violating **PESA and FRA** provisions.

Way Forward:

1. **Empower Gram Sabhas:** Recognize them as forest managers under Section 6. *Niyamgiri* case affirms their power to block projects.
2. **Implement Committee Recommendations:** **Bhuria Committee (1995)** suggests Tribal autonomy via PESA. **Xaxa Committee (2014)** recommends Fast-track PVTG habitat rights and integrate FRA with welfare schemes.
3. **Community-Based Forest Management:** Revamp **JFM schemes** to align with CFRs. *Gadchiroli* shows success in bamboo-based income under CFR.
4. **Technology and Transparency:** Use **GIS mapping and drones** to verify claims. Launch **real-time dashboards** for FRA monitoring.

5. **Legal Harmonization:** Amend contradictory laws. Introduce **penal provisions** for wrongful evictions and claim suppression.
6. **Sustainable Livelihoods:** Expand **Van Dhan Yojana**, promote **SHGs**, and facilitate **NTFP markets** without harming biodiversity.

FRA is a transformative tool for **social justice, tribal empowerment, and sustainable forest governance**. Its full potential can be realized only through **legal clarity, decentralization, capacity building, and ecological sensitivity**, ensuring that both **people and forests thrive together**.



7. REFUGEE RIGHTS

IMPACT ANALYSIS

SYLLABUS:

GS 2 > International Relations >> Refugees

REFERENCE NEWS:

The Supreme Court of India, on May 8, 2025, heard petitions challenging the Centre's power to deport Rohingya refugees. Petitioners argued that UNHCR-registered refugees face torture if returned to Myanmar, citing the **principle of non-refoulement** under international law.

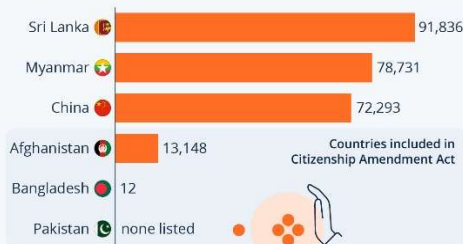
The Centre maintained that **India is not a signatory to the Refugee Convention** and has absolute power under the Foreigners Act. **The Court affirmed that only Indian citizens enjoy settlement rights under Article 19(1)(e), though Articles 14 and 21 apply to all.** It agreed to examine the matter in detail in July, considering constitutional and international law implications.

INDIA AS A REFUGEE RECEIVING NATION:

- India has historically been perceived as a 'refugee-receiving' nation having hosted over 2,00,000, diverse refugee groups since its independence.
- As of January 31, 2022, 46,000 refugees and asylum-seekers were registered with UNHCR India.
- According to the **United Nations High Commissioner for Refugees (UNHCR)**, by the end of 2023, 11.73 crore people, worldwide, had been **forcibly displaced** due to persecution, conflict, violence, human rights violations or events seriously disturbing public order. **Among them, 3.76 crore were refugees.**
- 46% of this population is comprised of women and girls**, a disproportionately burdened and vulnerable group.
- India has Sri Lankan Tamils, Rohingyas from Myanmar, Tibetan population, persecuted Afghans etc.**
- Despite having a large influx of refugees and hosting them India does not have a refugee policy or haven't been a party to the Geneva Convention on refugees.

India Sees Relatively Few Refugees from CAA Countries

Refugee/asylum-seeker populations in India from most common countries and CAA countries of origin



As of mid-2023
Source: UNHCR



statista

REASONS BEHIND RISING REFUGEES:

- **Conflict and War:** Armed conflicts within countries are one of the primary causes of large-scale displacement. Ethnic violence and genocides have also resulted in mass displacement.
 - The Syrian Civil War, which began in 2011, has led to millions of Syrians fleeing their homes. According to the UNHCR, over 6.6 million Syrians have become refugees, primarily in neighbouring countries like Turkey, Lebanon, and Jordan.
 - The Rohingya crisis in Myanmar is a stark example, where violence against the Rohingya Muslim minority has forced over 700,000 people to flee to Bangladesh since 2017.
- **Persecution and Human Rights Violations:** Individuals and communities often flee their countries due to systematic persecution based on religion, ethnicity, or political beliefs.
 - In Eritrea, severe human rights abuses, including forced conscription and religious persecution, have driven tens of thousands of people to seek asylum in Europe and elsewhere.
- **Climate Change and Environmental Degradation:** Increasingly frequent and severe natural disasters, such as hurricanes, floods, and droughts, are forcing people to leave their homes.
 - In the Pacific Islands, rising sea levels due to climate change are making entire communities uninhabitable, leading to a gradual but inevitable displacement of populations.
 - In regions like the Sahel in Africa, desertification and resource scarcity are driving people away from their traditional lands. The combination of environmental stress and conflict over dwindling resources has resulted in significant internal and cross-border displacement.
- **Economic Instability and Poverty:** Economic hardships can also drive people to seek refuge in other countries. Many refugees are also economic migrants who leave their homes due to the lack of economic opportunities.
 - In countries like Afghanistan, the combination of ongoing conflict, economic collapse, and food insecurity has led to a significant increase in people fleeing to neighbouring countries like Pakistan and Iran.
 - The large-scale migration from Central America to the United States is partly driven by poverty, violence, and the lack of economic prospects in countries like Honduras, Guatemala, and El Salvador.
- **Weak Governance and State Failure:** The collapse of governments or failure to maintain law and order can create conditions that drive people to flee. In some cases, pervasive

corruption and mismanagement of resources lead to public dissatisfaction and unrest, further contributing to the displacement of people.

- In countries like South Sudan, the lack of effective governance, ongoing conflict, and economic collapse have resulted in millions of people being displaced both internally and across borders.

CHALLENGES OF RISING REFUGEES:

REFUGEES	RECEIVING NATIONS
<p>Shelter and Food: Refugees often find themselves in overcrowded camps or informal settlements with inadequate shelter, sanitation, and access to clean water.</p> <ul style="list-style-type: none"> ○ In Cox's Bazar, Bangladesh, where over 900,000 Rohingya refugees reside, the living conditions are dire, with many lacking sufficient food, clean water, and medical care. 	<p>Resource Allocation: Hosting large numbers of refugees can put a strain on a country's resources, including housing, healthcare, education, and public services.</p> <ul style="list-style-type: none"> ○ Lebanon, which hosts over 1.5 million Syrian refugees, has seen its infrastructure overwhelmed, leading to shortages in electricity, water, and healthcare services.
<p>Healthcare: Access to healthcare is often limited or non-existent, leading to the spread of diseases and high mortality rates.</p> <ul style="list-style-type: none"> ○ In the Zaatari camp in Jordan, which houses Syrian refugees, the healthcare system is overwhelmed, and refugees often struggle to get treatment for chronic conditions. 	<p>Employment Pressure: Refugees often compete with locals for jobs, which can lead to increased unemployment and social tensions.</p> <ul style="list-style-type: none"> ○ In Uganda, where the refugee population is close to 1.5 million, the local job market is under pressure, particularly in low-skilled sectors.
<p>Mental Health Issues: The trauma of fleeing violence, losing loved ones, and facing an uncertain future can lead to significant mental health issues.</p> <ul style="list-style-type: none"> ○ Refugees from conflict zones like Syria and Afghanistan often suffer from PTSD, depression, and anxiety, but lack access to mental health services. 	<p>Xenophobia and Discrimination: Refugees often face discrimination and xenophobia, which can manifest in hostility, violence, and exclusion.</p> <ul style="list-style-type: none"> ○ In South Africa, xenophobic attacks have targeted refugees and migrants, accusing them of taking jobs and resources from locals.
<p>Social Integration: Refugees often face difficulties integrating into new communities due to language barriers, cultural differences, and discrimination.</p> <ul style="list-style-type: none"> ○ In Germany, where over a million refugees have arrived since 2015, many have struggled to learn the 	<p>Cultural Clashes: Differences in language, religion, and cultural practices can lead to social tensions between refugees and host communities.</p> <ul style="list-style-type: none"> ○ In Sweden, which has received a significant number of refugees, there have been challenges related to

language and integrate into the job market.	integrating these populations into a relatively homogeneous society.
<p>Lack of Legal Status: Without official refugee status, many refugees are unable to access basic services, work legally, or move freely.</p> <ul style="list-style-type: none"> Many Venezuelan refugees in Colombia lack legal status, limiting their access to healthcare, education, and employment opportunities. 	<p>Political Backlash: The arrival of large numbers of refugees can lead to political polarization and backlash.</p> <ul style="list-style-type: none"> In Europe, the refugee crisis has fuelled the rise of far-right parties that advocate for stricter immigration controls, as seen in countries like Hungary and Italy.
<p>Prolonged Asylum Processes: The asylum process can be lengthy and uncertain, leaving refugees in a state of limbo.</p> <ul style="list-style-type: none"> In Greece, where thousands of refugees have sought asylum, the backlog of cases has left many waiting for years in overcrowded camps with little hope for resolution. 	<p>Security Risks: There are concerns that refugee flows might be infiltrated by criminal elements or militants, although these fears are often exaggerated. Nonetheless, the sheer number of arrivals can pose logistical and security challenges for border control and law enforcement agencies.</p> <ul style="list-style-type: none"> In Turkey, which hosts over 3.7 million Syrian refugees.
<p>Strain on Natural Resources: Water and land resources can be overstretched by large refugee populations, exacerbating existing environmental challenges.</p> <ul style="list-style-type: none"> In Jordan, the influx of Syrian refugees has placed significant pressure on the country's already scarce water resources, leading to increased competition for this vital resource. 	<p>Environmental Degradation: The sudden influx of large refugee populations can lead to environmental degradation, particularly in fragile ecosystems.</p> <ul style="list-style-type: none"> In the Kakuma refugee camp in Kenya, deforestation has occurred as refugees cut down trees for firewood, leading to soil erosion and loss of biodiversity.

WAY FORWARD TO THE GLOBAL REFUGEE CRISIS:

- **Peacebuilding Programs:** Post-conflict regions require comprehensive peacebuilding programs that focus on reconciliation, rebuilding institutions, and ensuring long-term stability.
 - In countries like South Sudan, where conflict has caused widespread displacement, peacebuilding initiatives are essential to prevent further violence and encourage the return of refugees.
- **Enhancing Humanitarian Assistance:** The global community must ensure that UN agencies like UNHCR, as well as other humanitarian organizations, receive adequate

funding to provide essential services such as food, shelter, education, and healthcare to refugees.

- The Global Compact on Refugees, adopted by the UN in 2018, emphasizes **burden-sharing** and aims to provide more predictable and equitable support to host countries.
- **Promoting Sustainable Development in Host Countries:** Host countries should be supported in integrating refugees into their economies through access to work permits, vocational training, and education.
 - The Jordan Compact, an agreement between Jordan and international donors, has facilitated investments in education and employment for Syrian refugees and Jordanians alike.
- **Promoting Safe and Legal Migration Pathways:** Facilitating the issuance of humanitarian visas and prioritizing family reunification can provide refugees with legal avenues to enter safe countries, reducing the need for dangerous and irregular migration routes.
 - Countries like Canada and Germany have expanded their resettlement efforts in recent years, offering a model for others to follow.
- **International Cooperation and Multilateralism:** The Comprehensive Refugee Response Framework (CRRF) has been implemented in several African countries to foster regional cooperation in managing refugee situations.
 - Strengthening the 1951 Refugee Convention and its 1967 Protocol by ensuring more countries ratify and adhere to its provisions can improve the protection of refugees.

HOW INDIA CAN DEAL WITH HER REFUGEE CRISIS:

Developing a Comprehensive Refugee Policy:

- Developing a comprehensive refugee law that defines the rights and responsibilities of refugees, as well as the obligations of the Indian state, would provide a structured approach to managing refugees.
- The legal status of refugees in India varies, with some receiving protection under UNHCR and others living as undocumented immigrants.
- A clear legal framework would help standardize procedures for refugee registration, documentation, and access to basic services.

Strengthening Security Measures:

- India should continue to improve its border management to prevent illegal crossings while ensuring that those fleeing persecution can seek asylum.

- This includes deploying technology, better training for border security forces, and collaboration with neighbouring countries to manage refugee flows.
- Biometric registration and regular monitoring of refugee settlements can prevent the infiltration of extremist elements.

Humanitarian Assistance and Social Integration:

- India should ensure that refugees have access to essential services such as healthcare, education, and legal aid.
- Integrating refugees into the public health and education systems can help them lead dignified lives while contributing to the local economy.
- Encouraging community-based initiatives that foster integration between refugees and local populations can reduce social tensions.
- In areas like Jammu and Kashmir, where large numbers of Rohingya refugees are present, local NGOs and community organizations can play a critical role in promoting coexistence.

Promoting Livelihood Opportunities:

- Providing vocational training employment opportunities, Microfinance and entrepreneurial opportunities to refugees can help them become self-reliant and reduce their dependence on state support.
- For example, India could replicate successful initiatives like the Self-Employed Women's Association (SEWA), which empowers women, including refugees, through skill development and entrepreneurship.

Regional and International Cooperation:

- India can play a leading role in fostering regional cooperation on refugee issues through platforms like the SAARC.
- This could include developing regional frameworks for burden-sharing, joint border management, and coordinated humanitarian responses.

Balancing Humanitarian Concerns with National Interests:

- India can consider participating in selective resettlement programs for specific vulnerable groups, such as women and children, who face heightened risks in refugee camps. This approach can be balanced with India's national security concerns and economic capabilities.

Promoting Social Cohesion:

- India should encourage initiatives that promote social cohesion between refugees and local communities, particularly in areas where there are significant refugee populations.
- Cultural exchange programs, community dialogue forums, and joint community service projects can help build understanding and reduce tensions.

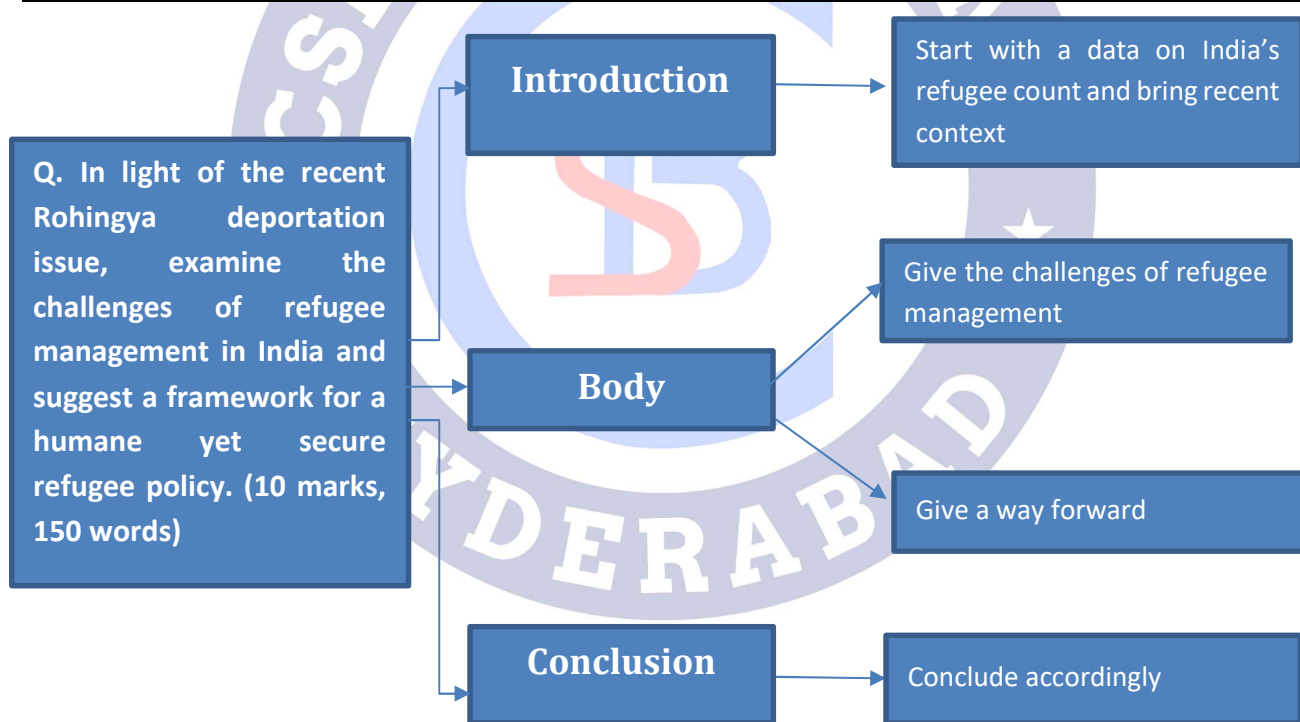
Sustainable Settlement Planning:

- Refugee settlements should be planned with environmental sustainability in mind, particularly in ecologically sensitive areas.
- This includes ensuring that refugee camps do not lead to deforestation, water scarcity, or other forms of environmental degradation.
- India should incorporate disaster risk reduction measures in refugee management, especially in regions prone to natural disasters.

PRACTICE QUESTION

Q. In light of the recent Rohingya deportation issue, examine the challenges of refugee management in India and suggest a framework for a humane yet secure refugee policy. (10 marks, 150 words)

APPROACH



MODEL ANSWER

India has hosted over **200,000 refugees** from countries like Tibet, Sri Lanka, Afghanistan, and Myanmar, despite **not being a signatory** to the **1951 Refugee Convention** or its **1967 Protocol**. The recent Supreme Court hearing on the deportation of Rohingya refugees has reignited debate over the lack of a coherent refugee policy, exposing tensions between **national security**, **constitutional rights**, and **international humanitarian obligations**.

Challenges in India's Refugee Management:

1. **Legal Ambiguity:** Refugees are treated under the **Foreigners Act, 1946**, which does not distinguish between refugees and illegal migrants. This leads to inconsistent treatment—e.g., Tibetan refugees receive documentation while **Rohingyas face detention or deportation**.
2. **Security vs. Humanitarian Concerns:** The Centre claims unrestricted powers under Section 3 of the Foreigners Act. Petitioners argue that deporting Rohingyas violates **Article 21** and **non-refoulement**, a principle of customary international law.
3. **Lack of Legal Status:** Refugees without UNHCR registration or state recognition lack access to housing, healthcare, or education.
4. **Administrative Challenges:** No uniform system for **biometric registration, legal aid, or livelihood support**.
5. **Social Integration and Xenophobia:** Rising **communal tensions**, as seen in Jammu regarding Rohingyas, highlight the absence of cohesive integration programs.

Way Forward:

1. **Comprehensive Refugee Law:** Define rights, responsibilities, and procedures for registration and asylum. Incorporate **non-refoulement**, in line with SC observations (e.g., *Kittu Reddy v. Union of India*).
2. **Balanced Policy Approach:** Combine humanitarian protection with **national security screening** and **biometric registration**.
3. **International Best Practices:** Follow the **Jordan Compact** model: integrate refugees into public services with global funding support.
4. **Sustainable Settlement and Livelihoods:** Empower refugees through **SEWA-style entrepreneurship models**, especially for women and children.
5. **Regional and Global Cooperation:** Lead **SAARC-level cooperation** on refugee flows and disaster-resilient camp planning.

India's refugee approach has historically balanced **compassion with caution**. However, in an era of rising displacement and geopolitical shifts, a **codified, rights-based refugee framework** is essential to ensure **legal certainty, humanitarian protection, and national interest**. The Rohingya case presents an opportunity to move toward a **comprehensive, inclusive, and secure refugee policy**.

8. NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHTS

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Statutory bodies >> NCPCR

REFERENCE NEWS:

The National Commission for Protection of Child Rights (NCPCR) held a national online consultation to raise awareness about the POCSO Act, 2012 and the Child and Adolescent Labour (Prohibition and Regulation) Act, 1986. Chairperson and members of NCPCR emphasized the need for structured awareness, inter-agency cooperation, and stakeholder engagement.

Key suggestions included the establishment of **Fast Track Courts, standardization of Medico-Legal Reports, and integration of child safety education into school curricula**. The importance of accessible legal aid, timely compensation for child victims, and proactive outreach in marginalized communities was also stressed. The consultation called for strengthening institutional coordination, enhancing surveillance, and improving rehabilitation in child labour cases.

NCPCR:

- The National Commission for Protection of Child Rights (NCPCR) is a **statutory body** under the Ministry of Women and Child Development, established in 2007 under the **Commissions for Protection of Child Rights (CPCR) Act, 2005**.
- It works to protect, promote, and defend the rights of children in India, with a focus on ensuring their survival, development, and participation as enshrined under the United Nations Convention on the Rights of the Child (UNCRC) and Indian laws.
- It monitors the implementation of child protection laws such as the **Right to Education Act, 2009, Protection of Children from Sexual Offences (POCSO) Act, 2012, and Juvenile Justice Act, 2015**.
- NCPCR has a **chairperson** who is a person with experience in child rights or related areas and **six members**, including **at least two women**, with expertise in fields such as education, child health, child psychology, juvenile justice and elimination of child labour or children in distress.

- The Chairperson shall be appointed on the recommendation of the three members' committee constituted by the Central government under the chairmanship of Minister of Education.
- The members are appointed by the Central Government. The **central government** may by order remove the chairperson or any other member from office if:
 - Is adjudged insolvent
 - Engages during his term of office in any paid employment outside the duties of his office
 - Refuses to act or becomes incapable of acting
 - Is of unsound mind and stands so declared by a competent court
 - Has so abused his office as to render his continuance in office detrimental to the public interest
 - Is convicted and sentenced to imprisonment for an offense, which in the opinion of the central government, involves moral turpitude

FUNCTIONS AND RESPONSIBILITIES:

- **Addressing Violations of Child Rights:** Take suo moto cognizance of violations of children's rights and intervene in cases involving abuse, trafficking, or exploitation. They investigate violations of child rights and recommend legal proceedings in appropriate cases.
 - The NCPCR has issued guidelines for the assessment of child suspects in heinous offenses to determine whether a child should be treated as a minor or not in criminal cases which come under the "heinous" offences category of the Juvenile Justice Act, 2015.
- **Handling Complaints:** The NCPCR receives and investigates complaints from individuals or groups regarding violations of child rights across the country.
- **Advisory Role to Government:** Provide recommendations to the Central and State Governments on policies, laws, and programs related to child welfare. They report annually and at other intervals to the Central Government on effectiveness of these safeguards.
- **Monitoring Institutions and Facilities:** Oversee child care institutions, schools, juvenile homes, and observation centres to ensure compliance with child protection norms. They inspect institutions where children are detained or reside.
 - National Commission for Protection of Child Rights (NCPCR) declared the mica mines of Jharkhand 'child labour-free' at an event in **Koderma, Jharkhand**. NCPCR

chairperson announced this as the first-ever successful endeavour to cleanse a supply chain of child labour in mica mining.

- **Advocacy and Awareness:** Conduct research, awareness campaigns, and capacity-building programs to promote child rights and sensitize the public about child welfare issues. They examine and review existing safeguards for the protection of child rights and recommend measures for their effective implementation.
 - Taking note of the lack of advanced ambulances equipped with medical emergency facilities and life support systems to cater to the special needs of neonates and infants, NCPCR has asked health ministry to implement draft guidelines on the operationalisation of such ambulances.
- The Commission has been mandated under Section 31 of the Right of Children to Free and Compulsory Education (RTE) Act, 2009 to examine and review the safeguards of the rights provided under the Act and to recommend measures for its effective implementation.
 - NCPCR has recently told the Supreme Court Madrasahs are "unsuitable" places for children to receive "proper education" and the education imparted there is "not comprehensive" and is against the provisions of the Right to Education Act.
- It has been mandated under POCSO Act, 2012 to monitor the designation of Special Courts by State Governments, to monitor the formulation of the guidelines described in section 39 of the Act.
 - POCSO e-box by NCPCR is an online complaint system that allows children to report sexual abuse to NCPCR.
 - Child-Friendly Courts to ensure effective implementation of POCSO through child-friendly courts and special protection units.
- It also has been charged with the monitoring of Child Care Institutions (CCIs) and was instructed to carry out a social audit of the same by the Supreme Court.
 - Baal Swaraj portal for rescue and rehabilitation of children in need of care and protection. Collaborate with law enforcement agencies to combat child trafficking and ensures the rehabilitation of rescued children.

CHALLENGES FACED BY NCPCR:

- **Limited Enforcement Powers:** The NCPCR has **recommendatory powers**, but it lacks **authority to enforce** its decisions. It depends on **other authorities** for action, leading to delays in addressing violations.
 - NCPCR can only advise state governments on child protection matters; it does not have the power to directly intervene in the enforcement of the **POCSO Act** or **Right to Education (RTE) Act**.
- **Inadequate Manpower and Financial Constraints:** The NCPCR suffers from **insufficient staff** and **budgetary limitations**, affecting its ability to monitor child rights violations effectively.
 - In 2019, the **Standing Committee on Human Resource Development** reported that NCPCR's budget allocation was **inadequate** for its expanding responsibilities. This limits the NCPCR's ability to conduct **frequent inspections** of child care institutions and effectively manage complaints.
- **Overlapping Jurisdiction with State Commissions (SCPCRs):** There are **coordination issues** between the NCPCR and the **State Commissions for Protection of Child Rights (SCPCRs)**, leading to **duplication** of efforts or neglect of responsibilities.
 - A report by **HAQ: Centre for Child Rights** highlighted inconsistent coordination between national and state commissions as a bottleneck.
- **Inadequate Monitoring and Follow-up Mechanisms:** Due to limited resources, the NCPCR struggles with **regular monitoring** of child care institutions and schools for compliance with the **RTE Act** and **Juvenile Justice Act**.
 - Several child care institutions in Tamil Nadu were found operating without proper registration, despite NCPCR's mandate to monitor such facilities. In 2018, **84% of child care institutions** audited by NCPCR did not meet the required standards under the JJ Act.
- **Delays in Handling Complaints:** The commission is often overwhelmed with **complaints** regarding child abuse, trafficking, and denial of education, leading to **delays** in redressal.
 - According to NCPCR's annual report, more than **10,000 complaints** were pending for investigation as of 2021, slowing the process of justice delivery.

- **Lack of Awareness and Public Engagement:** Many citizens, especially in **rural areas**, are unaware of the NCPCR's role and functions, limiting its ability to reach vulnerable children.
 - During the **COVID-19 pandemic**, many orphaned children were found begging on the streets, but few complaints were registered with NCPCR due to lack of public awareness.
- **Political and Bureaucratic Interference:** The commission's **independence** is sometimes compromised due to political and bureaucratic interference, affecting its ability to act impartially.
 - Instances have been reported where child rights violations related to **politically sensitive cases** were underplayed or ignored by local authorities, limiting the NCPCR's impact.
- **Inconsistent Implementation of Child Protection Laws:** Although NCPCR is mandated to monitor the implementation of laws like the **POCSO Act** and the **RTE Act**, poor coordination with **law enforcement agencies** and **schools** affects compliance.
 - In 2022, NCPCR identified **5,000+ schools** across India that were violating provisions of the RTE Act, but many schools remained non-compliant even after notices were issued.

UN CONVENTION ON RIGHTS OF A CHILD:

- **Adopted by:** United Nations General Assembly
- **Signatories:** 196 countries including India
- It is the **most widely ratified human rights treaty** in history.
- A **child** is defined as every human being **below the age of 18 years**, unless the laws of a particular country set the legal age for adulthood earlier.

Key Principles of the UNCRC

- **Non-discrimination (Article 2):** All children are entitled to rights without discrimination of any kind—regardless of gender, ethnicity, religion, disability, or background.
- **Best Interests of the Child (Article 3):** All decisions concerning children must prioritize their **best interests**.
- **Right to Life, Survival and Development (Article 6):** Children have an **inherent right to life**, and governments must ensure their **survival and development** to the maximum extent.
- **Right to Participation (Article 12):** Children have the right to **express their views freely** in all matters affecting them and for their opinions to be taken seriously.

India and the UNCRC

- **Ratified** in 1992, India does not consider itself bound by Article 32 (child labour) in light of its socio-economic conditions.
- India has enacted several child-centric laws aligned with the UNCRC:
 - **Protection of Children from Sexual Offences (POCSO) Act, 2012**
 - **Right to Education Act, 2009**
 - **Child Labour (Prohibition and Regulation) Amendment Act, 2016**
 - **Juvenile Justice (Care and Protection of Children) Act, 2015**

POCSO ACT, 2012:

Administered by: Ministry of Women and Child Development (MoWCD)

Applicable to: All children under the age of **18 years**

Designed to address the **growing incidence** of child sexual abuse in India.

Based on the **UN Convention on the Rights of the Child (UNCRC)**, which India ratified in 1992.

Salient Features of the POCSO Act

- **Gender-Neutral Law:** Protects **both boys and girls**, making it **gender-neutral**—a major departure from earlier laws.
- Includes detailed definitions of: **Penetrative sexual assault**, **Aggravated penetrative sexual assault** (e.g., by persons in authority), **Sexual assault**, **Sexual harassment**, **use of children for pornography**.
- **Special Courts for Fast-Track Trials**
- **Child-Friendly Procedures:** In-camera proceedings and avoidance of aggressive cross-examinations. Statement of the child to be recorded at their residence or a place of their choice.
- Enhanced punishment including **death penalty** for aggravated offences.

Important Data (NCRB, 2022)

The Child and Adolescent Labour (Prohibition and Regulation) Act, 1986:

It was substantially amended in **2016** to align with India's commitments under the **UN Convention on the Rights of the Child** and the **ILO Conventions**.

Objective of the Act

- To **prohibit the employment of children** below a certain age in all occupations.
- To **regulate the working conditions of adolescents** (aged 14–18 years).
- To **promote education and rehabilitation** of rescued children.

Salient Features (Post 2016 Amendment)

- **Complete Prohibition of Child Labour:** Children below 14 years cannot be employed in **any occupation or process**.
- **Regulation of Adolescent Labour:** Adolescents (14–18 years) are **allowed to work** but are **prohibited from hazardous occupations and processes**.

Important Data (2023)

- As per Census 2011: **10.1 million child labourers** aged 5–14 years.
- India ratified **ILO Conventions 138 & 182** in 2017 (on minimum age and worst forms of child labour).
- Top child labour states: **Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, Maharashtra**.

<ul style="list-style-type: none"> • 51,863 POCSO cases registered in 2022. • Over 96% of offenders were known to the victims (family, neighbours, etc.). • Conviction rate: ~30% • Case pendency: Over 80% POCSO cases are pending trial in courts. 	
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WAY FORWARD:

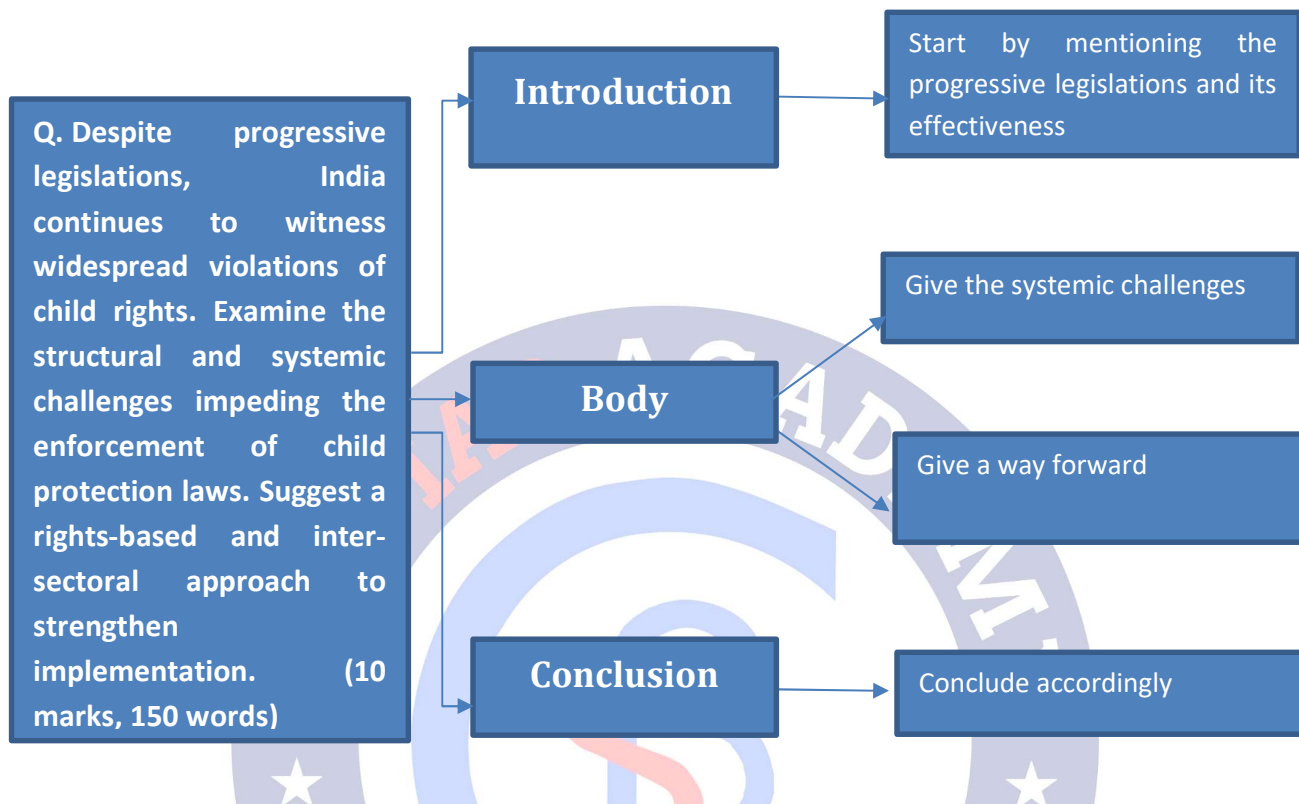
- **Strengthen the Legal and Enforcement Powers of NCPCR:** The Justice Verma Committee (2013) recommended granting more enforcement powers to NCPCR to implement child protection laws more effectively. The Parliamentary Standing Committee on Education (2021) urged for amending the CPC Act, 2005 to give NCPCR penal powers.
- **Improve Coordination between NCPCR and SCPCRs:** Centre for Child Rights report suggested the creation of joint task forces between NCPCR and State Commissions for effective monitoring of child rights.
 - Australia's National Child Protection Framework has a centralized child protection framework with clearly defined roles for state and federal agencies, improving coordination across jurisdictions.
- **Adequate Funding and Resource Allocation:** The Standing Committee on Human Resource Development (2019) emphasized the need for higher budget allocations for NCPCR, given the expanding scope of its responsibilities.
 - Norway's Child Welfare System allocates 3-4% of its GDP to child welfare services, ensuring sufficient resources for child protection efforts.
- **Establish a Centralized Data and Monitoring System:** The CAG Report (2018) suggested developing a centralized digital platform for real-time monitoring of child rights cases across the country.
 - The Federal Railroad Administration (FRA) in the US uses a real-time data platform for monitoring safety incidents, enabling effective policy responses.
- **Focus on Training and Capacity Building:** The Justice P.N. Bhagwati Committee suggested capacity-building programs for NCPCR staff and regular training sessions for law enforcement agencies handling child protection cases.

- UK's National Child Protection Training Program offers continuous professional development (CPD) for social workers and child protection officers, ensuring they stay updated on the latest practices.
- **Strengthen Awareness and Public Engagement:** The National Policy for Children (2013) emphasized the need for public awareness campaigns to sensitize citizens about children's rights and the role of NCPCR.
 - Sweden's Child Helpline Model runs child-friendly helplines and awareness programs, empowering children and parents to report violations proactively.
- **Enhance Monitoring of Child Care Institutions and Schools:** The Madhav Chavan Committee recommended regular audits of child care homes and RTE compliance monitoring in schools to ensure child safety and well-being.
 - Germany's Kinder- und Jugendhilfe Framework mandates periodic inspections of childcare institutions and provides annual audit reports to ensure compliance with child safety norms.
- **Address Gaps in Redressal Mechanisms:** The Parliamentary Committee on Women and Child Development (2021) urged faster redressal of complaints related to child rights violations and recommended setting up regional NCPCR offices for improved access.

PRACTICE QUESTION

Q. Despite progressive legislations, India continues to witness widespread violations of child rights. Examine the structural and systemic challenges impeding the enforcement of child protection laws. Suggest a rights-based and inter-sectoral approach to strengthen implementation. (10 marks, 150 words)

APPROACH



MODEL ANSWER

India has a robust legislative framework for child protection through laws like the **Protection of Children from Sexual Offences (POCSO) Act, 2012** and the **Child and Adolescent Labour (Prohibition and Regulation) Act, 1986**. But NCRB 2022 reports, over 80% POCSO cases are pending trial in courts. Also as per Census 2011, **10.1 million child labourers** aged 5–14 years.

Systemic and Structural Challenges:

1. **Fragmented Implementation:** Disjointed coordination between **police, judiciary, education, labour, and health departments** weakens enforcement.
2. **Judicial Delay and Underreporting:** As per NCRB (2022), over **1.5 lakh POCSO cases** are pending; many victims fear stigma or retribution.
3. **Inadequate Institutional Capacity:** Lack of trained **child welfare officers, forensic support, and child-friendly courts** delays justice and traumatises victims.
4. **Loopholes in Law:** The **“family enterprise” exception** in the Child Labour Act allows disguised child exploitation, particularly in the informal sector.

5. **Poor Rehabilitation and Compensation:** As seen in the NCPCR consultation (May 2024), delays in **compensation disbursement** and limited psychological support hinder victim recovery.
6. **Data Deficiency and Surveillance Gaps:** No real-time data on child labour or abuse in remote regions; **digitisation remains incomplete.**

Way Forward – Rights-Based and Inter-Sectoral Approach:

1. **Integrated Child Protection Systems (ICPS):** Operationalise synergy across **POCSO, JJ Act, CAL Act, RTE, and health and education policies.**
2. **Standardise Medico-Legal and Legal Procedures:** Uniform MLR formats and digital filing across all states as proposed by NCPCR.
3. **School-Centric Prevention Framework:** Include POCSO awareness and child rights in **school curriculum**, train **School Management Committees (SMCs)** and teachers.
4. **Strengthen NCPCR and SCPCRs:** Empower commissions with **monitoring powers**, local presence, and grievance redress mechanisms.
5. **Technology-Enabled Monitoring:** Scale up use of **Baal Swaraj, PENCIL Portal**, and geo-tagged surveillance of high-risk child labour zones.
6. **Child-Centric Legal Aid and Fast-Track Courts:** Establish **dedicated legal aid desks** in child homes and schools; ensure **POCSO Fast Track Courts** function uniformly.

While laws like POCSO and the Child Labour Act represent India's legal commitment to child rights, their potential remains unrealised due to **structural, cultural, and capacity-related bottlenecks.** A **child-sensitive, decentralised, and technology-driven implementation framework**, anchored in community awareness and institutional coordination, is essential for India to move from **protection on paper to justice in practice.**

9. OFFICIAL LANGUAGE

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Constitution

REFERENCE NEWS:

Tamil Nadu has filed a suit under **Article 131** of the Constitution in the **Supreme Court**, accusing the **Central Government** of withholding its **entitled share** under the **Samagra Shiksha Scheme (SSS)**, thereby crippling the implementation of the **Right to Education (RTE) Act, 2009** in the state.

A core issue raised is the state's **resistance to the three-language formula** under **Clause 4.13 of NEP 2020**. Tamil Nadu maintains a **two-language policy (Tamil and English)** and has historically opposed **Hindi imposition**, referencing its **1968 Assembly resolution** and the **Tamil Learning Act, 2006** mandating Tamil education in schools.

OFFICIAL LANGUAGE OF INDIA:

Part XVII of the Indian Constitution comprising **Articles 343 to 351**, deals with the **Official Language** of the Republic of India. It lays down the framework for the **language of communication** between the **Union and States**, language used in **Parliament and judiciary**, and steps for the **development of Hindi** as the national language, while ensuring **protection of linguistic diversity**.

Article 343: Official Language of the Union

- Declares **Hindi in Devanagari script** as the **official language of the Union**. However, **English shall continue** to be used for all official purposes for **15 years** from the commencement of the Constitution (i.e., till 1965), unless extended by Parliament.
- Parliament, by law, can authorize continued use of English. **Official Languages Act, 1963** allows continued use of English beyond 1965.

Article 344: Commission and Committee on Official Language

- Mandates the President to constitute a **Commission after 5 years** (from 1950) to make recommendations on the progressive use of Hindi, restrict use of English, develop vocabulary from Sanskrit and regional languages.

- Also provides for a **Parliamentary Committee** of 30 members to examine the Commission's report.

Articles 345 to 347: Language of State Administration

- **Article 345:** State legislatures can adopt **any one or more official languages**, including Hindi or English, for State purposes.
- **Article 346:** Communication between **one State and another** or between a **State and the Union** is to be in the **language authorized by the Union (generally English)**.
- **Article 347:** The President may recognize **any language spoken by a section of a population** as an official language in that State.

Article 348: Language of the Courts and Acts

- Language used in Supreme Court, High Courts, Acts, Bills, and legal documents **shall be English** unless Parliament provides otherwise.

Article 349: Special Procedure for Language-related Bills

- Restricts Parliament from making changes to language policy in the first **15 years** without Presidential recommendation.

Article 350: Rights of Citizens

- **350A:** States must provide instruction in **mother tongue at primary stage**.
- **350B:** Appointment of a **Special Officer for Linguistic Minorities** to report to the President on safeguarding minority language rights.

Article 351: Directive for Development of Hindi

- Directs the Union to promote the spread and development of **Hindi** to serve as a **link language**, drawing vocabulary from **Sanskrit and regional languages**, but **without imposing it** on non-Hindi speakers.

CLASSICAL LANGUAGE vs OFFICIAL LANGUAGE vs 8th SCHEDULE LANGUAGES:

Classical Languages	Official Language	8th Schedule Languages
Not explicitly mentioned in Constitution	Article 343 (for Union) Article 345 (for States)	Article 344(1) and Article 351

Classical Languages	Official Language	8th Schedule Languages
Declared by Ministry of Culture , based on expert committee recommendations	Official Languages Act, 1963	Constitution of India – 8th Schedule
To recognize and preserve languages with a rich heritage of literature, antiquity, and cultural value	To regulate the language used for official communication by the Union and State governments	To promote the development of major Indian languages; criteria for literary, official and educational promotion
High antiquity (1500+ years) literature, Distinct from modern forms, Rich classical texts “Knowledge Texts: Presence of an original literary tradition not borrowed from another speech community ” was replaced by “ Knowledge texts, especially prose texts in addition to poetry, epigraphical and inscriptional evidence ”.	Based on practical utility and ease of communication within administration	Based on linguistic prevalence , literary cultural relevance
Ministry of Culture , Government of India (on recommendation of expert committee)	Union Parliament (Article 343), State Legislature (Article 345)	Constitutional amendment by Parliament (under Article 368)
11 languages: Tamil (2004), Sanskrit (2005), Kannada (2008), Telugu (2008), Malayalam (2013), Odia (2014), Marathi, Pali, Prakrit, Assamese, Bengali.	Union: Hindi (Devanagari script); English (per Official Languages Act) States: Varies (e.g., Tamil Nadu – Tamil; Maharashtra – Marathi)	22 languages including Hindi, Bengali, Telugu, Tamil, Urdu, Punjabi, etc.
Not used for official work; symbolic and scholarly recognition	Primary means of communication between and within governments	Used in language-based recruitment exams

Classical Languages	Official Language	8th Schedule Languages
		(UPSC, SSC); translation of laws
1. Creation of Centre of Excellence for the language 2. Scholarships for students 3. Professorships in universities	Ensures functionality of administration and legislative work	Promotion through Sahitya Akademi, NCERT curriculum , media and governance

HINDI LANGUAGE IMPOSITION CONTROVERSY IN INDIA:

- **Background and Constitutional Context:** Due to resistance from non-Hindi speaking states, particularly in the South, **English was allowed to continue** for official purposes under the **Official Languages Act, 1963**. **Article 345** allows states to adopt their own official language(s). **Article 351** encourages the promotion of Hindi while respecting linguistic diversity.
- **Historical Roots of the Controversy**
 - **Anti-Hindi Agitations in Tamil Nadu 1937–1940:** First major agitation against the imposition of Hindi in schools under Madras Presidency.
 - **1965:** Violent protests erupted in **Tamil Nadu** when the central government planned to **phase out English** and make **Hindi the sole official language**. Led to the **assurance by PM Lal Bahadur Shastri** and later **Indira Gandhi** that **English would continue indefinitely** as an associate official language.
- **Tamil Nadu's Two-Language Policy:** Tamil Nadu follows a **two-language formula** (Tamil and English), rejecting the Centre's **three-language formula** (Hindi, English, and regional language). **Tamil Nadu Tamil Learning Act, 2006** makes Tamil compulsory from Classes I to X. **Uniform System of School Education Act, 2010** further solidifies this stance.
- **Recent Flashpoints**
 - **National Education Policy (NEP) 2020:** Clause 4.13 of NEP 2020 recommends a **three-language formula**, with emphasis on teaching Hindi in non-Hindi speaking states.
 - **Tamil Nadu, Kerala, West Bengal, and some northeastern states** have strongly opposed this.
 - Tamil Nadu CM M.K. Stalin stated that NEP 2020 was a tool for "**cultural imperialism through language**."
 - **Samagra Shiksha Scheme Dispute (2024–25):** **Tamil Nadu filed a suit under Article 131** alleging that the Centre withheld ₹2,151.59 crore of Samagra Shiksha funds to **coerce adoption of NEP 2020**.

- The State alleged that **refusal to sign the MoU for PM SHRI schools** (which promote full NEP implementation) led to fund blockage. This was termed a **violation of cooperative federalism**.
- **Demographic and Linguistic Data:** Hindi speakers account for **43.63%** of India's population (Census 2011), but **over 56% of Indians are non-Hindi speakers**. There are **22 official languages** in the **Eighth Schedule**, with strong regional identities (e.g., Tamil, Bengali, Telugu, Marathi). **States like Tamil Nadu, Karnataka, Kerala, West Bengal, and the northeastern states** consistently resist imposition of Hindi for cultural and linguistic autonomy.

Cultural Domination	Seen as an attempt to impose North Indian identity over South and Northeast India.
Erosion of Federalism	Imposing Hindi undermines state autonomy in education and language policies.
Discrimination in Jobs	Central exams often conducted in Hindi and English, disadvantaging non-Hindi speakers.
Educational Burden	Adding Hindi to already multilingual education systems increases pressure on students.

CHALLENGES OF THE OFFICIAL LANGUAGE CONTROVERSY AND HINDI IMPOSITION IN INDIA:

Undermining Federalism and State Autonomy

- **Constitutional Violation of Linguistic Autonomy:** Article 345 gives States the power to adopt their own official languages. Imposing Hindi through centrally sponsored schemes or policies violates this federal principle.
- Tamil Nadu's refusal to implement the **three-language formula in NEP 2020** and the Centre's alleged withholding of funds under the **Samagra Shiksha Scheme (2024)** are seen as coercive tactics, infringing upon state rights.

Cultural and Identity Erosion

- **Risk of Linguistic Homogenization:** India's strength lies in its **22 languages (8th Schedule)** and hundreds of dialects. Imposing Hindi can marginalize rich regional languages like Tamil, Bengali, Telugu, and Kannada.
- **Perceived Cultural Imperialism:** In states like Tamil Nadu, the push for Hindi is seen as **North Indian cultural dominance**, leading to **historical agitations** (e.g., Anti-Hindi protests in 1965, 2019, and 2020).

Alienation and Regional Backlash

- **Resentment in Non-Hindi States:** Resistance is strongest in **South India, West Bengal, and North East India**, where languages have deep cultural roots and strong literary traditions.
- **Political Fallout:** Language-based issues have fuelled regional politics, leading to **rise of identity-based parties** (e.g., DMK in Tamil Nadu), straining Centre-State relations.

Inequality in Education and Employment

- **Disadvantage in Central Exams:** Hindi-speaking students might have an advantage in **UPSC, SSC, and central services**, where exams are held in Hindi and English. Non-Hindi-speaking candidates must learn a third language to compete fairly.
- **Case in Point:** Demand for civil service exams and JEE/NEET in **regional languages** (like Tamil or Telugu) reflects this systemic disparity.

Weakening of Cooperative Federalism

- **Top-down Imposition:** Schemes like **PM SHRI Schools**, which showcase NEP 2020 compliance, are tied to funding — indirectly pressuring states to adopt Hindi-friendly policies.
- **Violation of Spirit of Part XVII:** Article 351 directs the promotion of Hindi without harming other languages—yet aggressive promotion contradicts this intent.

Threat to Linguistic Minorities and Social Harmony

- **Neglect of Non-Scheduled Languages:** Over **190 languages** have fewer than 10,000 speakers (Census 2011), and 21 have already become extinct since 2001. Promotion of a single dominant language exacerbates this loss.
- **Potential for Social Polarisation:** Language-related tensions can spark protests and unrest, especially in culturally sensitive states.

WAY FORWARD:

Reinforce Constitutional Safeguards and Federal Principles

- **Uphold Articles 345 and 351:** Respect states' autonomy to choose their **official languages**, while ensuring **promotion of Hindi** does not infringe on **other languages**. The promotion of Hindi should not result in **compulsion or marginalisation** of non-Hindi languages.

Adopt a Flexible and Inclusive Language Policy

- **Voluntary Three-Language Formula:** Ensure the three-language formula in education is **flexible, non-compulsory**, and based on **local linguistic preferences**.
- **Support Regional Language Medium:** Promote **regional languages** as mediums of instruction and governance, including in **NEET, JEE, and UPSC** exams.

Implement Committee Recommendations

- **Justice G. Rajagopala Ayyangar Committee (1959):** Recommended a **bilingual policy** for the Union (Hindi and English) until **non-Hindi states accept Hindi voluntarily**.
- **Committee of Parliament on Official Language (Latest report: 2022):** Suggested **Hindi as the medium of instruction** in central institutions in Hindi-speaking states. Accept the recommendation **only where states consent**. Avoid implementation in non-Hindi states to preserve harmony.
- **National Integration Council Recommendations:** Emphasized promoting **linguistic tolerance** and **equal respect** to all languages to strengthen national unity.

Strengthen the Role of the Commissioner for Linguistic Minorities

- Ensure **timely reporting** and action on violations of **minority language rights** under **Article 350B**.
- Enhance the Commission's **independence**, funding, and ability to take **suo motu action**.

Promote Multilingualism Through Incentives, Not Imposition

- Provide **financial and academic incentives** for the study of **Hindi and regional languages** alike, without penalising states that opt out.
- Set up **National Translation Missions** to make **educational content accessible** in all 22 official languages under the **8th Schedule**.

Preserve and Promote Linguistic Heritage

- **Document and Revive Endangered Languages:** As per the People's Linguistic Survey of India, India has over **780 languages**, with many nearing extinction.
- Promote classical and tribal languages through **Sahitya Akademi, NCERT**, and the **Classical Language Scheme** of the Ministry of Culture.

Build Consensus Through Dialogue and Cooperation

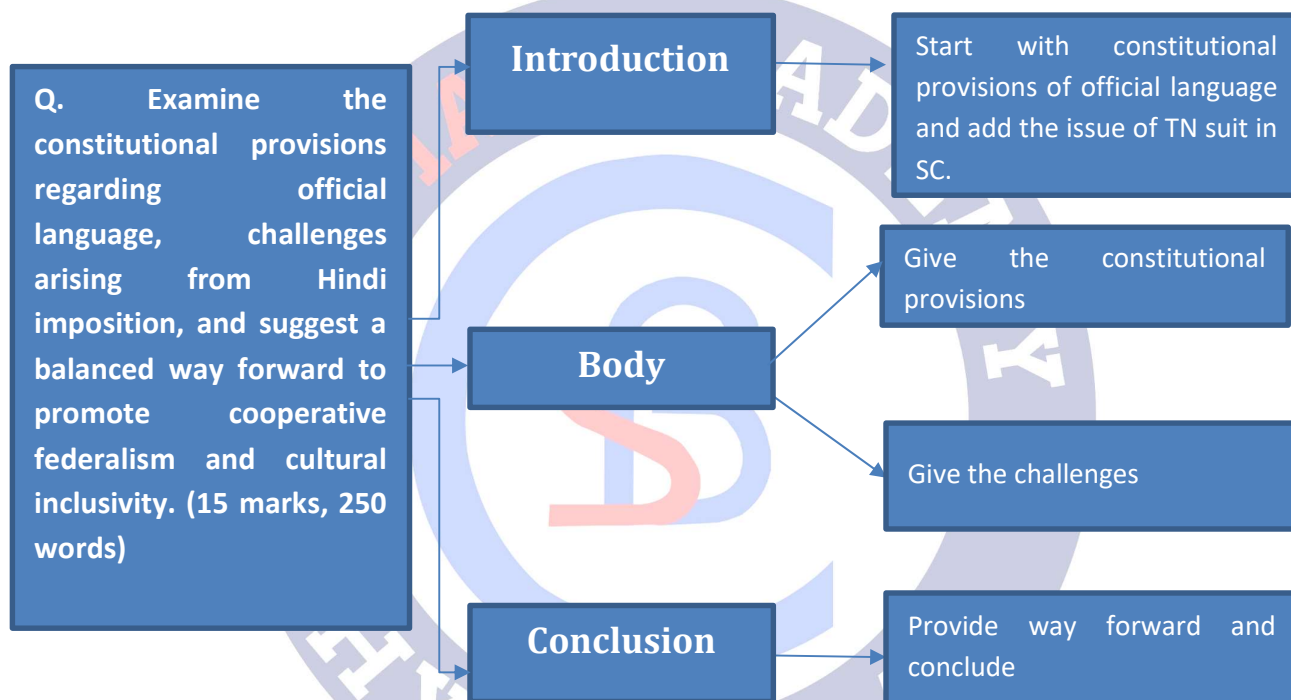
- Establish a **National Language Harmony Commission** with representatives from all states, linguistic experts, and civil society to facilitate consensus on language use in education

and governance. Mediate in disputes between the Centre and states (e.g., Tamil Nadu's Article 131 suit). Periodically review and update language policy frameworks.

PRACTICE QUESTION

Q. Examine the constitutional provisions regarding official language, challenges arising from Hindi imposition, and suggest a balanced way forward to promote cooperative federalism and cultural inclusivity. (15 marks, 250 words)

APPROACH



MODEL ANSWER

While **Article 343** of the Constitution declares **Hindi in Devanagari script** as the **official language of the Union**, the continued use of **English** under the **Official Languages Act, 1963**, and the **freedom granted to states under Article 345** reflect India's federal and linguistic plurality. Recent disputes—such as **Tamil Nadu's suit under Article 131**—highlight rising tensions between the Union's push for Hindi promotion and states' linguistic autonomy.

Constitutional Provisions:

- **Articles 343–351 (Part XVII)** deal with language policy.

- **Article 343:** Hindi is the Union's official language; English may continue.
- **Article 345:** States may adopt their own official languages.
- **Article 351:** Directs the Union to promote Hindi *without harming other languages*.
- **Article 350A/B:** Protects the right to education in mother tongue and appoints a Commissioner for Linguistic Minorities.
- **8th Schedule of the constitution mentions 22 languages of India.**

Challenges and Controversies:

1. **Federal Tensions and Coercive Policies:** Tamil Nadu's claim that ₹2,151 crore under the **Samagra Shiksha Scheme** was withheld due to non-compliance with **NEP 2020** reflects the use of funds to enforce compliance. Imposition through schemes like **PM SHRI Schools** undermines **state autonomy**.
2. **Resistance to the Three-Language Formula:** Clause 4.13 of NEP 2020 recommends mandatory Hindi teaching, opposed by states with strong regional languages like Tamil Nadu, Kerala, and West Bengal. **Tamil Nadu** follows a **two-language policy** (Tamil and English) under the **Tamil Learning Act, 2006**.
3. **Cultural and Linguistic Identity Erosion:** Seen as an attempt to impose **North Indian identity** on diverse linguistic cultures. Reignites memories of **anti-Hindi agitations of 1965**, especially in Tamil Nadu.
4. **Inequity in Central Recruitment & Education:** UPSC, JEE, and NEET exams are often not fully accessible in regional languages, disadvantaging non-Hindi speakers.
5. **Neglect of Endangered Languages:** Over **190 Indian languages** have fewer than 10,000 speakers; 21 have gone extinct since 2001 (Census 2011).

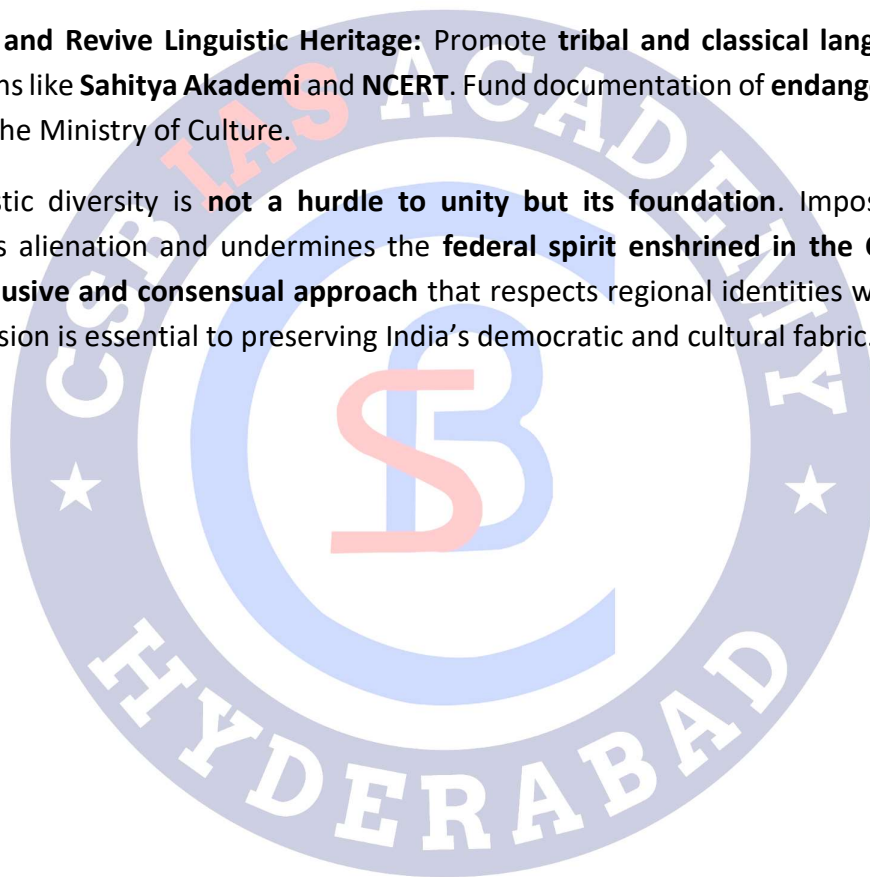
Way Forward:

1. **Reinforce Federal and Constitutional Principles:** Respect **Article 345** allowing states to choose their own official language. Ensure that **Article 351's** directive to promote Hindi does not override linguistic diversity.
2. **Implement Committee Recommendations:** **Justice Rajagopala Ayyangar Committee (1959):** Hindi promotion should be voluntary, not coercive. **Parliamentary Committee on Official Language (2022):** Its recommendation for Hindi in central institutions should apply

only where there is consensus. National Integration Council: Promote mutual respect and tolerance for all languages.

3. **Strengthen Institutional Safeguards:** Empower the **Commissioner for Linguistic Minorities** under Article 350B to act on violations. Establish a **National Language Harmony Commission** to mediate disputes and foster consensus.
4. **Promote Multilingualism:** Encourage **translation missions**, e-content creation, and medium of instruction in **regional languages**. Conduct **national exams in all 8th Schedule languages** to ensure equitable access.
5. **Preserve and Revive Linguistic Heritage:** Promote **tribal and classical languages** through institutions like **Sahitya Akademi** and **NCERT**. Fund documentation of **endangered languages** through the Ministry of Culture.

India's linguistic diversity is **not a hurdle to unity but its foundation**. Imposing any single language risks alienation and undermines the **federal spirit enshrined in the Constitution**. A balanced, **inclusive and consensual approach** that respects regional identities while promoting national cohesion is essential to preserving India's democratic and cultural fabric.



10. PRESIDENTIAL REFERENCE UNDER ARTICLE 143

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Polity

REFERENCE NEWS:

- Recently, President Droupadi Murmu, has made a reference to the Supreme Court, **under Article 143 of the Constitution**, on certain questions of law and has sought its opinion on those questions.

MORE ON NEWS:

- The current reference is a result of a **recent Supreme Court judgment** that had **specified timelines for Governors and the President to act on Bills** passed by State legislatures.
- The court had also held that **decisions by Governors and the President** on such Bills are **subject to judicial review**.
- The present reference has **raised 14 questions**, primarily surrounding the interpretation of **Articles 200 and 201**, for the court's opinion.
- The government has raised questions regarding the **authority of the courts to prescribe timelines** when they are **not specified in the Constitution**.
- It has questioned whether the **actions of Governors and the President** can be made justiciable at a stage **prior to the enactment of a Bill into a law**.
- The reference also seeks opinion on the extent of powers that can be exercised by the Supreme Court **under Article 142**.
- **Political differences** between the **Union government and Opposition-ruled State governments** have been the principal reason for this conflict.

- **Article 200 deals with** the Governor's powers to assent to, withhold, return (if not a money bill), or reserve for the President any Bill passed by the State Legislature.

- **Article 201** deals with the President's options on such reserved Bills—assent, withholding, or returning it for reconsideration—without specifying any time limits for action.
- **Article 142** of the Indian Constitution empowers the **Supreme Court** to **pass any decree or order necessary for doing complete justice** in any case before it. This includes:
 - **Broad discretionary power** to ensure justice is served, even if no specific law provides for it.
 - The Court's orders under this Article are **binding across the country** and enforceable like law.

PRESIDENTIAL REFERENCE UNDER ARTICLE 143:

- **As per Article 143**, the President may refer **any question of law or fact of public importance** to the Supreme Court **for its opinion**.
- The President makes such a reference based on the **advice of the Union council of ministers**.
- **Article 145** of the Constitution provides that any such reference shall **be heard by a bench of minimum five judges**.
- The Supreme Court may provide its opinion after such hearing as it thinks fit. The **opinion is legally not binding on the President**, and does not hold a precedential value for the courts to follow in subsequent cases.
- However, **it carries a strong persuasive value** and is usually followed by the executive and the courts.

Under Article 143(1), the **Supreme Court is not constitutionally obligated to answer** a Presidential reference and may decline to give an opinion if it finds the questions inappropriate or unnecessary—as **it did in the 1993 Ram Janmabhoomi case**. However, **under Article 143(2)**, which pertains to **disputes arising out of pre-Constitution treaties and agreements**, the Court is **required to give its opinion**.

- The advisory jurisdiction of the Supreme Court under Article 143 is a relic of the **Government of India Act, 1935**.

- It vested the **Governor-General with discretionary power** to refer any question of law of public importance to the **federal court for its opinion**.
- A similar provision is available in the **Canadian constitution**. This mechanism allows the Supreme Court of Canada to offer opinions on legal questions referred to it by the federal or provincial governments.
- The **U.S. Supreme Court on the other hand has consistently declined** to provide any advisory opinion to the executive as **it would violate the strict separation of powers** envisaged in its constitution.

NOTABLE PAST PRESIDENTIAL REFERENCES:

- **Delhi Laws Act Case (1951)** – Defined the scope of **delegated legislation**.
- **Kerala Education Bill (1958)** – Balanced **Fundamental Rights** with **Directive Principles**, especially under Article 30.
- **Berubari Case (1960)** – Held that **ceding Indian territory** requires a **constitutional amendment**.
- **Keshav Singh Case (1965)** – Clarified the **powers and privileges** of legislatures.
- **Presidential Poll Case (1974)** – Affirmed elections should proceed despite **vacancies** in electoral colleges.
- **Special Courts Bill (1978)** – Asserted the court's discretion to **decline vague or inappropriate references**.
- **Third Judges Case (1998)** – Laid the foundation for the **judicial collegium system**.

Exception: The **Ram Janmabhoomi reference (1993)** is the **only case** where the Supreme Court **declined to render an opinion**.

SIGNIFICANCE OF PRESIDENTIAL REFERENCES UNDER ARTICLE 143:

- **Strengthening Democratic Governance:**
 - Article 143 references help resolve ambiguities that can stall governance.

- For instance, the current reference concerning **Articles 200 and 201** addresses delays in **assent to State Bills** by Governors and the President—an issue with serious implications for the democratic process in the States.
- By clarifying these timelines, the reference supports **smooth legislative functioning** and prevents political misuse of constitutional discretion.
- **Ensuring Executive Accountability:**
 - References under Article 143 ensure that the executive functions within **constitutional limits**, preventing overreach.
 - For example, the **Kerala Education Bill (1958)** reference guided how to interpret **Directive Principles** alongside **Fundamental Rights**, helping align policy decisions with constitutional values.
 - Such interventions uphold **constitutional morality**—ensuring that power is exercised responsibly and with integrity.
- **Boosting India's Global Image:**
 - Using institutional mechanisms like Article 143 reflects **mature democratic governance**.
 - It shows the world that India resolves **constitutional tensions within its own framework peacefully and transparently**.
- **Strengthening Federalism:**
 - Article 143 supports cooperative federalism by resolving tensions **between the Centre and States**.
 - For instance, the **Cauvery Water Dispute Reference (1992)** is a key example where the Supreme Court clarified the limits of judicial review in such matters, preventing escalation while respecting State rights.
 - It protects the **federal structure** from political interference and legal confusion.
- **Encouraging Judicial Reform:**
 - Advisory references have led to **institutional innovations** within the judiciary.

- For example, in the **Third Judges Case (1998)**, the Court used Article 143 to shape the **Collegium system** for judicial appointments, thus strengthening judicial independence from the executive.
- This demonstrates how Article 143 empowers the Court to play a **creative constitutional role** beyond conventional adjudication.
- **Providing Legal Clarity:**
 - Presidential references provide authoritative answers on **complex constitutional questions** that might otherwise be contested in multiple lawsuits.
 - For instance, In the **Berubari Union Case (1960)**, the Court clarified that transferring Indian territory requires a **constitutional amendment**, thus settling a sensitive issue in foreign policy.
- **Upholding Rule of Law Neutrally:**
 - Article 143 allows the Supreme Court to give **legal guidance without a confrontational lawsuit**.
 - This helps avoid politicization of judicial processes while still preserving the **constitutional order**.
 - It maintains the **neutrality and credibility** of the Court on national issues.
- **Reducing Litigation Burden:**
 - By resolving doubts before they escalate into litigation, Article 143 **prevents future court battles**.
 - This is crucial given the Supreme Court's **heavy caseload**.
 - **As of January 2025**, the **Supreme Court of India has 82,922 pending cases**, with 64,687 (78%) being civil matters and 18,235 (22%) criminal cases. (Source: National Judicial Data Grid (NJDG))
 - Early advisory opinions can significantly **reduce judicial workload** and improve efficiency.

KEY CHALLENGES IN THE PRESIDENTIAL REFERENCE SYSTEM:

- **Non-Binding Nature of Advisory Opinions:**

- The Supreme Court's opinions under Article 143 are advisory and not legally binding.
- This **non-binding nature can limit the practical impact** of the Court's advice, as the executive is not obligated to act upon it.
- For instance, in the 2025 reference concerning gubernatorial assent to state bills, the **Court's opinion may not compel any change in executive behavior.**
- **Potential for Political Instrumentalization:**
 - There is a risk that the **executive may use Article 143 to defer difficult decisions or shift responsibility to the judiciary.**
 - In politically sensitive periods, such references might be employed to dilute public accountability or delay contentious policy actions.
 - For instance, the recent reference has been viewed by some as **an attempt by the Union government to challenge the judiciary's authority and influence the political narrative**, especially concerning the Tamil Nadu Governor's delay in assenting to state legislation.
- **Lack of Clear Threshold for Referral:**
 - The Constitution does not specify the circumstances under which the President should seek the Supreme Court's opinion, leading to ambiguity.
 - This lack of clarity can result in inconsistent use of Article 143, with decisions **influenced by political considerations rather than constitutional necessity.**
- **Judicial Caution in Advisory Jurisdiction:**
 - The Supreme Court has, at times, exercised caution in responding to presidential references, especially when the questions posed are vague or politically sensitive.
 - **In the Special Courts Bill case (1978)**, the Court emphasized that it could decline to answer a reference if the questions were not specific or if they encroached upon the functions of the legislature.
- **Challenges in Enforcing Advisory Opinions:**
 - Even when the Supreme Court provides an advisory opinion, there is **no mechanism to enforce compliance.**

- This limitation was evident in the aftermath of the 2025 reference, where the Court's opinion on setting timelines for gubernatorial assent **did not result in immediate legislative or executive action**, highlighting the advisory opinion's limited practical impact.
- **Risk of Undermining Judicial Authority:**
 - Frequent or strategic use of Article 143 by the executive could potentially undermine the judiciary's authority.
 - If the executive selectively seeks advisory opinions and then chooses not to act on them, it may erode the perceived sanctity and influence of the Supreme Court's guidance, leading to questions about the judiciary's role in the constitutional framework.

WAY FORWARD:

- **Codify Guidelines for References:** Parliament or the Supreme Court (through procedural rules) can consider laying down **clear criteria or thresholds** for when and how a Presidential reference should be made. This would reduce arbitrariness and political misuse.
- **Strengthen Follow-up Mechanisms:** Though advisory, **institutional mechanisms** should be developed to **publicly report and monitor** how the executive responds to the Court's opinions under Article 143, improving accountability.
- **Ensure Judicial Discretion is Respected:** The judiciary must retain its **discretion to accept or decline references**, especially if they are politically motivated or seek to undermine settled law. This ensures that the advisory jurisdiction is not turned into a tool for political maneuvering.
- **Promote Institutional Dialogue:** Regular consultation and dialogue between the **executive and judiciary**—outside of Article 143—can reduce the need for contentious references and promote cooperative constitutional functioning.
- **Public Awareness and Transparency:** Increasing **public understanding** of Article 143 and how it works can generate democratic pressure for sincere use of the mechanism, ensuring it serves the **public interest** rather than political expediency.

CONCLUSION:

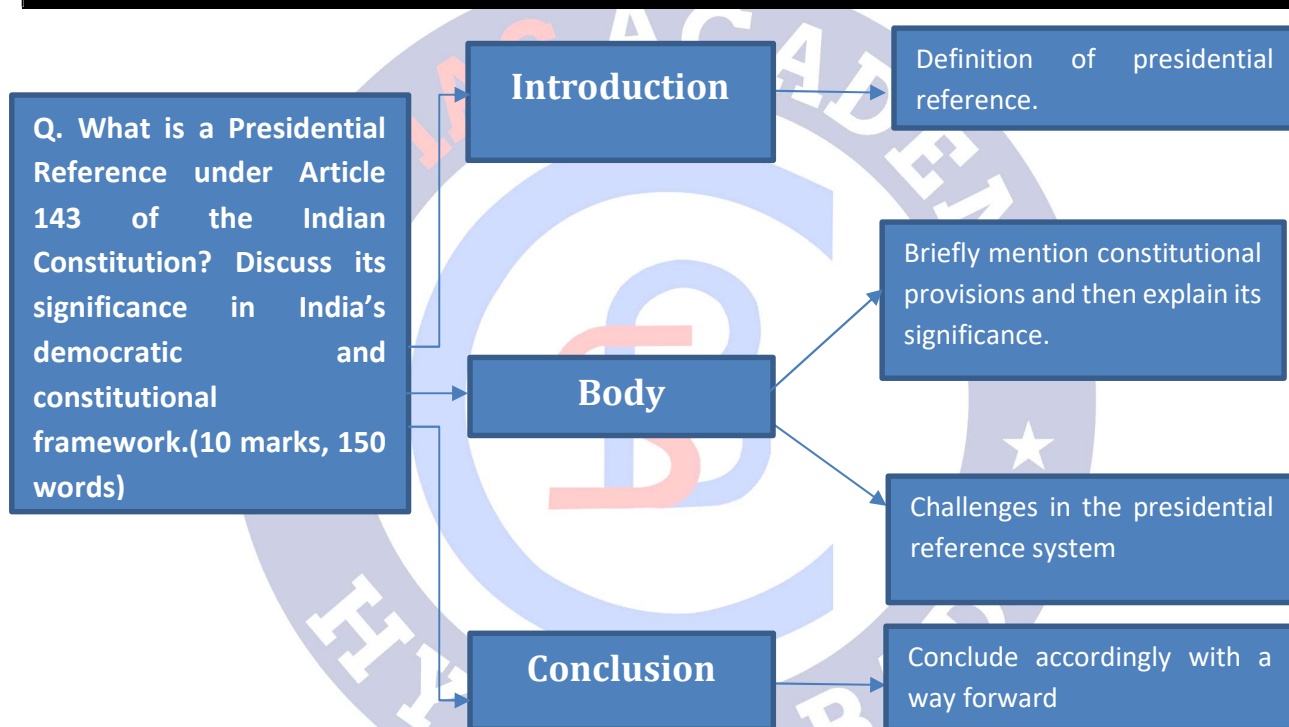
- The Presidential reference under Article 143 is a valuable tool for resolving constitutional uncertainties and promoting institutional dialogue. While it has historically aided

governance, **its misuse or disregard can weaken judicial authority and constitutional balance**. To preserve its utility, it must be invoked judiciously, with transparency and respect for the Court's advisory role—ensuring it strengthens, rather than strains, India's democratic framework.

PRACTICE QUESTION

Q. What is a Presidential Reference under Article 143 of the Indian Constitution? Discuss its significance in India's democratic and constitutional framework.(10 marks, 150 words)

APPROACH



MODEL ANSWER

A **Presidential Reference** under **Article 143** empowers the **President of India**, on the advice of the Council of Ministers, to seek the **advisory opinion of the Supreme Court** on any question of law or fact of public importance.

As per **Article 145**, such references are heard by a minimum five-judge bench. While the **opinion is not binding**, it carries **strong persuasive value**. Recently, **President Droupadi Murmu** invoked Article 143 to seek the Court's view on timelines for Governors and the President to act on State Bills under **Articles 200 and 201**, and the **scope of judicial review and Article 142**.

Significance of Presidential Reference:

1. **Clarifies Constitutional Ambiguity:** For instance, the **2025 reference** seeks clarity on whether the courts can prescribe timelines for executive action in legislative processes.
2. **Strengthens Federalism:** Helps resolve Centre–State tensions, as seen in the **Cauvery Water Dispute Reference (1992)**.
3. **Promotes Executive Accountability:** References like the **Kerala Education Bill (1958)** reinforced harmony between governance and constitutional values.
4. **Enables Judicial Innovation:** The **Third Judges Case (1998)** evolved the **Collegium system**, shaping judicial independence.
5. **Reduces Future Litigation:** Early clarification of constitutional issues, especially amid over **82,000 pending cases (2025)**, aids in easing judicial workload.

Challenges in the System:

1. **Non-binding Nature:** SC's advisory opinions are not enforceable, limiting their practical impact.
2. **Political Misuse:** References may delay action or shift blame, as seen in the TN Governor case.
3. **Lack of Clear Criteria:** No defined threshold for invoking Article 143 allows arbitrary use.
4. **Judicial Overreach or Avoidance:** Courts may hesitate or overstep, as in the Special Courts Bill (1978) or Ram Janmabhoomi (1993).
5. **No Follow-up Mechanism:** Absence of institutional accountability reduces the relevance of SC's advice.

Way Forward

- **Codify Referral Guidelines** to prevent misuse.
- **Establish Monitoring Mechanisms** for implementation of opinions.
- **Ensure Judicial Discretion** in accepting or rejecting references.
- **Foster Institutional Dialogue** outside litigation to avoid conflicts.
- **Raise Public Awareness** on constitutional processes and their purpose.

Presidential References under Article 143 remain a **vital tool for constitutional interpretation**, federal cooperation, and democratic governance. Their responsible use—guided by transparency, restraint, and institutional respect—can reinforce the **balance of power** and uphold **constitutional morality** in India's democracy.

11. HUMAN DEVELOPMENT REPORT

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Social justice > Human Resources > Human Development Index

REFERENCE NEWS:

- In the 2025 Human Development Report, 'A Matter of Choice: People and Possibilities in the Age of AI', released recently, India ranks 130 out of 193 countries, up from 133 in 2022.
- It registered an HDI value increase to 0.685 in 2023 from 0.676 in 2022.

KEY HIGHLIGHTS – HUMAN DEVELOPMENT REPORT 2025:

Global Findings

- **Stalled Human Development Progress:**
 - Global HDI growth was the **smallest since 1990**, excluding 2020–2021 crisis years.
 - If **pre-COVID trends** had continued, most countries were on track to reach **very high human development by 2030** — this target is now **likely delayed by decades**.
- **Top and Bottom HDI Rankings(2023 data, reported in HDR 2025):**
 - **Top Performers:** Iceland (0.972), Norway (0.970), and Switzerland (0.970) lead the world in human development, reflecting excellence in income, education, and life expectancy.
 - **Bottom Performers:** South Sudan (0.388), Somalia (0.404), and Central African Republic (0.414) remain the lowest ranked due to conflict, poor infrastructure, and governance issues.

LEADERBOARD

HDI ranking and value (2023)

Rank	Country	HDI value
1	Iceland	0.972
2	Norway	0.970
2	Switzerland	0.970
4	Denmark	0.962
5	Germany	0.959
5	Sweden	0.959
7	Australia	0.958
8	Hong Kong, China (SAR)	0.955
8	Netherlands	0.955
17	United States	0.938
130	India	0.685

HDI: Human Development Index
Source: UNDP Human Development Report 2025

- Countries like **North Korea and Monaco** were not ranked due to data unavailability.
- **Growing Inequality**
 - **HDI disparity is widening:** High-HDI countries continue progressing; low-HDI countries are stagnating or regressing.
 - **40% of global trade in goods** is dominated by just three countries, indicating **economic concentration**.
- **AI and the Future of Work**
 - **1 in 5 people globally** are already using **AI tools**.
 - **60% believe AI will create jobs**, but nearly **half fear job loss or transformation** due to AI.
 - The report emphasizes **human-centered AI policies** to **ensure inclusive benefits** and **prevent job displacement or inequality**.

India-Specific Highlights:

- **India's Rank and HDI Value:**
 - **India ranked 130 in 2023**, improving from 133 in 2022.
 - **HDI value increased from 0.676 to 0.685**, moving closer to the "**high human development**" threshold of 0.700.
 - India remains in the "**medium human development**" category.
- **Regional Comparison:**
 - Countries ranked above India:
 - **China (78th), Sri Lanka (89th), Bhutan (125th)**
 - Countries at or below India's level:
 - **Bangladesh (130th), Nepal (145th), Myanmar (150th), Pakistan (168th)**

- **Health Improvements:**
 - **Life expectancy rose to 72 years in 2023** — India's **highest ever**, up from 58.6 years in 1990 and 67.7 in 2022. This increase reflects **strong post-pandemic recovery**.
 - Supported by national health programs such as:
 - **Ayushman Bharat**
 - **National Health Mission (NRHM)**
 - **Janani Suraksha Yojana (JSY)**
 - **Poshan Abhiyaan**
- **Education Progress:**
 - **Expected years of schooling** increased to **13 years**, up from **8.2 years in 1990**.
 - **Mean years of schooling** rose from **6.57 to 6.9**.
 - Driven by:
 - ★ **Right to Education Act (2009)**
 - **National Education Policy (NEP) 2020**
 - **Samagra Shiksha Abhiyan**
 - **Quality and learning outcomes**, however, still require attention.
- **Income Growth:**
 - **Gross National Income per capita** has risen from **\$2,167.22 in 1990** to **\$9046.76 in 2023**— a fourfold increase.
 - Reflects a **resilient economy**, supported by:
 - **Jan Dhan Yojana**
 - **MGNREGA**
- **Multidimensional Poverty Reduction:**
 - **135 million Indians** escaped **multidimensional poverty** between **2015–16** and **2019–21**, as per **NITI Aayog** and **UNDP**.

- **Inequality and HDI Loss:**
 - **India's Inequality-Adjusted HDI (IHDI)** falls from 0.685 to **0.475** — a **30.7% drop**, one of the **highest in Asia**.
- **Gender Inequality:**
 - **Female HDI = 0.631 vs Male HDI = 0.722** → **Gender Development Index (GDI) = 0.874**
 - **India ranks 102nd** on the **Gender Inequality Index (GII)** with a score of **0.403**
 - **Female labour force participation** reached **41.7%**, but still below global average.
- **AI and Technological Growth:**
 - **India retains 20% of global AI researchers** (up from nearly zero in 2019).
 - Has the **highest AI skills penetration globally**.
 - AI is being used in:
 - **Crop advisories and insurance delivery**
 - **Healthcare diagnostics**
 - **Skills training in regional languages**
 - **Governance services using local languages**
 - AI is seen as a **development multiplier**.

ABOUT HUMAN DEVELOPMENT REPORT:

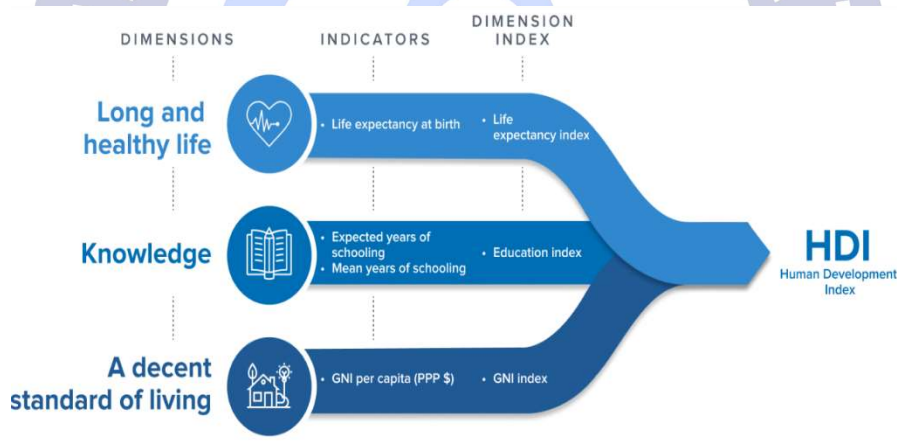
- Human Development Reports (HDRs) have **been released most years since 1990** and have **explored different themes** through the human development approach.
- They have had an **extensive influence on development debate worldwide**.
- The reports, produced by the **Human Development Report Office for the United Nations Development Programme (UNDP)**, is ensured of editorial independence by the United Nation's General Assembly. Indeed they are **seen as reports to UNDP, not of UNDP**.
- This allows each report **greater freedom to explore ideas and constructively challenge policies**.

WHAT IS HUMAN DEVELOPMENT APPROACH?

- In 1990 the first Human Development Report introduced a new approach, the human development approach, for advancing human wellbeing.
- Human development or the human development approach is about **expanding the richness of human life**, rather than simply the richness of the economy in which human beings live.
- It is an approach that is **focused on people and their opportunities and choices**.

HUMAN DEVELOPMENT INDEX (HDI):

- Pakistani economist **Mahbub ul Haq** created **HDI in 1990** which was further used to measure the country's development by the United Nations Development Program (UNDP).
- The Human Development Index (HDI) is a summary measure of average **achievement in key dimensions of human development**:
 - A long and healthy life
 - Being knowledgeable
 - A decent standard of living.
- The **HDI is the geometric mean** of normalized indices for each of the **three dimensions**.



SIGNIFICANCE OF HUMAN DEVELOPMENT INDEX (HDI):

- **Reoriented the idea of development:**

The HDI was created to emphasize that **people and their capabilities should be the ultimate criteria** for assessing the development of a country, **not economic growth alone**.

- **Broader concept of well-being:**

HDI embodies **Amartya Sen's "capabilities" approach** to understanding human well-being, which emphasizes the importance of ends (like a decent standard of living) over means (like income per capita).

- **Tool for evaluation:**

The HDI can be used to question national policy choices, **asking how two countries with the same level of GNI per capita can end up with different human development outcomes.** These contrasts can stimulate debate about government policy priorities.

THE SHORTCOMINGS OF HDI:

- **Quantitative measurement:**

HDI ignores the qualitative measurement of life.

For instance, HDI considers **only the number of years of schooling**, but **not qualitative factors** like teacher-pupil ratio; Health parameter does not consider gender disparities, child health etc.

- **Conceals disparities:**

HDI values are averages that conceal wide disparities in overall population.

For instance, **Saudi Arabia has high per capita GDP** and this puts it in the very high human development category. However, **in Saudi Arabia there is greater inequality between men and women** when considering access to education and political power.

- **Neglects sustainability:**

HDI has neglected links to sustainability by failing to investigate the impact on the natural system of the activities that potentially contribute to national income and hence to HDI.

- **Equal weight:**

In preparing HDI equal weight of 1/3 is given to each of the three variables. Since these **three components of HDI are measured in different units**, to give **equal weight to each component of HDI does not make much sense.**

- **Trade-off between indicators:**

As countries could achieve the **same HDI through different combinations** of life expectancy and GNI per capita, the index portrays a flawed picture. Eg: **Cuba is categorised as High human development country despite having low per capita income due to its excellent healthcare system.**

WAY FORWARD:

- **Broaden the HDI criteria** by incorporating additional indicators such as **unemployment rates, access to social protection, and digital inclusion.**
- **Integrate inequality measures** more robustly, such as the **Gini coefficient, gender parity metrics, and social mobility indicators.**
- Include **qualitative dimensions** like **quality of education, child health outcomes, and access to justice.**
- Embed **sustainability concerns** by factoring in **carbon emissions, natural resource use, and climate resilience** into the development framework.
- Develop **complementary indices**, such as the **Multidimensional Poverty Index (MPI)** and **Gross National Happiness (GNH)**, to capture a fuller picture of well-being.

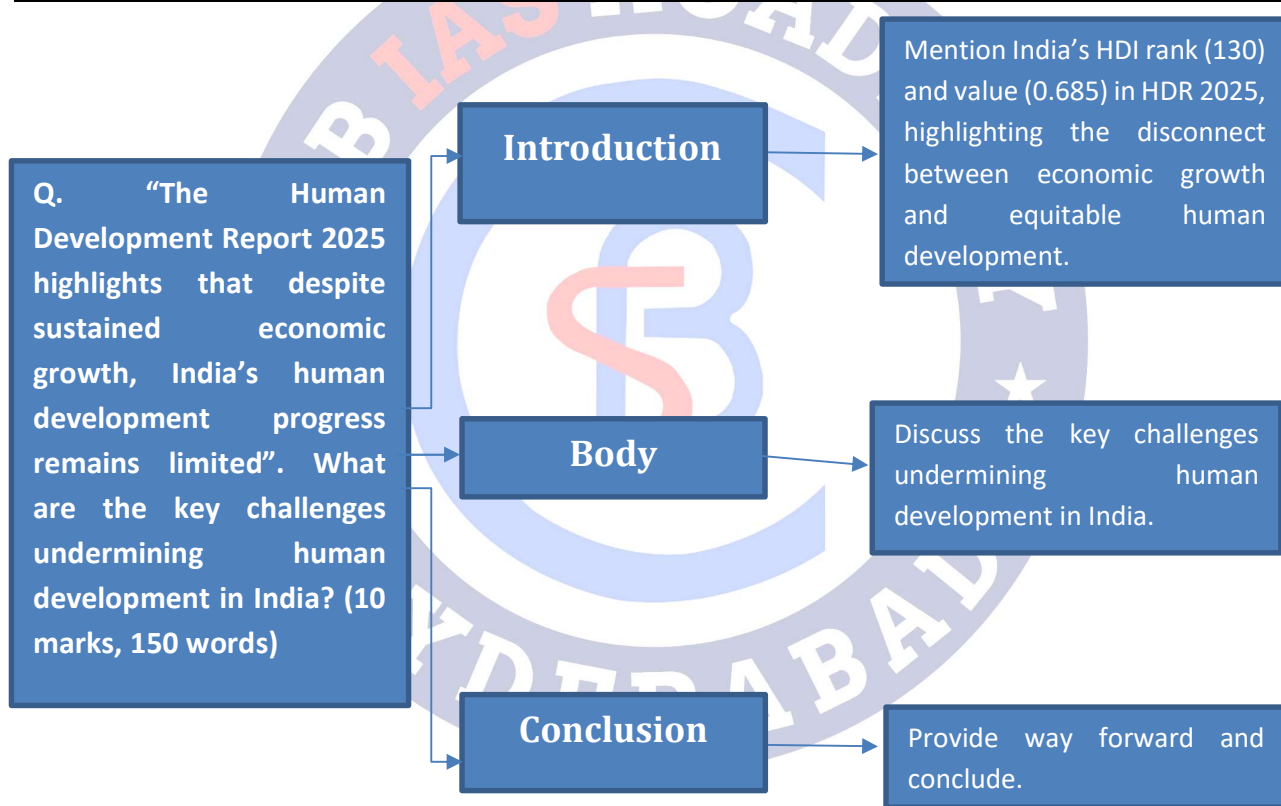
CONCLUSION:

- While the HDI is not without limitations, it remains a powerful and intuitive tool to shift the global focus from economic growth alone to human-centric development. With thoughtful updates and the inclusion of qualitative, equity, and sustainability parameters, the HDI can evolve into an even more comprehensive and inclusive measure of progress.

PRACTICE QUESTION

Q. “The Human Development Report 2025 highlights that despite sustained economic growth, India’s human development progress remains limited”. What are the key challenges undermining human development in India? (10 marks, 150 words)

APPROACH



MODEL ANSWER

Despite being the **world’s fifth-largest economy**, India ranks **130** out of 193 countries in the **Human Development Index (HDI) 2023**, according to the Human Development Report (**HDR**) **2025**. While its HDI value rose from 0.676 to 0.685, India remains in the “**medium human development**” category and **lags behind neighbours** like China (78th) and Sri Lanka (89th).

Despite economic growth, human development in India is constrained by deep-seated structural challenges.

Key Challenges Undermining Human Development in India:

1. Income Disparity

- According to the **Oxfam 2021 “Inequality Virus” Report**, the **top 10%** of the population controls a majority of wealth, while the **bottom 60% holds less than 4%**.
- This wealth concentration undermines inclusive development and limits access to opportunities for the majority.

2. Gender Inequality

- **Female HDI (0.631)** lags behind **male HDI (0.722)**.
- While women **outnumber men in higher education enrolment** (2020–21), their **labour force participation (41.7%)** remains far below that of men (**73.1%**) according to the 2022–23 PLFS, and is also still **below the global average**.
- Cultural norms, safety issues, and systemic exclusion hinder women’s participation in the workforce and public life.

3. Regional Disparities

- States like **Kerala** and **Tamil Nadu** fare better on HDI due to investment in health, education, and gender equity.
- In contrast, **Bihar** and **Uttar Pradesh** struggle with poor literacy, maternal health, and economic underdevelopment.
- This uneven development underscores the need for **region-specific policy interventions**.

4. Education Sector Challenges

- While **expected years of schooling** have increased to 13 years, **learning outcomes remain weak**.
- High dropout rates, poor infrastructure, lack of trained teachers, and socio-economic pressures affect school retention and quality.

5. Healthcare Gaps

- Though life expectancy has reached **72 years**, rural health infrastructure remains fragile.

- As per **Rural Health Statistics 2021–22**, doctors at PHCs dropped from **31,716 in 2021 to 30,640 in 2022**, indicating staff shortages.
- Preventive care, mental health, and urban-rural disparities remain areas of concern.

6. Social Exclusion

- Scheduled Castes, Scheduled Tribes, and religious minorities face **systemic discrimination**, leading to unequal access to education, jobs, housing, and justice.
- Their exclusion from development processes perpetuates multi-generational poverty.

7. Environmental Degradation

- Pollution, climate change, and resource depletion disproportionately affect the poor.
- For instance, **air pollution in Delhi** severely affects respiratory health; erratic monsoons impact **agrarian livelihoods**.

8. Technological Disparities

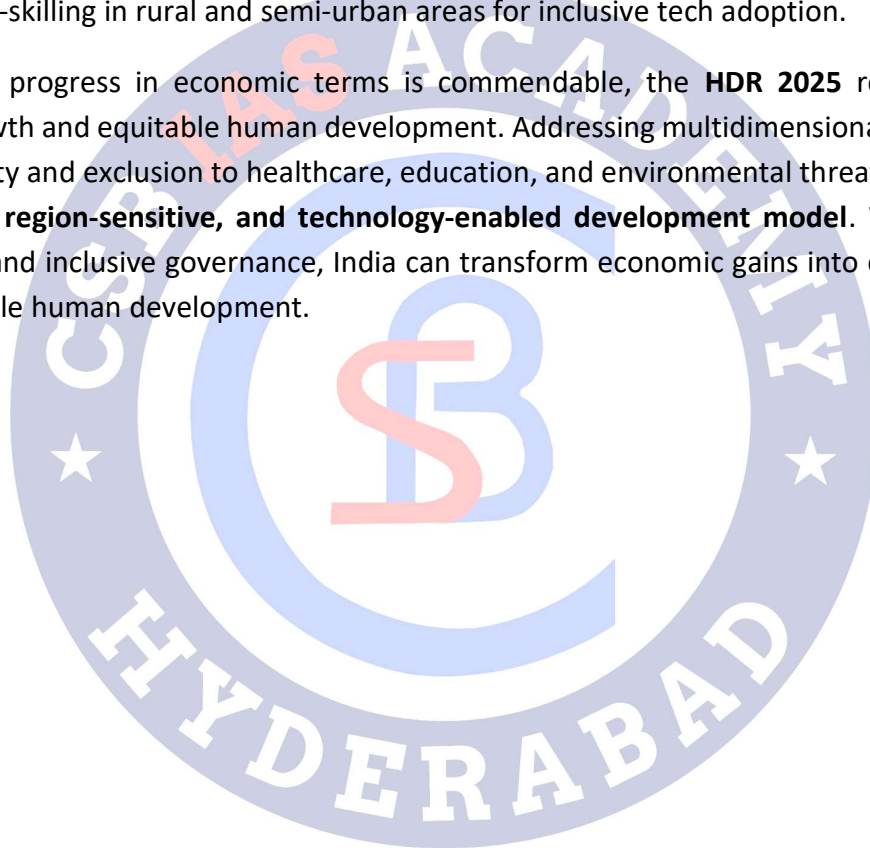
- While India has become a **global AI leader** (retaining 20% of AI researchers), digital illiteracy and lack of access in rural areas risks **widening the digital divide**.
- AI's potential remains underutilized for inclusive service delivery unless accompanied by digital skilling and local-language adaptation.

Way Forward:

- **Inclusive Economic Planning:** Ensure **redistributive policies** through progressive taxation, universal social protection, and targeted welfare schemes to reduce wealth gaps.
- **Gender Empowerment:** Implement the **106th Constitutional Amendment** (women's political reservation) effectively and promote women's economic participation through safe workplaces, flexible employment, and care infrastructure.
- **Strengthen Federalism:** Customize human development strategies through **state-level innovation**, particularly in lagging states using platforms like **Aspirational Districts Programme**.
- **Education and Skills Reform:** Improve education quality by investing in **teacher training**, reducing **dropouts**, integrating **vocational education**, and aligning with the **National Education Policy (NEP) 2020**.

- **Universal Healthcare Access:** Strengthen schemes like **Ayushman Bharat**, ensure availability of **medical staff in rural areas**, and focus on **preventive care** and **digital health services**.
- **Address Social Exclusion:** Enhance implementation of **affirmative action**, **reservation policies**, and community-based development models.
- **Sustainable Development Focus:** Incorporate **climate resilience** and **environmental sustainability** into development planning to safeguard long-term human well-being.
- **Bridging Digital Divide:** Scale up **digital public infrastructure**, local-language platforms, and AI-skilling in rural and semi-urban areas for inclusive tech adoption.

While India's progress in economic terms is commendable, the **HDR 2025** reveals the gap between growth and equitable human development. Addressing multidimensional challenges — from inequality and exclusion to healthcare, education, and environmental threats — requires a **rights-based, region-sensitive, and technology-enabled development model**. With sustained investments and inclusive governance, India can transform economic gains into comprehensive and sustainable human development.



12. INDIA-UK FREE TRADE AGREEMENT AND INDIA-UK RELATIONS

IMPACT ANALYSIS

SYLLABUS:

GS 2 > International relations > India and Global Powers

REFERENCE NEWS:

- Recently, Recently, India and the United Kingdom inked a Free Trade Agreement (FTA), bringing to an end around three years of negotiations.
- The timing of the deal, signed by **the world's fifth and sixth largest economies**, respectively, is significant. It comes as global trade is reeling under the **tariffs unleashed by US President Donald Trump** in early April.

MORE ON NEWS:

- Prime Minister of India Shri Narendra Modi and Prime Minister of the United Kingdom Sir Keir Starmer have announced the **successful conclusion of a mutually beneficial India – UK Free Trade Agreement (FTA)**.
- This forward-looking Agreement is aligned with **India's vision of Viksit Bharat 2047** and complements the growth aspirations of both the countries.
- The engagement builds upon the discussions held between the two Prime Ministers on the **sidelines of the G-20 Summit in Rio de Janeiro, Brazil**, in November 2024.
- Following the meeting between the two Prime Ministers, intense FTA negotiations resumed in February 2025 marked by several engagements between the Commerce and Industry Minister Shri Piyush Goyal and the U.K. Secretary of State Mr. Jonathan Reynolds and their teams.

HIGHLIGHTS OF THE INDIA-U.K. FREE TRADE AGREEMENT:

- **99% Indian exports to benefit from zero duty** in U.K. market.
- Indian import duty will be slashed, locking in reductions on 90% of tariff lines, 85% of these becoming fully tariff-free within a decade.

- **India reducing tariff for:** whisky, medical devices, advanced machinery, and lamb, **making U.K. exports more competitive**
- Goods with reduced import duties for Indian consumers: cosmetics, aerospace, lamb, medical devices, salmon, electrical machinery, soft drinks, chocolate and biscuits
- Products with cheaper prices for British shoppers: clothes, footwear, and food products including frozen prawns
- **Automotive tariffs will go from over 100% to 10% under a quota**
- **Three-year exemption from social security payments** for Indian employees working in the U.K.
- **Export opportunities for labour-intensive sectors** such as textiles, marine products, leather, footwear, sports goods and toys, gems and jewellery, engineering goods, auto parts and engines, and organic chemicals.
- The FTA will have significant positive gains for employment in India.
- India will benefit from one of the **most ambitious FTA commitment from the UK in Services** such as IT/ITeS, financial services, professional services, other business services and educational services, opening up new opportunities and jobs.

SIGNIFICANCE OF THE INDIA–UK FREE TRADE AGREEMENT:

Significance for India

- **Expanded Market Access for Indian Goods:**
 - India will gain **duty-free or reduced-tariff access** on 99% of UK tariff lines, covering almost 100% of trade value.
 - Key beneficiaries include: **textiles, marine products, footwear, toys, gems and jewellery, engineering goods, auto parts, and organic chemicals.**
 - Enhances competitiveness of Indian goods in the UK against other global players.
- **2. Major Boost to the Services Sector:**
 - India has secured **one of the most ambitious services commitments** ever made by the UK in any FTA.

- Gains in sectors like **IT/ITeS, finance, professional services, telecom, and education.**
- Indian service providers, especially in architecture, engineering, and computer services, will benefit from improved market access.
- **Eased Mobility for Professionals:**
 - FTA facilitates easier entry for:
 - **Intra-corporate transferees**
 - **Independent professionals** (e.g. yoga instructors, chefs)
 - **Contractual service suppliers and business visitors**
 - Opens **employment and business opportunities** in a digitally advanced economy like the UK.
- **Social Security Contributions Exemption:**
 - Under the **Double Contribution Convention**, Indian workers and their employers in the UK are **exempt from paying UK social security contributions for three years.**
 - Reduces financial burden and enhances the **cost competitiveness** of Indian service providers.
- **Support for Employment and MSMEs:**
 - The FTA is expected to boost **job creation**, particularly in **labor-intensive sectors and among MSMEs and startups.**
 - Promotes India's participation in **global value chains**, a key component of India's growth strategy under **Viksit Bharat 2047.**

Significance for the United Kingdom

- **Opening of the Indian Market for British Exports:**
 - Tariff cuts on high-value UK exports like **Scotch whisky** (from 150% to 40% over 10 years), **automobiles, chocolate, lamb, medical devices, and aerospace components.**
 - Indian market becomes more accessible, enhancing profitability for UK exporters.

- **Strengthening Post-Brexit Trade Strategy:**
 - This FTA is the UK's **largest bilateral deal since Brexit**, helping offset trade losses from the EU exit.
 - Demonstrates UK's shift towards strategic trade partnerships with **non-EU emerging markets**, especially Asia.
- **Projected Economic Gains:**
 - Expected to increase **bilateral trade by £25.5 billion annually by 2040**.
 - Could add **£4.8 billion to the UK economy each year**, promoting domestic job growth and economic dynamism.
- **Access to Skilled Indian Talent:**
 - FTA enables **selective increase in work visas** for Indian professionals in IT, healthcare, and other high-demand areas.
 - Eases skill shortages in critical UK sectors and enriches the talent pool.
- **Strategic Diversification Amid Global Trade Tensions:**
 - The **disruption of supply chains during the pandemic** brought home to Western companies the risks of **over-dependence on China** and the need for a **'China-plus one' policy**.
 - Also, as US-led protectionism rises and global supply chains remain volatile, the FTA with India helps the UK **diversify trade ties** and secure more **resilient supply chains**.

China +1 strategy is a business approach where companies diversify manufacturing beyond China—benefiting India as a preferred alternative due to its large market, skilled workforce, and improving infrastructure.

Shared Strategic Importance:

- **Comprehensive Strategic Partnership:**
 - Deepens the India–UK Comprehensive Strategic Partnership across **trade, innovation, technology, and sustainability**.
 - Reflects both countries' ambitions to become global economic and technological leaders.

- **Regulatory Alignment and Ease of Doing Business:**
 - Promotes **good regulatory practices**, reduces non-tariff barriers, and enhances **transparency**.
 - Supports India's domestic reform agenda and encourages **foreign direct investment (FDI)** from the UK.
- **Global Benchmark for FTAs:**
 - The FTA is a **modern, forward-looking agreement**, described as a gold standard by both sides.
 - Reinforces **democratic values** in global trade governance.

BACKGROUND OF INDIA – UK RELATIONS:

- India and UK are bound by **strong ties of history and culture**.
- India and the UK enjoy long standing friendly ties and share a Strategic Partnership underpinned by mutual **commitment to democracy, fundamental freedoms and the rule of law, strong complementarities and growing convergences**.
- India's multifaceted bilateral relationship with the UK intensified with its upgradation to a **Strategic Partnership in 2004**.
- The India-UK relationship was elevated to a **Comprehensive Strategic Partnership during the India-UK virtual summit** held between the Prime Minister of India, Narendra Modi, and the UK Prime Minister Boris Johnson in May 2021.
 - At the summit, the two sides **adopted a 10-year-roadmap (Roadmap 2030)** to expand ties in the **key areas of trade and economy, defence and security, climate change and people-to-people connections** among others.

AREAS OF COOPERATION:

- **Trade:**
 - India–UK bilateral trade (**FY 2022–23**): **£36.3 billion**, up **34.2%** from 2021–22.
 - India's exports to the UK: **£21.6 billion**; imports: **£14.7 billion**.
 - India was the UK's **12th largest trading partner**, making up **2.1% of UK's trade**.

- **Investments:**
 - India invested in **118 UK projects**, creating **8,384 jobs** in 2022–23 (**2nd largest FDI source after US**).
 - **954 Indian companies** in the UK generate **£50.5B revenue**, pay **£944M in tax**, and employ **105,931 people**.
 - UK's FDI in India (2000–2023): **\$33.88 billion** (6th largest, **5.34%** of total FDI).
- **Institutional Mechanisms:**
 - **India–UK Joint Economic and Trade Committee (JETCO)**, launched in **January 2005**, strengthens bilateral economic strategy.
 - **India–UK Economic and Financial Dialogue (EFD)**, established in **February 2005**, promotes financial cooperation.
- **Key Initiatives**
 - **Green Growth Equity Fund (GGEF)**: A joint India–UK initiative under India's **National Investment and Infrastructure Fund (NIIF)** for green energy and infrastructure investments.
 - **Masala Bonds**: 49 bonds issued by Indian entities are listed on the **London Stock Exchange (LSE)**; India accounts for over **50% of global Masala bond volume**.
 - **Access India Programme (AIP)**: Launched in **September 2017** by the **High Commission of India in London** to support UK **Small and Medium Enterprises (SMEs)** investing in India.
- **Defence Cooperation:**
 - Defence and International Security Partnership (DISP) signed in 2015 provides strategic direction.
 - Defence Consultative Group (DCG) has met annually since 1995.
 - Around 70 UK firms supply components to Hindustan Aeronautics Ltd (HAL).
 - **Joint Exercises and Visits:**
 - **Ajeya Warrior 2023**: Army exercise held in the UK (27 Apr–11 May).
 - **Konkan 2023**: Naval drill in the Arabian Sea (20–22 Mar).

- **Cobra Warrior 2023:** IAF joined UK-led air exercise (1–27 Mar).
- **UK Navy Visits:** HMS Lancaster & Tamar visited Kochi and Chennai (Mar 2023).
- **INS Tarangini Visit:** Indian sail ship visited UK (14–18 Aug 2022) for Azadi Ka Amrit Mahotsav.
- **Education and Students:**
 - Education is a key pillar of India–UK ties under the **India–UK Roadmap 2030** (May 2021).
 - Indian student enrolment in UK universities rose from **14,830 (2015–16)** to **126,535 (2021–22)**.
 - Estimated **185,000 Indian students** in the UK by 2022–23; student visas rose from **80,635 (2021)** to **139,539 (2022)**.
 - **10 years of Oxford India Centre for Sustainable Development** celebrated in July 2022.
 - Both countries signed an **MoU on Mutual Recognition of Academic Qualifications** on **21 July 2022**.
- **Health**
 - Strong cooperation during COVID-19 through the **Oxford–AstraZeneca–Serum Institute vaccine partnership**.
 - A **framework agreement on healthcare workforce collaboration** was signed on **21 July 2022**, focusing on training, capacity building, and knowledge exchange.
- **Climate and Environment**
 - Engagement through Ministerial Energy Dialogue (2018) and Joint Working Groups (JWGs).
 - GGEF supports clean energy, waste management, and mobility projects.
- **Multilateral Engagement**
 - The UK supports India's bids for a permanent seat in the United Nations Security Council (UNSC) and for Nuclear Suppliers Group (NSG) membership.

- The UK is an active member of the International Solar Alliance (ISA).
- **Indian Diaspora**
 - The UK has a large Indian diaspora of 1.864 million (2021 Census), **forming 3.1% of UK's population, with strong contributions across fields.** Prominent in healthcare, education, business, law, and politics.

AREAS OF CONCERN IN INDIA–UK RELATIONS:

- **Divergent Positions on China and the Indo-Pacific**
 - India is increasingly wary of China's strategic encirclement in the Indian Ocean through the **Belt and Road Initiative (BRI)**, particularly investments in ports like Gwadar (Pakistan), Hambantota (Sri Lanka), and Chittagong (Bangladesh). India views these moves as undermining its regional influence.
 - While cautious, the **UK has not fully opposed BRI and has, at times, engaged with its infrastructure and investment opportunities.** This divergence complicates India's push for a unified Indo-Pacific strategy among democratic allies.
 - India has joined the **Quad** (India, USA, Japan, Australia), promoting a **"free and open Indo-Pacific."** The UK is not part of Quad but has expressed support for its objectives, creating a somewhat fragmented approach to Indo-Pacific security.
- **AUKUS Partnership and Strategic Exclusion:**
 - The **AUKUS partnership** (Australia–UK–US), launched in 2021, focuses on equipping Australia with nuclear-powered submarines and enhancing defence collaboration in the Indo-Pacific.
 - Although not directly opposed to AUKUS, **India is concerned that it reflects a security alignment among Anglo allies (US, UK, Australia) without Indian involvement.** As a key Indo-Pacific actor, India seeks inclusion in critical security architectures, and AUKUS's exclusivity may limit India's strategic leverage.
 - Some Indian strategic thinkers have expressed concerns that AUKUS could marginalize India's role in regional defence, especially if it becomes the preferred platform for US-led initiatives.

- **Colonial Legacy and Diplomatic Sensitivities:**

- Deep-rooted historical resentment related to **colonial exploitation**, the **Partition**, and Britain's past tilt towards Pakistan continues to influence the Indian political and bureaucratic psyche.
- Events like the **Jallianwala Bagh massacre** and lack of official apologies for colonial-era actions occasionally strain ties and spark calls for reparations or formal acknowledgments, as highlighted in Shashi Tharoor's popular Oxford speech.
- While British leaders have acknowledged shared history, a full reckoning with colonial grievances remains limited, which sometimes triggers diplomatic unease in India.

- **Brexit and Its Economic Fallout:**

- Post-Brexit, over **800 Indian companies** operating in the UK face challenges due to the loss of access to the European Single Market. The UK was often used as a gateway to Europe; that advantage is now diluted.
- Many in the **Indian diaspora voted against Brexit** fearing stricter migration rules and loss of work rights. Indian professionals, especially in **IT and healthcare**, face increased competition under new skilled migration policies.
- Brexit-era uncertainties delayed the **India-UK Free Trade Agreement** and complicated regulatory harmonization, although this has improved post-2024 with the FTA's signing.

- **Migration and Illegal Immigration Issues:**

- : An estimated **100,000+ undocumented Indian migrants** are living in the UK, leading to political pressure on the British government and complicating bilateral migration negotiations.
- **Migration and Mobility Partnership (MMP)**: Signed in 2021, this agreement was meant to streamline legal migration and return illegal immigrants. However, implementation hurdles and political sensitivities have limited its full effect.
- **Visa Disparities**: India seeks greater professional mobility under bilateral agreements, but the UK has remained cautious, offering modest concessions (e.g., 3,000 visas annually under the **Young Professional Scheme**).

- **Media, Security & Domestic Politics:**
 - UK Parliament debates on sensitive topics like **Kashmir** or farmer protests have drawn sharp reactions from India, which views such discussions as interference in internal affairs.
 - India remains cautious about the activities of **Khalistani elements** or anti-India activists operating from the UK, especially after incidents at the Indian High Commission in London.

WAY FORWARD:

- **Finalize and Expand FTA Implementation:** Ensure timely rollout of tariff and service commitments under the FTA and begin negotiations for a Bilateral Investment Treaty (BIT).
- **Enhance Migration and Mobility Frameworks:** Strengthen implementation of the Migration and Mobility Partnership (MMP) and expand visa quotas for professionals and students.
- **Address Strategic Divergences:** Increase strategic dialogue on Indo-Pacific cooperation, balancing differing positions on BRI, AUKUS, and Quad participation.
- **Build Trust on Legacy Issues:** Encourage continued UK engagement on historical grievances and anti-India extremism to foster mutual respect and trust.
- **Deepen Sectoral Partnerships:** Expand joint ventures in green energy, AI, fintech, pharmaceuticals, and space technology.
- **Strengthen Educational and Research Linkages:** Scale up collaborations under UKIERI and promote two-way academic mobility.
- **Boost Multilateral Cooperation:** Coordinate on global challenges in forums like G20, UN, and ISA, while pushing for UNSC and NSG reforms.

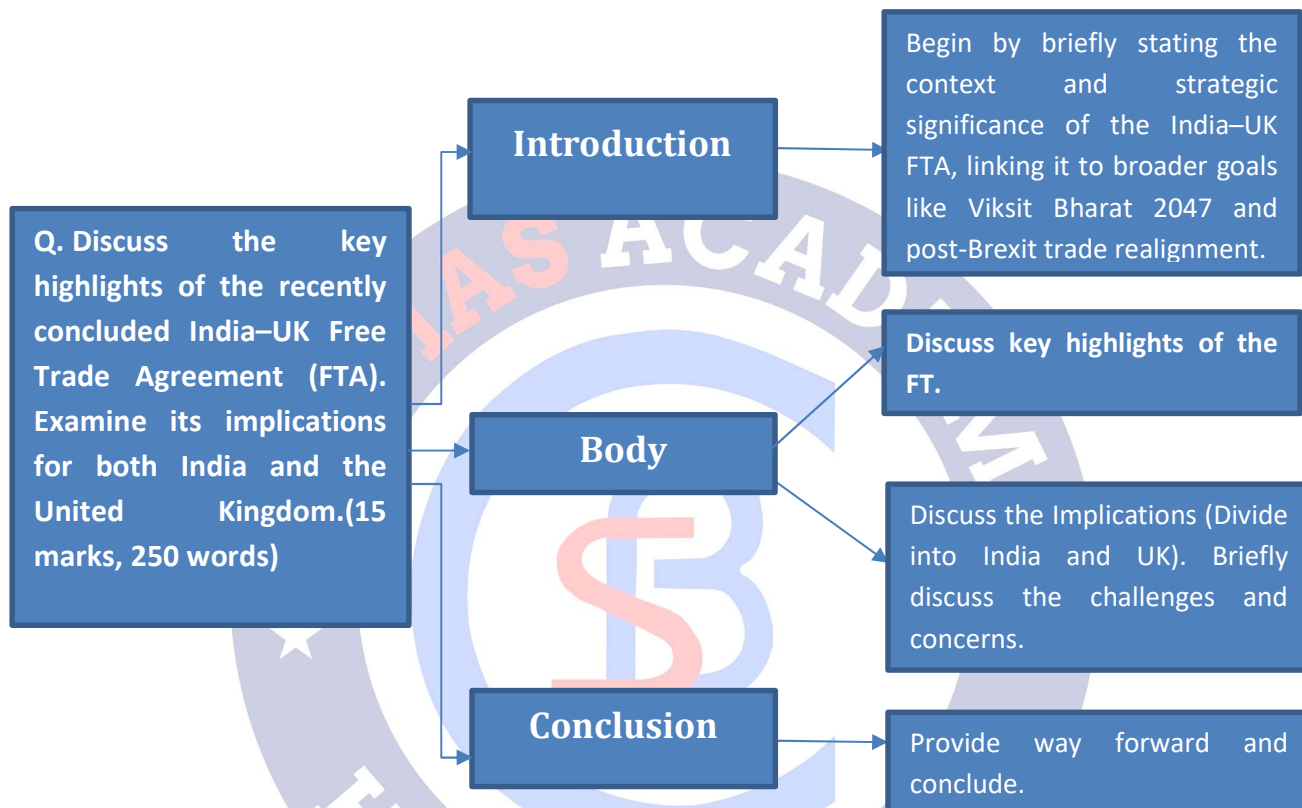
CONCLUSION:

- The India–UK FTA marks a significant milestone in bilateral relations, promising economic growth and deeper strategic ties. While the agreement opens new avenues for trade and cooperation, addressing underlying concerns such as immigration policies, regulatory standards, and historical sensitivities is crucial. A proactive and collaborative approach will ensure that the partnership not only yields mutual economic benefits but also contributes to regional and global stability.

PRACTICE QUESTION

Q. Discuss the key highlights of the recently concluded India–UK Free Trade Agreement (FTA). Examine its implications for both India and the United Kingdom.(15 marks, 250 words)

APPROACH



MODEL ANSWER

India and the United Kingdom, the world's fifth and sixth largest economies, recently signed a landmark **Free Trade Agreement (FTA)** after nearly three years of negotiations. As per official statements by Prime Ministers Narendra Modi and Keir Starmer, the agreement is aligned with India's **Viksit Bharat 2047** vision and the **UK's post-Brexit trade realignment**. It comes at a time when global trade is facing uncertainties due to rising protectionism, including new US tariffs.

Key Highlights of the India–UK FTA:

- **Tariff Elimination:** 99% of Indian exports to enter the UK duty-free; India to reduce duties on 90% of tariff lines, with 85% becoming tariff-free within a decade.
- **Automotive and Liquor Tariffs:** Import duties on UK automobiles to drop from over 100% to 10%; Scotch whisky tariffs to reduce from 150% to 40% over 10 years.

- **Labour-Intensive Sectors:** Boosts Indian exports in textiles, leather, gems, toys, and engineering goods.
- **Services Access:** One of the UK's most ambitious services commitments—gains for India in IT, finance, telecom, education.
- **Mobility & Social Security:** 3-year exemption from UK social security for Indian professionals; easier entry for service suppliers and intra-corporate transferees.

Implications of the FTA:

For India:

1. Expanded Market Access:

- Indian exporters will enjoy improved access to the UK market, especially in products where India has a comparative advantage.
- This enhances competitiveness of Indian goods in a developed economy.

2. Boost to Services Sector:

- Services, particularly IT, engineering, legal, and architectural sectors, will benefit from greater access and less restrictive mobility norms.
- Eases entry barriers in a mature digital and financial market like the UK.

3. Support to MSMEs and Employment:

- Labour-intensive sectors and MSMEs will benefit from tariff reductions and export incentives.
- Expected to generate employment and support domestic value chains.

4. Improved Global Integration:

- Enhances India's integration into global value chains, a strategic priority under the Atmanirbhar Bharat and Viksit Bharat initiatives.

5. Bilateral Synergy in Innovation and Sustainability:

- Opens up space for collaboration in fintech, AI, green technology, pharma, and higher education.

For the United Kingdom:

1. Post-Brexit Trade Realignment:

- The FTA is the UK's most significant bilateral trade deal since its exit from the European Union.
- It reaffirms UK's strategic pivot toward Indo-Pacific economies and emerging markets.

2. Access to the Indian Market:

- With tariff cuts on key goods like Scotch whisky, automobiles, lamb, and aerospace components, the UK stands to gain economically from India's large consumer base.

3. Economic and Job Growth:

- Bilateral trade is expected to grow by **£25.5 billion annually by 2040**, contributing an estimated **£4.8 billion** annually to the UK economy.

4. Addressing Skills Shortages:

- Selective increase in Indian work visas will help the UK fill labour gaps in IT, healthcare, and engineering sectors.

5. Supply Chain Diversification:

- Amid rising US-led protectionism and the post-pandemic 'China+1' strategy, the UK aims to strengthen resilient supply chains with India as a reliable partner.

Challenges and Concerns Associated with the FTA:

- **Implementation Delays:** Timely execution of tariff liberalisation, service access provisions, and regulatory alignment remains uncertain. Bureaucratic hurdles on both sides could dilute early benefits.
- **Migration Limitations:** India has sought wider professional mobility, but UK concessions remain modest (e.g., only 3,000 annual visas under the Young Professional Scheme), limiting full service sector potential.
- **Non-Tariff Barriers (NTBs):** Regulatory differences, certification issues, and lack of mutual recognition in some sectors may restrict actual market access despite tariff cuts.

- **Sectoral Asymmetries:** While India benefits in goods, UK stands to gain more in premium exports. Critics argue the deal could disproportionately favour UK exporters in high-value segments like alcohol and automobiles.
- **Trade Imbalance Risks:** India's trade deficit with the UK may widen if domestic sectors are unable to compete with increased British imports, especially in luxury and high-tech categories.

Way Forward

- **Ensure Timely Implementation** of all FTA provisions through regular review mechanisms and stakeholder consultations.
- **Negotiate a Bilateral Investment Treaty (BIT)** to ensure investor protection and complement the FTA framework.
- **Expand Professional Mobility** and streamline visa regimes for Indian service providers and students.
- **Address NTBs and Regulatory Gaps** through mutual recognition agreements and sector-specific dialogues.
- **Protect Domestic Industry** by extending support to MSMEs and monitoring import surges in sensitive sectors.

The India–UK FTA represents a transformative moment in bilateral relations, offering opportunities for economic growth, strategic alignment, and innovation-led cooperation. However, realising its full potential requires **effective implementation, balanced reciprocity, and continued political and institutional engagement** to resolve outstanding concerns. If managed proactively, the FTA could serve as a **benchmark for equitable, modern trade partnerships** in a multipolar global order.

13. INDIA'S ELDERLY POPULATION

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Social justice > Welfare Schemes > Vulnerable & Backward sections

REFERENCE NEWS:

- Recently, the President launched key initiatives for senior citizens at the 'Ageing with Dignity' event at Rashtrapati Bhawan.

MORE ON NEWS:

- Organized by the Union Ministry of Social Justice and Empowerment, this event focused on the welfare and empowerment of senior citizens through various key initiatives.
- The event highlighted the importance of **active ageing**, which involves not just physical well-being but also **emotional engagement, community participation, and mental enrichment**. This approach aims to ensure that **senior citizens remain active, engaged, and respected members of society**.
- Also, under the **Rashtriya Vayoshri Yojana (RVY)**, the President distributed **assistive devices** to eligible senior citizens, addressing their health and mobility needs.
- **Key Initiatives Launched:**
 - **Senior Citizen Welfare Portal:** The President launched the Senior Citizen Welfare Portal, a **digital platform** to provide elderly citizens with **easy access to government schemes, healthcare benefits, and welfare services**. This initiative aims to promote **digital inclusion** and empower senior citizens to lead informed, independent lives.
 - **Inauguration of Senior Citizen Homes:** The President virtually inaugurated five new Senior Citizen Homes in Tawang (Arunachal Pradesh), Wokha (Nagaland), Vellore (Tamil Nadu), Anakapalli (Andhra Pradesh), and Nainital (Uttarakhand). These homes, supported under the **Maintenance and Welfare of Parents and Senior Citizens (MWPSA) Act**, are designed to provide dignified and safe living environments for indigent senior citizens.

- **MoU with Brahma Kumaris** : An **MoU was signed** between the Department of Social Justice and Empowerment and Brahma Kumaris, focusing on fostering inter-generational bonding. The collaboration will conduct programs on mental health, mindfulness, and spiritual enrichment for both younger and older generations.

The **Brahma Kumaris** is a global **spiritual organization** founded in 1937 in India, dedicated to personal transformation and world renewal through the practice of Raja Yoga meditation.

STATS:

- According to the **Census 2011**, India had approximately 104 million elderly persons aged 60 years or above, constituting **8.6% of the total population**. Of these, 53 million were females and 51 million were males.
- The United Nations Population Fund, India (UNFPA), in its "**India Ageing Report 2023**," has said that the **percentage of the elderly population** in India is projected to be over **20% of the total population by 2050**.
- The report also said that with the decadal growth rate of the elderly population of India **currently estimated to be at 41%**, it is likely that the **elderly population will have surpassed the population of children** (aged 0 to 15 years) in the country **by 2046**.
- According to the India Ageing Report 2023, most states in the **southern region** and **select northern states** such as Himachal Pradesh and Punjab **reported a higher share of the elderly population** than the national average in 2021, a gap that is expected to widen by 2036. Compared with southern and western India, the **central, northern and northeastern regions have a younger group of states**.

SIGNIFICANCE OF ELDERLY POPULATION IN INDIA:

- **Channelization of Experience:**
 - Elderly people carry immense **personal and professional experience**. It is crucial to channelize these experiences by providing them with proper care and opportunities to contribute. The growing "**Silver Economy**" presents opportunities for economic growth through their **participation in various sectors, such as caregiving and services tailored for senior citizens**.

The Silver Economy refers to the economic opportunities arising from the needs and contributions of an aging population.

- **Generational Link:**
 - The elderly citizens provide a vital generational link to the younger generations. They **support and stabilize families and society at large**.
 - For example, grandparents in joint families play a crucial role in **transferring values, morals, and cultural knowledge** to younger generations, ensuring the continuity of societal traditions.
- **Social Harmony:**
 - The deep cultural impressions and social experiences of the elderly population in India provide a necessary buffer against intolerance, violence, and hate crimes. Their wisdom and perspective contribute significantly to maintaining social harmony and unity in a diverse society.
- **Health and Well-being through Active Ageing:**
 - As the elderly population grows, promoting **active ageing** becomes increasingly important.
 - Active ageing involves enabling seniors to remain physically, mentally, and socially engaged. This not **only enhances their quality of life but also contributes to a healthier, more vibrant society**.
 - Initiatives like **Ayushman Bharat** and the **National Program for Health Care of the Elderly (NPHCE)** aim to ensure that older adults receive adequate healthcare, promoting independent living and reducing the dependency on younger generations.
 - Active ageing not only improves individual well-being but also **helps reduce healthcare costs and boosts the overall productivity of society**.
- **Moral and Ethical Responsibility:**
 - It is the moral and ethical responsibility of society to care for its people beyond their prime years. This responsibility helps reciprocate their lifetime of physical, social, emotional, and economic investment in society.

- The government has implemented several initiatives such as the **Maintenance and Welfare of Parents and Senior Citizens Act** and the **Atal Vayo Abhyuday Yojana** to ensure their welfare.

CHALLENGES AND CONCERNS RELATED TO INDIA'S ELDERLY POPULATION:

- **'Feminisation' and 'ruralisation' of older population:**
 - The **India Ageing Report 2023** says challenges facing India's ageing **population** are the feminisation and 'ruralisation' of the older population in India, and **policies must be framed accordingly**. Data show that women in India, on average, have a higher life expectancy at the age of 60 and 80 when compared with men.
 - For instance, as per the UNFPA Report titled '**Caring for Our Elders: Early Responses**' the **sex ratio of the elderly** has increased from 938 women to 1,000 men in 1971 to **1,033 in 2011** and is projected to increase to **1,060 by 2026**. Also, the report observed that as many as **71% of elderly people** in India were **living in rural areas**.
- **Lack of physical infrastructure:**
 - Most spaces in homes and public spaces are **insensitive to elderly needs**. Lack of access to assistive equipment makes the thing worse.
- **Changing family structure:**
 - The emerging prevalence of **nuclear family set-ups** in recent years, the elderly is likely to be exposed to **emotional and physical insecurity** in the years to come.
 - There is an upward trend in the number of **elderly staying alone or with spouse** only from **9.0% in 1992 to 18.7% in 2006**.
- **Lack of Social Support:**
 - The elderly in India are much more vulnerable because of the **less government spending on social security system**.
 - **Insurance cover** that is elderly sensitive is virtually non-existent in India and in addition, the pre-existing illnesses are usually not covered.
 - Pension and social security is also restricted to those who have worked in the public sector or the organized sector of industry.

- **Social Inequality:**
 - Elderly are a heterogeneous section with an urban and rural divide where they are less vulnerable in rural areas. There is also a divide on account of gender.
 - In a case study, **it was found that a major proportion of the elderly women were poorer**; received the lowest income per person; recorded the highest negative affective psychological conditions; were the least likely to have health insurance coverage and they recorded the lowest consumption expenditure.
- **Availability, Affordability and Accessibility of Health Care:**
 - **Geriatric care is relatively new in many developing countries** like India with many practicing physicians having little knowledge of the clinical and functional implications of aging
 - Most of the government facilities such as day care centres, old age residential homes, counselling and recreational facilities are urban based.
- **Economic Dependency:**
 - About 85% of the aged had to depend on others for their day to day maintenance. The situation was even worse for elderly females. (52nd round of NSSO). Poverty act as a multiplier of the risk of abuse.
- **Issues of the public health system**
 - Lack of infrastructure, limited manpower, poor quality of care and overcrowding of facilities affects a focussed elderly care in our public health systems.

GOVERNMENT INITIATIVES:

- **National Policy on Older People (NPOP):**
 - Ensures State support for financial and food security, health care, and shelter.
 - Covers social security, intergenerational bonding, and role of Non-Governmental Organizations.
- **Maintenance and Welfare of Parents and Senior Citizens Act 2007:** Enables elderly to demand maintenance from children or claim property back if neglected.

- **Atal Vayo Abhyudaya Yojana (AVYAY):** An umbrella scheme integrating current and future strategies for elderly care. Includes **Senior care Aging Growth Engine (SAGE)** initiative promoting innovations in elderly care products.
- **Atal Pension Yojana:** Provides a fixed pension ranging from Rs. 1,000 – Rs.5,000 per month after age 60.
- **Health Insurance for Senior Citizens:** Utilizes Rs.100 billion from unclaimed Employees Provident Fund Organisation (EPFO) and Small Savings for health insurance.
- **National Programme for Health Care of Elderly (NPHCE):** Enhances accessibility to health services and builds capacity for elderly care.
- **National Social Assistance Programme (NSAP):** Offers old-age pensions and benefits to Below Poverty Line (BPL) families via schemes like Indira Gandhi National Old Age Pension Scheme (IGNOAPS).
- **National Institute of Social Defence (NISD):** Focuses on training a cadre of geriatric caregivers through various certification programs.
- **UN Decade of Healthy Ageing (2021–2030):** A global collaboration aiming to improve the lives of older people and their communities.
- **South Asia Partnership on Ageing:** Reinforces commitments to Older Peoples' Rights under international agreements such as the Vienna International Plan of Action on Ageing and the United Nations Principles for Older Persons.

Best Practices and Examples:

- **'Vayomithram' by Government of Kerala:** Provides health care and support through mobile clinics, palliative care, and help-desks.
- **Kerala Police Janamaithri Suraksha:** Engages in regular interactions and support for senior citizens.

Examples of NGOs in Geriatric Care:

- Agewell Foundation
- Ekal Nari Shakti Sangathan
- HelpAge India

WAY FORWARD:

- **In Situ Ageing:** Encourage in situ (at home) ageing by developing short-term care facilities like creches or daycare centers, allowing elderly people to stay with their families while receiving proper care.
- **Platform for Community Interaction:** Increase opportunities for elderly participation in local issues, resident associations, and self-help groups to leverage their knowledge and experience as valuable resources.
- **Capacity Building:** Train peripheral health workers and community health volunteers to identify and refer elderly patients for timely and proper treatment.
- **Regulation of Home Care Industry:** Regulate the growing informal home care industry by introducing guidelines to ensure the availability of certified, affordable, and trained caregivers who can provide essential support and reduce unnecessary hospital admissions.
- **Medical Education:** Incorporate geriatric pharmacotherapy into undergraduate and postgraduate medical, nursing, and pharmacy courses to address the specific health needs of the elderly.
- **Infrastructure Development:** Build a network of old-age homes and make public infrastructure more accessible to the elderly by implementing necessary assistive features.
- **Data Collection Exercises:** Improve data collection on elderly-related issues through initiatives like the National Sample Survey, National Family Health Survey, and Census, including emerging concerns about elderly care.
- **Awareness Generation:** Raise awareness about available schemes for senior citizens to ensure they are aware of their rights and available support.
- **Value Education:** Integrate values and ethics into school curricula to instil a sense of moral responsibility in children toward caring for their elderly parents.
- **Establishing a Formal Caregiving Infrastructure:** Enhance home-based healthcare and ensure empathetic caregiving by improving training and working conditions, reducing hospital visits, and lowering healthcare costs.
- **Policy Framework for Home-Based Caregiving:** Develop policies that standardize vocational training for caregivers, create a caregiver registry, and ensure transparency and accountability.

- **Enhancements to Pension Systems:** Strengthen pension systems by allocating special funds to provide broader coverage and improved benefits for the elderly.
- **Implementing a Time Bank Initiative:** Introduce a time bank model where the younger generation earns 'time credits' by caring for seniors, which they can use when they need care themselves.
- **Gradual Increase of Retirement Age:** Gradually raise the retirement age to ensure it doesn't impede career opportunities for the younger generation while keeping the elderly active in the workforce.
- **Government Initiatives for Elderly Health Management:** Focus on improving lifestyle changes, managing non-communicable diseases, and addressing vision and hearing issues among the elderly while ensuring healthcare access.

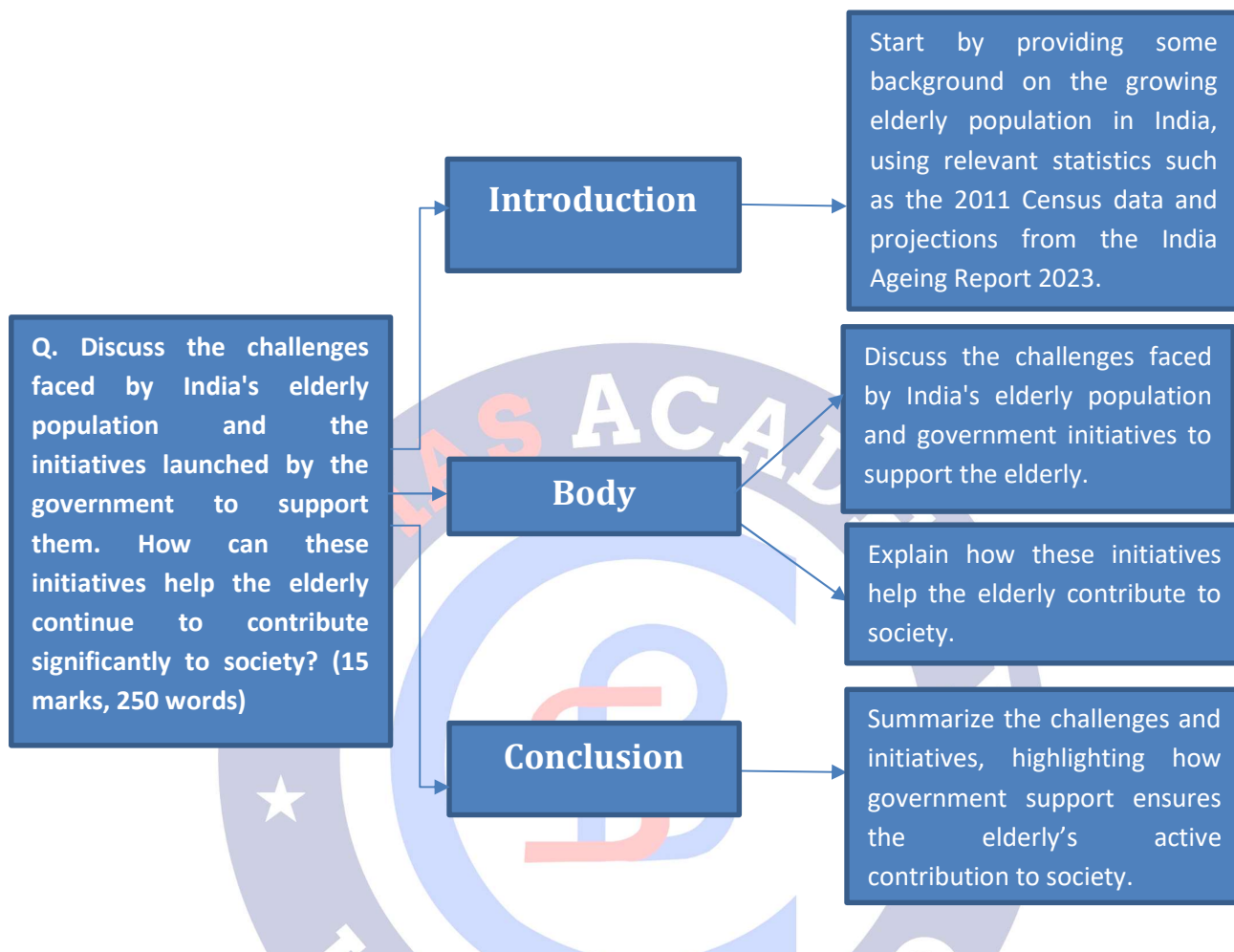
CONCLUSION:

- Addressing the challenges faced by India's elderly population requires a multi-pronged approach, involving improved caregiving infrastructure, stronger policy frameworks, and greater community participation. By implementing these forward-thinking strategies, India can ensure the well-being, dignity, and active participation of its elderly citizens in society.

PRACTICE QUESTION

- Q. Discuss the challenges faced by India's elderly population and the initiatives launched by the government to support them. How can these initiatives help the elderly continue to contribute significantly to society? (15 marks, 250 words)**

APPROACH



MODEL ANSWER

India's elderly population is rapidly increasing, with the **2011 Census** reporting approximately 104 million people aged 60 or above, constituting **8.6% of the total population**. This percentage is projected to **surpass 20% by 2050**, according to the **India Ageing Report 2023**. As the elderly population grows, it is crucial to address the challenges they face and implement initiatives that allow them to remain active and valuable contributors to society.

Challenges Faced by India's Elderly Population:

1. **'Feminisation' and 'Ruralisation' of Older Population:** The **India Ageing Report 2023** highlights that elderly women, with higher life expectancy than men, are increasingly vulnerable. **71% of the elderly** live in rural areas, where access to healthcare and support is limited, making them more prone to poverty and neglect.

2. **Lack of Physical Infrastructure:** Public spaces and homes are not designed to meet elderly needs. **Lack of assistive equipment** such as ramps and mobility aids restricts seniors' independence and access to essential services.
3. **Changing Family Structure and Isolation:** The rise of **nuclear families** has led to increased **isolation** among seniors, with more elderly living alone or with only a spouse. This isolation contributes to **mental health issues** and emotional insecurity.
4. **Lack of Social Support and Insufficient Government Funding:** Limited **social security spending** leaves elderly people vulnerable, especially those outside the organized sector. The absence of elderly-sensitive **insurance products** further exacerbates their challenges.
5. **Social Inequality and Gender Divide:** Elderly women face greater **poverty** and **psychological distress** than men, with **lower income** and limited **health insurance coverage**. **Rural areas** are particularly challenging for these women, deepening social inequality.
6. **Availability, Affordability, and Accessibility of Healthcare:** **Geriatric care** is underdeveloped, and many **government facilities** are urban-based, leaving rural seniors underserved. The lack of **affordable healthcare** limits their access to necessary treatment.
7. **Economic Dependency:** Around **85% of the elderly** depend on others for daily maintenance. **Poverty** and **economic dependency** increase the risk of **abuse** and hinder seniors' independence and participation in society.
8. **Issues with the Public Health System:** The **public health system** struggles with **poor infrastructure**, **limited manpower**, and **overcrowding**, impacting the quality of care for the elderly and hindering their ability to maintain good health.

Government Initiatives to Support the Elderly:

- **Senior Citizen Welfare Portal:** Provides easy access to government schemes, healthcare, and welfare services, promoting **digital inclusion** and empowering seniors.
- **Rashtriya Vayoshri Yojana (RVY):** Distributes assistive devices to seniors, improving mobility and independence.
- **Senior Citizen Homes:** Offers safe, dignified living spaces for seniors in regions like **Tawang, Wokha, and Nainital**, supported by the **MWPSC Act**.
- **Atal Vayo Abhyuday Yojana (AVYAY):** Integrates elderly care strategies, including **SAGE**, promoting innovations in elderly care products.
- **Pension and Social Security Schemes:** **Atal Pension Yojana** and **NSAP** provide financial stability to vulnerable elderly groups.

- **National Programme for Health Care of Elderly (NPHCE):** Enhances healthcare access for seniors, focusing on **geriatric care** and **healthy ageing**.
- **Health Insurance for Senior Citizens:** Provides affordable healthcare to elderly citizens, funded by unclaimed EPF and **Small Savings**.
- **National Institute of Social Defence (NISD):** Trains geriatric caregivers, improving elderly care quality.
- **National Policy on Older People (NPOP):** Ensures state support for financial security, healthcare, and shelter for the elderly.
- **Maintenance and Welfare of Parents and Senior Citizens Act (2007):** Enables elderly citizens to claim maintenance or property from children if neglected.

How Initiatives Help the Elderly Contribute to Society:

1. **Active Ageing Initiatives:** Initiatives like **Ayushman Bharat** and the **National Program for Health Care of the Elderly (NPHCE)** encourage **active ageing**, ensuring seniors remain physically, mentally, and socially engaged. This approach helps elderly individuals stay active, reducing their dependency and enhancing their contributions to society.
2. **Increased Community Engagement:** The government promotes opportunities for elderly citizens to participate in **local issues, self-help groups, and community activities**. This active participation allows seniors to leverage their knowledge, experience, and wisdom, benefiting society by contributing to decision-making processes and community development.
3. **Regulation of Home Care Services:** Standardizing and regulating the informal **home care industry** through initiatives like the **Senior Care Aging Growth Engine (SAGE)** under the **Atal Vayo Abhyuday Yojana (AVYAY)** ensures that elderly individuals receive quality care in their homes. These services reduce hospital admissions, healthcare costs, and allow seniors to remain in familiar environments, continue engaging in family and community activities, and maintain their independence.
4. **Enhancing Pension and Social Security Systems:** Strengthening **pension systems** and expanding **social security programs** such as the **Atal Pension Yojana** and the **Indira Gandhi National Old Age Pension Scheme (IGNOAPS)** provide financial stability to elderly citizens. These initiatives reduce economic dependency, empowering seniors to contribute more effectively to their families and communities, fostering a sense of independence and well-being.
5. **Medical Education and Geriatric Care:** Including **geriatric care** in medical education and promoting **geriatric pharmacotherapy** through programs like the **National Program for Health Care of Elderly (NPHCE)** ensures that healthcare providers are equipped to meet the specific needs of elderly citizens. These initiatives improve seniors' health, allowing them to stay active, engaged, and contribute meaningfully to society.

The elderly population in India faces numerous challenges, but with the right initiatives and government support, they can continue to contribute significantly to society. Through active ageing programs, better healthcare access, enhanced pension systems, and increased community engagement, elderly citizens can maintain their dignity, independence, and involvement in societal roles. By addressing the challenges they face and empowering them with the right tools, India can ensure that its elderly population remains a valuable resource for the country's social and economic well-being.



14. RIGHT TO DIGITAL ACCESS

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Constitution > Fundamental rights

REFERENCE NEWS:

- Recently, in a landmark judgement, the Supreme Court held that **inclusive and meaningful digital access** to e-governance and welfare delivery systems is a part of the **fundamental right to life and liberty (Article 21)**.

MORE ON NEWS:

- Ruling that **right to digital access is an intrinsic part of the fundamental right to life and liberty**, a Bench of Justices J.B. Pardiwala and R. Mahadevan said it is a **constitutional imperative** for the Centre and its authorities to **bridge the digital divide** faced by large sections of the country's rural population, senior citizens, economically weaker communities, linguistic minorities and differently-abled persons.
- The judgment was based on a **petition filed by a group of acid attack survivors** led by Pragya Prasun and others, and a separate plea by **Amar Jain, who is visually impaired**. They raised **concerns about how disabled people**, including acid attack victims, find it nearly impossible to successfully complete the **digital KYC processes**, which include visual tasks.

DIGITAL ACCESS:

- **Digital access** refers to the ability of individuals or communities to use digital technologies and platforms, including the internet, computers, mobile devices, and digital applications, to access information, services, and opportunities online. It involves having the **necessary infrastructure**, such as **broadband connectivity, devices, and digital literacy**, to effectively use these technologies.

KEY HIGHLIGHTS OF THE SUPREME COURT'S RULING ON DIGITAL ACCESS:

- **Right to Digital Access as Part of Fundamental Rights:**
 - The Supreme Court held that inclusive digital access to e-governance and welfare systems is a fundamental right under Article 21. It emphasized the state's

constitutional duty to create digital ecosystems that serve marginalized and vulnerable groups.

- **Constitutional Obligation to Ensure Digital Inclusion:**
 - The Court reinforced that the **state's obligations** under **Articles 21** (Right to Life and Dignity), **Article 14** (Equality before Law), **Article 15** (Non-Discrimination), and **Article 38** (Directive Principles of State Policy) include the **responsibility to ensure digital access** for all, especially vulnerable and marginalized groups.
- **Inaccessible KYC Processes for Vulnerable Groups:**
 - The ruling was based on petitions filed by **acid attack survivors** and **visually impaired individuals**, who faced **inaccessibility** in digital KYC (Know Your Customer) processes.
 - The Court recognized that **current digital KYC systems** were **not accessible** to people with **disabilities**, particularly those who face **visual challenges** or **facial disfigurement**.
 - Justice Mahadevan pointed out that **acid attack survivors** find it impossible to complete digital KYC tasks such as **positioning their faces in frames**, **blinking**, or following **visual instructions**.
- **Digital Divide as a Constitutional Issue:**
 - The Court noted that the digital divide, characterized by unequal access to digital infrastructure, skills, and content, excludes large sections of society, particularly **persons with disabilities (PwDs)**, **rural populations**, **senior citizens**, **economically weaker sections**, and **linguistic minorities**.
 - The Court ruled that **bridging the digital divide** is **no longer a matter of policy discretion** but has become a **constitutional imperative** to ensure **dignity**, **autonomy**, and **equal participation** in public life.
- **Substantive Equality in Digital Transformation:**
 - The Court invoked **substantive equality**, emphasizing that digital transformation must be inclusive. It noted that PwDs face barriers due to inaccessible services, while rural citizens struggle with poor connectivity and a lack of regional content.

Substantive equality recognizes that the law must take elements such as **discrimination, marginalization, and unequal distribution** into account in order to achieve equal results for basic human rights, and access to goods and services.

○ **620 Directions Issued to the Government:**

○ The Court issued **20 directions** to the government to:

- **Revise the digital KYC processes** to make them more **accessible** for vulnerable groups, such as **visually and hearing impaired individuals**.
- **Develop alternative formats** like **Braille** and **voice-enabled services**.
- Ensure that **digital infrastructure** — including government portals, online learning platforms, and financial technologies — is **universally accessible** and **responsive** to all vulnerable and marginalized sections of society.

RIGHTS INCLUDED UNDER ARTICLE 21 BY JUDICIAL INTERPRETATION		
Right	Landmark Case	Details
Right to livelihood	<i>Olga Tellis v. Bombay Municipal Corporation</i> (1985)	SC held that the right to livelihood is a part of the right to life under Article 21.
Right to clean environment	<i>Subhash Kumar v. State of Bihar</i> (1991)	The Court recognized the right to a clean environment as part of the right to life.
Right to education (before Article 21A)	<i>Mohini Jain v. State of Karnataka</i> (1992)	Held that the right to education flows from Article 21; finally led to Article 21A .
Right to privacy	<i>Justice K.S. Puttaswamy v. Union of India</i> (2017)	A 9-judge constitutional bench declared the right to privacy as a fundamental right under Article 21.
Right to die with dignity	<i>Common Cause v. Union of India</i> (2018)	The Court upheld passive euthanasia and ruled that the right to die with dignity is part of Article 21.
Right against climate change impact	<i>M.K. Ranjitsinh & Ors. v. Union of India & Ors.</i> (2024)	The Supreme Court recognized that climate change and environmental degradation threaten the right to life under Article 21, and the state must take active measures to mitigate these impacts.

SIGNIFICANCE OF THE RIGHT TO DIGITAL ACCESS:

- **Bridging the Digital Divide:**
 - India faces a **digital divide** between urban and rural areas, with only **24.8%** of rural households having internet access compared to **51.3%** in urban areas (**National Sample Survey (NSS), 2017-18**).
 - The **right to digital access** ensures that marginalized and rural populations are not excluded from essential services, promoting **equal participation** for all.
- **The Role of Technology in Accessing Essential Services:**
 - Justice Mahadevan highlighted that in today's world, **access to essential services** like governance, education, healthcare, and economic opportunities is **increasingly mediated through digital platforms**. As a result, **the right to life under Article 21 must be reinterpreted to reflect these technological realities**.
 - This means that digital access is vital for individuals to fully exercise their rights and participate in society. Without it, they are excluded from essential services, undermining their dignity and equality.
- **Empowering Marginalized Communities:**
 - This right is crucial for vulnerable groups like **persons with disabilities (PwDs), elderly citizens, and linguistic minorities**.
 - For instance, according to the **Digital Empowerment Foundation**, **80% of government websites** in India are **not accessible to PwDs**, which means they are deprived of their basic rights to welfare, education, and healthcare.
 - The **KYC process**, as highlighted in the Supreme Court case, is a notable example, as **acid attack survivors** and **visually impaired individuals** struggle with visual tasks required for identity verification, further excluding them from essential services.
 - The right to digital access ensures **inclusive access**, enabling these groups to exercise their rights, **from education to welfare services**.
- **Ensuring Participation in Governance:**
 - Digital access is essential for **e-governance** and **democratic participation**. It allows citizens to engage in **voting, welfare programs, and government schemes**. For this

to be effective, the state must ensure **equal digital access**, especially for marginalized communities.

- **Supporting Education and Healthcare:**

- Digital access is crucial for **education** and **telemedicine**.
- For instance, the **COVID-19 pandemic** highlighted how lack of digital access affects **247 million children** in India (**UNICEF**). Access to **online education** and **telemedicine** is vital for continuity in learning and healthcare, particularly for **rural populations** with limited connectivity.

- **Protecting Digital Rights:**

- The **right to digital access** also ensures **privacy** and **freedom of expression** in the digital age.
- It allows individuals to engage with digital platforms securely and **without fear of surveillance** or **data misuse**, while also supporting **free speech**.

- **Promoting Economic Inclusion:**

- Digital access provides opportunities for **financial inclusion** and **economic participation** through **e-commerce**, **digital payments**, and **online job platforms**.
- By ensuring **equitable access**, it enables individuals from **low-income or rural backgrounds** to engage in the **digital economy** and improve their livelihoods.

CHALLENGES TO DIGITAL ACCESS IN INDIA:

- **Infrastructure Deficits:**

- Many rural areas in India face challenges like **unreliable power supply**, **poor internet connectivity**, and **difficult terrain**, which hinder the establishment and maintenance of telecom networks. This significantly impacts digital access in these regions.

- **Digital Literacy Gaps:**

- Limited digital literacy, especially in rural areas, remains a major barrier. While programs like the **Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)** aim to improve literacy, issues like poor connectivity and limited access to devices hamper their success.

- **Socio-Cultural Barriers:**
 - In rural areas, social norms and cultural constraints often prevent women from accessing digital technologies. Factors like **lack of financial independence** and **household responsibilities** exacerbate gender disparities in digital access.
- **Accessibility Challenges for Persons with Disabilities (PwDs):**
 - PwDs face significant barriers due to the absence of assistive technologies and accessible digital content. The high cost of devices like **screen readers** further marginalizes this group, despite their potential to benefit from digital services.
- **Economic Constraints:**
 - The **high cost of digital devices and internet services** remains a major issue. Many individuals in rural and economically disadvantaged urban areas cannot afford smartphones or broadband connections, limiting their participation in the digital economy.
- **Awareness and Engagement:**
 - Lack of awareness about digital services leads to underutilization. Even with infrastructure in place, the **absence of digital literacy** and engagement programs results in low adoption rates, **particularly among older populations and those in remote areas.**

GOVERNMENT INITIATIVES FOR DIGITAL ACCESS IN INDIA:

The government has launched several key initiatives to promote **digital access** and bridge the **digital divide**, particularly for rural and marginalized communities.

- **Digital India Initiative:** Launched in 2015, the Digital India initiative aims to make India a digitally empowered society by improving internet access, digital literacy, and e-governance services. Key projects include BharatNet for rural broadband and public Wi-Fi hotspots.
- **Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA):** This digital literacy program targets rural areas to train individuals on using digital devices and accessing online services. Over 6 crore people have been trained under this scheme.
- **BharatNet Project:** Aimed at providing high-speed internet to over 2.5 lakh rural villages, the BharatNet project focuses on connecting rural India with digital infrastructure, enabling e-healthcare, e-education, and e-governance.

- **Common Service Centers (CSCs):** CSCs act as digital access points in rural areas, providing services such as Aadhaar enrollment, telemedicine, and online banking. These centers are vital for ensuring digital services reach underserved regions.
- **Pradhan Mantri Jan Dhan Yojana (PMJDY):** This financial inclusion scheme provides zero-balance bank accounts and digital payment systems, helping underserved communities access banking services and participate in the digital economy.
- **National Optical Fiber Network (NOFN):** NOFN aims to improve broadband connectivity by connecting gram panchayats to high-speed internet. This project is closely tied to BharatNet, extending broadband access in rural areas.
- **E-District Project (National e-Governance Plan (NeGP)):** This project digitizes district-level administrative services, enabling citizens to access government services like land records and birth certificates online.

WAY FORWARD:

- **Improving Infrastructure:** Expanding high-speed internet connectivity, especially in rural and remote areas, should be a priority. Projects like **BharatNet** must be completed on time to ensure universal access.
- **Enhancing Digital Literacy:** Expanding and improving programs like **PMGDISHA** is crucial to boost digital literacy, especially for women, senior citizens, and rural populations.
- **Promoting Inclusivity:** Digital services must be made more **accessible** for **persons with disabilities** through the development of assistive technologies and **accessible websites**.
- **Reducing Economic Barriers:** Reducing the cost of digital devices and internet services, through subsidies or other programs, will help economically disadvantaged groups access digital platforms.
- **Raising Awareness:** Public awareness campaigns should be launched to ensure that all citizens are informed about the availability and benefits of digital services, particularly in rural and underdeveloped areas.

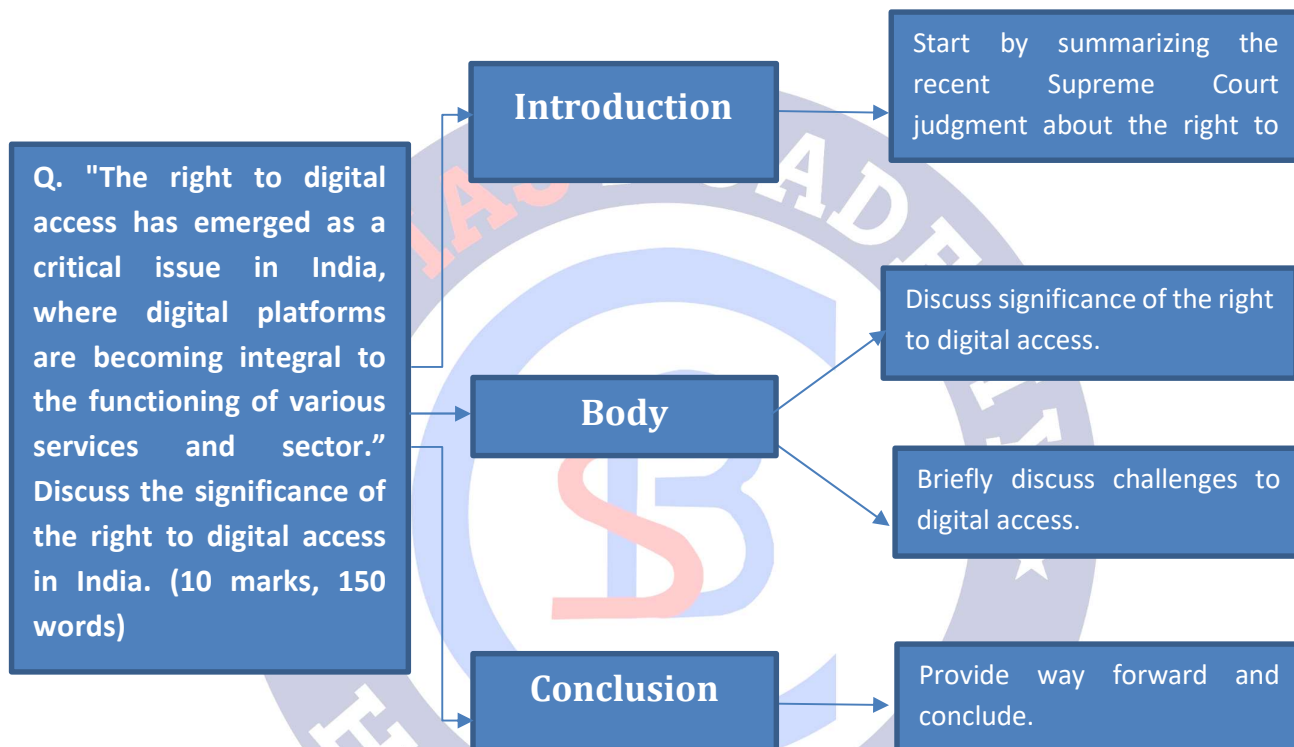
CONCLUSION:

- The **right to digital access** is essential for ensuring **equality, dignity, and participation** in the digital age. While significant progress has been made through initiatives like **Digital India** and **PMGDISHA**, ongoing efforts are needed to address infrastructure gaps, digital literacy, and accessibility challenges to achieve true inclusivity for all citizens.

PRACTICE QUESTION

Q. "The right to digital access has emerged as a critical issue in India, where digital platforms are becoming integral to the functioning of various services and sector." Discuss the significance of the right to digital access in India. (10 marks, 150 words)

APPROACH



MODEL ANSWER

The **Right to Digital Access** has gained significant importance in India, as digital platforms are increasingly integral to accessing essential services. In a landmark judgment, the **Supreme Court** recently ruled that **inclusive digital access** is a **fundamental right** under **Article 21** of the Constitution. The Court emphasized that the **Centre** and its authorities must address the **digital divide** faced by vulnerable groups, including rural populations, senior citizens, linguistic minorities, and persons with disabilities. This ruling affirms that digital inclusion is not just a policy issue but a **constitutional imperative**.

Significance of the Right to Digital Access in India:

1. Bridging the Digital Divide:

- India faces a **significant digital divide**, especially between **urban** and **rural areas**, with only **24.8%** of rural households having internet access compared to **51.3%** in urban areas (National Sample Survey, 2017-18). The **Right to Digital Access** ensures that marginalized

and rural populations are not excluded from essential services, fostering **equal participation** in society.

2. Empowering Marginalized Communities:

- The **right to digital access** is vital for marginalized communities such as **persons with disabilities (PwDs)**, **elderly citizens**, and **linguistic minorities**. For example, **80% of government websites** are not accessible to PwDs, which means they are deprived of their rights to welfare, education, and healthcare (**Digital Empowerment Foundation**).
- Additionally, **acid attack survivors** and **visually impaired individuals** face significant barriers when trying to complete the **digital KYC process**, as it involves tasks like facial recognition, which they cannot perform.

3. Participation in Governance and Democracy:

- Digital access is crucial for enabling **e-governance**, allowing citizens to engage in **voting**, access **welfare programs**, and avail **government schemes**.
- **Digital inclusion** ensures that all citizens, particularly those from marginalized communities, can **actively participate** in **democratic processes** and **decision-making**.

4. Ensuring Equal Access to Education and Healthcare:

- Digital platforms are essential for accessing **online education** and **telemedicine**. The **COVID-19 pandemic** highlighted the **lack of digital access** for over **247 million children** in India (**UNICEF**), who were unable to continue their education. Similarly, **telemedicine** has become vital for healthcare delivery, particularly in **rural areas** with limited healthcare facilities.

5. Promoting Economic Inclusion:

- Digital access fosters **economic participation** through **e-commerce**, **digital payments**, and **online job platforms**. By ensuring equitable access, individuals from **low-income** or **rural backgrounds** can engage in the **digital economy** and improve their livelihoods.

Challenges to Digital Access in India:

- **Infrastructure Deficits:** Many rural areas suffer from poor internet connectivity, unreliable power supply, and difficult terrain, hindering the establishment of telecom networks.
- **Digital Literacy Gaps:** Limited digital literacy, especially in rural areas, is a significant barrier. Programs like **PMGDISHA** aim to improve literacy but face challenges such as **poor connectivity** and **limited access to devices**.
- **Socio-Cultural Barriers:** Social norms and cultural constraints often prevent women in rural areas from accessing digital technologies, exacerbating gender disparities in access.

- **Accessibility Challenges for PwDs:** PwDs face barriers due to the lack of **assistive technologies** and accessible digital content, further marginalizing this group.
- **Economic Constraints:** The **cost of digital devices** and **internet services** remains high, limiting access for economically disadvantaged individuals.
- **Awareness and Engagement:** Even with infrastructure in place, a lack of **awareness** and **engagement** in digital literacy programs results in low adoption rates, especially in older populations.

Way Forward:

To ensure **inclusive digital access** for all, India must focus on:

- Expanding **internet connectivity** and addressing **infrastructure gaps**, particularly in rural and remote areas.
- **Enhancing digital literacy** through **expanded programs** like **PMGDISHA** and ensuring access to **affordable devices**.
- Promoting **accessibility** for **PwDs** by developing assistive technologies and accessible **digital content**.
- **Reducing economic barriers** by making digital devices and internet services **more affordable** for disadvantaged communities.
- **Raising awareness** about the benefits and availability of digital services, particularly in rural and marginalized areas.

The **right to digital access** is essential for ensuring **equality** and **participation** in society. It allows individuals to access vital services and opportunities, contributing to their **dignity** and **autonomy**. The **Supreme Court's ruling** emphasizes the need for inclusive digital access. Government initiatives like **Digital India**, **PMGDISHA**, **BharatNet**, and **CSCs** have made progress, but challenges remain. Continued efforts are required to address infrastructure, digital literacy, and accessibility issues, ensuring equal opportunities for all, particularly marginalized communities.

15. DEPUTY SPEAKER OF LOK SABHA

IMPACT ANALYSIS

SYLLABUS:

GS 2 > Polity > Parliament

REFERENCE NEWS:

- The **17th Lok Sabha (2019–2024)** and, as of now, the **18th Lok Sabha (post-2024 election)** have **failed to elect a Deputy Speaker**. This prolonged vacancy is unprecedented and represents a **violation of constitutional intent**, weakening the parliamentary framework.

DEPUTY SPEAKER OF LOK SABHA:

- The Office of the Deputy Speaker of the Lok Sabha is not merely a ceremonial seat but also a **constitutional imperative**.
- Mandated under **Article 93** of the Constitution of India, this **role is not just supplementary to the Speaker's**. It is vital for the **uninterrupted functioning** of the lower House of Parliament.
- **Historical background:**
 - The roots of this office can be traced back to the colonial period. The position originated in the **Central Legislative Assembly under British rule**, where it was known as the **Deputy President**.
 - The first to hold the office was **Sachidanand Sinha in 1921**.
 - By the time India achieved independence in 1947, the Deputy Speaker had already become an institutional fixture in legislative governance.
 - After Independence, the Constituent Assembly chose to retain the post of Deputy Speaker even before the Constitution came into force.
 - **M.A. Ayyangar became the first elected Deputy Speaker** and later **served as acting Speaker after G.V. Mavalankar's sudden death** in 1956, highlighting the role's importance in times of crisis.
- **Constitutional provisions:**
 - **Article 93 states:** "The House of the People shall, **as soon as may be**, choose two members of the House to be respectively **Speaker and Deputy Speaker....**"
 - The **phrasing "as soon as may be"** implies **urgency, and not discretion**. The Deputy Speaker's role is not optional; the Constitution places this office on an **equal footing with the Speaker** in terms of its necessity to the parliamentary structure.
 - **Article 94** states that the Deputy Speaker **remains in office until they resign, are removed, or cease to be a Member of Parliament**.

- **Status and Responsibilities**

- The Deputy Speaker is **not subordinate** to the Speaker; he is **directly accountable to the House**.
- While **presiding over the House**, the Deputy Speaker:
 - Cannot vote in the first instance.
 - Can exercise a **casting vote** in case of a tie.
- During the consideration of a **removal resolution** against him, the Deputy Speaker:
 - **Cannot preside**, though he may attend the session.

When not presiding, the Deputy Speaker functions like any **ordinary member**:

- Can **participate in debates**.
- Can **vote** on any matter before the House.

- **Privileges and Financial Entitlements**

- The Deputy Speaker receives a **salary and allowances**, which are:
 - **Fixed by Parliament**.
 - Charged **on the Consolidated Fund of India**, ensuring independence.

- **Parliamentary Conventions and Political Practice**

- Until the 10th Lok Sabha, both the Speaker and Deputy Speaker were usually chosen from the ruling party.
- However, from the **11th Lok Sabha onward**, a new convention emerged: the **Speaker is selected from the ruling party or coalition, while the Deputy Speaker is typically offered to the main opposition party**.
- This practice aims to **promote bipartisanship** and maintain a sense of **balance and fairness** in the functioning of the House.

- **Oath and Affirmation**

- **No separate oath or affirmation** is taken by either the Speaker or Deputy Speaker upon assuming office.

SIGNIFICANCE OF THE OFFICE OF THE DEPUTY SPEAKER:

- **Constitutional Mandate and Legal Framework:**

- The Deputy Speaker's office is a **constitutional requirement** under **Article 93**, which mandates the Lok Sabha to elect both a Speaker and a Deputy Speaker "as soon as may be."
- **Article 94** provides for the **tenure and conditions of vacancy**.
- These articles/provisions underline that the Deputy Speaker's role is an **essential constitutional office, not a ceremonial or discretionary one**.

- **Functional Importance in Parliamentary Practice:**
 - The **Speaker** of the Lok Sabha is the primary presiding officer but cannot be present at all times due to the demanding nature of the role. The **Deputy Speaker ensures continuity** by presiding over the House in the Speaker's absence or when the office is vacant.
 - As per parliamentary procedure, the Deputy Speaker also:
 - Chairs various **committees of the House**,
 - Handles **sensitive or controversial debates**, often requiring an impartial authority,
 - **Presides over joint sittings** of Parliament (Lok Sabha and Rajya Sabha) in the Speaker's absence, as per **Article 118**.
 - Importantly, once elected, the Deputy Speaker is expected to function **independently of party lines**, much like the Speaker, reinforcing neutrality in legislative proceedings.
- **Historical Legacy and Evolution:**
 - The post traces its roots to the **Central Legislative Assembly during British rule**, where it was initially called the **Deputy President**.
 - **M.A. Ayyangar**, the first elected Deputy Speaker of independent India, highlighted its importance when he stepped in after Speaker **G.V. Mavalankar's death** in 1956.
 - Since **1950**, the post has been a **permanent fixture** in India's parliamentary democracy, contributing to both **procedural robustness** and **leadership stability**.
- **Convention of Bipartisanship and Power Balance:**
 - Until the **10th Lok Sabha**, both Speaker and Deputy Speaker were often from the ruling party.
 - However, from the **11th Lok Sabha onwards**, a **convention developed** wherein the **Speaker is from the ruling party** and the **Deputy Speaker is offered to the main Opposition party**.
 - This **non-binding tradition** promotes:
 - **Bipartisanship and inclusivity**,
 - **Trust and cooperation across the aisle**, and
 - A symbolic yet real **check on the concentration of power** within the ruling dispensation.
- **Symbolism and Resilience of Parliamentary Democracy:**
 - The Office of the Deputy Speaker is **not a symbolic appendage**. It is a **functional necessity** and a **safeguard against procedural disruption**, especially in turbulent political times.

- By **reviving the tradition** of electing a Deputy Speaker — particularly from the Opposition — Parliament can:
 - Reinforce its **institutional integrity**,
 - Recommit to **constitutional values**, and
 - Demonstrate a willingness to **embrace shared governance** even amidst political differences.

IMPACT OF LEAVING THE OFFICE OF DEPUTY SPEAKER VACANT:

- **Weakening of Institutional Checks and Continuity:**
 - The Deputy Speaker functions as the **second-in-command**, presiding over the House in the **Speaker's absence** or when the office is vacant. Their presence ensures **continuity and procedural stability**.
 - For example, in **1956**, following the sudden death of Speaker **G.V. Mavalankar**, then Deputy Speaker **M.A. Ayyangar** took charge as acting Speaker, preventing a leadership crisis. In today's context, such a seamless transition would be impossible without a designated Deputy Speaker, creating a **leadership vacuum**.
- **Violation of Constitutional Mandate:**
 - The Constitution, under **Article 93**, mandates that the Lok Sabha shall elect both a Speaker and Deputy Speaker "as soon as may be." The phrase implies urgency, not convenience.
 - The **17th Lok Sabha (2019–2024)** did not elect a Deputy Speaker during its entire term — an **unprecedented situation** in Indian parliamentary history. As of now, the **18th Lok Sabha** has also not filled the post, raising serious concerns about **constitutional non-compliance**.
- **Administrative and Procedural Disruption:**
 - The Speaker cannot preside over every session, especially during long or intense debates.
 - As **S.C. Kashyap**, a noted constitutional expert, observed, it is **physically impractical** for the Speaker to chair all proceedings. The Deputy Speaker steps in to ensure **uninterrupted functioning**. Without one, the **burden increases on the Speaker**, and proceedings may suffer from **delays and disruptions**, affecting **legislative productivity**.
- **Undermining Bipartisanship and Conventions:**
 - Since the **11th Lok Sabha**, a convention has emerged where the **Speaker is chosen from the ruling party**, and the **Deputy Speaker is offered to the Opposition**. This practice promotes **inclusivity, dialogue, and power-sharing**. By keeping the post vacant, the government not only **sidelines the Opposition**,

but also weakens a vital **consensus-building mechanism**, increasing **polarisation in the House**.

- **Damage to Institutional Credibility and Public Trust:**
 - A prolonged vacancy reflects a **deliberate bypassing of norms**, reducing the credibility of the Lok Sabha. Citizens expect Parliament to uphold the Constitution and function transparently. The absence of a Deputy Speaker contributes to a **perception of democratic erosion**, and damages **public trust** in legislative institutions.
- **Missed Opportunity for Reform and Representation:**
 - This vacancy also reflects a missed opportunity to:
 - **Represent the Opposition** in a leadership role,
 - Reinforce **collective leadership**,
 - And promote **institutional balance**.
 - It highlights the need for **reform** — such as amending the Constitution to specify a **fixed timeline** (e.g., 60 days from the first sitting), or empowering the **President**, on advice, to initiate the election process.

WAY FORWARD:

- **Time-bound Election Mandate:** Amend Article 93 or introduce a statutory provision to **mandate the election of the Deputy Speaker within a fixed timeframe** (e.g., 60 days from the first sitting of the Lok Sabha).
- **Strengthen Parliamentary Conventions:** Reaffirm the **convention of offering the post to the Opposition** to promote bipartisanship, democratic balance, and institutional fairness.
- **Presidential Intervention Mechanism:** Establish a legal framework allowing the **President to initiate the election process** upon the advice of the Speaker or Prime Minister, if the House fails to act within the prescribed time.
- **Public and Judicial Accountability:** Encourage **greater public scrutiny** and, if necessary, **judicial interpretation** of “as soon as may be” to prevent constitutional ambiguity from being misused.
- **Institutional Reforms and Awareness:** Parliament must foster a **culture of constitutional compliance**, with regular orientation for members on the significance of parliamentary offices and democratic duties.

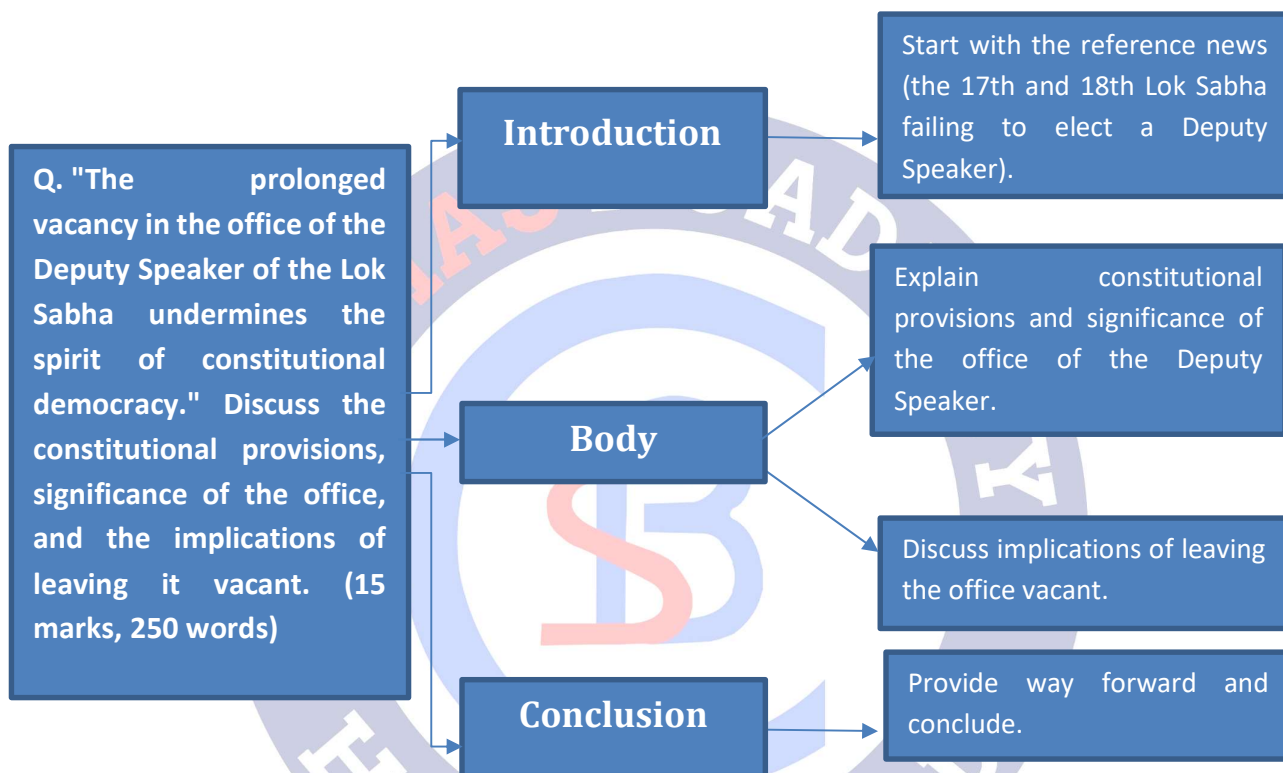
CONCLUSION:

- The continued vacancy of the Deputy Speaker’s office is not just a procedural oversight but a **constitutional and democratic lapse**. Restoring this vital position is essential to **reinforce institutional integrity, uphold constitutional norms**, and ensure **balanced legislative functioning**.

PRACTICE QUESTION

Q. "The prolonged vacancy in the office of the Deputy Speaker of the Lok Sabha undermines the spirit of constitutional democracy." Discuss the constitutional provisions, significance of the office, and the implications of leaving it vacant. (15 marks, 250 words)

APPROACH



MODEL ANSWER

The Deputy Speaker of the Lok Sabha plays a pivotal role in ensuring continuity and impartiality in parliamentary proceedings. However, the **17th Lok Sabha (2019–2024)** completed its term **without electing a Deputy Speaker**, and the **18th Lok Sabha** has yet to fill this crucial post. This prolonged vacancy—highlighted in recent news—is **unprecedented** and amounts to a **violation of constitutional intent**, weakening the checks and balances in the Indian parliamentary system.

Constitutional Provisions:

- **Article 93** of the Constitution of India mandates that *“The House of the People shall, as soon as may be, choose two members of the House to be respectively Speaker and Deputy Speaker.”*
 - The phrase **“as soon as may be”** is generally interpreted to indicate **urgency**, not delay or discretion. It establishes that **both offices are constitutionally essential** and must be filled by election of the House.

- **Article 94** states that the Deputy Speaker shall **remain in office until**:

They cease to be a Member of Parliament,

They resign by writing to the Speaker,

Or they are removed by a resolution passed by the Lok Sabha.

These provisions clarify that the office of Deputy Speaker is **not optional**, and its continued vacancy runs contrary to the spirit of constitutional democracy.

Significance of the Office of the Deputy Speaker:

1. Ensures Continuity in Leadership:

- The Deputy Speaker acts as the **second-in-command**, presiding in the absence of the Speaker or during a vacancy.
- A historic example is **M.A. Ayyangar**, who assumed the role of Acting Speaker in 1956 after Speaker **G.V. Mavalankar's** sudden death, ensuring seamless leadership transition.

2. Supports Legislative Functioning:

- The Speaker cannot preside over every session. The Deputy Speaker ensures **uninterrupted legislative work** and procedural flow.
- **S.C. Kashyap**, constitutional expert, emphasized the **practical need** for the Deputy Speaker to relieve the Speaker during lengthy sessions.

3. Upholds Neutrality and Order:

- When presiding, the Deputy Speaker has **all powers of the Speaker**, including maintaining order and ensuring discipline in the House.
- They are expected to function **impartially**, rising above party affiliations.

4. Strengthens Bipartisanship and Inclusivity:

- Since the **11th Lok Sabha**, a **parliamentary convention** has emerged to offer the post to the **Opposition** party.
- This promotes **balance of power**, **trust across the aisle**, and reinforces the **non-partisan nature** of key parliamentary roles.

5. Symbol of Parliamentary Heritage:

- The office dates back to **colonial India**, where it was first established in **1921** as the "Deputy President" of the Central Legislative Assembly.

- By the time of independence, it had become a **permanent institutional fixture**, reflecting its legacy and constitutional continuity.

Implications of Leaving the Office Vacant:

1. Constitutional Breach:

- Failing to elect a Deputy Speaker violates the **constitutional mandate under Article 93**, eroding the authority of the Constitution itself.

2. Leadership Vacuum:

- In case of emergency—death, resignation, or removal of the Speaker—there is **no designated substitute**, creating a **governance gap** and administrative confusion.

3. Procedural Disruption:

- With no Deputy Speaker, the **entire burden of presiding** over the House falls on the Speaker, risking **delays and reduced efficiency**, especially during long or contentious debates.

4. Undermining Parliamentary Conventions:

- Not offering the post to the Opposition **breaks the convention of bipartisanship**, furthering political polarisation and **excluding dissenting voices** from institutional roles.

5. Loss of Public Trust:

- Citizens expect Parliament to **uphold constitutional values**. Prolonged vacancy creates a **perception of executive dominance**, weakening public confidence in democratic functioning.

6. Missed Institutional Reform:

- The situation highlights a failure to push for **clarity and legal reform** to prevent future delays in key appointments.

Way Forward: Reforms to Ensure Timely Appointment

- **Amend Article 93 or Enact Statute:** Clearly define a **time-bound mandate** (e.g., within 60 days of the first Lok Sabha sitting) for electing the Deputy Speaker.
- **Enable Presidential Oversight:** Introduce a mechanism whereby the **President**, on advice from the Prime Minister or Speaker, may **initiate the election process** in case of undue delay.
- **Strengthen and Formalise Conventions:** Institutionalise the practice of offering the post to the **Opposition** to maintain **political balance** and restore **mutual trust**.

- **Judicial Clarification:** Seek **Supreme Court interpretation** of the phrase “as soon as may be” to **prevent constitutional abuse** or procedural stagnation.
- **Build Constitutional Awareness:** Ensure MPs are regularly **oriented on the importance** of constitutional offices and the need to preserve institutional integrity.

The continued vacancy in the Office of the Deputy Speaker is not a minor procedural delay—it is a **constitutional failure** that undermines the very **spirit of parliamentary democracy**. Immediate reforms and a recommitment to **constitutional values and conventions** are essential to uphold **institutional integrity, procedural continuity, and public trust** in India’s legislative governance.



16. INDIA-AFRICA RELATIONS

IMPACT ANALYSIS

SYLLABUS:

GS 2 > International relations > India and Global Regions > India & Africa

REFERENCE NEWS:

- Recently, External Affairs Minister S. Jaishankar described the relationship between India and Africa as **“truly special”, highlighting shared values, historical ties, and mutual development goals** at the **Africa Day 2025** celebrations in New Delhi.

Africa Day (formerly African Freedom Day and African Liberation Day) is the annual commemoration of the **foundation of the Organization of African Unity on 25 May 1963**. It is celebrated in various countries on the African continent as well as around the world.

MORE ON NEWS:

- Jaishankar reaffirmed India’s commitment to Africa’s development by keeping markets open, sharing digital expertise, enhancing public services, promoting education and digital literacy, supporting agriculture, and ensuring open, inclusive oceans.
- During his address, the external affairs minister recalled the COVID-19 pandemic and criticized the **vaccine apartheid** and travel restrictions that disproportionately affected Africa. He underscored the urgent need for stronger global partnerships to address shared challenges in food, health, and energy security.
- On the **Global South**, the EAM said **India and Africa are its pillars**, asserting that those who question its relevance do not understand it.
- He also noted Africa’s growing transformation and affirmed **India’s support during its G20 presidency for granting full membership to the African Union**.
- The foreign minister reiterated India’s call for **greater African representation** in global institutions, including the **UN Security Council**, in line with the **Ezulwini Consensus**.

Ezulwini Consensus is Africa’s **official demand for UN Security Council reform**, calling for at least two permanent and five non-permanent African seats with full voting rights.

- Jaishankar also underlined support for the **African Union's Agenda 2063**, stating India's approach is inclusive and demand-driven—focused on local capacity building and self-sustaining ecosystems.

Agenda 2063 is **Africa's development blueprint to achieve inclusive and sustainable socio-economic development** over a 50-year period

- He highlighted India's USD 700 million grant assistance to African nations, including health equipment, ambulances, Jaipur Foot prosthetics, and food grains, demonstrating India's enduring partnership in times of need.

HISTORICAL BACKGROUND:

- India and Africa share a long and rich relationship, with our **freedom movement** becoming an inspiration for African nationalists in their desire for independence from colonialism.
- In present times, both India and Africa desire a mutually beneficial relationship by collaborating through lucrative trade and investment opportunities.
- The structured engagement and cooperation works in three tiers:

At a **pan-Africa**, continental level with the African Union

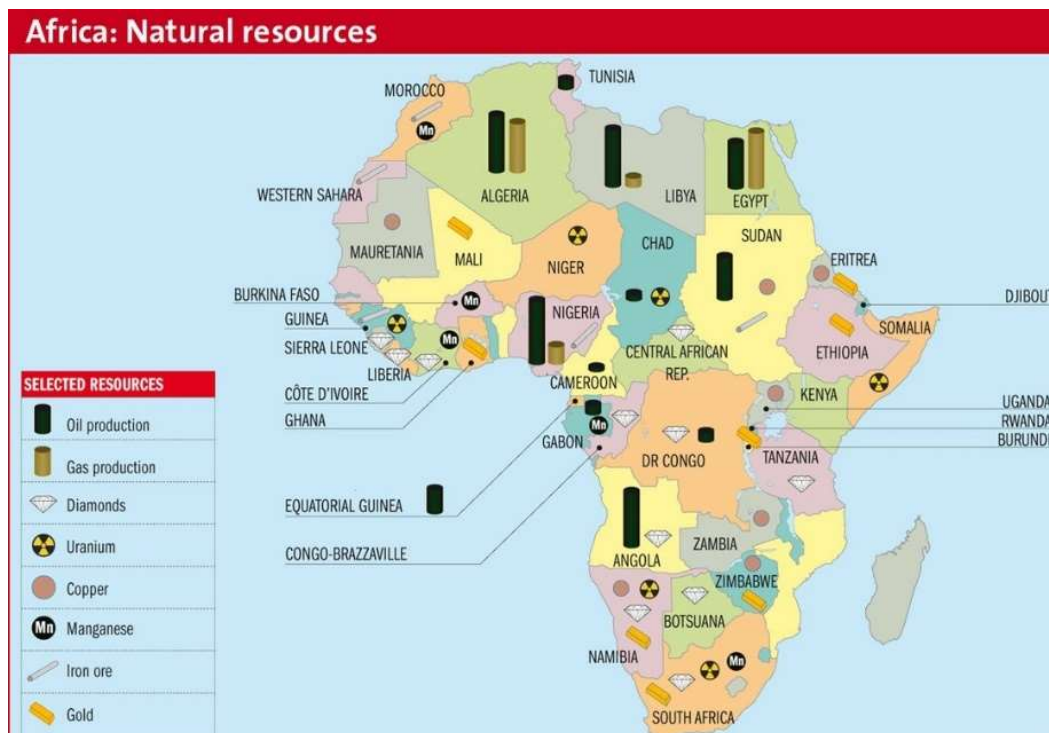
At **regional and sub-regional level** with the various African Regional Economic Communities

Bilaterally, with individual African countries

WHY INDIA NEED AFRICA:

- **Next growth pole:**
 - **By 2030**, Africa will have **1.7 billion people** and **\$6.7 trillion in consumer and business spending**, offering one of the **fastest-growing consumer markets globally**. With 54 countries and an abundance of resources, Africa offers **a market for India**.
- **Resource potential:**
 - Africa, especially the western parts, is rich in resources such **as uranium, diamonds, copper, phosphates and other minerals**. It offers India huge potential for collaboration in resource exploration.

- For instance, Africa is rich in **critical minerals** (e.g., cobalt, copper, rare earths) necessary for **India's clean energy and electronics industries**.



○ **South-South Cooperation and India's Mahasagar Vision:**

A resurging Africa can significantly boost South-South Cooperation by addressing shared challenges in **clean technology, climate resilience, maritime security, connectivity, and the blue economy**.

Reflecting this, India has outlined a **new vision for the Global South—"Mahasagar"** (Mutual and Holistic Advancement for Security and Growth Across Regions)—focused on inclusive, region-wide security and sustainable growth.

○ **Food security:**

- Africa is a food producer and can be a major source to meet India's growing needs.
- For instance, in 2016 India signed agreements were signed with Mozambique and Tanzania to incentivise local farmers to **grow pulses** in order to cover the growing Indian demand with a **guaranteed minimum procurement price and quantity**.

- **Reforms in governance institutions:**
 - Democratic reforms in global institutions are essential. Hence, India and Africa have voiced their support for expanding both permanent and non-permanent membership of the **UN Security Council**.
 - For instance, recently, S. Jaishankar reiterated India's call for **greater African representation** in global institutions, including the **UN Security Council**, in line with the **Ezulwini Consensus**.
- **Address climate change:**
 - India and Africa are committed towards sustainable development and combating climate action, which is evident in **India's SDG commitments and Africa's Agenda 2063**.
- **Diaspora:**
 - Indian Diaspora in Africa constitutes **12.37 per cent** of the total Diaspora of India. Many among them have attained important positions. They could be crucial in strengthening India-Africa relations.

WHY IS THE AFRICAN UNION JOINING THE G-20 SIGNIFICANT FOR INDIA?

- The inclusion of AU in the G20 is in line with India's strategy to **create more diverse and representative international platforms**, which aligns perfectly with India's own global **aspirations to foster a multipolar world**.
- The admission of the AU as a full member of the G-20 underscores India's wide-ranging agenda to focus the global multilateral forum's attention on the Global South during her presidency of the G20.
- **Backing the AU by India is a natural progression of their partnership**, making it more than just symbolic; it is a strategic one, taking into consideration a long history of cooperation between the two, from trade and education to healthcare and technology.

AREAS OF COOPERATION:

- **Political relations:**

- India now operates **46 diplomatic missions** in Africa (up from 29 in 2018), reflecting deepening engagement.
- High-level visits such as **Vice President's 2022 visit to Gabon and Senegal** underscore political commitment.
- India played a key role in **AU's inclusion as a permanent G20 member** during its 2023 presidency.
- **Trade relations:**
 - **India-Africa trade stood at USD 83.34 billion** in 2023–24, with an ambitious **target of USD 200 billion by 2030**.
 - India's exports: mineral fuels, pharmaceuticals, machinery, cereals.
 - Imports: crude oil, gold, copper, diamonds.
 - **38 African countries benefit** from India's **Duty-Free Tariff Preference (DFTP)** scheme, covering 98.2% of tariff lines.
- **Investments:**
 - India's cumulative investments in Africa have exceeded **USD 75.2 billion**, with a goal of **USD 150 billion by 2030**.
 - Over **200 Lines of Credit (USD 12 billion)** support sectors like agriculture, power, transport, and water.
 - Over **50 Indian companies** are active in **Gabon SEZ**; Indian firms also investing in **green hydrogen**, pharma, fintech, and digital infrastructure.
- **Defence cooperation:**
 - Over the years, India has provided **training of African military personnel** at various Indian institutes such as the Indian Military Academy and the National Defence College.
 - There has also been an increased presence of African delegations at Indian defence exhibitions such as Defence Expo and Aero India.
 - Besides these, there are defence exercises, like the Africa-India Field Training Exercise-2019 (**AFINDEX-19**).

- **Humanitarian aid:**

- India extended **USD 700 million in grant assistance** to Africa, covering **health equipment, Jaipur Foot prosthetics, ambulances, and food grains.**

During **COVID-19**, under **Vaccine Maitri**, India supplied **24.7 million vaccine doses** to 42 African nations.

- Indian Navy's HA/DR missions, e.g., during **Cyclone Idai (2019)**, further highlight humanitarian cooperation.

- **Security cooperation:**

- India has several peacekeeping operations in Africa under the aegis of **UN Peacekeeping**. The deployment of the all-Female Police Unit of the United Nations (UN) in Liberia in February 2016 was a notable effort in this regard.
- Also, cooperation in **anti-terrorism, piracy control, and maritime security** has intensified.

- **Cyber Security and Digital Revolution:**

- The **Pan African e-Network** and its successor **e-VidyaBharati & e-ArogyaBharati (e-VBAB)** support **tele-education** and **tele-medicine**.
- Over **37,000 Africans** trained under **ITEC and ICCR** programs.
- India signed **cybersecurity MoUs** with **Morocco, Mauritius, and Egypt**.
- African nations are exploring India's **Digital Public Infrastructure (DPI)** model, including **India Stack**.

- **Promoting electoral democracy:**

- The Election Commission of India (ECI) has partnered with African countries in election management by sending observation missions and providing equipments.
- For instance, in 2014, **Namibia became the first African country to use Electronic Voting Machines made in India.**

- **Cooperation over Indian ocean:**

- Naval cooperation continues to grow strong with regular port visits, transfer of hardware and logistical support, naval intelligence, and patrolling of Exclusive Economic Zones (EEZs) being undertaken.

- The **Information Fusion Center**, based in Gurugram helps to track and monitor shipping traffic in the Indian Ocean, coordinate incident responses, and share submarine safety information.
- India supports keeping the **Indian Ocean open and inclusive**, aligning with Africa's maritime priorities.
- **Addressing climate change:**
 - Under the **International Solar Alliance (ISA)**, India pledged a **USD 2 billion Line of Credit** for **off-grid solar projects** in Africa.
 - Over **2,200 African professionals trained** in solar tech by ISA.
 - India launched the **Global Green Hydrogen Innovation Centre (GHIC)** with 6 African partners.
- **Cooperation on global issues:**
 - India and Africa coordinate positions at global platforms like **WTO, WIPO**, and **UNFCCC**.
 - Joint proposals such as on **agriculture and geographical indications** reflect shared developmental interests.
 - India supports **Africa's permanent representation in the UN Security Council**, in line with the **Ezulwini Consensus**.

KAMPALA PRINCIPLES:

India's approach to a development partnership with Africa is guided by the Kampala Principles enunciated by Prime Minister Narendra Modi in 2018:

1. Africa will be at the **top of our priorities**. We will continue to intensify and deepen our engagement with Africa. As we have shown, it will be **sustained and regular**.
2. Our development partnership will be **guided by your priorities**. We will build as much local capacity and create local opportunities as possible. It will be on terms that are comfortable to you, that will liberate your potential and not constrain your future.
3. **We will keep our markets open** and make it easier and more attractive to trade with India. We will support our industry to invest in Africa.

4. We will **harness India's experience with the digital revolution to support Africa's development**; improve delivery of public services; extend education and health; spread digital literacy; expand financial inclusion; and mainstream the marginalised.
5. Africa has 60 percent of the world's arable land, but produces just 10 percent of the global output. We will work with you to **improve Africa's agriculture**.
6. Our partnership will **address the challenges of climate change**.
7. We will strengthen our cooperation and mutual capabilities in **combating terrorism and extremism**; keeping our cyberspace safe and secure; and, supporting the UN in advancing and keeping peace.
8. We will work with African nations **to keep the oceans open and free for the benefit of all nations**. The world needs cooperation and competition in the eastern shores of Africa and the eastern Indian Ocean.
9. As global engagement in Africa increases, we must all work together to ensure that Africa does not once again turn into a theatre of rival ambitions, but **becomes a nursery for the aspirations of Africa's youth**.
10. Just as India and Africa fought colonialism together, we will work together for a **just, representative and democratic global order** that has a voice for one-third of humanity that lives in Africa and India.

INDIA'S CHALLENGES IN AFRICA:

- **Absence of a clear vision:**
 - While India has intensified engagement, **there is still no unified, long-term Africa strategy** coordinating diplomacy, development finance, trade, and security.
 - India's multiple tools— LoCs, ITEC(Indian Technical and Economic Cooperation), ICCR(Indian Council for Cultural Relations), grant assistance, training—need **better alignment for measurable developmental impact**.
- **China factor:**
 - **China's presence continues to outpace India** with massive infrastructure investments, Belt and Road Initiative (BRI) projects, and digital infrastructure.
 - Strategic concerns remain, like China's **military base in Djibouti** and acquisition of key African ports.

- **Delayed project completion:**
 - Indian-funded infrastructure and capacity-building projects still face **execution delays** due to **bureaucratic hurdles and lack of follow-up**.
 - For example, some **LoC projects in East Africa remain unfinished** years after agreement signing.
- **Limited access to finance:**
 - Many African countries face **growing debt distress**, limiting their capacity to engage in new trade or credit lines with India.
 - India's development financing is **modest compared to multilateral players** and often lacks concessional terms.
- **Challenges from pandemic:**
 - While Africa is recovering post-COVID, the **economic scarring remains** deep, with nearly **60 million pushed into poverty** across the continent.
 - India must now **reorient its partnership to focus on resilience-building**, including healthcare, vaccine R&D, and regional supply chains.
- **Competition from other countries:**
 - **Gulf countries, Turkey, Israel**, and even **ASEAN nations** are increasing their African footprint.
 - India must distinguish itself by leveraging **cultural affinity, diaspora ties, and its digital public goods model**.
- **Attacks on African nationals in India:**
 - Though **fewer incidents reported recently**, concerns persist around **xenophobia and cultural misperceptions**.
 - A **coordinated public diplomacy campaign** is needed to repair and deepen people-to-people ties.
- **Anti-India sentiments:**
 - Domestic backlash in African countries against Indian involvement—**e.g., concerns over land acquisition, job displacement**—requires **greater community engagement** in project planning.

- **Political instability:**
 - **Coups in Mali, Burkina Faso, Gabon, and Niger** since 2021 reflect a regional erosion of democracy.
 - India's engagement model must be **conflict-sensitive**, with increased support for **governance and institutional reform**.

WAY FORWARD:

- **Craft a unified Africa strategy:**
 - India should draft a **10-year strategic framework for Africa (2025–2035)** that aligns trade, climate, digital, and diplomatic goals, modeled on its Indo-Pacific vision.
- **Prioritise areas with highest impact:**
 - Focus on **healthcare cooperation, clean energy, blue economy, digital public infrastructure (DPI), and critical minerals** to align with Africa's Agenda 2063.
- **Continue capacity building:**
 - India's flagship training programs (ITEC, ICCR) should now **include digital skilling, climate adaptation, AI/ML modules**, etc., tailored to local needs.
- **Harness soft power through civil society:**
 - Encourage partnerships between **Indian NGOs, tech startups, and African grassroots organizations** to implement sustainable, community-driven development models.
- **Support development-friendly private investment:**
 - Leverage Indian strengths in **pharmaceuticals, fintech, green hydrogen, and mobile payments** to promote **responsible FDI** in African economies.
 - Create a **risk insurance mechanism** for Indian companies entering African markets.
- **Improve project delivery:**
 - Lessons must be drawn from India's Gati Shakti model to ensure **faster implementation** of LoC-funded projects in Africa.

- Include **monitoring dashboards and milestone audits**.
- **Address education gaps:**
 - **India should expand IIT-like institutions (e.g., IIT Zanzibar) and develop joint African digital universities** to attract African talent and reduce brain drain.
- **Enhance diaspora and student experience:**
 - Launch a **dedicated India-Africa Student and Diaspora Outreach Program** to ensure safety, inclusion, and smoother academic transitions.
 - Include African cultural exchanges in Indian academic institutions.
- **Lead digital cooperation:**
 - Promote **India Stack, UPI, and CoWIN-like health platforms** as open-source public goods in Africa.
 - Establish **India-Africa Digital Innovation Fund** for cross-border startups.
- **Institutionalise the Mahasagar Vision:**
 - Establish a **Mahasagar Dialogue Mechanism** to implement the Mutual and Holistic Advancement for Security and Growth Across Regions agenda, especially in blue economy, maritime security, and climate action.

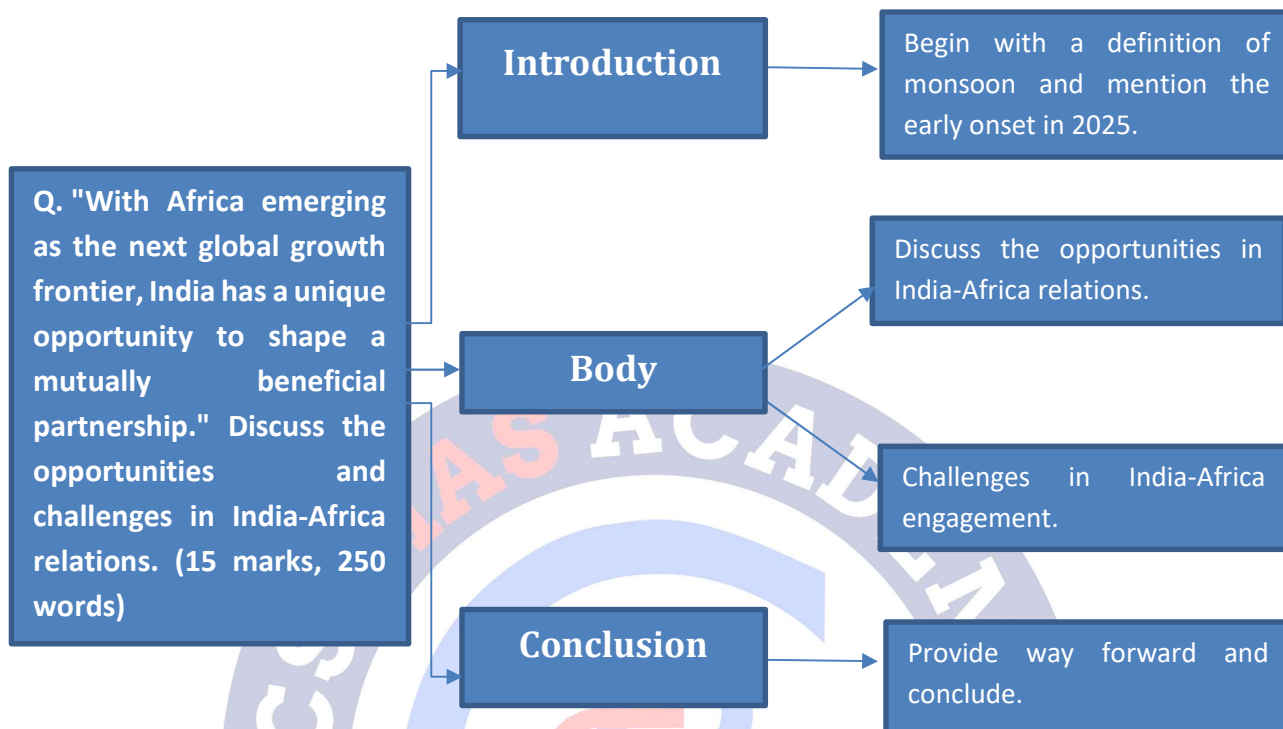
CONCLUSION:

- India-Africa relations are anchored in shared history, mutual respect, and complementary development goals. With Africa emerging as a strategic partner in trade, energy, and global governance, India must adopt a focused, inclusive, and future-ready approach to deepen this vital partnership.

PRACTICE QUESTION

- Q. "With Africa emerging as the next global growth frontier, India has a unique opportunity to shape a mutually beneficial partnership." Discuss the opportunities and challenges in India-Africa relations. (15 marks, 250 words)**

APPROACH



MODEL ANSWER

At the 2025 Africa Day celebrations, EAM S. Jaishankar described India-Africa ties as “truly special”, reaffirming India’s commitment to Africa’s development and shared aspirations in the Global South. Africa, projected to reach **1.7 billion people and USD 6.7 trillion in consumer and business spending by 2030**, stands poised as the next global growth frontier. With its deep historical links and rising strategic relevance, Africa presents India with immense opportunities for engagement, while also posing distinct geopolitical and developmental challenges.

Opportunities in India-Africa Relations:

1. Strategic Demographics and Economic Growth

- Africa’s young and growing population, with a burgeoning middle class, provides a large consumer base and workforce.
- India-Africa trade reached **USD 83.34 billion in 2023–24**, with an ambitious goal of **USD 200 billion by 2030**.

2. Resource and Energy Security

- Africa's rich reserves of **critical minerals** (cobalt, copper, rare earths) are crucial for India's clean energy and electronics sectors.
- Import of **crude oil, gold, and diamonds** contributes to India's strategic stockpiling and energy diversification.

3. South-South Cooperation and Mahasagar Vision

- Africa is key to India's vision of **Mutual and Holistic Advancement for Security and Growth Across Regions (Mahasagar)**.
- Collaboration on climate resilience, blue economy, and maritime security strengthens Global South solidarity.

4. Food Security

- India signed MoUs with countries like Mozambique and Tanzania to grow **pulses**, ensuring stable food supply chains for Indian markets.

5. Shared Global Governance Aspirations

- India supports **African Union's full G20 membership** and greater representation in the **UN Security Council**, aligning with the **Ezulwini Consensus**.

6. Development Partnership and Capacity Building

- India has extended **USD 700 million in grants** and **USD 12 billion in Lines of Credit** for sectors such as agriculture, transport, and healthcare.
- Over **37,000 Africans trained** under ITEC and ICCR, strengthening institutional capacities.

7. Climate and Technology Collaboration

- Under the **ISA**, India pledged **USD 2 billion** for off-grid solar projects.
- African nations increasingly adopt India's **Digital Public Infrastructure** like **India Stack** and **UPI**.

Challenges in India-Africa Engagement:

1. Lack of Unified Strategy

- Fragmented use of tools like **LoCs**, **ITEC**, **ICCR**, and grants reduces overall developmental impact.

2. China's Deepening Influence

- China's BRI, military presence (e.g., **Djibouti base**), and strategic port investments overshadow India's footprint.

3. Project Delays and Bureaucracy

- Many Indian-funded projects face long delays, undermining credibility and trust—**LoC projects in East Africa** remain unfinished.

4. Limited Financial Bandwidth

- India's development financing is smaller and often less concessional than global players, limiting scalability.

5. People-to-People Concerns

- **Attacks on African students** and cultural insensitivity risk damaging goodwill.
- Rising **anti-India sentiments** over land and job concerns need proactive community engagement.

6. Geopolitical and Political Instability

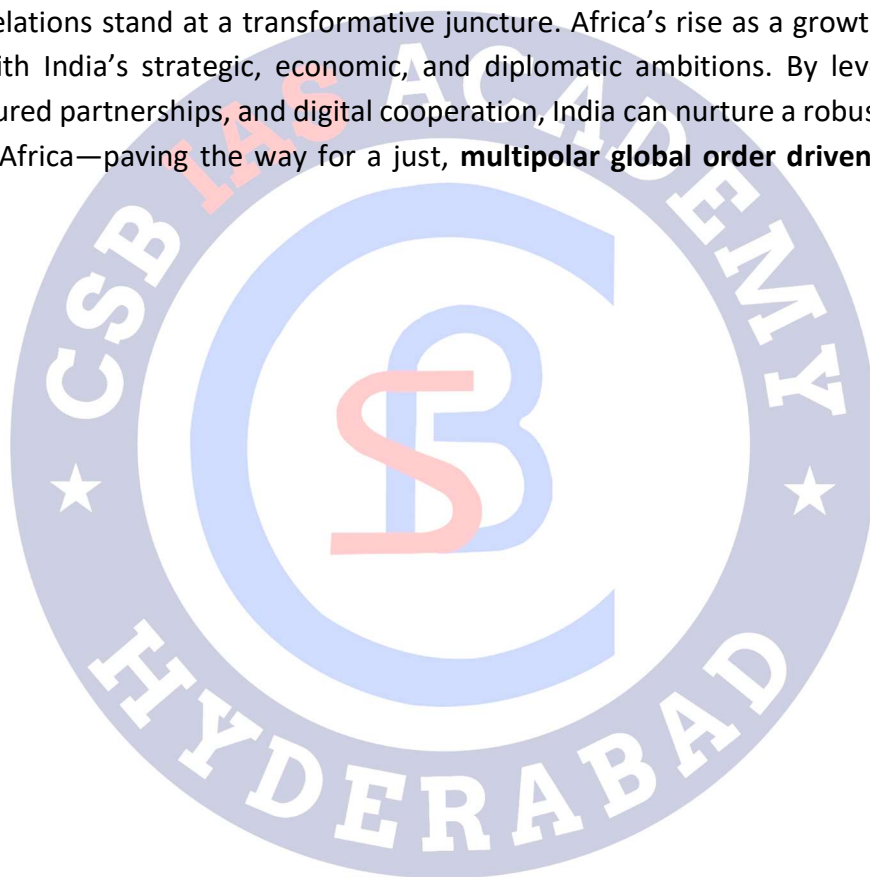
- **Recent coups** in Mali, Burkina Faso, and Gabon reflect instability, requiring India to adopt conflict-sensitive approaches.

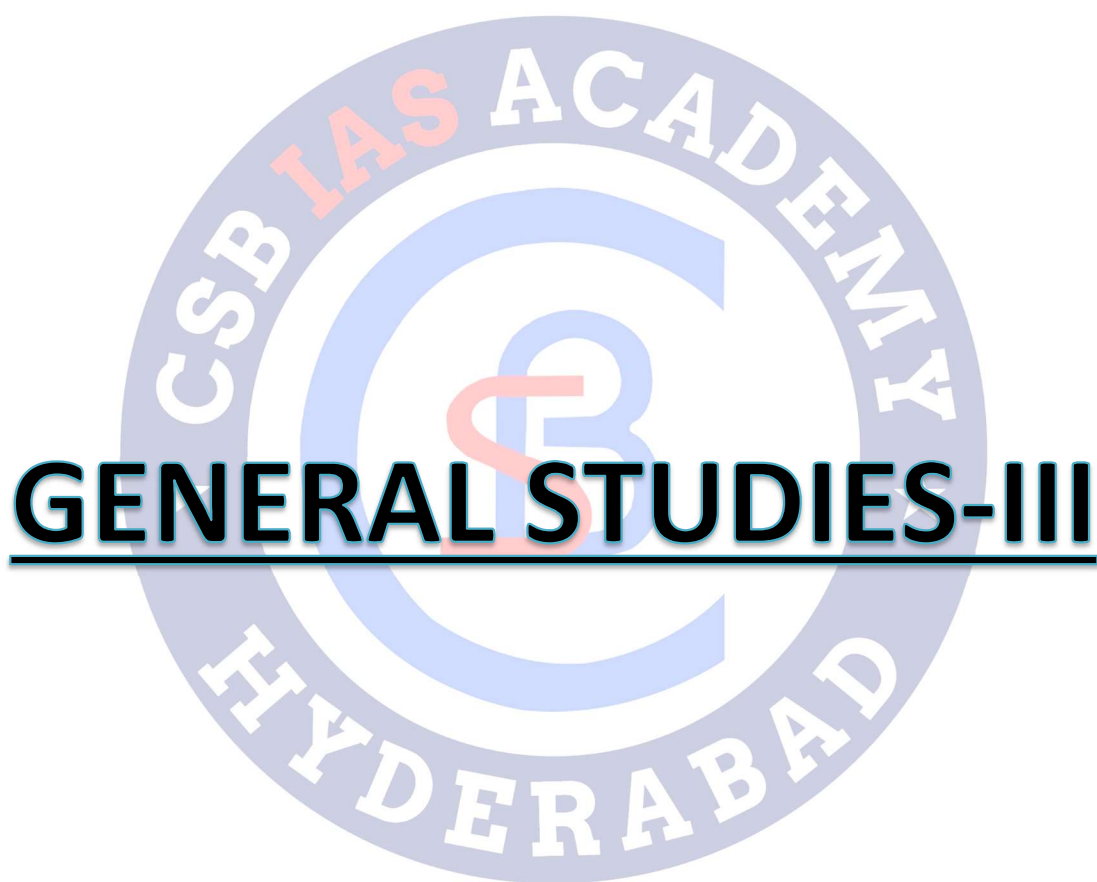
Way Forward

- **Draft a 10-Year Unified Africa Strategy** (2025–2035) aligning diplomacy, trade, climate, and digital goals.
- **Prioritise Impact Areas** like healthcare, clean energy, critical minerals, and DPI.
- **Reform Capacity Building Initiatives** by integrating digital and AI skills under **ITEC** and **ICCR** frameworks.

- **Promote Responsible FDI** in key sectors like **pharma, green hydrogen, and fintech** with risk insurance support.
- **Fast-Track Implementation** using Gati Shakti-like dashboards for **LoC project monitoring**.
- **Strengthen Soft Power and Diaspora Connect** through cultural exchanges, safety programs, and diaspora outreach.
- **Institutionalise Mahasagar Vision** via structured India-Africa maritime and climate dialogues.

India-Africa relations stand at a transformative juncture. Africa's rise as a growth engine aligns seamlessly with India's strategic, economic, and diplomatic ambitions. By leveraging shared values, structured partnerships, and digital cooperation, India can nurture a robust, future-ready alliance with Africa—paving the way for a just, **multipolar global order driven by the Global South**.





17. CROP DIVERSIFICATION

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Agriculture > Crops > Crop diversity

REFERENCE NEWS:

- Indian farmers increasingly prefer rice and wheat **not just for assured Minimum Support Price (MSP) procurement** but due to **strong public research support** that has steadily improved yields and resilience. Recently, India became the **first country to release genome-edited rice varieties—Kamala and Pusa DST Rice 1**—developed by ICAR using advanced genome editing. These climate-resilient varieties conserve water and boost yields.
- In contrast, **crops like cotton, pulses, and oilseeds lack a similar R&D focus**, underscoring the need for broader innovation to promote crop diversification, which is essential for sustainable agriculture, nutritional security, and reducing dependence on water-intensive cereals.

WHAT IS CROP DIVERSIFICATION?

- Crop diversification refers to the **addition of new crops or cropping systems** to agricultural production on a particular farm, taking into account the different returns from value-added crops with complementary marketing opportunities.
- Diversification can be accomplished by **adding a new crop species or variety or by changing the cropping system** currently in use. Commonly, it can mean **adding more crops to an existing rotation**.

Types of Crop Diversification

Type of diversification	Nature of diversification	Potential benefit
Improved structural diversity	Makes crops within field more structurally diverse	Pest suppression
Genetic diversification in monoculture	Cultivation of mixture of varieties of same species in a monoculture	Disease suppression, Increased production stability
Diversify field with fodder grasses	Growing fodder grasses alongside of food/pulse/oilseed/vegetables	Pest suppression, opportunity to livestock farming
Crop rotations	Temporal diversity through crop rotations	Disease suppression, Increased production
Polyculture	Spatial and temporal diversity of crops	Insect, pest disease suppression, climate change buffering
Agro-forestry	Growing crops and trees together	Pest suppression and climate change buffering
Mixed landscapes	Development of larger-scale diversified landscapes through mixture of crops and cropping system with multiple ecosystems	Pest suppression, climate change buffering and increased production stability
Micro-watershed based diversification	Integration of crop with other farming components for year round income and employment generation, besides sustaining soil	Insect, pest and disease suppression, climate change buffering and increased production, employment and income

Diversification can also be implemented to **replace low-value commodities with high-value commodities**, such as vegetables and fruits.

WHY CROP DIVERSIFICATION?

- **Higher income and reduced risk for the farmers:**

Crop diversification by introducing a **greater range of varieties** makes sure that farmers are not dependent on a single crop to generate their income.

When farmers only cultivate one crop type, they are **exposed to high risks** in the **event of unforeseen climate** events that could severely impact agricultural production, such as the emergence of pests and the sudden onset of frost or drought.

Also, the **Committee on Doubling Farmers Income** has suggested that shifting some areas **from staple cereals to high-value produce** can lead to a sizable increase in the returns for farmers.

- **Food and nutritional security:**

As a large section of India's population suffers from **malnutrition**, including crops like **pulses, millets (or 'nutri cereals')**, oilseeds, horticulture, and vegetable crops can **improve the nutritional quality of the food basket**.

Crop diversification allows farmers to **grow surpluses as well as diverse products**, which will greatly contribute to the **nutritional and food security of the nation**.

- **Depletion of groundwater resources:**

As the **Economic Survey 2021–22** mentioned, the existing **cropping pattern is skewed towards the cultivation of sugarcane, paddy, and wheat**, which has **led to the depletion of fresh groundwater resources** at an alarming rate in many parts of our country.

- **Helps in reviving soil health:**

Following the **same cropping pattern**, like wheat and rice after the green revolution, for a longer period of time has **extracted specific nutrients from the soil, resulting in a deficiency** in those nutrients along with a **declining population of microfauna** in the soil.

Thus, breaking the mono-cropping pattern through the **introduction of diverse crops** and cropping patterns **helps in reviving soil health**.

For instance, the **introduction of legumes**, which have the ability to **fix atmospheric nitrogen** in rice-wheat monocropping regions, would help **sustain soil fertility**.

- **Diverse agronomic benefits:**

Production of diverse crops on the same land can produce many agronomic benefits in pest management by **breaking insect and disease cycles, reducing weeds and soil erosion, and conserving soil moisture.**

The **more diverse a farming system** is with plants, animals, and soil-borne organisms, the **more varied the population of beneficial pest-fighting microbes** in the soil.

- **Access to international markets:**

Crop diversification can enable farmers to gain access to national and international markets with **new products**, including **diverse food crops with surplus production and medicinal plants.**

- **Adaptation to Climate Change:**

Crop diversification **enhances resilience** by spreading climate risk across multiple crops. Different crops respond differently to droughts, floods, and temperature extremes, so a diversified system is less vulnerable overall.

- **Employment Generation:**

Diversifying into **horticulture, floriculture, and allied activities** (e.g., bee-keeping, mushroom cultivation) is **labour-intensive** and provides **year-round employment.**

This supports **rural livelihoods**, especially for women and small/marginal farmers.

GOVERNMENT INITIATIVES:

- **Crop Diversification Programme (CDP):**

The Department of Agriculture and Farmers Welfare (DA&FW) has been implementing the Crop Diversification Programme (CDP), a **sub-scheme of the Rashtriya Krishi Vikas Yojana (RKVY)**, in the **Original Green Revolution States** viz; Haryana, Punjab, and Western Uttar Pradesh since 2013-14 to **divert the area of water-intensive paddy crops** to alternative crops like pulses, oilseeds, coarse cereals, nutri cereals, cotton, etc.

- **National Food Security Mission (NFSM) and Mission for Integrated Development of Horticulture (MIDH):**

Government of India is also supplementing the efforts of state governments to **encourage diversified production of crops** such as pulses, coarse cereals, nutri cereals, cotton &

oilseeds under **National Food Security Mission (NFSM)** and horticultural crops under **Mission for Integrated Development of Horticulture (MIDH)**.

- **Minimum Support Prices (MSP):**

The government has, through the MSP regime, been providing a **price signal for crop diversification** towards the **production of oilseed**, and the **differential remuneration** is aimed at encouraging crop diversification.

- **International Year of Millets:**

With the aim to create awareness and **increase production & consumption of millets**, United Nations, at the behest of the Government of India, declared **2023 the International Year of Millets**. India plans to increase production and promote millets, which have many benefits, as an alternative to much-in-demand food grains.

CHALLENGES:

- **Inadequate infrastructure:**

Lack of quality infrastructure like rural roads, power, transport, communications, etc., as well as **inadequate post-harvest technologies and inadequate infrastructure for post-harvest handling of perishable horticultural produce**, would be a challenge to the proper implementation of crop diversification strategy.

- **Limited Innovation and Support:**

One of the major challenges to crop diversification in India is the limited innovation and support for non-cereal crops; with **Bt cotton (2002–06)** being the **last significant breeding breakthrough**, there have been **no GM approvals** for crops like cotton, mustard, or brinjal since, leading to **stagnant yields** in pulses, oilseeds, and other field crops.

- **Risk of poor economic returns:**

Farmers may face poor economic returns **if crops are not selected based on a market assessment**. For example, drought-tolerant crop varieties like millets may fetch a low market price if there is not sufficient demand.

- **Reduction in budgetary allocation:**

The allocation for agriculture in the union budget has been **declining in recent years**: from **3.78%** of the total budget share in **2021-22** to 3.36% in 2022-23, **2.78 % in 2023-24** and **2.5% in 2024-25**.

- **Inadequate supply of seeds:**

The country faces the challenge of an inadequate supply of quality seeds, especially those of millets, pulses, vegetables, etc.

For instance, on India's request, the United Nations announced 2023 as the '**International Year of the Millet**', but **ironically, India faces a shortage of quality millet seeds** that may slow down its plan to increase production and promote it as an alternative to much-in-demand food grains.

- **Inadequate human resources:**

Inadequately trained human resources, together with persistent and **large-scale illiteracy among farmers**.

- **Uncertainties in agriculture:**

Indian agriculture is vulnerable to various factors like **erratic monsoon, MSP regime, buffer stock levels** and **government policies on imports**.

- **Fragmented Landholdings:**

Around **86% of agrarian landholdings** in India are of size **less than two hectares**. This fragmentation hinders the adoption of diversified cropping systems and mechanization, making it challenging to implement crop diversification effectively.

- **Labour Shortages and High Costs:**

Crop diversification often requires **more labour-intensive practices**. However, farmers face challenges due to **labour shortages during peak agricultural seasons and increasing wage demands**, which can deter them from adopting diversified cropping systems.

- **Policy and Institutional Constraints:**

Existing agricultural policies are **heavily skewed towards staple crops like rice and wheat**, with assured procurement and subsidies. This focus limits incentives for farmers to diversify into other crops, as alternative crops often lack similar support mechanisms.

- **Limited Access to Credit and Insurance:**

Diversifying crops can entail higher initial investments and risks. However, many farmers lack access to adequate credit facilities and crop insurance schemes tailored for diversified farming, making them hesitant to shift from traditional cropping patterns.

For instance, as per the NABARD All India Rural Financial Inclusion Survey 2016-17, more than **half the agricultural households in the country have outstanding debt**. In this, a large share is indebted to informal sources such as moneylenders.

- **Market Access and Price Volatility:**

Alternative crops often suffer from inadequate market infrastructure and price instability. Without assured markets and fair pricing, farmers may find it economically unviable to diversify their cropping systems.

WAY FORWARD:

- **Consumer-Led Demand Shift:** Encourage consumers to diversify their diets to include millets, pulses, fruits, and indigenous crops. A diversified demand will motivate farmers to shift away from mono-cropping.
- **Strengthen Research for Non-Cereal Crops:** Scale up public R&D and seed systems for pulses, oilseeds, and horticultural crops, matching the support rice and wheat receive.
- **Expand Infrastructure and Market Access:** Invest in cold chains, rural roads, warehousing, and digital market linkages for diversified produce.
- **Support Small Farmers:** Promote farmer producer organizations (FPOs), microcredit access, crop insurance for diversified farming, and targeted incentives.
- **Revive Traditional Practices:** Promote time-tested traditional systems like **Barahnaja** and organic mixed farming for ecological and nutritional gains.

In the **Garhwal Himalayan** region of India, **Barahnaja** is a crop diversification system for **cultivating 12 crops in a year**. 'Barah anaaj' literally means '12 foodgrains' and is the traditional heritage of the area.

- **Mainstream Agroforestry:** Integrate tree-based farming to increase income sources, soil health, and environmental sustainability.

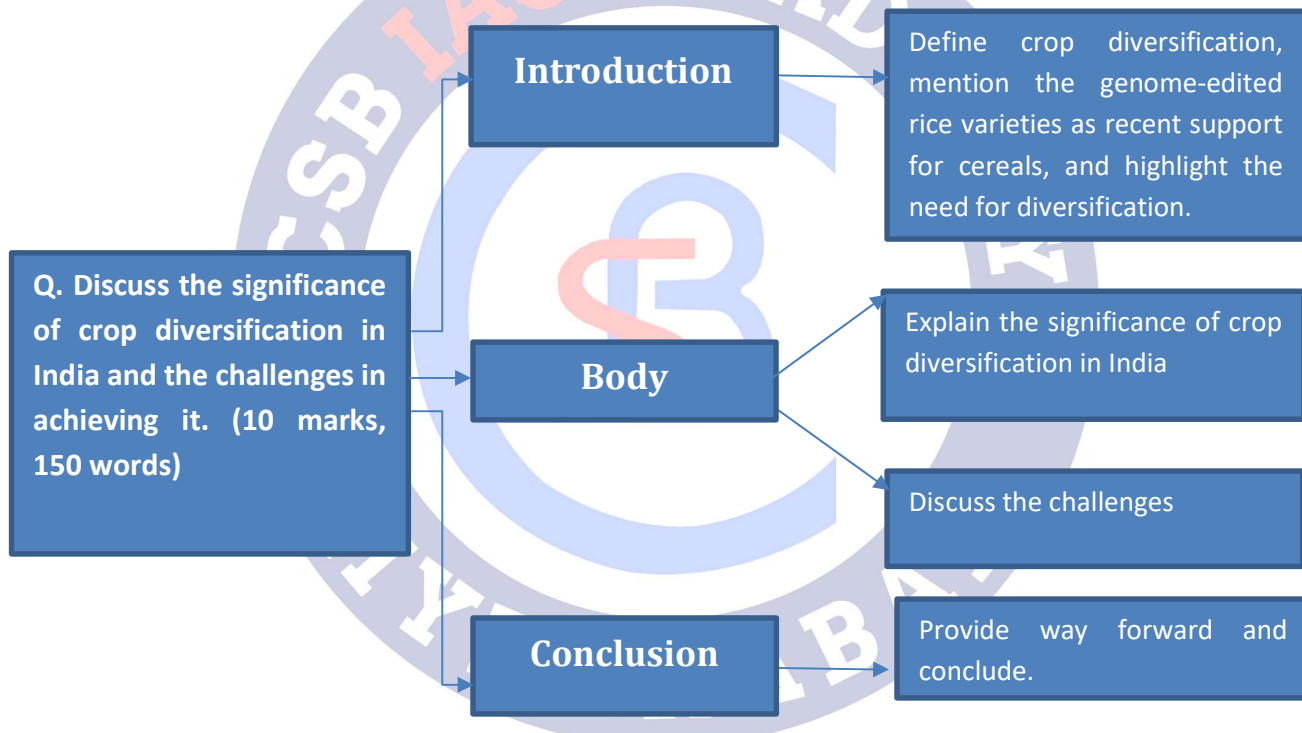
CONCLUSION:

- Crop diversification is not just a farming practice—it's a strategic imperative for sustainable agriculture, economic resilience, and national nutritional security. A supportive policy push, combined with consumer awareness and farmer-centric innovation, can make this transformation inclusive and enduring.

PRACTICE QUESTION

Q. Discuss the significance of crop diversification in India and the challenges in achieving it. (10 marks, 150 words)

APPROACH



MODEL ANSWER

Crop diversification is the practice of growing multiple crops to boost income, reduce risk, and ensure sustainability. In India, **rice and wheat dominate** due to **assured MSP and strong research support**, as seen in the **recent release of genome-edited varieties** like Kamala and Pusa DST Rice 1. This highlights the need to **diversify toward under-supported crops like pulses, oilseeds etc** for better nutrition and resilience.

Significance of Crop Diversification in India:

1. **Economic Resilience for Farmers:** Diversification reduces dependence on a single crop, lowering income risks from pests, diseases, or weather extremes. The **Committee on Doubling Farmers' Income** has recommended shifting some area from staples to high-value crops for better returns.
2. **Nutritional and Food Security:** Diversifying to include **millets, pulses, oilseeds, vegetables, and fruits** enhances the nutritional quality of the food basket, addressing widespread **malnutrition** in India.
3. **Resource Sustainability:** Current cropping patterns (rice, wheat, sugarcane) are **water-intensive**, causing serious **groundwater depletion**. Crop diversification, especially with short-duration and less water-intensive crops like **millets and legumes**, is crucial for long-term water conservation.
4. **Soil Health and Pest Management:** Continuous mono-cropping depletes specific soil nutrients and harms beneficial soil microbes. Introducing **crop rotations and legumes** can fix nitrogen and revive **soil fertility**, while also **breaking pest and disease cycles**.
5. **Climate Change Adaptation:** A diverse cropping system distributes climate risk more evenly and enhances the resilience of the agricultural sector to **droughts, floods, and temperature fluctuations**.
6. **Employment and Market Expansion:** Horticulture, floriculture, and allied activities (e.g., beekeeping, mushroom cultivation) are **labour-intensive** and **expand rural employment** opportunities. They also allow entry into **niche national and international markets**.

Challenges in Achieving Crop Diversification:

1. **Inadequate Infrastructure:** Lack of **cold chains**, rural roads, and post-harvest facilities limits farmers' ability to handle perishable and non-staple crops.
2. **Limited Innovation and R&D Support:** Since the success of **Bt cotton (2002–06)**, no new GM approvals have been granted for crops like cotton, mustard, or brinjal, leading to **stagnant yields** in non-cereal crops.
3. **Economic Uncertainty and Market Access:** Without MSP support or stable markets, farmers may face poor returns from alternative crops. For instance, **millets**, despite drought tolerance, often fetch lower prices due to **weak demand**.
4. **Budgetary Decline:** The agriculture budget has declined from **3.78% in 2021–22 to 2.5% in 2024–25**, limiting financial capacity to promote diversification programs.

5. **Seed and Credit Constraints:** There is a **shortage of quality seeds**, especially for millets and vegetables. Additionally, smallholders often lack access to **credit and insurance** tailored for diversified farming systems.
6. **Policy and Institutional Bias:** Existing support systems like **procurement, subsidies, and extension services** are heavily skewed towards rice and wheat, disincentivizing crop diversification.
7. **Fragmented Landholdings:** With **86% of landholdings under 2 hectares**, diversified or mechanized farming becomes logistically and economically difficult for most farmers.

Way Forward:

- **Realign policy incentives** to support non-cereal crops with MSP-like assurances.
- Expand **public research** and seed development for pulses, oilseeds, and horticulture.
- Invest in **infrastructure and markets** for perishable and value-added crops.
- Promote **consumer awareness** to build domestic demand for diverse diets including millets and indigenous produce.
- Encourage **traditional systems** like *Barahnaja* (cultivating 12 crops in a year) and **agroforestry** for ecological balance.

Crop diversification is central to achieving India's goals of **sustainable agriculture, nutritional security, and farmer welfare**. Addressing systemic challenges—ranging from policy bias to infrastructure and innovation gaps—through **coordinated policy, research, and consumer engagement** is essential to unlock its full potential.

18. AIR DEFENCE SYSTEMS

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Science and Technology / Security

REFERENCE NEWS:

- Recently, following a thwarted Pakistani aerial attack **using India's air defence system**, India successfully retaliated by targeting Pakistani air defence installations. According to the Indian Army, an air defence system in Lahore was neutralised. The exchange highlights the **critical role of air defence systems in modern warfare** — both for protection and offensive operations.

AIR DEFENCE SYSTEMS:

- Air defence systems are a vital cog in any nation's defensive infrastructure.
- Their primary objective is to **neutralise threats from the skies — enemy aircraft, drones, or missiles** — using an **integrated network** of radar, control centres, defensive aircraft, ground-based missiles, artillery, and electronic warfare systems.
- These systems are structured around three key interlinked functions: **Detection, Tracking, and Interception.**
- **Detection**
 - The cornerstone of any air defence system is early and accurate detection. Typically **accomplished by radar**, and in certain cases by satellites (e.g., detecting ICBMs), this involves:
 - Radar transmitters sending out electromagnetic waves.
 - Waves reflecting off incoming threats.
 - Receivers capturing the returns to assess distance, speed, and the nature of the object.

- **Tracking**

- Beyond detection, the system must **track threats continuously and precisely**. This is done using a mix of radar and additional sensors like infrared cameras or laser rangefinders.
- This tracking enables the system to handle multiple, fast-moving targets in cluttered airspace — distinguishing enemy from friendly units — ensuring accurate targeting.

- **Interception**

- Once a threat is detected and tracked, interception becomes necessary. The choice of interception method depends on factors such as:
 - The type of threat (aircraft, missile, drone)
 - Range
 - Speed
- All components must work in harmony, under what is known as the “**C3**” — **command, control and communication** system, to coordinate detection, tracking, and interception effectively.

HOW AIR DEFENCE SYSTEMS INTERCEPT THREATS:

Fighter Aircraft (Interceptors)

- These are deployed to engage enemy aircraft, especially bombers. Characteristics include:
 - Fast climb rates
 - Rapid response capabilities
 - Air-to-air combat features: cannon, rockets, visual-range and beyond-visual-range missiles, EW systems
- India can deploy aircraft like the **MiG-21 Bison, MiG-29, HAL Tejas, Sukhoi Su-35, and Dassault Rafale** for such missions.

Surface-to-Air Missiles (SAMs)

- SAMs are the mainstay of modern air defence due to their effectiveness and safety compared to AAA and manned fighters. They are guided by, radar, infrared or laser.

- They can be deployed from the ground or ships and are generally grouped into:
 - **Heavy long-range systems** (e.g., Russian-made **S-400** used by India)
 - **Medium-range mobile systems**
 - **Short-range man-portable air-defense systems (MANPADS)**
- India's SAM arsenal includes:
 - **Akash** (medium-range)
 - **Barak** (medium-to-long range)
 - **S-400** (long-range)

Anti-Aircraft Artillery (AAA)

- Although less dominant now, AAA remains crucial as a **last-ditch defence** or for use against UAVs. Features include:
 - Rapid-fire capability (>1,000 rounds/min)
 - Explosive shells that burst at specific altitudes
 - Effective even without direct hits due to shrapnel dispersal.

S-400 MISSILE SYSTEM:

- The **S-400 Triumf** is a cutting-edge surface-to-air missile (SAM) system developed by **Russia**, and is widely regarded as one of the most advanced air defence systems in the world. It is designed to **counter a wide spectrum of aerial threats**, including aircraft, cruise and ballistic missiles, and unmanned aerial vehicles (UAVs).

Key Capabilities:

- **Maximum Range:** Up to **400 km**
- **Operational Altitude:** From **10 meters** to **30 km**
- **Simultaneous Target Engagement:** Can **track up to 80 targets** and **engage 36** at once
- Designed to form a **multi-layered defence network** using different classes of missiles for short, medium, and long-range threats

Missile Types:

The S-400 employs four interceptor missiles for layered defence:

- **40N6**: Long-range (up to 400 km)
- **48N6**: Medium-range (up to 250 km)
- **9M96E2**: Medium-range (up to 120 km)
- **9M96E**: Short-range (up to 40 km). This mix allows engagement of both high-speed missiles and low-flying UAVs or aircraft.

Radar & Command Systems

- **91N6E "Big Bird"**: Long-range 3D radar for early detection
- **92N6E "Grave Stone"**: Target tracking and missile guidance
- **55K6E Command Module**: Integrates radar and launch systems for fast threat response

Mobility and Deployment

- The S-400 is **fully mobile**, mounted on truck platforms, allowing quick repositioning across different terrains
- It can be **deployed within 5 minutes**, offering a fast reaction time in combat scenarios. This gives it a significant edge over systems like the **U.S. Patriot**, which takes about 25 minutes to deploy.

Performance Superiority

- **Speed**: Missiles can reach speeds up to **4.8 km/sec**, enabling interception of fast-moving ballistic targets
- **Coverage**: With four missile types and altitude flexibility, it establishes a **multi-tiered air defence shield**
- **Compared to U.S. systems**:
 - **THAAD** can only fire one missile type up to ~200 km
 - **Patriot** has a max range of 180 km and lower speed, limiting interception capability against fast threats



India's Use of the S-400

- India has deployed its S-400 'Sudarshan Chakra' systems at key strategic locations:
 - **Punjab** (Western front, near Pakistan)
 - **Assam/Arunachal Pradesh** (Northeastern front, near China)
 - **Rajasthan** (Western desert sector)
- Enhances India's ability to:
 - Detect and engage aerial threats early
 - Protect critical military and civilian infrastructure
 - Maintain a technological edge in regional air defence

The S-400 system's combination of **long-range coverage, multi-target tracking, fast deployment, and layered defence** makes it a cornerstone of India's modern air defence strategy.

Akash Air Defence System:

- Akash is an indigenously developed **short-range surface-to-air missile system** by DRDO, produced by Bharat Dynamics Ltd. It protects key areas from aerial threats like helicopters, UAVs, and fighter jets. Inducted into the IAF in 2014 and the Army in 2015, it was **exported to Armenia in 2022**.

Key Features:

- Range: 4.5 to 25 km | Altitude: 100 m to 20 km
- Guidance: Command guidance with ECCM features
- Capable of engaging multiple targets in group or autonomous mode
- Mounted on mobile platforms with open architecture for future upgrades
- Equipped with the Rajendra 3D PESA radar, which tracks target range, azimuth, and height while guiding missiles electronically



Barak 8:

- Barak 8 is a **joint Indian-Israeli surface-to-air missile system** developed by **DRDO and srael Aerospace Industries (IAI)**.

- It defends against a range of airborne threats, including aircraft, UAVs, cruise and ballistic missiles, and supersonic projectiles.
- Available in **land and naval variants**, it has a 100 km range and Mach 2 speed. It features a dual-pulse rocket motor with thrust vector control for high maneuverability. In the terminal phase, a second motor and active radar seeker guide it to the target. Barak 8 can engage multiple targets simultaneously when integrated with modern tracking and guidance radar systems.



Electronic Warfare (EW):

EW can neutralise threats without physical destruction. EW systems:

- Disrupt or deceive enemy radar and targeting systems
- Jam communications
- Confuse drones and missiles

They operate from land or specialized aircraft such as the **EA-18G Growler**.

Neutralising Enemy Air Defence (SEAD):

To **establish air superiority**, a nation must first neutralise the enemy's air defences. **Suppression of Enemy Air Defences (SEAD)** involves:

- Strikes using missiles, bombs, UAVs
- Electronic warfare
- Ground attacks

A 2005 study noted that **one in four U.S. combat sorties** were SEAD missions, underlining their significance. Effective SEAD enables safe operation for bombers, transport aircraft, and support missions.

SIGNIFICANCE OF AIR DEFENCE SYSTEMS:

- **Shield Against Aerial Attacks:**
 - Air defence systems are **the first and most critical line of defence** against enemy aircraft, drones, cruise missiles, and ballistic threats.

- For example, during recent skirmishes, Indian air defence systems, including the **S400, Akash and Barak-8**, successfully deterred and neutralized Pakistani aerial threats along the western border.
- Also, the **Iron Dome (Israel)** has intercepted thousands of rockets fired from Gaza, dramatically reducing civilian casualties and infrastructure damage.
- **Strategic Deterrence:**
 - Possessing robust air defence discourages adversaries from launching attacks, knowing they risk failure or retaliation.
 - For example, the presence of **Patriot missile batteries** across NATO countries has served as a deterrent against aerial aggression from hostile states like Russia.
- **Enables Air Superiority:**
 - Air defence systems help secure a nation's airspace, enabling friendly aircraft to operate without the threat of enemy air dominance.
 - For example, the use of **Western-supplied Patriot and NASAMS systems** has allowed Ukraine to **deny Russia complete air superiority in key zones**, protecting cities and military infrastructure.
- **Multi-layered Protection Against Diverse Threats:**
 - Modern air defence integrates long-, medium-, and short-range systems to form a multi-tier shield.
 - **Example – India:**
 - **S-400** covers long-range high-altitude threats
 - **Barak-8** engages medium-range targets
 - **Akash and MANPADS** protect against low-flying helicopters and drones
- **Protection of Civilian Populations and Critical Infrastructure:**
 - Effective air defence reduces civilian casualties and safeguards economic, military, and communication assets.

- For example, **Iron Dome's interception of rockets** directly over cities like Tel Aviv has saved lives and reduced economic disruption.
- Also, during the recent conflict with Pakistan, India's air defence systems, including the **S-400 'Sudarshan Chakra', successfully intercepted missiles and drones targeting strategic sites** in Punjab, Jammu & Kashmir, and Rajasthan.
- **Rapid Mobility and Tactical Flexibility:**
 - Modern systems are highly mobile, enabling quick deployment and repositioning based on evolving threats.
 - For example, the **S-400's** truck-mounted design allows **deployment in under 5 minutes**, offering agility on both eastern and western fronts.
- **Force Multiplier in Combined Arms Warfare:**
 - Air defence systems enhance the survivability of ground and naval forces by reducing the threat of airstrikes.
 - For instance, integration of **Barak-8 on Indian Navy ships** protects fleets during operations in the Indian Ocean Region.

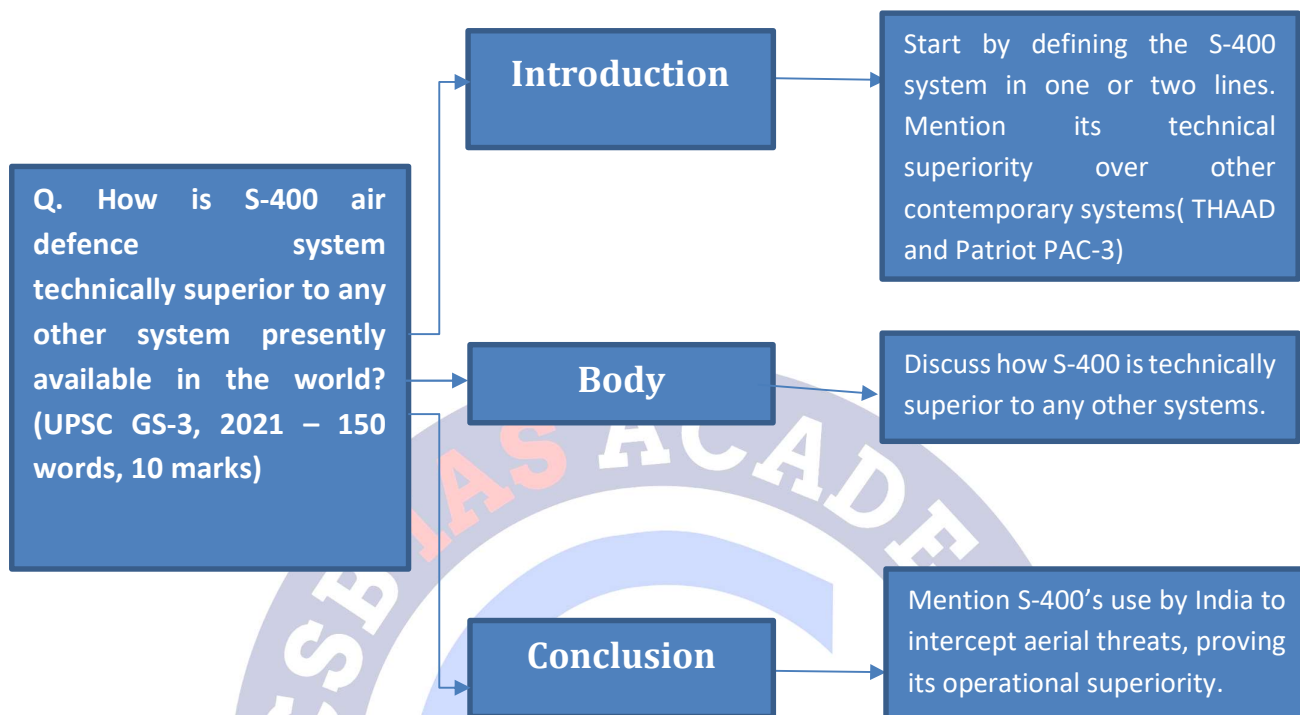
CONCLUSION:

- Air defence systems form the backbone of a nation's ability to protect its skies and project air power. India's success in defending against Pakistani aerial attacks — and in targeting Pakistan's air defence installations — underscores the importance of robust detection, tracking, interception, and coordinated command systems in modern warfare.

PRACTICE QUESTION

- Q. How is S-400 air defence system technically superior to any other system presently available in the world? (UPSC GS-3, 2021 – 150 words, 10 marks)**

APPROACH



MODEL ANSWER

The S-400 Triumf is a **long-range surface-to-air missile system developed by Russia**. Inducted by India as '**Sudarshan Chakra**', it is considered one of the most advanced air defence systems globally. Its technical superiority over other **contemporary systems**, such as the U.S.-developed **THAAD** and **Patriot PAC-3**, is evident in several key areas.

Technical Superiority of S-400:

1. Extended Engagement Range and Altitude

- **S-400**: Capable of engaging targets up to **400 km** away and at altitudes ranging from **10 meters to 30 km**, providing comprehensive coverage against various aerial threats.
- **THAAD**: Designed primarily for high-altitude ballistic missile interception with a range of approximately **200 km**.
- **Patriot PAC-3**: Offers a maximum range of around **180 km**, with limitations in altitude coverage compared to the S-400.

2. Multi-Layered Missile Arsenal

- **S-400**: Employs four types of missiles—**40N6 (400 km)**, **48N6 (250 km)**, **9M96E2 (120 km)**, and **9M96E (40 km)**—enabling it to counter a diverse array of threats, from ballistic missiles to low-flying aircraft and drones.
- **THAAD**: Utilizes a single missile type, optimized for intercepting ballistic missiles during their terminal phase.
- **Patriot PAC-3**: Primarily designed for ballistic missile defense, with limited versatility against other aerial threats.

3. Simultaneous Target Engagement

- **S-400**: Capable of tracking up to **80 targets** and engaging **36** simultaneously, ensuring robust defense against saturation attacks.
- **THAAD**: While effective against specific threats, it has a more limited simultaneous engagement capacity.
- **Patriot PAC-3**: Can engage multiple targets but with fewer simultaneous engagements compared to the S-400.

4. Advanced Radar and ECCM Capabilities

- **S-400**: Equipped with sophisticated radar systems like the **91N6E 'Big Bird'** and **92N6E 'Grave Stone'**, it offers superior detection and tracking capabilities. Its electronic counter-countermeasure (ECCM) features enhance resilience against jamming and electronic warfare.
- **THAAD**: Relies on the **AN/TPY-2** radar, which, while advanced, is primarily focused on ballistic missile threats.
- **Patriot PAC-3**: Uses the **AN/MPQ-65** radar, which has limitations in tracking stealth targets and operating in contested electronic environments.

5. Mobility and Rapid Deployment

- **S-400**: Mounted on mobile platforms, it can be deployed within **5 minutes**, offering swift response capabilities and adaptability to various terrains.
- **THAAD**: Also mobile but requires more time for deployment compared to the S-400.

- **Patriot PAC-3:** Takes approximately **25 minutes** to deploy, limiting its responsiveness in dynamic combat scenarios.

6. Cost-Effectiveness

- **S-400:** Provides a comprehensive air defense solution at a lower cost compared to Western counterparts.
- **THAAD and Patriot PAC-3:** While effective, these systems come with higher acquisition and operational costs, making them less accessible for some countries.

With its **unmatched range, missile versatility, and advanced radar capabilities**, the S-400 stands out as the world's most comprehensive air defence system. Its recent **successful deployment** by India during the recent conflict with Pakistan—**intercepting drones and missiles over cities like Amritsar and Jammu**—further validates its operational superiority and strategic value.



19. MSME SECTOR IN INDIA

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Economic Development >> Informal Economy >> MSMEs

REFERENCE NEWS:

NITI Aayog released the report on 'Enhancing MSMEs Competitiveness in India', prepared by NITI Aayog in collaboration with the Institute for Competitiveness (IFC). The report presents a detailed blueprint for unlocking the immense potential of India's Micro, Small and Medium Enterprises (MSMEs) through systemic reforms in financing, skilling, innovation and market access.

The report delves into the key challenges affecting the competitiveness of MSMEs in India. Using firm-level data and the Periodic Labour Force Survey (PLFS), it provides recommendations to foster sustainable integration and enhance their incorporation into global value chains.

MSME SECTOR IN INDIA:

Micro, Small and Medium Enterprises (MSMEs) have become a key driver of India's economy, **fostering entrepreneurship** and creating **significant employment opportunities with low capital investment**. It plays a vital role in the country's inclusive industrial development, complementing large industries as ancillary units.

- MSME stands for micro, small and medium enterprises. MSMEs are businesses that produce, process, and preserve goods and commodities. These are broadly classified based on their investment in plant and machinery for manufacturing or equipment for service enterprises, as well as their annual turnover.

New classification of MSME

Type	INVESTMENT		TURNOVER	
	Current	Revised	Current	Revised
MicroEnterprise	Rs 1cr	Rs 2.5cr	Rs 5cr	Rs 10cr
Small Enterprise	Rs 10cr	Rs 25cr	Rs 50cr	Rs 100cr
Medium Enterprise	Rs 50cr	Rs 125cr	Rs 250cr	Rs 500cr

Source: Budget 2025-2026, Speech of Nirmala Sitharama, Union Minister of Finance February 1, 2025.

- The sector is a critical source of livelihood and provides nearly 111 million jobs.
- With the current emphasis on Atmanirbhar Bharat Abhiyan, these MSMEs have become even more significant to India's economic and financial strategy.

- Acknowledging the importance of the sector, the government of India envisioned that the sector would account for half of India's GDP and add 50 million fresh jobs over the next five years.
- MSMEs contribute to 40% of total exports from India, 45.56% of manufacturing GDP and 30% of GDP (6.11% from manufacturing sector and 24% from services sector)
- It is the 2nd largest employment generator.
- **Rural-Urban Distribution:** Around 51% of these are situated in rural India and 49% of them are situated in urban India.
- 99.5% of all MSME fall in micro category distributed all over. But small and medium are predominantly in urban India
- **Social Distribution of MSMEs:** About 66% of all MSMEs are owned by people belonging to the Scheduled Castes (12.5%), the Scheduled Tribes (4.1%) and Other Backward Classes (49.7%)
- The **gender ratio** among employees is largely consistent across the board at roughly 80% male and 20% female.
- Over **2.09 crore MSMEs** registered on UDYAM portal (as of Jan 2024) .

KEY HIGHLIGHTS OF THE REPORT:

Credit Access: Access to formal credit has improved (2020–2024), with small enterprises' bank credit rising from 14% to 20%, and medium enterprises from 4% to 9%. However, a large credit gap remains—only 19% of demand was met formally in FY21, with ₹80 lakh crore unmet. The report calls for a restructured and better-targeted Credit Guarantee Fund (CGTMSE) to address this gap.

Skill and Innovation Gaps: A significant portion of MSME workers lack formal training, affecting productivity and scalability. Low investment in R&D and quality improvement hampers global competitiveness. Technological adoption is restricted by poor infrastructure and limited scheme awareness.

Cluster Development & Market Access: MSME clusters suffer from outdated technology and weak branding. Better digital marketing, logistics partnerships, and direct market linkages—especially in the eastern and northeastern states—are recommended.

CHALLENGES FACED BY MSME SECTOR IN INDIA:

Structural Challenges:

- **IPR Related Issues:** Limited awareness and enforcement of Intellectual Property Rights.
- **Regulatory Cholesterol:** Bureaucratic hurdles in obtaining government services and approvals like construction permits, contract enforcements, tax payments etc.

- Out of the 6.3 crore MSMEs only about 1.1 crores are registered with Goods and Services Tax regime
- **Lack of Formalisation Amongst MSMEs:** High number of unregistered MSMEs leading to limited access to formal credit.
 - Almost 93% of MSMEs in manufacturing sector are unregistered as per Economic Survey
- **Lack of Specialised MSME clusters:** Indian MSME sector has a tendency of generalisation than specialisation
 - Chinese cluster exclusive for button manufacturing contributes to over 90% of world button exports
- **Government Policy Challenges:**
 - GST rollout, demonetisation and frequent definition updates and its implementational challenges boost structural issues in MSMEs

Economic Challenges:

- **Credit Conundrum:** Significant gap in credit supply to MSMEs. Only **16%** of MSMEs have access to formal credit; credit gap estimated at **₹25 trillion**.
 - A concerning gap in India's MSME sector has been the credit supply shortage to MSMEs. The formal credit available to this sector is ₹16 trillion. The viable credit gap is ₹20 trillion against a total demand of ₹36 trillion.
- **High Energy Costs:** Inefficiencies and outdated technologies increase operational costs leading to poor competitiveness.
- **Problem of Scale:** Predominance of micro-enterprises limits scalability and growth.
 - Economic survey 2018-19 quoted the phenomenon of Dwarfism in MSME sector
- **Low Market Penetration:** Limited reach compared to cheap imported goods.
 - For example, Chinese plastic toys compared to India's traditional toys like Channapatna toys
- Lack of Greater Budgetary push to MSME Sector:
 - The fact that MSMEs contribute 55% and 60% to the GDP of Germany and China respectively is a clear indication that India still has a long way to go in its MSME journey.

Technological Challenges:

- **Obsolete Technology:** Hindrance in production efficiency and competitiveness. This leads to hindrance in large scale production and further dwarfism in the sector. Over **80%** of MSMEs use outdated technology.
- **Emerging Technologies:** Challenges posed by advancements like AI, data analytics, and robotics.

Social Challenges:

- **Low Marginal Productivity:** Inefficient use of manpower and resources.

- PLFS reports that only around 13% of Indian workers are formally skilled
- **Quality Assurance and Certification Negligence:** Affects product competitiveness and market acceptance.
 - Indian exports face larger phytosanitary standards and quality checks in international market

Due to these issues, the productivity of small firms in Indian manufacturing is abysmally low relative to larger firms. This has created a **conspicuous 'missing middle'** in the size structure of firms, which deters employment generation and dynamism in Indian manufacturing.

GOVERNMENT INITIATIVES TO BOOST MSME SECTOR:

- **The CHAMPIONS** stand here for Creation and Harmonious Application of Modern Processes for Increasing the Output and National Strength.
 - It is a technology driven Control Room-Cum-Management Information System which utilises modern information and communication technology (ICT) tools.
 - It is also fully integrated on a real time basis with the Government of India's main grievances portal Centralized Public Grievances Redress and Monitoring System (CPGRAMS)
 - Launched by Ministry of Micro, Small and Medium Enterprises (MSME)
- **National Manufacturing Competitiveness Programme**
- **Limited liability partnership Act, 2008** to enable early corporatization of MSME.
- **Udyam Mitra Portal** by SIDBI
- **MSME SAMBANDH**-to monitor implementation of public procurement
- **MSME SAMADHAAN**-to directly register cases of delayed payments by govt.
- **DIGITAL MSME SCHEME**
- **REVAMPED SFURTI**: traditional industries, artisans into clusters
- **CREDIT LINKED CAPITAL SUBSIDY SCHEME**
- **ASPIRE**: A Scheme For Promoting Innovation, Rural Industry And Entrepreneurship
- **PM MUDRA YOJANA**: With recent budget extending loan facility from 10 lakh to 20 lakh
- A credit guarantee scheme for purchase of machinery and equipment without collateral or third-party guarantee.

REFORMS FOR REJUVENATING MSME SECTOR:

Cluster-Based Development Strategy

- Promote **regional MSME clusters** with shared infrastructure and common facility centres.
- Encourage **sector-specific cluster development** (textiles, food processing, automotive, chemicals).
- Support innovation, technology transfer and R&D in clusters through collaboration with academia and industry.

Strengthening Digital and Physical Infrastructure

- Expand **broadband and reliable electricity access** in MSME-dense regions.
- Enable **wider use of Industry 4.0 technologies** (AI, IoT, robotics) with training support.
- Promote digital inclusion through **Digital MSME schemes, skilling programs** for digital literacy and **affordable access to software/tools** (e.g., accounting, CRM)

Formalisation and Ease of Doing Business

- **Simplify UDYAM registration** and integrate it with GSTN, EPFO, and ESIC.
- Ease compliance burden by reducing inspections, introducing single-window clearances and rationalizing taxes and licenses.
- Incentivize informal MSMEs to formalize by offering **benefits like credit linkage, skilling, and subsidies**.

Access to Finance

- **Revamp CGTMSE** (Credit Guarantee Fund Trust for Micro and Small Enterprises) for wider coverage and simplified disbursements.
- Use **Digital Public Infrastructure (DPI)** (like UPI, Aadhaar, GST, TReDS) to build credit histories and assess MSME creditworthiness.
- Mandate timely payment by government buyers and PSUs (within **30–45 days**).
- Promote **invoice discounting platforms (TReDS)** adoption by all large buyers.

Workforce Development and Skilling

- Integrate MSMEs with national skilling schemes like **PMKVY, Skill India, and PM Vishwakarma Yojana**.
- Encourage **apprenticeship models** in MSMEs through cluster-level facilitation.
- Provide **digital and green skill training** aligned with emerging market demands.

Innovation and R&D Promotion

- Encourage MSME participation in **R&D through tax incentives and funding** (e.g., SIDBI, DST).
- Create **Innovation Hubs** within industrial clusters to foster collaboration with academia.
- Promote the use of **National Research Foundation** support for MSMEs.

Market Access and Branding Support

- Facilitate MSME onboarding on **ONDC** and other e-commerce platforms.
- Promote **local branding**, quality certifications (ISO, FSSAI), and GI tagging.
- Launch **MSME export readiness programs** targeting GVC integration and foreign markets.

Greening the MSME Sector

- Promote **energy-efficient technologies, renewable integration, and green finance.**
- Build awareness and support for **climate-resilient business practices.**

Improved Governance and Monitoring

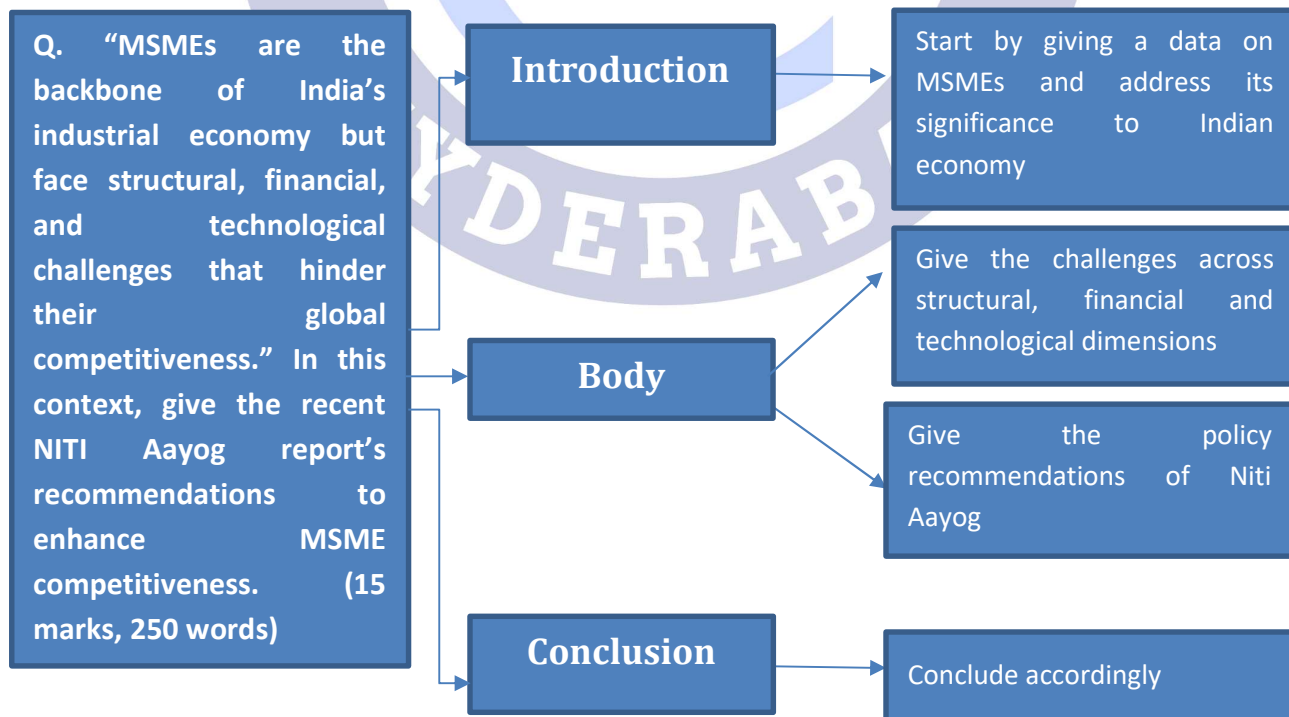
- Strengthen **District Industries Centres (DICs)** as MSME support agencies.
- Set up a **State-level MSME Champion** to monitor implementation, address bottlenecks and drive policy execution.
- Improve **data collection, real-time dashboards, and evaluation metrics.**

Focussing on MSME Sector and prioritising their development is crucial for India's economic trajectory. The vicious cycle of MSME growth can be managed by following the recommendations of **U.K. Sinha Committee.**

PRACTICE QUESTION

Q. "MSMEs are the backbone of India's industrial economy but face structural, financial, and technological challenges that hinder their global competitiveness." In this context, give the recent NITI Aayog report's recommendations to enhance MSME competitiveness. (15 marks, 250 words)

APPROACH



MODEL ANSWER

Micro, Small and Medium Enterprises (MSMEs) contribute around **30% to India's GDP**, generate over **111 million jobs**, and constitute nearly **99.5% of all enterprises**. Despite their critical role in inclusive economic growth, MSMEs face a host of challenges. The recent NITI Aayog–IFC report provides a comprehensive framework for strengthening their global competitiveness.

CHALLENGES FACED BY MSME SECTOR IN INDIA:

Structural Challenges:

- **Regulatory Cholesterol:** Bureaucratic hurdles in obtaining government services and approvals like construction permits, contract enforcements, tax payments etc.
 - Out of the 6.3 crore MSMEs only about 1.1 crores are registered with Goods and Services Tax regime
- **Lack of Formalisation Amongst MSMEs:** High number of unregistered MSMEs leading to limited access to formal credit.
 - Almost 93% of MSMEs in manufacturing sector are unregistered as per Economic Survey
- **Lack of Specialised MSME clusters:** Indian MSME sector has a tendency of generalisation than specialisation
 - Chinese cluster exclusive for button manufacturing contributes to over 90% of world button exports

Economic Challenges:

- **Credit Conundrum:** Significant gap in credit supply to MSMEs. Only **16%** of MSMEs have access to formal credit; credit gap estimated at **₹25 trillion**.
 - A concerning gap in India's MSME sector has been the credit supply shortage to MSMEs. The formal credit available to this sector is ₹16 trillion. The viable credit gap is ₹20 trillion against a total demand of ₹36 trillion.
- **Problem of Scale:** Predominance of micro-enterprises limits scalability and growth.
 - Economic survey 2018-19 quoted the phenomenon of Dwarfism in MSME sector
- **Low Market Penetration:** Limited reach compared to cheap imported goods.
 - For example, Chinese plastic toys compared to India's traditional toys like Channapatna toys

Technological Challenges:

- **Obsolete Technology:** Hindrance in production efficiency and competitiveness. This leads to hindrance in large scale production and further dwarfism in the sector. Over **80%** of MSMEs use outdated technology.

- **Emerging Technologies:** Challenges posed by advancements like AI, data analytics, and robotics.

Key Recommendations:

1. Bridging the Credit Gap: Formal credit met only **19% of MSME demand in FY21** (₹80 lakh crore gap). Strengthen and modernise **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)**. Expand access to **TReDS**, NBFCs, and fintech solutions using **Digital Public Infrastructure** (Aadhaar, UPI, GSTN).

2. Skilling & Human Capital: Integrate MSMEs into **Skill India, PM Vishwakarma Yojana**. Promote demand-driven vocational training and **apprenticeship models**.

3. Technology Upgradation & Innovation: Incentivise MSME investments in **Industry 4.0**, energy-efficient machinery, and **R&D through innovation clusters**. Develop **Technology Facilitation Centres** in key clusters.

4. Market Access and Formalisation: Promote **digital onboarding on ONDC** and awareness of **Geographical Indications (GI)**. Leverage **District Industry Centres (DICs)** for one-stop assistance. Use **e-Shram, UDYAM** and **GSTN integration** to streamline formalisation.

5. Cluster-Based Approach: Develop sector-specific clusters with shared infrastructure, testing labs, branding support, and common logistics networks.

The report underlines that improving MSME competitiveness requires **converged efforts across finance, skilling, technology, and policy**. With institutional collaboration, targeted interventions, and strong state-level implementation, India's MSMEs can emerge as a pillar of **resilient, inclusive, and globally competitive economic growth**.

20. SPACE SECTOR OF INDIA

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Economic Development >> Space Economy

REFERENCE NEWS:

Prime Minister Narendra Modi, addressing GLEX 2025, highlighted India's space journey from a humble rocket launch in 1963 to leading lunar and Mars missions. He emphasized India's collaborative, not competitive, approach to space exploration, announcing plans for a Bharatiya Antariksha Station by 2035 and a Moon landing by 2040.

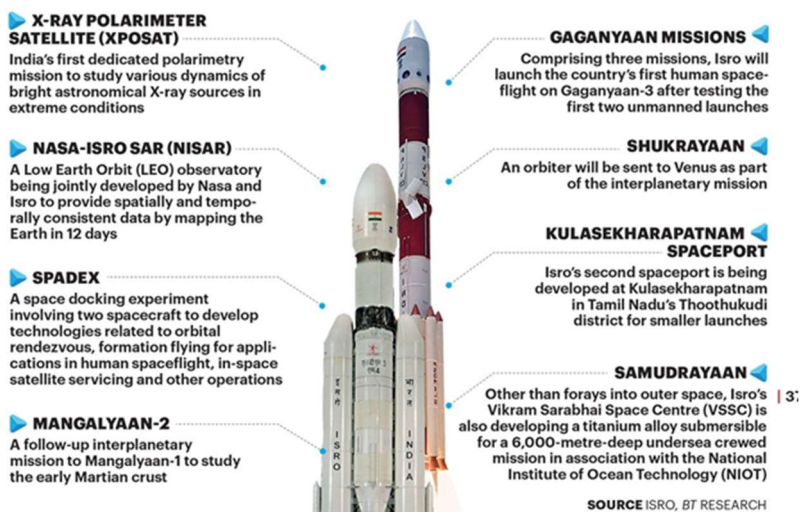
He underlined the role of space in governance, livelihoods, and innovation, including over 250 space startups. Citing India's inclusive, global vision rooted in Vasudhaiva Kutumbakam, he reaffirmed the nation's commitment to using space for the collective progress of humanity.

PRESENT STATUS OF INDIA'S SPACE ECONOMY:

As per the report of Novaspac, a European consultancy,

- India's space sector has directly contributed about \$24 billion (₹20,000 crore) to India's Gross Domestic Product over the last decade.
- It has directly supported **96,000 jobs** in the public and private sector.
- The Indian Space Research Organisation (ISRO) is the **sixth-largest national space agency** in the world.
- For every dollar produced by the space sector, there was a **multiplier effect of \$2.54** to the Indian economy and India's space force was 2.5 times "more productive" than the country's broader industrial workforce.

FUTURE MISSIONS



- India's space sector has benefitted from decades of consistent investment with \$13 billion invested in the last decade it is the **8th largest space economy** (in terms of funding) in the world.
- The Indian space sector was diversifying and now had 700 companies including 200 start-ups. **India's space industry is valued at \$8 billion, contributing 2% to the global space economy.**
- Satellite communications contributed 54% to the space economy, followed by navigation (26%) and launches (11%). The main industries supported by the space sector were telecom (25%), information technology (10%) and administrative services (7%), the report highlighted.
- The allocation for the space sector in Union Budget 2025-26 has increased compared to last year. The Department of Space has been allocated Rs 13,416.2 crore, up from Rs 13,042.75 crore in 2024 — a **rise of 2.86 per cent.**
- The budget also removed the 5 per cent customs duty on goods "used in the building of launch vehicles and launching of satellites".

ROADBLOCKS TO DEVELOPMENT OF SPACE SECTOR IN INDIA:

Limited Funding and Budget Constraints: ISRO operates with a relatively modest budget using **frugal technology** compared to other leading space agencies like NASA or ESA. This limits the scale and frequency of missions, especially in areas like deep space exploration, human spaceflight, and large-scale commercial ventures.

- ISRO's budget constraints have impacted the timeline of ambitious projects such as the Gaganyaan mission (India's first human spaceflight mission), which has faced delays partly due to funding limitations.

Technology and Infrastructure Gaps: India lags behind in certain advanced space technologies, such as reusable launch vehicles, human-rated spaceflight systems, and advanced space habitats. Additionally, the infrastructure for large-scale satellite manufacturing and testing is limited.

- While ISRO has made progress in developing a reusable launch vehicle (RLV), it is still in the experimental phase, and the country has not yet developed a fully operational reusable rocket like SpaceX's Falcon 9.
- India is also dependent on Russia for advanced space habitats to train her astronauts for Gaganyaan mission.

Regulatory and Policy Hurdles: The space sector in India faces regulatory challenges, including unclear policies for private sector participation, satellite communication regulations, and

intellectual property rights. These hurdles can discourage both domestic and international investments.

- The slow pace of implementing the **Space Activities Bill**, which is intended to provide a legal framework for commercial space activities, has created uncertainty among private players looking to invest in the Indian space economy.

Human Resources and Skill Development: There is a shortage of trained personnel with expertise in space technology and innovation, particularly in the private sector.

- The growth of space startups in India is hampered by the lack of available talent with specialized skills in satellite technology, data analytics, and space law.

Sustainability and Space Debris: As India's space activities increase, so does the risk of space debris, which can pose a threat to both existing satellites and future missions. Ensuring the sustainability of space operations is crucial.

- In response to this global concern, India has set an ambitious target to ensure all its **space missions are debris-free by 2030**. This commitment aligns with the ISRO recent efforts to implement deorbiting techniques and careful mission planning to minimise space debris

Geopolitical Risks: India's space ambitions could be impacted by geopolitical tensions, trade restrictions, and technology transfer limitations imposed by other countries.

- Restrictions on technology transfers from the United States or other advanced countries can slow down India's access to cutting-edge space technologies, affecting the pace of development in areas like satellite navigation or space exploration.

Market Access and Commercialization: The commercialization of space-based services such as satellite internet, space tourism, and asteroid mining is still in its infancy.

- Despite the success of the NavIC system, its global adoption has been limited compared to GPS. Expanding the market for NavIC-based products and services requires significant investment and strategic partnerships.

International Collaboration and Competition: While partnerships with other space agencies can bring in resources and expertise, they also require navigating complex political dynamics.

- Collaborations with countries like the U.S. (e.g., **NASA-ISRO Synthetic Aperture Radar (NISAR) mission**) are crucial.

TO FLY PAST THE HURDLES:

Enhancing Private Sector Participation: The Indian government established the Indian National Space Promotion and Authorization Center (IN-SPACe) and NewSpace India Limited (NSIL) to facilitate private sector participation in space activities.

- NASA's partnership with private companies like SpaceX and Boeing under the Commercial Crew Program is a model of successful collaboration, reducing costs and accelerating innovation.
- Creating venture capital funds and offering tax incentives for space startups can stimulate innovation and attract more private investment like ESA's Business Incubation Centres (BICs).

Expanding International Collaborations: India has collaborated with several countries, including the U.S., Russia, and France, on missions like the NASA-ISRO Synthetic Aperture Radar (NISAR) and the Chandrayaan series. ISRO's commercial arm, Antrix Corporation, has successfully marketed satellite launch services to several countries, enhancing India's global presence.

- India can initiate more joint missions with international space agencies, particularly in deep space exploration and human spaceflight, to share resources and expertise like ISS
- Establishing more bilateral agreements for technology exchange can help India access advanced technologies and methodologies from countries like the U.S., Europe, and Japan like Artemis Accords

Strengthening Regulatory Frameworks: India has proposed the Space Activities Bill to provide a legal framework for private sector participation and space activities, though it is yet to be enacted.

- The U.S. has a robust and comprehensive space policy framework that includes clear regulations for commercial space activities, intellectual property rights, and liability issues.
- The UK Space Agency's Space law framework, which emphasizes collaboration between the government and private sector, could be a model for India.

Investing in Advanced Technologies: Development of GSLV Mk III made significant progress in heavy-lift launch vehicles, which are crucial for future deep space missions and human spaceflight. Despite initial setbacks, India has developed indigenous cryogenic engines, bolstering its ability to launch heavier payloads into geostationary orbits.

- Invest more in the development and operationalization of RLVs, which can reduce the cost of space access and make space missions more sustainable.
- Integrate AI and robotics into space missions to enhance automation, data processing, and efficiency in space operations.
- SpaceX's success with reusable rockets like the Falcon 9 has significantly reduced launch costs.

- The use of advanced robotics and AI in Japan's Hayabusa missions demonstrates the importance of cutting-edge technology in achieving mission success.

Addressing Space Debris and Sustainability: Space Situational Awareness (SSA) targeting space debris free by 2030. Development of Project NETRA has implemented protocols for end-of-life management of satellites to mitigate space debris.

- Engage in international efforts to develop norms and standards for space debris management similar to ESA's Clean Space Initiative

Boosting Human Resources and Skill Development: ISRO has established training programs for young scientists and engineers, fostering a new generation of space professionals. Initiatives like Young Scientist Program (YUVIKA) and collaborations with educational institutions have been launched to promote space education.

- Strengthen partnerships between academia, industry, and ISRO to ensure that the space workforce is equipped with the latest skills and knowledge like NASA's collaborations with institutions like MIT and Germany's space education initiatives

Enhancing Commercialization and Market Access: Through Antrix Corporation and NSIL, India has marketed its launch services and space-based services globally, generating revenue and enhancing market access. India is working on expanding the reach and application of its navigation system, NavIC, beyond its borders.

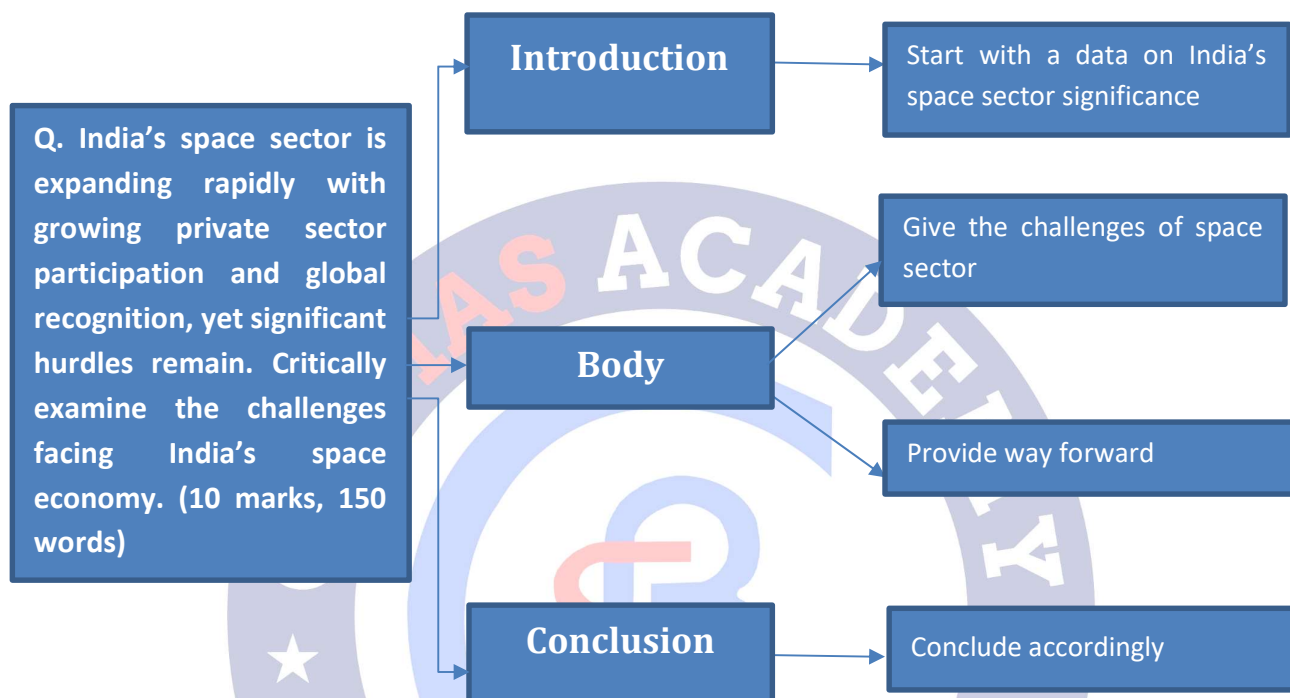
- Develop and market satellite-based services, such as remote sensing data and satellite communication, to new industries and markets like SpaceX's Starlink project.
- Strengthen global branding and marketing efforts for Indian space services to attract international customers.
- The OneWeb initiative, which involves collaboration with multiple countries and companies, could inspire India to pursue multinational commercial ventures in the space sector.



PRACTICE QUESTION

Q. India's space sector is expanding rapidly with growing private sector participation and global recognition, yet significant hurdles remain. Critically examine the challenges facing India's space economy. (10 marks, 150 words)

APPROACH



MODEL ANSWER

India's space programme has transformed from launching a sounding rocket in 1963 to achieving landmark missions like Chandrayaan-3 and Mars Orbiter Mission. India's space sector contributes **\$24 billion to GDP**, supports **96,000 jobs**, and is home to **700+ companies** including **250 startups**. India's space industry is valued at **\$8 billion**, contributing **2% to the global space economy**.

Key Challenges:

- **Budgetary Constraints:** ISRO operates with limited funding compared to NASA or ESA, delaying ambitious missions like **Gaganyaan**.
- **Technology and Infrastructure Gaps:** India lacks operational **reusable launch vehicles (RLVs)** and advanced space habitats. Dependence on foreign training for astronauts reflects capability gaps.
- **Regulatory Ambiguity:** The long-pending **Space Activities Bill** and unclear commercial policies hinder private investment and foreign collaborations.

- **Human Capital Deficit:** Shortage of experts in **space law, data analytics, satellite design**, and limited academia-industry synergy affects innovation.
- **Space Debris and Sustainability:** With growing launches, debris risk increases. India's goal to be **debris-free by 2030** needs accelerated efforts.
- **Geopolitical and Market Risks:** Restrictions on tech transfer and limited global use of systems like **NavIC** reduce commercial reach.

Way Forward:

- **Strengthen Private Participation:** Empower **IN-SPaCe** and **NSIL**, offer tax breaks and VC funding, modelled on **NASA-SpaceX collaborations**.
- **Enhance Technology Base:** Accelerate R&D in **RLVs**, AI, and robotics like **Japan's Hayabusa** and **SpaceX's Falcon 9**.
- **Enact Space Law:** Fast-track the **Space Activities Bill** to clarify liability, IPR, and licensing norms.
- **Expand Global Collaboration:** Partner on joint missions (e.g., **ISRO-NASA NISAR**) and engage in treaties like the **Artemis Accords**.
- **Boost Skills and Education:** Scale up **YUVIKA**, ISRO-academia linkages, and model training after **NASA-MIT programmes**.
- **Promote Commercial Services:** Expand services like **satellite imaging and broadband** (like **Starlink, OneWeb**); market **NavIC globally**.

India's space economy, already the **8th largest globally by funding**, can emerge as a global leader through **policy clarity, technological ambition, and inclusive partnerships**. Leveraging its frugal innovation model and public-private synergies, India can fulfil both **domestic needs** and **global aspirations** in the space domain.

21. NATIONAL SECURITY DOCTRINE

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Internal Security

REFERENCE NEWS:

Amid the conflict between India and Pakistan, there is a need to revisit the debate over whether India, too, should have a doctrinal approach to its national security. This debate has been raging for decades, especially since India achieved the significant security milestone of becoming a nuclear power.

NATIONAL SECURITY DOCTRINE:

Doctrine is a set of established or agreed principles that guide actions. The concept of national security, historically focused on military threats and territorial integrity post-WWII, has since evolved into a multidimensional framework including geopolitical, economic, social, and environmental factors.

- India faces complex and layered security challenges, both external and internal.
- Externally, unresolved border disputes and strategic competition, particularly with China and Pakistan—both nuclear powers—threaten regional stability.
- Internally, India's vast and diverse population creates societal vulnerabilities, while rising radicalisation in the neighbourhood and domestic discontent fuel internal security concerns.
- Added to this are threats from environmental degradation and resource scarcity.
- These interlinked challenges demand a coherent national security vision. Therefore, there is a pressing need for a well-defined NSD to guide policymaking, align institutional efforts, and safeguard India's long-term strategic interests in an increasingly volatile world.

A **National Security Doctrine** is a formal or informal **strategic framework** that defines a country's **core security objectives**, **perceived threats**, and the **policy responses** needed to safeguard national interests. It typically encompasses:

- **Military and defence policy**
- **Internal security**
- **Economic security**
- **Cyber and space security**

- **Diplomatic and geopolitical strategies**

It provides **clarity and coherence** in responding to evolving threats and guides the deployment of **state power across institutions**, including the armed forces, intelligence agencies, and law enforcement.

RELEVANCE OF A NATIONAL SECURITY DOCTRINE FOR INDIA:

India faces a **complex security environment** marked by external threats, internal insurgencies, and non-traditional risks. However, India does **not have a formal, publicly available national security doctrine**, unlike countries such as the **USA (National Security Strategy)**, **Russia**, or **China (White Papers on Defence)**.

- **Cross-border and Territorial Threats**

- **China:** Aggression in Eastern Ladakh and Arunachal Pradesh (e.g., Galwan Valley clash, 2020).
- **Pakistan:** Proxy war via terrorism in Kashmir and cross-border infiltration. Drone attacks and shelling as a retaliation to Operation Sindoor.
- A doctrine would clarify India's stance on "no first use," **strategic deterrence**, and border defence posture.

- **Internal Security Challenges**

- **Left-Wing Extremism (LWE):** Active in central Indian states.
- **Insurgency in the Northeast:** Though declining, it remains sensitive.
- **Communal violence and radicalisation.**
- An integrated internal security doctrine can guide counterinsurgency, policing, and rehabilitation policies.

- **Terrorism and Hybrid Warfare**

- **State-sponsored terrorism** (e.g., 26/11, Pathankot, Pulwama, Pahalgam attack).
- **Cyberattacks on critical infrastructure** (e.g., malware attack on Mumbai power grid in 2020).
- **Disinformation campaigns.**
- A doctrine must address **information warfare**, **cyber readiness**, and **terror-financing** with legal and strategic tools.

- **Maritime Security and Strategic Interests**

- India's growing role in **Indian Ocean Region (IOR)** and concerns over **China's naval presence** (String of Pearls)
- **Piracy, smuggling, and freedom of navigation** issues.
- A maritime doctrine aligned with the Indo-Pacific strategy, Quad, and SAGAR (Security and Growth for All in the Region).

- **Technological and Economic Security**
 - **Semiconductor dependence, energy vulnerabilities, and supply chain resilience.**
 - Risks from over-dependence on hostile countries in digital infrastructure (e.g., Huawei, TikTok bans).
 - Integration of **economic policy, industrial policy, and strategic autonomy** within a national security vision.
- **Deterrence Against Hostile Forces**
 - India's Nuclear Doctrine, established in 2003, emphasized a credible minimum deterrent.
 - However, border tensions with China and Pakistan highlight the need for a broader security framework beyond nuclear deterrence.
- **Strengthening Defence and Intelligence Coordination**
 - A formal doctrine would enhance inter-agency coordination between the armed forces, intelligence agencies, and cybersecurity units.
 - It would streamline decision-making processes during national security crises

Committee / Report	Key Recommendations
Kargil Review Committee (2000)	Called for a National Security Council (NSC) and integrated defence staff.
Naresh Chandra Committee (2012)	Recommended a formal national security doctrine and chief of defence staff (CDS).
Doval Doctrine (unofficial)	Assertive approach on cross-border strikes, national sovereignty, and proactive diplomacy.

Over the years, a **de facto national security approach** has evolved, shaped by various **governmental practices, military doctrines, policy statements, institutional reforms, and reactive responses** to emerging challenges.

- **Strategic Autonomy:** India maintains **non-alignment in its modern form**—not formally aligning with any military bloc while cooperating with multiple powers.
 - India is a member of the **QUAD** (with the US, Japan, Australia) but continues defence cooperation with **Russia**, such as acquiring the **S-400 missile system**.
- **Deterrence and Defence Preparedness:** Maintains a doctrine of **credible minimum deterrence**, especially against nuclear threats. **No First Use (NFU)** policy under its nuclear doctrine. A nuclear doctrine was put forth in 2003.

- **Internal Security and Territorial Integrity:** Strong focus on combating **insurgency, terrorism, and communal unrest. Unlawful Activities (Prevention) Act (UAPA)** and **NIA** are key tools.
 - Post-**Pulwama attack (2019)**, India conducted the **Balakot airstrike**, marking a shift to pre-emptive kinetic responses.
- **Integrated Military Modernisation:** Increasing focus on **jointness** and **theatre commands** among the three services. Indigenization through **Atmanirbhar Bharat in Defence**.
 - Creation of the **Chief of Defence Staff (CDS)** in 2020 and the proposed **Integrated Theatre Commands**.
- **Maritime and Energy Security:** Securing India's interests in the **Indian Ocean Region (IOR)** through the **SAGAR doctrine** (Security and Growth for All in the Region).
 - India deployed naval ships under **Mission Sagar** to provide COVID-19 aid to island nations.
- **Counterterrorism and Border Management:** Surveillance upgrades at the **LAC and LOC**. Development of **smart fencing**, drones, and border outposts. **Integrated Check Posts (ICPs)** and fencing along the **India-Bangladesh** and **India-Pakistan borders**.
- **Cyber and Information Warfare Preparedness:** Investment in **cyber defence**, **AI-enabled platforms**, and **countering misinformation**. Setting up of **Defence Cyber Agency** and **National Cyber Coordination Centre (NCCC)**.
- **Neighbourhood First Policy with Strategic Vigilance:** Emphasis on regional stability but resistance to any security dilution from neighbouring countries.
 - India's firm stance on **Rohingya refugee deportation** (2025 SC case) citing national security and non-signatory status to the Refugee Convention.

Institution	Role
National Security Council Secretariat (NSCS)	Apex advisory body headed by NSA Ajit Doval.
National Security Advisor (NSA)	Coordinates intelligence, defence, diplomacy, and internal security.
Chief of Defence Staff (CDS)	Promotes tri-service synergy and defence preparedness.
Intelligence Agencies (IB, R&AW, NTRO)	Provide threat assessment and strategic inputs.

Institution	Role
Ministries (Home, Defence, MEA)	Operate within their domains with growing inter-agency cooperation.

NATIONAL SECURITY DOCTRINES OF OTHER COUNTRIES:

- **National Security Strategy (NSS) of United States:** It outlines U.S. defence priorities, focusing on deterrence, counterterrorism, and cybersecurity.
 - It emphasizes alliances with NATO, Indo-Pacific security, and technological superiority.
- **Military Doctrine of the Russian Federation:** Russia's doctrine highlights nuclear deterrence, hybrid warfare, and regional security.
 - It prioritizes defence against NATO expansion and cyber threats.
- **Active Defence Strategy of China:** It focuses on territorial integrity, military modernization, and cyber warfare. It integrates economic security with military expansion, particularly in the South China Sea.
 - As Sun Tzu says in 'The Art of War', 'To win 100 victories in 100 battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill'.
 - China has not fought a single war since its conflict with Vietnam in 1979.

CHALLENGES OF NOT HAVING A NATIONAL SECURITY DOCTRINE:

- **Lack of Strategic Clarity and Long-Term Vision:** India responds to crises **reactively** rather than proactively, as seen in **Pulwama (2019)** and **Galwan (2020)**, where the military response lacked a pre-defined strategic doctrine.
- **Disjointed Inter-Agency Coordination:** Different ministries and security agencies often **work in silos**. No clear roadmap on **cybersecurity, counterterrorism, or intelligence sharing**. The **2008 Mumbai attacks** exposed lapses in coordination between **IB, NSG, and local police**—a coordinated NSD could have outlined inter-agency roles more clearly.
- **Ambiguity in Civil-Military Relations:** Lack of clarity on **civil-military command structure** during wartime or hybrid threats. No integrated doctrine on **theatre commands**, despite the appointment of the **Chief of Defence Staff (CDS)** in 2020.
- **Inconsistent Foreign Policy Signalling:** No uniform stance on **nuclear policy, border response**, or use of force.
- **Weak Public and Parliamentary Oversight:** In the absence of a doctrine, **national security decision-making remains opaque** and concentrated in the executive. Reduces **democratic accountability** and public understanding of India's security posture.

- **Inadequate Preparation for Non-Traditional Threats:** India faces rising **cyber threats, space militarization, AI-based warfare, and disinformation campaigns**. No integrated doctrine to align **policy, law, and technology** for these emerging domains.

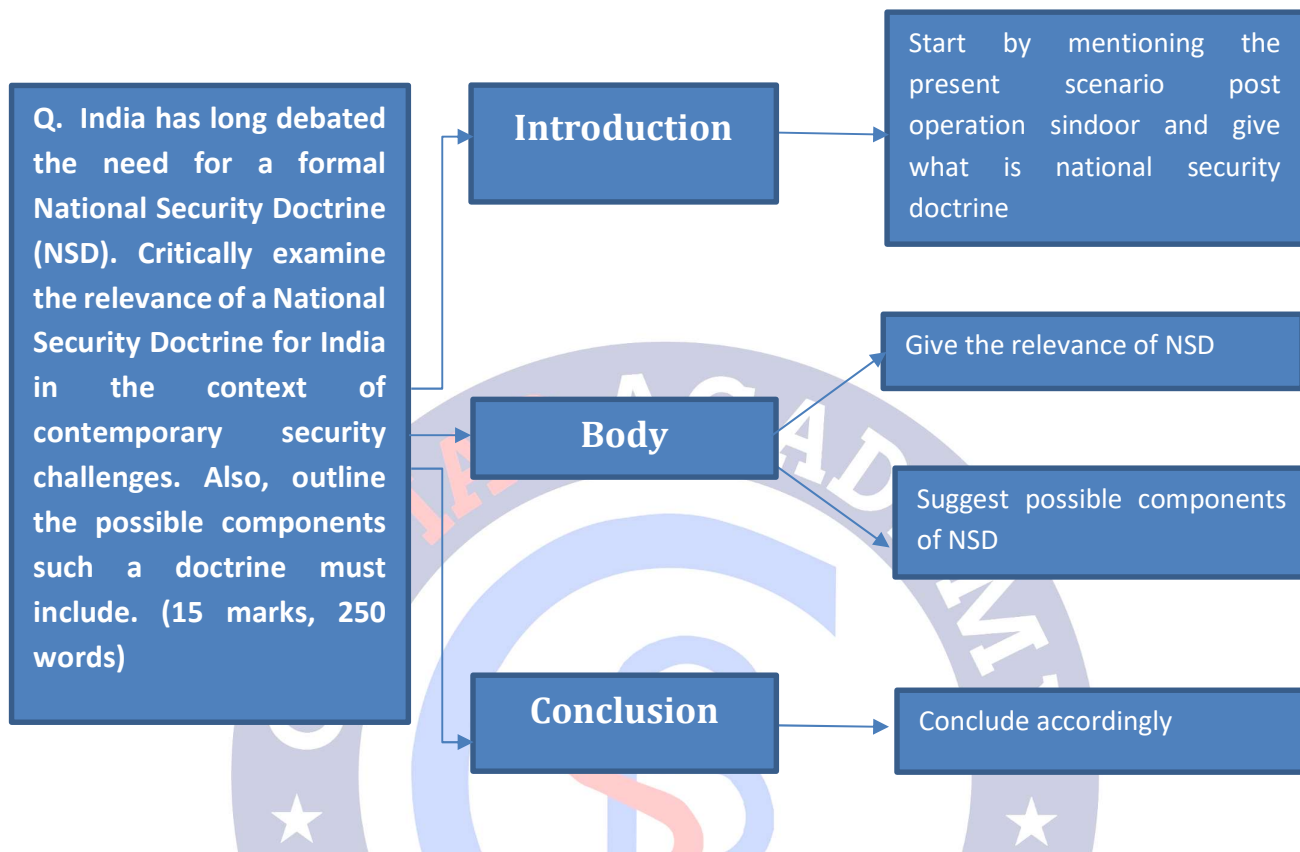
WAY FORWARD:

- **Counterterrorism and Internal Security Strategy:** Zero tolerance for terrorism must be codified. Clarify India's **right to respond to cross-border terror** (including pre-emptive strikes).
- **Integrated Military Preparedness and Force Posture:** Define offensive-defensive postures along **Western front (Pakistan)** – proxy war, infiltration and **Northern front (China)** – standoffs, cyber-espionage. Institutionalize **Integrated Theatre Commands**
- **Cyber, Space, and Information Warfare Doctrine:** Define red lines in cyberspace. Build frameworks for **data security, misinformation, AI warfare, and anti-satellite (ASAT) defence**.
- **Maritime and Indo-Pacific Security Framework:** Operationalize **SAGAR** and **Act East** as security anchors. Secure **chokepoints** (e.g., Strait of Malacca), build alliances (Quad, IOR Forum).
- **Doctrine on Strategic Autonomy and Alliances:** Clarify position on **Non-alignment 2.0**, use of defence diplomacy.
- **Border and Regional Security Doctrine:** Define protocols for **border conflict de-escalation, infrastructure build-up, and people-centric development** in sensitive areas.
- **Crisis Response and Civilian Protection Mechanism:** Institutionalize doctrine for **Non-combatant evacuations, Disaster-relief operations and Humanitarian interventions**
- **Economic and Energy Security Doctrine:** Map out protection for Strategic sectors (semiconductors, critical minerals, power grid), Trade routes and supply chains, Food and energy self-reliance

PRACTICE QUESTION

- Q. India has long debated the need for a formal National Security Doctrine (NSD). Critically examine the relevance of a National Security Doctrine for India in the context of contemporary security challenges. Also, outline the possible components such a doctrine must include. (15 marks, 250 words)**

APPROACH



MODEL ANSWER

A National Security Doctrine is a comprehensive strategic framework that articulates a nation's core security objectives, identifies threats, and prescribes institutional and policy responses to safeguard national interests. Despite India's complex security environment, it lacks a formal and publicly articulated NSD, unlike countries like the United States, China, and Russia.

Amid Operation Sindoor, post Pahalgam terror strikes, Prime Minister addressed India's stance of act of terrorism be considered as an act of war.

Relevance of a National Security Doctrine for India:

- Geopolitical Challenges:** Aggressive border postures from China (e.g., Galwan clash 2020) and persistent threats from Pakistan-backed terrorism (e.g., Pulwama 2019). NSD would clarify India's position on deterrence, pre-emptive strikes, and "No First Use" policy.
- Internal Security Issues:** Presence of Left-Wing Extremism in Central India and residual insurgency in the Northeast. Communal violence, radicalisation, and socio-economic

unrest remain threats to stability. An NSD can guide unified counter-insurgency and rehabilitation efforts.

3. **Cyber and Information Warfare:** Incidents like the 2020 cyberattack on Mumbai's power grid highlight vulnerabilities. A doctrine is needed to coordinate cyber preparedness and define legal and strategic frameworks.
4. **Maritime and Economic Security:** China's growing naval footprint in the Indian Ocean (String of Pearls), piracy, and supply chain disruptions. NSD can align SAGAR and Indo-Pacific strategies with long-term maritime goals.
5. **Technological and Energy Dependence:** Strategic vulnerabilities in semiconductors, critical minerals, and digital infrastructure (e.g., TikTok, Huawei bans). A doctrine can ensure alignment of economic, energy, and technological autonomy with national security.

Challenges of Not Having an NSD:

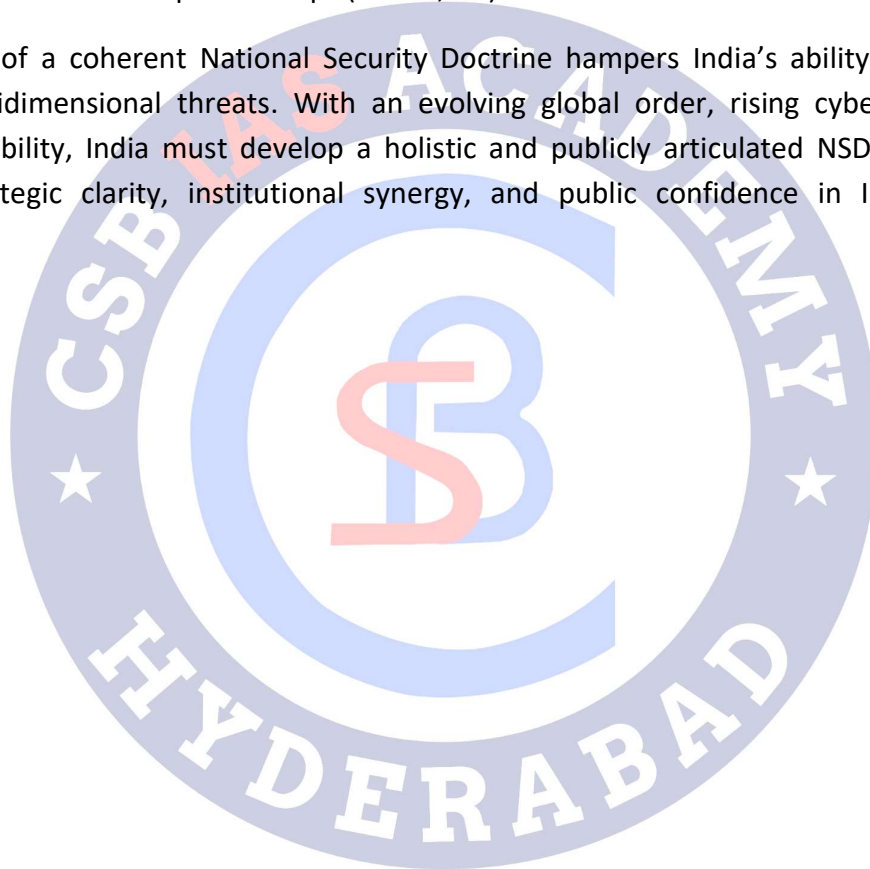
- **Lack of Strategic Coherence:** India often reacts to crises (e.g., Balakot airstrike) without a long-term framework.
- **Siloed Institutions:** Poor inter-agency coordination, evident during the 26/11 Mumbai attacks.
- **Unclear Civil-Military Roles:** Ambiguities in wartime command or hybrid warfare scenarios.
- **Limited Democratic Oversight:** Security decisions lack transparency and public debate.

What Should India's National Security Doctrine Include?

1. **Core Interests & Threat Perception:** Define red lines on territorial integrity, internal unrest, and regional hegemony.
2. **Counterterrorism Doctrine:** Institutionalize a zero-tolerance policy, including rules on pre-emptive kinetic strikes.
3. **Cyber, Space & AI Strategy:** Set boundaries in cyber warfare, data security, and anti-satellite defences.
4. **Maritime Security & IOR Strategy:** Operationalize SAGAR and protect strategic sea lanes (e.g., Strait of Malacca).

5. **Economic Security Policy:** Strategic autonomy in critical sectors (e.g., semiconductors, energy, digital platforms).
6. **Internal Stability & Insurgency Response:** Harmonize law enforcement, intelligence, and development efforts.
7. **Disaster and Crisis Response Framework:** Clear doctrines for civilian evacuations, humanitarian relief (e.g., Operation Sindoor).
8. **Strategic Autonomy & Global Diplomacy:** Clarify India's stance on alliances (QUAD, BRICS) and defence partnerships (Russia, US).

The absence of a coherent National Security Doctrine hampers India's ability to proactively address multidimensional threats. With an evolving global order, rising cyber threats, and regional instability, India must develop a holistic and publicly articulated NSD. Doing so will enhance strategic clarity, institutional synergy, and public confidence in India's security framework.



22. DEVELOPMENT OF NORTH EAST INDIA

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Economic Development

REFERENCE NEWS:

The Centre recently gave the green light to a 166.80 km **greenfield high-speed corridor** linking Shillong in Meghalaya to Silchar in Assam. The project will not only transform connectivity and spur economic development between the two northeastern states but is also set to act as an extension of a major multi-modal transport project in Myanmar.

The Shillong-Silchar highway will become an extension of the Kaladan project in Myanmar, in turn creating an alternative sea route connecting the northeastern states to Kolkata. National Highways & Infrastructure Development Corporation Limited (NHIDCL) described the project as a direct response to recent remarks by Bangladesh's interim chief adviser Muhammad Yunus, who called North-East India "landlocked" and implied that Dhaka is the region's only oceanic gateway.

NORTH EAST INDIA:

North East India, comprising 8 states, though accounting for less than 8% of India's area and around 3.8% of its population, holds disproportionate strategic importance due to its geopolitical location, cultural wealth, ecological diversity, and connectivity potential to Southeast Asia.

SIGNIFICANCE OF NORTH EAST INDIA:

Strategic and Security Significance

- **Border Management & National Integrity:** Shares 98% of its border with five countries — China, Bangladesh, Bhutan, Myanmar, and Nepal.
- China's claim on Arunachal Pradesh, cross-border infiltration, and insurgency in Nagaland/Manipur make the region central to India's territorial integrity.
- **Counterinsurgency and Peace Building:** Once insurgency-ridden, the region has seen major improvements due to peace accords (e.g., Bodo Accord 2020, Naga Peace Talks) and AFSPA rollback in many districts (2022).

- **Defence Logistics:** Projects like the Bogibeel Bridge and Trans-Arunachal Highway aid quick military movement in border areas. Home to critical airfields and cantonments (Tezpur, Tawang, Jorhat).

Economic and Trade Potential

- **Act East Policy Gateway:** Acts as India's connectivity corridor to Southeast Asia via: India-Myanmar-Thailand Trilateral Highway, Kaladan Multi-modal Project, Border Haats with Bangladesh and Myanmar
- **Rich Natural Resources:** Rich in oil, natural gas, coal, limestone, and uranium (Meghalaya). Brahmaputra basin provides vast hydropower potential.
 - North East holds 40% of India's hydropower potential, mostly untapped.
- **Agricultural and Horticultural Diversity:** Known for organic produce, horticulture, and bamboo. Sikkim is India's first fully organic state in both farming and fisheries.

Ecological and Environmental Importance

- **Biodiversity Hotspot:** Part of Indo-Burma and Eastern Himalayas biodiversity hotspots. Home to species like one-horned rhino (Assam), red panda (Sikkim), and clouded leopard (Meghalaya).
- **Climate Regulation:** Dense forests in Arunachal, Nagaland, and Meghalaya contribute to carbon sequestration and climate regulation. Protected areas like Kaziranga, Namdapha, Nokrek, etc.

Cultural and Civilisational Significance

- **Ethnic and Linguistic Diversity:** Home to over 220 ethnic groups and over 80 languages/dialects. Rich tribal traditions, dances (e.g., Wangala, Cheraw), and art forms.
- **Religious Harmony:** A mix of Hinduism, Christianity, Buddhism, and indigenous faiths. Ancient Buddhist heritage sites in Arunachal and Tripura; Namphake Monastery is a major Buddhist centre.
- **Cultural Diplomacy:** Enhances India's soft power in Southeast Asia through shared cultural elements with Myanmar, Thailand, and Bhutan.

Connectivity and Infrastructure Development

- **Siliguri Corridor (Chicken's Neck)** is the only land link to the mainland—making alternative and resilient routes vital.
- **Major infrastructure initiatives:** PM Gati Shakti, Bharatmala and Sagarmala Projects, UDAN Scheme for airport development, National Waterway 2 (Brahmaputra)

- Agartala-Akhaura railway link with Bangladesh aims to boost trade and connectivity.
- Social and Youth Capital: High literacy rates (e.g., Mizoram ~91%, Tripura ~87%) and sporting excellence. North East athletes like Mary Kom, Mirabai Chanu, and Lovlina Borgohain have brought global recognition.

CHALLENGES FACED BY NORTH EAST INDIA:

Geographical Isolation and Connectivity Bottlenecks

- The region is connected to the Indian mainland only via the **Siliguri Corridor (Chicken's Neck)**—a narrow 22 km strip in West Bengal. This **geographic vulnerability** creates **logistical, economic, and security challenges**.
 - During the 2017 Doklam standoff, China's threats to the Siliguri corridor highlighted India's strategic vulnerability. Only 7% of India's national highways are in the NE despite the region constituting 8% of the country's area.

Insurgency and Ethnic Conflicts

- The region has witnessed **60+ insurgent groups** over decades (e.g., ULFA in Assam, NSCN in Nagaland, Kuki-Zomi tensions in Manipur). Ethnic fault lines and demands for autonomy have caused recurring unrest.
 - **Manipur ethnic violence (2023)** between the Meiteis and Kukis led to over **170 deaths** and internal displacement of thousands.
 - Ministry of Home Affairs (2022) reported over **6,000 insurgency-related incidents** between 2010–2020 across NE states.

Porous International Borders and Illegal Migration

- **98% of the region's border** is international—leading to **cross-border smuggling, migration, and infiltration**.
 - **Illegal migration from Bangladesh** is a key concern in Assam, prompting the **NRC exercise** in 2019, which excluded over **19 lakh people**.
 - BSF reports regular seizures of **cattle, drugs, and arms** on the India-Bangladesh border in Tripura and Assam.

Underdeveloped Infrastructure

- Poor transport, telecom, health, and education infrastructure due to hilly terrain and historical neglect.

- **Only 30% of villages in Arunachal Pradesh** have all-weather road connectivity (BRO Report, 2021).
- NITI Aayog (2023) ranked most NE states low on **SDG Index for infrastructure and industrial growth**.

Limited Industrialisation and Job Opportunities

- Heavy reliance on agriculture and handloom; minimal private investment due to poor ease of doing business.
 - North East contributes **less than 2% to India's industrial output** (MoSPI, 2021).
 - Unemployment rate in Nagaland stood at **18.6%** (Periodic Labour Force Survey, 2022), much higher than the national average.

Environmental Fragility and Climate Risks

- Prone to **floods, landslides, and earthquakes** due to topography and monsoon dependency. Climate change has increased frequency of extreme events.
 - **Assam floods (2022)** affected over **55 lakh people** across 32 districts, displacing thousands. NE states fall in **Seismic Zone V**, the most earthquake-prone category in India.

Political Alienation and Perception of Neglect

- Historical underrepresentation and perception of **"mainland apathy"** in national discourse. Several peace accords (e.g., Bodo Accord 2020, NLFT Tripura Accord) address **demands for autonomy and identity recognition**.
 - North East accounts for **only about 25 MPs in Lok Sabha (out of 543)**, limiting national-level political influence.

Health and Education Deficits

- Lack of quality institutions and health infrastructure in remote tribal areas. Maternal mortality ratio in Assam is **195 per 100,000 live births**—higher than national average of 97 (SRS, 2020).
 - NE states like Arunachal and Meghalaya have **school dropout rates >20%** at the secondary level (UDISE+ 2021–22).

Drug Trafficking and Substance Abuse

- Proximity to the **Golden Triangle (Myanmar, Laos, Thailand)** makes it vulnerable to narcotics trade.

- Manipur and Mizoram have emerged as key transit and consumption hubs for heroin and methamphetamine.
- NCB (2022) seizures of synthetic drugs in Mizoram tripled over the previous year.

WAY FORWARD:

Infrastructural Development

- **Seamless Physical Connectivity:** Complete projects under Bharatmala and Trans-Arunachal Highway. Prioritize construction of bridges and tunnels in border and inaccessible areas. Fast-track the completion of the India-Myanmar-Thailand Trilateral Highway and Kaladan Multi-modal Transit Project.
- **Rail and Air Link Expansion:** Expand rail connectivity to all state capitals (e.g., Imphal, Aizawl, Kohima). Strengthen regional airports under UDAN scheme. Hollongi Airport (Arunachal Pradesh) opened in 2022, enhancing air connectivity.

Digital and Energy Infrastructure

- Expand 4G/5G, fiber optic networks under BharatNet.
- Invest in mini hydel projects and solar parks in Arunachal, Mizoram, and Sikkim.
- Establish a North East Digital Grid under DoNER to bridge digital divide.

Economic Development

- Boost Agro-Horticulture and Organic Farming
- Promote spice, bamboo, pineapple, and orange farming.
- Sikkim's organic model can be replicated in Mizoram, Meghalaya. Mission Organic Value Chain Development for North East Region (MOVCDNER)
- Promote Industrial Clusters and Startups
- Develop border trade hubs, handloom parks, and SEZs
- Encourage agro-processing, sericulture, bamboo, and tourism startups.
- Use Venture Capital Fund for NE (SIDBI) to fund tribal entrepreneurs.
- Develop cold chains, warehousing, and e-commerce hubs to connect farmers to national and global markets. Establish an Amazon-style North East Agro Marketplace.
- **Himalayan Medicinal Research Corridor:** Create a specialized research and development corridor focusing on traditional Himalayan medicine, **integrating knowledge from the Northeast with Ayurveda and modern biotechnology.**

Tourism and Cultural Economy

- Promote eco-tourism, adventure tourism, and cultural circuits.
- Swadesh Darshan includes NE circuits (e.g., "Spiritual Circuit in Manipur").

- Preserve Tribal Languages and Identity
- Support documentation, preservation, and teaching of tribal dialects.
- Recognise ethnic attire, festivals, and ritual practices under GI tagging and IPR. Mizo Puanchei, Naga shawls, and Assam's Gamosa are culturally significant and economically viable.
- **Northeast Olympic Training Center:** Create a **state-of-the-art Olympic training center in the Northeast**, taking advantage of its sports enthusiasts of Northeast.
- Establish residential schools, multi-lingual digital classrooms, and vocational institutes. Eklavya Model Residential Schools (EMRS) should be scaled up in tribal districts.
- **Transnational Indigenous Knowledge University:** Establish a world-class university in the Northeast focusing on indigenous knowledge systems, inviting scholars and students from other parts of India and Southeast Asian countries.

Governance and Institutional Reforms

- **Decentralised Planning and Tribal Autonomy:** Empower Autonomous District Councils (ADCs) under Sixth Schedule with resources and capacity building.
- Implement the Bezbaruah Committee (2014) suggestion to ensure inclusion and dignity of NE citizens across India.
- Inter-Ministerial Coordination Strengthen the role of North Eastern Council (NEC) and Ministry of DoNER. Mandate 10% GBS (Gross Budgetary Support) from Central ministries to NE.
- **External Connectivity and Act East Linkages:** Integrate NE with ASEAN economies via logistics corridors and cross-border trade.
- Enhance people-to-people ties through cultural exchanges with Southeast Asian countries.

GOVERNMENT INITIATIVES FOR NORTH EAST DEVELOPMENT:

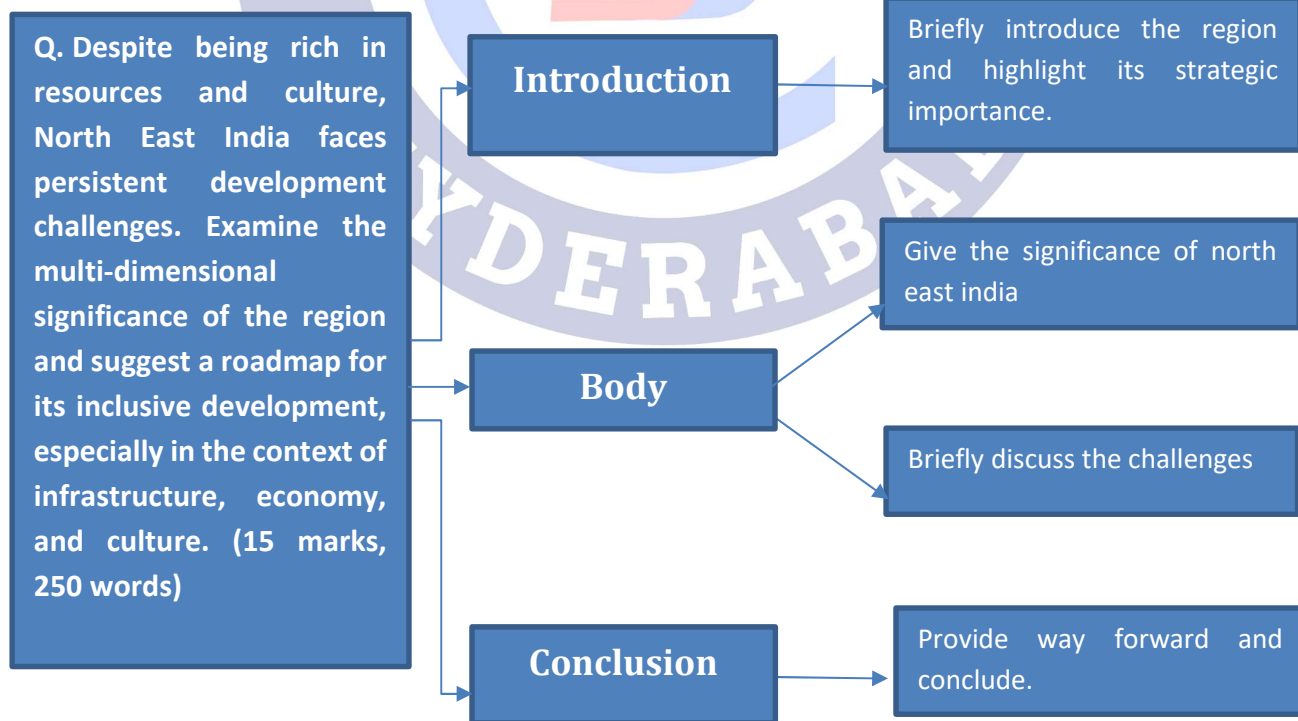
- **The Union Government established the Ministry of Development of North East Region (MDoNER) in 2001.**
 - It deals with matters related to the socio-economic development of the Northeast region.
 - It promotes coordination between Central Ministries/ Departments and the State Governments.
- **NITI Forum for North East** to promote inclusive and sustainable economic growth and to recommend appropriate interventions for the development of the Northeast.
- **North East Special Infrastructure Development Scheme** to create infrastructure to ensure water supply, power connectivity, education and health.
- **North-East Industrial Development Scheme (NEIDS) to promote MSME Sector.**
- **North East Gas Grid (NEGG) project** is underway and will improve the economy.
- **Act East Policy** to connect the Northeast with the East Asian countries to promote development.

- Government **Increased Infrastructure Investment in the region through various schemes.**
- Increase air connectivity to the Northeast Region.
- **PM-DevINE:**
 - To Fund infrastructure and create new economic opportunities.
 - Support social development projects based on local needs.
 - Provide livelihood activities for youth and women.
 - Fill the development gaps in different sectors.
 - To ensure that there is no duplication of project support under PM-DevINE with any of the other schemes of MDoNER or those of any other Ministry/Department.
- **Digital Silk Road" Initiative:** Develop a cutting-edge digital infrastructure network specifically for the Northeast, positioning it as India's hub for digital innovation.

PRACTICE QUESTION

Q. Despite being rich in resources and culture, North East India faces persistent development challenges. Examine the multi-dimensional significance of the region and suggest a roadmap for its inclusive development, especially in the context of infrastructure, economy, and culture. (15 marks, 250 words)

APPROACH



MODEL ANSWER

North East India, comprising 8 states, accounts for **less than 8% of India's land area and 3.8% of its population**. Despite this, the region holds disproportionate significance due to its **geostrategic location, rich biodiversity, natural resource base, and ethnic and cultural diversity**.

Significance of North East India:

1. **Strategic and Security Importance:** Shares **98% of its borders with five countries** (China, Myanmar, Bangladesh, Bhutan, Nepal). Critical to India's **Act East Policy** and counter-insurgency operations.
2. **Economic Potential:** Holds **40% of India's hydropower potential** and is rich in coal, oil, and uranium. A hub for **organic farming, bamboo, and horticulture**.
3. **Ecological and Biodiversity Hotspot:** Part of **Eastern Himalayas and Indo-Burma hotspots**. Home to **Kaziranga, Namdapha**, and unique flora-fauna.
4. **Cultural and Civilisational Value:** Over **220 ethnic groups**, 80+ languages, and vibrant tribal heritage. Enhances India's **soft power** in Southeast Asia.

Key Challenges:

- **Geographic isolation** (Siliguri Corridor dependence)
- **Insurgency and ethnic conflicts** (e.g., Manipur 2023 violence)
- **Infrastructure deficits** (Only 30% of Arunachal's villages have all-weather roads)
- **Low industrial investment** (Contributes <2% to India's industrial output)
- **Climate vulnerabilities** (e.g., Assam floods displacing 55 lakh in 2022)
- **Drug trafficking** due to proximity to the Golden Triangle

Way Forward for Inclusive Development

A. Infrastructure & Connectivity

- Complete **Shillong-Silchar greenfield corridor, Trans-Arunachal Highway, and India-Myanmar Trilateral Highway**.
- Expand **rail and air links** under UDAN; operationalize **Hollongi Airport** (Arunachal).
- Bridge the **digital divide** via a **North East Digital Grid** and **Digital Silk Road** initiative.

B. Economic Empowerment

- Replicate **Sikkim's organic model**; boost bamboo, spice, and medicinal value chains.
- Promote **agro-processing, tourism, and border SEZs**.
- Establish an **Amazon-style NE Agro Marketplace** and expand **cold chains**.
- Create a **Himalayan Medicinal Research Corridor** blending traditional and modern medicine.

C. Cultural and Human Capital

- Promote **eco- and adventure tourism** through Swadesh Darshan circuits.
- Preserve **tribal dialects and attire** (e.g., GI tagging for Mizo Puanchei, Gamosa).
- Establish:
 - **Transnational Indigenous Knowledge University**
 - **Northeast Olympic Training Center**
 - **Multi-lingual digital classrooms** and **Eklavya schools** in tribal areas.

D. Governance & External Integration

- Empower **Autonomous District Councils** under Sixth Schedule.
- Implement **Bezbaruah Committee recommendations** to ensure inclusion.
- Strengthen **Ministry of DoNER** and ensure **10% GBS allocation**.
- Deepen ties with ASEAN via logistics, trade corridors, and cultural exchanges.

North East India's development cannot be an afterthought—it must be a **national priority**. By investing in **inclusive infrastructure**, fostering **cultural pride**, and aligning with **regional aspirations**, India can transform the region from a strategic frontier into a **gateway to prosperity and Southeast Asian integration**. A **bottom-up, people-centric approach**, rooted in **dignity and autonomy**, is the key to sustainable peace and progress.

23. ENVIRONMENTAL IMPACT ASSESSMENT

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Environment and Ecology >> Environmental Conservation

REFERENCE NEWS:

The **Supreme Court**, in **Vanashakthi v. Union of India, 2025** struck down a **2017 notification** and a **2021 office memorandum (OM)** issued by the **Ministry of Environment, Forest and Climate Change (MoEF&CC)** that allowed industries to apply for **environmental clearances after beginning operations**, declaring them **illegal and unconstitutional**.

BACKGROUND OF THE NEWS:

- The **2017 notification** allowed a **six-month one-time window** for industries to seek clearance **post-facto** if they had started operations or made changes without prior clearance, in violation of the **EIA Notification, 2006**.
- The **Centre's rationale** was to regulate violations, impose remediation costs, and ensure oversight without abrupt closures.
- A **2021 SOP** and an expert committee led by **S.R. Wate** were set up to evaluate violation cases; the committee met **47 times** from 2017–2021.

ENVIRONMENTAL IMPACT ASSESSMENT:

Environmental Impact Assessment (EIA) is a **systematic process** to evaluate the **potential environmental, social, and health impacts** of a proposed project or development activity **before** it is approved and implemented. The goal is to ensure that **decision-making** is **informed, transparent, and promotes sustainable development**.

Legal Framework of EIA in India

- **Introduced:** 1978 (Administrative basis for river valley projects)
- **Statutory Status:** Given through **Environment (Protection) Act, 1986**
- **Key Notification:** **EIA Notification, 1994**, replaced by **EIA Notification, 2006**
- Administered by the **Ministry of Environment, Forest and Climate Change (MoEF&CC)**

Stages of EIA Process (As per 2006 Notification):

- **Screening:** Determines whether a project needs a full or partial EIA. Category 'A' projects are exempt from this step.
- **Scoping:** Identifies key environmental issues and project alternatives early, using laws, expert input, international norms, and public feedback.
- **Public Consultation:** Seek input from affected communities. **Applies to Category A and B1 projects**, except for irrigation modernization, projects in industrial estates, and some road expansions.
- **Impact Assessment & Report Preparation:** Scientific evaluation of potential impacts. Predicts environmental, social, and economic impacts of the project in a comprehensive way. Evaluates hazards like workplace risks, pollutant lifecycle, and technology-related dangers, and suggests safety measures.
- **Appraisal:** Review by **Expert Appraisal Committees (EAC)**.
- **Decision-making:** MoEF&CC or state authority grants or rejects environmental clearance based on the category.
- **Monitoring & Compliance:** Post-clearance monitoring by Pollution Control Boards and project authorities.

Project Categories (as per 2006 EIA Notification)

Category	Description	Authority
A	High impact projects (e.g., thermal power plants, ports, mining > 50 ha)	Appraised by MoEF&CC
B1	Moderate impact (e.g., small mining, certain highways)	Appraised by State EIA Authority
B2	Minor impact (e.g., irrigation projects < 2000 ha)	No EIA needed, only consent

COMPONENTS OF EIA REPORT BASED ON NATURE OF PROJECT:

- **Air Environment:** Define the impact zone. Monitor ambient air quality and local meteorology (wind, temperature, humidity).
- **Noise Environment:** Measure current noise levels in the impact area. Forecast future noise levels. Recommend noise-reduction measures

- **Water Environment:** Survey existing surface and groundwater quantity/quality. Predict project-related impacts on water resources
- **Biological Environment:** Inventory local flora and fauna (seasonally). Assess damage risks from emissions, effluents, land-use changes. Propose biodiversity mitigation
- **Land Environment:** Characterize soil, topography, land use, drainage. Estimate and classify solid wastes; recommend waste-minimization and disposal options. Identify potential for treated effluent reuse.
- **Socio-economic & Health:** Gather demographic and economic baseline data. Project impacts on livelihoods, health, traffic, etc. Suggest measures to offset negative effects
- **Risk Assessment:** Identify hazards (chemical, dam-break, natural). Conduct Maximum Credible Accident (MCA) analysis.
- **Environmental Management Plan (EMP):** Lay out pollution-prevention and control measures by component. Detail rehabilitation/resettlement (where needed). Define monitoring protocols, implementation schedule, and resource needs.

SC's Rationale and Verdict:

- The **bench of Justices Abhay S. Oka and Ujjal Bhuyan** ruled that both the **2017 notification** and **2021** violated:
 - **Article 21** (Right to a healthy and pollution-free environment)
 - **Article 14** (Equality before the law)
- It criticised the government for protecting violators and reiterated that **development cannot be at the cost of the environment.**
- The Court cited **Delhi's pollution** to show the human cost of environmental degradation.
- It emphasized that even a **one-time ex-post facto regime** is unconstitutional.
- The Court reminded the Centre of its **earlier undertaking before the Madras High Court**, which had upheld the 2017 notification only because it was assured to be a one-time measure.
- The ruling upholds **environmental accountability** and reasserts the judiciary's role in **protecting the public's right to a clean environment.**

Legal Precedents and Criticism:

- The judgment referenced **Common Cause v. Union of India (2017)** and **Alembic Pharmaceuticals v. Rohit Prajapati (2020)**, where ex-post facto clearances were held to be **contrary to environmental jurisprudence.**
- The 2021 OM was held to **circumvent past SC rulings**, attempting to **regularise illegality by avoiding the term "post facto"** while enabling the same outcome.
- The SC categorically **prohibited the Centre** from introducing any similar mechanism in the future.

SIGNIFICANCE OF EIA IN INDIA:

- **Protecting Human Health & Livelihoods:** India's Supreme Court has recognized **"the right to a healthy environment"** under **Article 21** of the Constitution.
 - A 2018 World Bank study estimated that air pollution costs India over 8% of GDP in health and lost productivity—EIA air-quality modelling helps avoid or mitigate such costs.
- **Safeguarding Biodiversity & Ecosystem Services**
 - **Tehri Hydroelectric Project (Uttarakhand):** Early EIAs flagged risks to the Ganga's flow regime and tribal livelihoods. As a result, the project incorporated modified reservoir operation rules, wildlife corridors and compensation for displaced forest-dependant communities.
 - India hosts four global biodiversity hotspots; EIA's "Biological Environment" chapter is mandatory for Category 'A' projects in these areas, ensuring habitat surveys and mitigation plans before clearance.
- **Strengthening Social Equity**
 - **Narmada Valley Resettlement:** Follow-up EIAs for sub-projects under the Sardar Sarovar Dam now require detailed "Socio-economic & Health Environment" studies. These have improved rehabilitation packages—including land-for-land compensation and livelihood training—thereby reducing conflict and improving outcomes for over 40,000 displaced families.
 - Since the 2006 EIA Notification, all major projects must hold public hearings; roughly 1,200 hearings are held each year, giving villagers and NGOs a formal forum to air concerns.
- **Legal & Policy Accountability**
 - In May 2024, the SC struck down the 2017 "ex-post facto" clearance regime, citing that environmental clearance must be **prior** to ground-breaking activity. This upholds EIA's legal mandate and deters "clearance by default."
 - As of 2023, MoEFCC reports over **30,000** proposals screened, with ~3,500 requiring full EIA studies; roughly **10 %** of those are either rejected outright or returned for revision—demonstrating EIA's real teeth.

Why EIA Matters for India?

- **Balancing Growth & Sustainability:** Ensures that India's rapid infrastructure push under programs like Gati Shakti or Sagarmala does not come at an unsustainable environmental cost.

- **Meeting International Obligations:** Strengthens India's compliance with global treaties (e.g. Paris Agreement) by embedding climate and biodiversity considerations in project appraisals.
- **Building Public Trust:** Transparent, participatory EIAs—complete with accessible non-technical summaries—help communities see that their concerns are heard and addressed, with a significant tribal population of India.

CHALLENGES OF EFFECTIVE FUNCTIONING OF EIA:

Insufficient Scoping & Poor Quality Studies

- “Scoping”—identifying which impacts to study and how deeply—is often rushed or evaded, leading to superficial EIAs that fail to capture local realities.
- The 2015 Baghjan oil blow-out in Assam occurred in an area whose EIA had downplayed seismic risk and didn't model worst-case spill scenarios.
- A 2019 Centre for Science and Environment review found that over **60 percent** of sampled EIA reports lacked basic baseline data on air, water or soil quality.

Ex-Post Facto Clearances & Regulatory Backsliding

- Despite the Supreme Court striking down retrospective (“ex-post facto”) clearance in May 2024, the Ministry of Environment, Forest & Climate Change (MoEFCC) has repeatedly attempted to reintroduce it via office memoranda. This incentivizes developers to start work without prior clearance.
- In **Common Cause v. Union of India (2017)** and **Alembic Pharma v. Rohit Prajapati (2020)**, the courts held that retrospective regularization is unconstitutional. Yet between 2017–2021, the MoEFCC granted post-facto clearances to **55** major “violating projects,” only to have them struck down in 2025.

Tokenistic Public Hearings & Consultation Fatigue

- Public hearings are legally mandated, but affected communities often receive little notice, technical jargon obscures real risks, and “hearing fatigue” sets in.
- For the Sterlite copper plant in Tamil Nadu, villagers reported hearing notices in newspapers only days before hearings and in English rather than Tamil—fueling distrust and ultimately leading to a violent shutdown in 2018.
- Across **450** EIAs sampled in 2022, NGOs documented that **75 percent** of public-hearing slots were scheduled at times or venues inconvenient for farmers and daily-wage laborers.

Weak Monitoring & Non-Compliance with Conditions

- Once an Environmental Clearance (EC) is granted, follow-up monitoring is uneven, and violations—stacked effluent discharge, inadequate green belts—go unpunished.
- The Vedanta–Lanjigarh alumina refinery (Odisha) repeatedly exceeded its wastewater discharge limits, yet the State Pollution Control Board took no penal action for over **five years**.
- MoEFCC’s 2023 Annual Report admits that while **3,500** projects hold ECs, only **20 percent** undergo regular compliance checks—leaving 80 percent effectively unsupervised.

Capacity Constraints & Conflicts of Interest

- State and central EIA authorities lack sufficient technical staff, and their reliance on “consultant-prepared” reports creates a conflict of interest (consultants are paid by the very project proponents they evaluate).
- As of 2023, the 5 Regional Offices of the Expert Appraisal Committees collectively employ fewer than **200** full-time scientists and engineers to appraise **hundreds** of Category ‘A’ proposals each year.

Policy Erosion & Narrowed “Social Impact” Scope

- The 2020 EIA Notification downgraded “**social impact assessment**” to a voluntary exercise for most projects and reduced mandatory post-clearance public disclosure—from 30 days to 7. This limits **transparency** and community oversight.
- In 2021, the Odisha government cleared a mega coal block expansion without reassessing tribal displacement impacts, citing the voluntary nature of social assessments under the new rules.

WAY FORWARD:

Enshrine Judicial Safeguards into Statute

- **Judicial Review Triggers:** Allow public interest litigants direct locus to challenge flawed EIAs before the National Green Tribunal or High Courts, as reaffirmed in Centre for Environmental Law v. Union of India (2021).

Restore & Strengthen Scoping, Cumulative & Social Impact Assessment

- **Mandatory Social Impact Assessment (SIA):** Reinstate pre-2020 norms making SIAs compulsory for all Category A projects—and require separate “**resettlement and rehabilitation**” clearance for any displacement.

- **Cumulative Impact Requirement:** Mandate assessments of aggregate impacts—e.g., multiple mines in a watershed—following the Maharashtra State Road Development Corporation v. Environment Ministry (2019) directive.
- **Third-Party Peer Review:** SIAs must be peer-reviewed by independent experts selected from a statutory panel (modelled on the United States’ NEPA peer-review regulations).

Democratize Public Participation

- **Advance, Multilingual Notices:** Issue hearing notices at least 30 days in advance in local languages, in both print and digital media, per Sterlite’s Tamil Nadu experience where short, English-only notices led to community backlash.
- **Multiple Local Hearings & Virtual Access:** Hold hearings in each affected gram panchayat and provide online participation/recording options—drawing on Canada’s “public registry” model for federally assessed EIAs.
- **People’s Oversight Panels:** Constitute local “stakeholder panels” (NGO, tribal, fisherfolk representatives) empowered to review draft EIA reports and file formal objections.

Strengthen Appraisal & Inter-Agency Coordination

- **Conflict-Free Funding Mechanism:** Earmark a central “EIA Trust Fund” so expert committees are remunerated by Government of India—not by project proponents—to eliminate consultant bias (as practiced in **Australia’s Independent Expert Committee model**).
- **Mandatory Inter-Departmental Consultations:** Enforce “one-window” coordination among MoEFCC, Central and State PCB, Forest Dept., and Tribal Welfare Dept. for any project impacting forests or forest-dwelling communities.

Institutionalize Robust Monitoring & Enforcement

- **Real-Time Compliance Monitoring:** Deploy satellite, IoT-enabled pollution sensors fed into public-facing dashboards—mirroring China’s Environmental Transparency Platform.
- **Penal Provisions & Citizen Suits:** Amend the EIA Notification to impose on-the-spot fines and project stoppage powers on SPCBs for non-compliance. Enable “citizen suit” provisions that allow NGOs or affected persons to seek injunctions against violators.
- **Post-Clearance Audits:** Mandate biennial, independent third-party audits of Environmental Management Plans (EMP) with summaries tabled before Parliament.

Build Technical & Community Capacity

- **Augment Expert Appraisal Committees:** Increase full-time scientific staffing by at least 50 percent—per MoEFCC’s own gap analysis—and mandate rotating international experts.
- **Local Community Trainers:** Train and certify village-level “EIA paralegals” (ala Philippines’ Bantay Kalikasan model) who can help communities understand EIA documents and file objections.

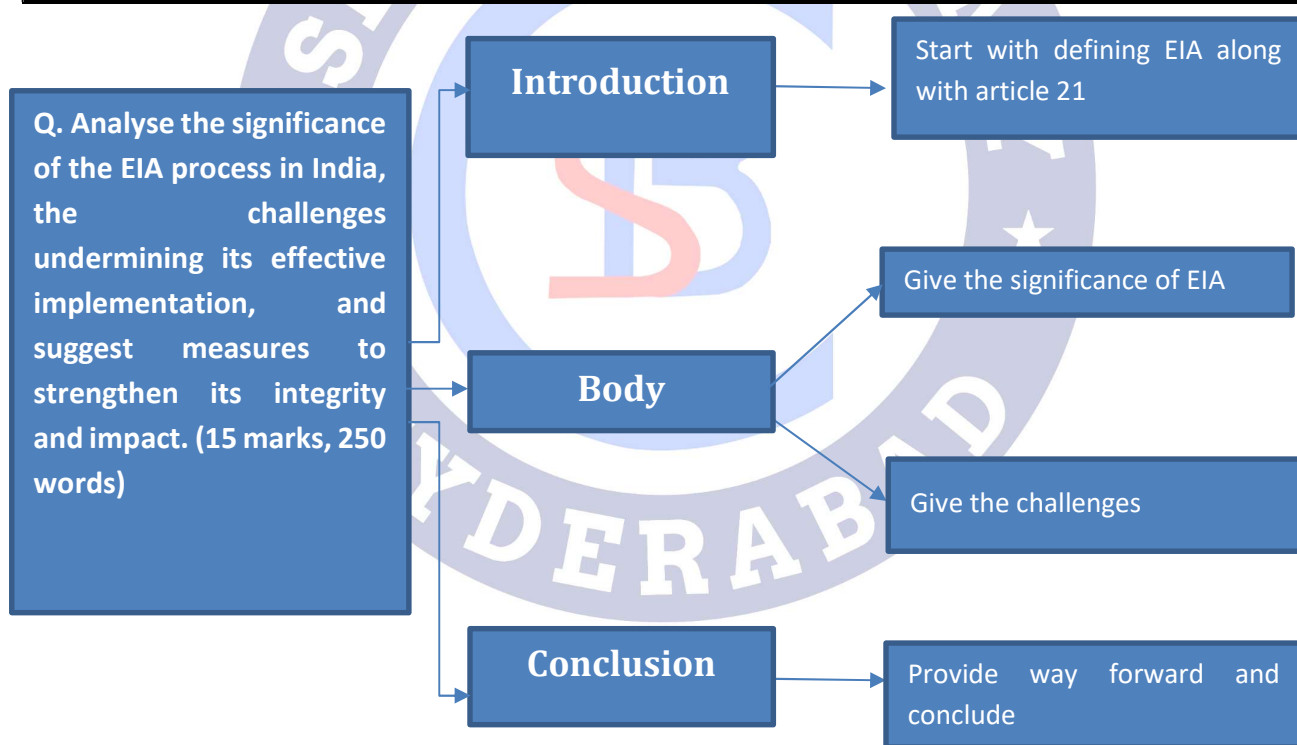
Mainstream Strategic & Cumulative Planning

- **Regional & Sectoral EIAs:** Require “regional” EIAs for industrial corridors (e.g., upstream Brahmaputra hydropower cascade) and sectoral roadmaps for mining, ports and highways—akin to the EU’s Strategic Environmental Assessment (SEA) Directive.
- **Land-Use Zoning:** Pre-designate “no-go” ecological zones (tiger corridors, aquifer recharge areas) where new projects are automatically denied clearance—drawing on Costa Rica’s Marine Protected Area network.

PRACTICE QUESTION

Q. Analyse the significance of the EIA process in India, the challenges undermining its effective implementation, and suggest measures to strengthen its integrity and impact. (15 marks, 250 words)

APPROACH



MODEL ANSWER

Environmental Impact Assessment (EIA) in India, enshrined under the Environment (Protection) Act, 1986 and operationalized via the EIA Notification, 2006, is designed to identify, predict and mitigate adverse environmental, social and health impacts of proposed projects before approval.

It seeks to balance India's rapid infrastructure growth with its constitutional mandate under **Article 21 for a "healthy and pollution-free environment."**

Significance of EIA

1. **Protecting Ecosystems:** Mandatory biodiversity surveys in hotspot regions (Indo-Burma, Eastern Himalayas) have ensured corridor protections in projects like Tehri Dam.
2. **Human Health & Livelihoods:** Air-quality modelling in EIAs helps avert public health costs (World Bank: pollution costs \approx 8 % of GDP).
3. **Social Equity:** Over 1,200 public hearings annually give voice to rural and tribal communities, improving relocation packages in Narmada rehabilitation.
4. The **Supreme Court**, in **Vanashakthi v. Union of India, 2025**, upholds **environmental accountability** and reasserts the judiciary's role in **protecting the public's right to a clean environment** by reaffirming ex-post clearances of projects unconstitutional.
5. **Meeting International Obligations:** Strengthens India's compliance with global treaties (e.g. Paris Agreement) by embedding climate and biodiversity considerations in project appraisals.

Challenges

1. **Superficial Scoping & Poor Baseline Data:** 60 % of sampled EIAs (Centre for Science and Environment, 2019) lacked basic air/water quality baselines, as seen in the 2015 Baghjan oil blowout.
2. **Post-Facto Clearances:** The 2017–21 "ex-post facto" regime regularised 55 violating projects, only to be struck down by the Supreme Court in *Vanashakti v. Union of India* (2025) for violating Articles 14 and 21.
3. **Tokenistic Public Hearings:** In the Sterlite plant case (2018), hearings advertised days prior in English alienated Tamil-speaking villagers, fueling distrust and conflict.
4. **Weak Monitoring & Enforcement:** Only 20 % of 3,500 cleared projects undergo regular compliance checks (MoEF&CC, 2023), allowing repeat violations like wastewater over-discharge by Vedanta's Lanjigarh refinery.
5. **Capacity Constraints & Conflicts of Interest:** Less than 200 scientists staff five EAC regional offices, while consultants—hired by project proponents—produce the very EIA reports they appraise.

Way Forward

1. **Statutory Strengthening:** Reinstate mandatory Social Impact Assessments and cumulative impact studies for Category A projects, as per the Maharashtra State Road Development Corporation judgment (2019).
2. **Democratize Participation:** Mandate 30-day advance, multilingual hearing notices and virtual participation options, following Canada's federal EIA registry model.
3. **Independent Appraisal Funding:** Establish a central "EIA Trust Fund" to remunerate Expert Appraisal Committees, eliminating consultant bias (Australia's Independent Expert Committee model).
4. **Robust Monitoring & Penalties:** Deploy IoT-enabled pollution sensors with public dashboards; empower State Pollution Control Boards to levy on-the-spot fines and suspend clearances for non-compliance.
5. **Build Capacity & Community Engagement:** Expand full-time EAC staffing by 50 %; train "EIA paralegals" at village level (Philippines' Bantay Kalikasan model).
6. **Strategic & Regional Planning:** Require regional EIAs for industrial corridors (e.g., Brahmaputra hydropower cascade) and pre-designate ecological "no-go" zones, following Costa Rica's protected-area framework.

A robust, transparent and participatory EIA regime is vital for India's sustainable growth trajectory. By addressing procedural gaps, enhancing institutional capacity and embedding strategic planning, India can ensure that its development agenda does not compromise environmental integrity or public welfare.

24. MARINE POLLUTION

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Environment and Ecology >> Pollution

REFERENCE NEWS:

On May 25, 2025, the Indian Coast Guard (ICG) launched a major pollution response after the Liberian vessel MV MSC ELSA 3 sank 15 nautical miles off Alappuzha, Kerala. An oil slick was detected drifting east-southeast, prompting aerial and marine dispersal of oil spill dispersant (OSD). Amid rough seas and floating debris from over 100 containers, ICG deployed OPVs and aircraft for surveillance and mitigation.

A pollution liability notice was issued to vessel owners under the Merchant Shipping Act, 1958. Cleanup efforts were initiated with salvage firm T&T, and Kerala authorities were advised to prepare for shoreline contamination and public safety.

MARINE POLLUTION:

Marine pollution refers to the **introduction of harmful substances** such as plastics, oil, chemicals, sewage, and invasive species into oceans and seas, harming marine life, ecosystems, and coastal economies.

Global Marine Pollution

- Over **11 million metric tonnes** of plastic waste enter oceans each year (UNEP, 2021). By 2040, this could **triple** without intervention.
- **Microplastics** have been found in seafood, drinking water, and even human blood.
- Major incidents like **Deepwater Horizon (2010)** released **4.9 million barrels** of oil into the Gulf of Mexico. Around **1,000 oil spills** are reported annually worldwide (ITOPF data).
- Eutrophication caused by runoff from **agriculture (nitrates and phosphates)** leading to **dead zones**. Over **400 dead zones** have been identified globally, affecting 245,000 sq. km of ocean.
- **80% of marine pollution** originates from **land-based sources**. Coastal cities discharge **untreated or partially treated sewage** directly into oceans.
- Ballast water often introduces **invasive species** and pathogens across marine ecosystems.

Marine Pollution in India: India, with a **7,500 km coastline**, is highly vulnerable to marine pollution due to rapid coastal urbanisation, port activity, fishing, and industrial development.

- India is among the **top 10 marine plastic polluters** (World Bank, 2019).
- Studies by NIOT (2023) found **microplastics in 100% of fish samples** from the Bay of Bengal.
- India records **20–30 minor oil spills annually**, mostly near ports. **Recent Incident (2025)** like MV MSC ELSA 3 sank off Kerala, causing a significant oil slick, prompting a full-scale Indian Coast Guard pollution response. Past incidents: **MV Rak (2011)** off Mumbai; **MV BW Maple collision (2017)** off Chennai.
- CPCB (2020) estimates **over 60% of wastewater** in coastal cities is **untreated**. Coastal waters near **Mumbai, Mangalore, and Visakhapatnam** show high levels of **biochemical oxygen demand (BOD)**—indicating organic pollution.
- **Alang, Gujarat**, one of the world's largest shipbreaking yards, generates **toxic wastes**, oil residues, and heavy metals, impacting marine biodiversity.

SIGNIFICANCE OF OCEAN HEALTH ON OUR ENVIRONMENT:

Oceans cover about **71% of Earth's surface** and contain **97% of the planet's water**. Healthy oceans are **critical regulators of the Earth's climate**, **biodiversity hotspots**, and **key providers of ecological, economic, and human services**.

- **Climate Regulation:** Oceans absorb **~25–30% of anthropogenic CO₂ emissions** annually, helping mitigate global warming. They act as **carbon sinks**, with **phytoplankton** playing a crucial role in photosynthesis, absorbing CO₂ and releasing O₂.
 - The **Southern Ocean** alone accounts for absorbing **~40% of the oceanic uptake of anthropogenic CO₂**.
- **Heat Buffering and Weather Regulation:** Oceans absorb over **90% of excess atmospheric heat** trapped by greenhouse gases. They regulate global weather patterns via ocean currents and monsoon systems.
 - The **Indian Ocean Dipole** and **El Niño-Southern Oscillation (ENSO)** strongly influence **Indian monsoons** and global rainfall patterns.
- **Biodiversity Hotspot and Food Security:** Oceans are home to **over 230,000 documented marine species**, and possibly millions more. Coral reefs support **~25% of all marine life**, despite covering only **1% of the ocean floor**.
 - The **Great Barrier Reef (Australia)** is the world's largest coral system and is essential for marine biodiversity and coastal protection.
- **Livelihoods and Economic Support:** **Over 3 billion people** depend on marine and coastal biodiversity for their livelihoods. Oceans support industries like **fisheries, aquaculture, shipping, and tourism**.

- The global ocean economy is worth **\$3 trillion annually**, or **~5% of global GDP** (World Bank, 2020).
- The **blue economy** contributes **~4% of India's GDP**. Coastal states like Kerala, Gujarat, and Tamil Nadu depend heavily on **marine fisheries and port infrastructure**.
- **Oxygen Generation and Nutrient Cycling: Phytoplankton** in oceans generate **over 50% of the world's oxygen**. Oceans support the **nitrogen, carbon, and phosphorus cycles**, which are crucial for life on Earth.
 - Disruption of phytoplankton due to warming seas can **reduce global oxygen production**, affecting all aerobic life.
- **Coastal Protection and Disaster Mitigation: Healthy mangroves, coral reefs, and seagrass beds** act as natural buffers against coastal erosion, storm surges, and tsunamis.
 - During the **2004 Indian Ocean tsunami**, mangrove-covered areas like **Pichavaram (Tamil Nadu)** experienced **less damage** compared to bare coastlines.
- **Medical and Scientific Advancements: Marine organisms** provide compounds for medicines treating **cancer, arthritis, and infections**.
 - The drug **Ziconotide**, used to treat chronic pain, was derived from the venom of the **cone snail**, a marine species.

IMPACTS OF MARINE POLLUTION: A MULTIDIMENSIONAL THREAT

Impact on the Economy

- **Loss to Fishing and Aquaculture:** Marine pollution reduces fish stocks and contaminates aquatic species, directly affecting coastal economies. The FAO estimates that **plastic pollution alone causes up to \$2.5 billion annually** in losses to marine fisheries and aquaculture worldwide.
 - In Gujarat and Kerala, oil spills and coastal waste have impacted traditional fishers, causing a **10–15% drop in fish catch** during polluted months.
- **Decline in Marine Tourism:** Polluted beaches and oil spills deter tourists, affecting local employment and state revenues.
 - After the **2010 Deepwater Horizon oil spill**, tourism in the Gulf of Mexico region declined significantly, causing **\$22.7 billion in economic losses** (US Travel Association).
- **Shipping and Navigation Disruptions:** Floating debris and oil spills create hazards for vessels, increasing fuel use and insurance costs.
 - The sinking of **MV MSC ELSA 3 (2025)** off Kerala prompted ICG to divert shipping routes due to **floating cargo and oil slicks**, temporarily impacting maritime traffic and port activity.

Impact on Ocean Ecosystem

- **Coral Reef Destruction:** Pollutants such as microplastics, oil, and sewage reduce sunlight penetration and oxygen levels, leading to coral bleaching. The **Great Barrier Reef** has experienced mass bleaching partly due to chemical and nutrient runoff combined with warming seas.
 - Coral degradation is rising in **Gulf of Mannar and Lakshadweep**, as per Zoological Survey of India (ZSI), due to **untreated coastal sewage** and solid waste.
- **Disruption of Food Chains:** Microplastics and toxins ingested by plankton move up the food chain, affecting fish, birds, and mammals.
 - A UNEP report (2021) shows **over 700 marine species**, including turtles and whales, are impacted by plastic ingestion or entanglement.

Impact on Marine Biodiversity

- **Species Mortality and Habitat Loss:** Pollutants like heavy metals, oil, and plastics cause deformities, disease, and death in marine fauna.
 - Oil spills in the **Arctic and Gulf of Mexico** led to mass deaths of sea birds, dolphins, and turtles.
 - The **Chilika Lake and Sundarbans** have witnessed reduced fish populations and migratory bird arrivals due to nutrient-rich runoff and plastic pollution.
- **Endangered Species at Risk:** Sea turtles, dugongs, and whale sharks, already under stress, are more vulnerable due to ingestion or entrapment in marine litter.
 - **India's Olive Ridley Turtles** face massive nesting loss on Odisha coast due to polluted and plastic-choked beaches.

Impact on Society and Human Health

- **Contaminated Seafood and Water:** Consumption of fish containing mercury, microplastics, or hydrocarbons leads to health issues like **cancer, infertility, and neurological disorders**.
 - A 2022 study by NIOT found **microplastics in 100% of tested fish samples** off Chennai and Visakhapatnam coasts.
- **Coastal Community Vulnerability:** Marine pollution reduces income from fisheries and tourism, affecting **3 million+ coastal households** in India.
 - UNESCO estimates **40% of the world's population lives within 100 km** of a coast and directly depends on marine health.
- **Cultural and Social Loss:** Sacred rivers and coastal ecosystems (e.g., Ganga, Kaveri delta, Puri beaches) lose their ecological and spiritual value due to pollution.

- Pollution along **Rameshwaram and Puri beaches** not only affects livelihoods but also sacred rituals and pilgrimages.

WAY FORWARD:

Strengthen Legal and Institutional Framework

- **Enforce Existing Laws Effectively:** Strengthen enforcement of **Water (Prevention and Control of Pollution) Act, 1974, Environment Protection Act, 1986, Coastal Regulation Zone (CRZ) Notification, 2011**. Introduce **Marine Litter Rules** under EPA, 1986 specifically targeting plastic and oil waste.
- **Empower Maritime Pollution Authorities:** Expand the role of the **Indian Coast Guard** as the lead agency for marine pollution response under the **Merchant Shipping Act, 1958**. Establish dedicated **State Coastal Pollution Monitoring Cells** in all coastal states.

Upgrade Waste Management and Infrastructure

- **Solid Waste and Plastic Control:** Ban single-use plastics near coasts and enforce **Extended Producer Responsibility (EPR)**. Mandate **source segregation, coastal Material Recovery Facilities (MRFs), and waste booms** in drains entering the sea (like in **Mumbai and Kochi**).
- **Sewage and Industrial Discharge:** Accelerate **Namami Gange-style** coastal clean-up programmes. Upgrade sewage treatment plants (STPs) and mandate **zero liquid discharge (ZLD)** for coastal industries.
- **Japan:** Uses **interceptors and decentralised treatment** along coastlines to manage runoff efficiently.

Control Oil Spills and Shipping Waste

- **Improve Maritime Surveillance and SOPs:** Use **real-time AIS tracking, satellite imaging, and drones** to detect oil spills (as done during **MV MSC ELSA 3** incident by ICG).
- **Enforce MARPOL Regulations:** Ensure all Indian ports comply with **International Maritime Organization's (IMO) MARPOL Convention** on ship waste management.
- Mandate **Port Reception Facilities (PRFs)** at all major and minor ports.
- **Singapore Port Authority:** Maintains 24x7 oil spill readiness and levies strict fines on violators.

Promote Blue Economy with Marine Conservation

- **Sustainable Fishing and Aquaculture:** Promote **eco-labelling**, ban destructive fishing practices (bottom trawling), and protect **marine breeding grounds** (e.g., for Olive Ridley turtles).
- Encourage **integrated coastal aquaculture** using biosecure and waste-treated models.

- **Marine Protected Areas (MPAs):** Expand India's network of **MPAs** beyond the current 26, especially around **Andaman, Lakshadweep, Gulf of Mannar**. Involve local fishers in **community-led coastal stewardship programmes**.
- **Philippines' Apo Island:** Locally managed marine reserves have restored fish stocks and tourism.

Leverage Innovation and Research

- **Scientific Monitoring:** Deploy **IoT-based marine pollution sensors**, and create a **National Marine Pollution Dashboard**.
- **Green Port Initiatives:** Promote '**Green Ports**' certification for Indian ports through Shore power supply to ships, Solar installations, Eco-dredging.
- **Rotterdam Port (Netherlands):** Has achieved near-zero emissions through integrated green port planning.

Public Awareness and Community Participation

- Launch a '**Swachh Sagar Abhiyan**' on the lines of Swachh Bharat.
- Engage schools, fisherfolk, NGOs, and coastal panchayats in **beach clean-ups** and **plastic literacy**.
- **Kerala's Haritha Karma Sena:** Empowered women-led coastal waste collection teams.

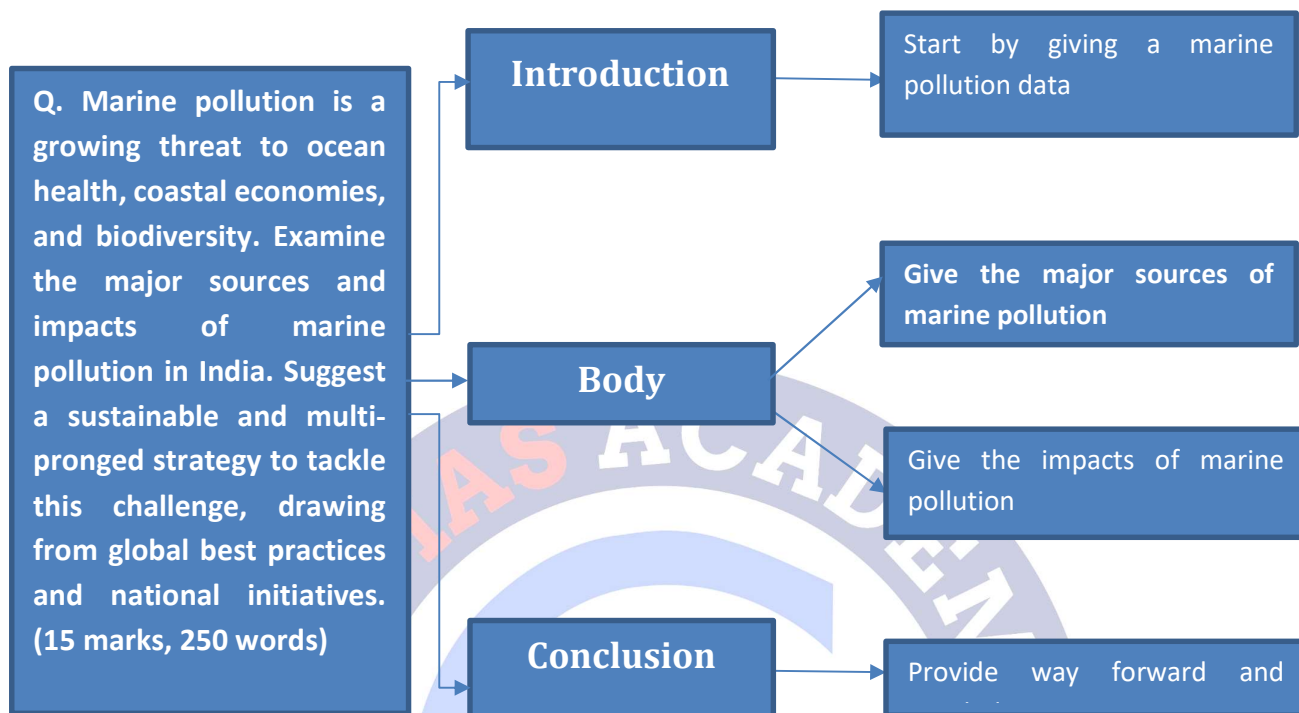
International Cooperation and Capacity Building

- Align marine policy with **SDG-14: Life Below Water**, **IMO guidelines**, and **UNEP Global Partnership on Marine Litter**.
- Collaborate on research with countries like **Norway, Japan, and Australia** in clean ocean technologies.

PRACTICE QUESTION

- Q. Marine pollution is a growing threat to ocean health, coastal economies, and biodiversity. Examine the major sources and impacts of marine pollution in India. Suggest a sustainable and multi-pronged strategy to tackle this challenge, drawing from global best practices and national initiatives. (15 marks, 250 words)**

APPROACH



MODEL ANSWER

India's 7,500 km coastline and vast Exclusive Economic Zone (EEZ) make it highly susceptible to **marine pollution**, a threat that undermines oceanic ecosystems, fisheries, tourism, and coastal livelihoods. India is among the **top 10 marine plastic polluters** (World Bank, 2019).

Major Sources of Marine Pollution in India:

1. **Land-based discharges:** Over **60% of India's sewage** is discharged untreated into coastal waters (CPCB, 2020). Plastic waste from urban centres like Mumbai and Chennai enters marine systems via rivers.
2. **Shipping and oil spills:** Incidents like **MV MSC ELSA 3 (2025)** off Alappuzha and **MV Rak (2011)** near Mumbai demonstrate risks from merchant shipping.
3. **Industrial effluents:** Ship-breaking yards (e.g., **Alang, Gujarat**) and port-based industries release heavy metals, oils, and toxins.
4. **Agricultural runoff:** Fertilizers and pesticides from riverine systems like the Ganga and Krishna lead to **eutrophication** and oxygen depletion in coastal waters.

Impacts:

- **Ecological:** Coral bleaching in Gulf of Mannar; reduced fish populations in Bay of Bengal; microplastics in marine species (NIOT, 2023).
- **Endangered Species at Risk:** Sea turtles, dugongs, and whale sharks, already under stress, are more vulnerable due to ingestion or entrapment in marine litter. **India's Olive Ridley Turtles** face massive nesting loss on Odisha coast due to polluted and plastic-choked beaches
- **Economic:** Losses in fishing, aquaculture, and tourism industries amount to **₹6,500 crore/year** (World Bank, 2019).
- **Social and health:** Contaminated seafood impacts human health; livelihoods of **3 crore coastal inhabitants** are at risk.
- **Coastal Community Vulnerability:** Marine pollution reduces income from fisheries and tourism, affecting **3 million+ coastal households** in India.
 - UNESCO estimates **40% of the world's population lives within 100 km** of a coast and directly depends on marine health.

Sustainable, Multi-Pronged Strategy:

1. **Policy and Regulation:** Enforce **MARPOL, Coastal Regulation Zone (CRZ) Notification**, and notify **Marine Litter Rules** under EPA, 1986. Establish a **National Marine Pollution Control Authority** with coastal state coordination.
2. **Technological Interventions:** Deploy **AI-based marine sensors**, satellite surveillance, and **oil spill containment technologies**. Establish **Port Reception Facilities** for ship-generated waste.
3. **Community Engagement:** Expand the **Swachh Sagar Surakshit Sagar Abhiyan** to involve local fisherfolk and NGOs in beach clean-ups. Promote sustainable fishing and waste segregation in coastal villages.
4. **Global Best Practices**
 - **Japan:** Coastal interceptors and decentralised sewage treatment.
 - **Philippines:** Community-led **Marine Protected Areas (MPAs)** that restore marine biodiversity.
 - **Norway:** Marine plastic retrieval using floating booms and deep-sea clean-up drones

Marine pollution poses a complex, multi-sectoral threat requiring a **coordinated national strategy**, scientific innovation, and community stewardship. Protecting marine ecosystems is critical to achieving **SDG-14 (Life Below Water)** and ensuring long-term **blue economy sustainability** for India.

25. ELECTRIC MOBILITY IN INDIA

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Economic Development > Indian Economy and issues

REFERENCE NEWS:

- The Government of India will install **72,000 electric vehicle (EV) charging stations** under the ₹2,000 crore **PM E-DRIVE Scheme (Electric Drive Revolution in Innovative Vehicle Enhancement)**.
- These stations will be strategically placed along 50 national highway corridors and at high-traffic locations including metro cities, toll plazas, railway stations, airports, fuel stations, and state highways.

BACKGROUND:

- In 2021, the Minister of Road Transport and Highways (MoRTH), announced the **government's target** to achieve a **30% sales penetration** of electric vehicles (EVs) for private cars, **70% for commercial vehicles**, and **80% for two and three-wheelers by 2030**.
- Manufacturing and putting the electric cars on road is the vision to make India pollution free along with saving billions of dollars in fuel cost and creating new job opportunities.

WHAT ARE ELECTRIC VEHICLES?

- Electric vehicles are powered by **one or more electric motors**, using electricity stored in batteries, rather than internal combustion engines like petrol and diesel vehicles.
- There are different types of electric vehicles. It includes **fully electric vehicles and hybrid electric vehicles (Electric Motor + Combustion Engine)**.

SIGNIFICANCE OF ELECTRIC VEHICLES:

- **Mitigating Climate Change:**

India ranks **sixth among the top 10 countries most affected by extreme weather events over the last three decades (1993–2022)**, according to the **Climate Risk Index 2025** published by Germanwatch.

This makes it all the **more reason for India to make electric cars and vehicles a priority** in the fight against the reliance on fossil fuels.

- **Controlling air and noise pollution:**

Internal combustion engine (ICE) vehicles emit harmful pollutants like **carbon monoxide and nitrogen oxides**, leading to deteriorating air quality in urban areas.

IC engines also cause **noise pollution** in cities.

On the other hand, Electric Vehicles are 100% environment-friendly as they **do not emit toxic gases or smoke** in the environment

Therefore EVs will help India in its commitment to the **Paris Climate Agreement**.

- **Health:**

Air pollution is linked to severe health issues, particularly affecting vulnerable populations such as the **elderly, pregnant women, and children**.

By reducing vehicular emissions through the adoption of EVs, India can alleviate health risks associated with air pollution.

For instance, **EVs eliminate tailpipe emissions**, thereby reducing pollutants like **nitrogen oxides (NOx) and particulate matter (PM2.5)**, which are harmful to human health.

- **Economy:**

Reduce oil imports:

- As of fiscal year 2024–25, India continues to be **the world's third-largest crude oil importer**, following China and the United States.
- Most of the consumption of oil is in the transport sector.
- Therefore, electric vehicles can significantly **reduce India's oil imports** and reduce current account deficits.

Cost-effective:

- With the advent of advanced technology and dedicated R&D, the **cost and maintenance of electric vehicles have gone down**.
- The government is also incentivizing the use of electric vehicles by providing subsidies and lower motor taxes on EVs.

Global competitiveness:

- **Tesla's potential entry** into India, **Toyota's Flexi-Fuel vehicle project**, and **Ola Electric's** expansion into four-wheeler EVs are poised to enhance India's auto sector with advanced technologies. These developments are expected to **boost India's global competitiveness in automobile manufacturing**.

Less maintenance:

- EVs have **fewer moving parts** compared to ICE vehicles and require **less frequent fluid changes**, resulting in lower maintenance costs and increased reliability for consumers.

DEMERITS OF ELECTRIC VEHICLES:

- **Range Anxiety:**

Range anxiety in EVs arises from their **limited mileage, long recharge times, and the scarcity of quick charging stations**, causing worry about running out of battery before reaching the destination.

- **Costly:**

Electric vehicles are costlier than gasoline-powered vehicles within the same range due to the **hefty price of the lithium-ion batteries**.

Also, the **structural design of some EVs**, such as the use of large single-piece castings ("gigacasting"), can make **repairs more complex and costly**. Additionally, **damage to the battery pack**, even minor, **can lead to the vehicle being declared a total loss**, increasing insurance premiums and reducing the vehicle's residual value.

Lastly, **maintenance costs** as a **result of new technology and developing** skills make electric cars even more costly.

- **A small amount of pollution:**

While EVs produce zero tailpipe emissions, the production of their batteries involves mining for **rare earth metals like lithium, cobalt, and nickel**. These mining activities can lead to environmental degradation and have been associated with human rights concerns in certain regions.

Additionally, if the electricity used to charge EVs comes from non-renewable sources, the overall environmental benefits may be diminished.

- **Battery Safety and Fire Risks:**

EVs, particularly those equipped with lithium-ion batteries, have been associated with fire incidents. These fires can be more intense and harder to extinguish than those in conventional vehicles. For instance, extinguishing an **EV battery fire may require up to 150,000 liters of water**, compared to less than 4,000 liters for gasoline car fires.

- **Grid Impact and Charging Infrastructure:**

The increasing number of EVs places **additional demand on electrical grids, especially during peak charging times**. Without adequate infrastructure upgrades, this can lead to grid instability. Moreover, the **availability of public charging stations remains uneven**, with some regions lacking sufficient facilities, leading to longer wait times and inconvenience for EV owners.

- **Cybersecurity and Data Privacy Concerns:**

Modern EVs are highly connected, collecting and transmitting data for various functionalities. This connectivity raises concerns about **cybersecurity vulnerabilities**, where malicious actors could potentially access personal data or interfere with vehicle operations. Ensuring robust cybersecurity measures is essential to protect users' privacy and safety.

CHALLENGES FOR INDIA IN IMPLEMENTING ELECTRIC MOBILITY:

- **Market Penetration:**

As of FY2025, electric vehicles (EVs) constitute **approximately 2.6% of India's passenger vehicle sales**, with electric passenger vehicles recording sales of 107,645 units, up from 91,506 units in FY2024. While this marks growth, it **remains modest compared to global trends**. The government's target is to achieve **30% EV penetration by 2030**, necessitating accelerated adoption.

- **Building charging infrastructure:**

India has made significant strides in expanding its EV charging network. As of December 2024, there are 25,202 public charging stations across the country (Source: Ministry of Heavy Industries).

However, **the distribution is uneven**, with urban areas having higher concentrations, leading to **accessibility issues in rural and semi-urban regions**.

- **Limited grid capacity:**

The surge in EV adoption contributes to increased electricity demand. In May 2024, India's **electricity demand peaked at a record 250 GW.**

This rising demand underscores the need for grid modernization and expansion to accommodate the additional load from EV charging.

- **Lack of battery cell manufacturing:**

There is a complete absence of primary battery cell manufacturing in India which poses the risk of increasing trade deficit.

At the moment, most manufacturers rely on batteries **imported from Japan, China, Korea and Europe.**

In 2023, India announced the **discovery of 5.9 million metric tons of lithium reserves in Jammu and Kashmir.** However, extraction and utilization plans have faced delays due to environmental and logistical challenges.

- **Policy issues:**

In India, the electric vehicle (EV) sector faces significant challenges due to policy inconsistencies, including **varying state-level subsidies and incentives, frequent changes in GST and taxation policies, and uneven implementation of infrastructure development** and manufacturing policies. This lack of uniformity across different regions and aspects of the EV ecosystem hampers the sector's growth and adoption rates.

GOVERNMENT INITIATIVES:

- **The National Electric Mobility Mission Plan (NEMMP) 2013:**

It seeks to achieve **national fuel security by promoting hybrid and electric vehicles** in the country. It sets an ambitious target to achieve 6-7 million sales of hybrid and electric vehicles every year from 2020 onwards.

The government has also announced the **scheme named Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME India) under NEMMP**

- **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME India)**

The scheme was launched in 2015 and presently, Phase-II of FAME India Scheme is being implemented. It aims **to promote early adoption and market creation of both hybrid and**

electric vehicles in the country through upfront incentive on the purchase of electric vehicles and also by way of establishing a necessary charging Infrastructure for electric vehicles.

- **PM E-DRIVE Scheme for Electric Vehicle Adoption – Summary:**

Launched on **29th September 2024**, the **PM E-DRIVE Scheme (Electric Drive Revolution in Innovative Vehicle Enhancement)** aims to strengthen India's green mobility ecosystem with a total outlay of **₹10,900 crore** over **two years (2024–2026)**. It subsumes the earlier **Electric Mobility Promotion Scheme (EMPS) 2024**.

Key Features:

E-Vouchers for EV buyers to claim demand incentives.

Introduction of **e-trucks** and **e-ambulances** with ₹500 crore allocated each.

₹780 crore earmarked for **upgrading vehicle testing agencies**.

Three Main Components:

Subsidies: ₹3,679 crore for incentives on ~28 lakh EVs (2W, 3W, e-ambulances, e-trucks, etc.).

Grants: ₹7,171 crore for e-buses (14,028 units), charging infrastructure (₹2,000 crore), and testing facility upgrades.

Scheme Administration & IEC activities.

Eligibility: Vehicles must be registered under Central Motor Vehicles Rules (**CMVR**) and fitted with **advanced batteries** meeting prescribed standards.

Monitoring: A **Project Implementation and Sanctioning Committee (PISC)**, led by the Secretary of Heavy Industries, oversees the scheme's execution and resolves implementation challenges.

- **PM-eBus Sewa:**

The Cabinet approved “PM-eBus Sewa” for augmenting city bus operations, with priority given to cities without organised bus service. **10,000 e-Buses are to be deployed** on the PPP model in 169 cities.

- **Production Linked Incentive (PLI) scheme:**

To boost domestic manufacturing and attract global companies to invest in the Indian EV market.

- **Other initiatives:**

Taxation:

- **Indirect tax: GST on electric vehicles** has been reduced from **12% to 5%**; GST on chargers/ charging stations for electric vehicles has been reduced from **18% to 5%**.
- **Direct taxation:** The government has extended an additional income tax deduction of Rs 1.5 Lakh on interest paid on loans to the buyers of Electric Vehicle.

For charging infrastructure:

- **Made-in-India EV charging standard:**

Recently, the **Bureau of Indian Standards (BIS)** has approved an indigenously developed AC and DC combined charging connector standard for light electric vehicles (**LEVs**) such as scooters, bikes, and rickshaws.

- Ministry of Power has allowed the sale of **electricity as 'service'** for the charging of electric vehicles. This would serve as an incentive to **attract investments into the charging infrastructure**.

Green number plate:

- MoRTH has issued a notification for the Green Number plate for the use of Electric Vehicles.

Battery swapping policy:

- The **NITI Aayog proposed a battery swapping policy** for electric vehicles to address urban space constraints and reduce vehicle costs.

EV30@30 campaign:

- The EV30@30 campaign is a global initiative focused on accelerating electric vehicle (EV) deployment, aiming for at least **30% new EV sales by 2030**.
- **India** is part of a handful of countries that support the campaign.

WAY FORWARD:

- **Increasing R&D in EVs:**

Creating a vibrant **battery research and development ecosystem domestically to develop alternative technologies** containing minerals with low supply risks and **battery recycling techniques to recover the raw materials in the batteries.**

- **Increase demand:**

More focus should be given towards the creation of demand by making it easy and cheap for consumers to switch to electric vehicles.

- **Rationalize subsidies:**

The focus should also shift from subsidizing vehicles to subsidizing batteries as batteries take up 50% of EV costs.

And more incentives should be given for electric two-wheelers and three-wheeler segments than four-wheelers.

- **Retrofitting:**

Retrofitting (addition of a new component/technology) existing small vehicles can be considered for a nominal cost for consumers.

Example: CNG fleet of Delhi's auto-rickshaws can be turned into an all-electric/hybrid fleet at a very low cost to owners. But it will require some innovative finance on the part of the government.

- **Sensitizing public:**

Breaking away the old norms and establishing a new consumer behaviour is always a challenge. Thus, a lot of sensitisation and education is needed, in order to bust several myths and promote EVs within the Indian market.

- **Raw material:**

Acquiring **lithium fields in Bolivia, Australia and Chile** could become as important as buying oil fields since India needs raw material to manufacture batteries for EVs.

India could also diversify the supply risk by including lithium in existing Preferential Trade Agreements (PTAs) or creating new PTAs with other lithium producing countries.

- **Charging points:**

A wide network of charging stations is required for attracting investments. Tech Parks, public bus depots and Multiplexes are some of the potential places to install charging points.

Corporates shall invest in charging infrastructure under Corporate Social Responsibility (CSR).

- **Address the technical concerns:**

Address the technical concerns such as AC versus DC charging stations, handling of peak demand, grid stability, etc. should be addressed promptly.

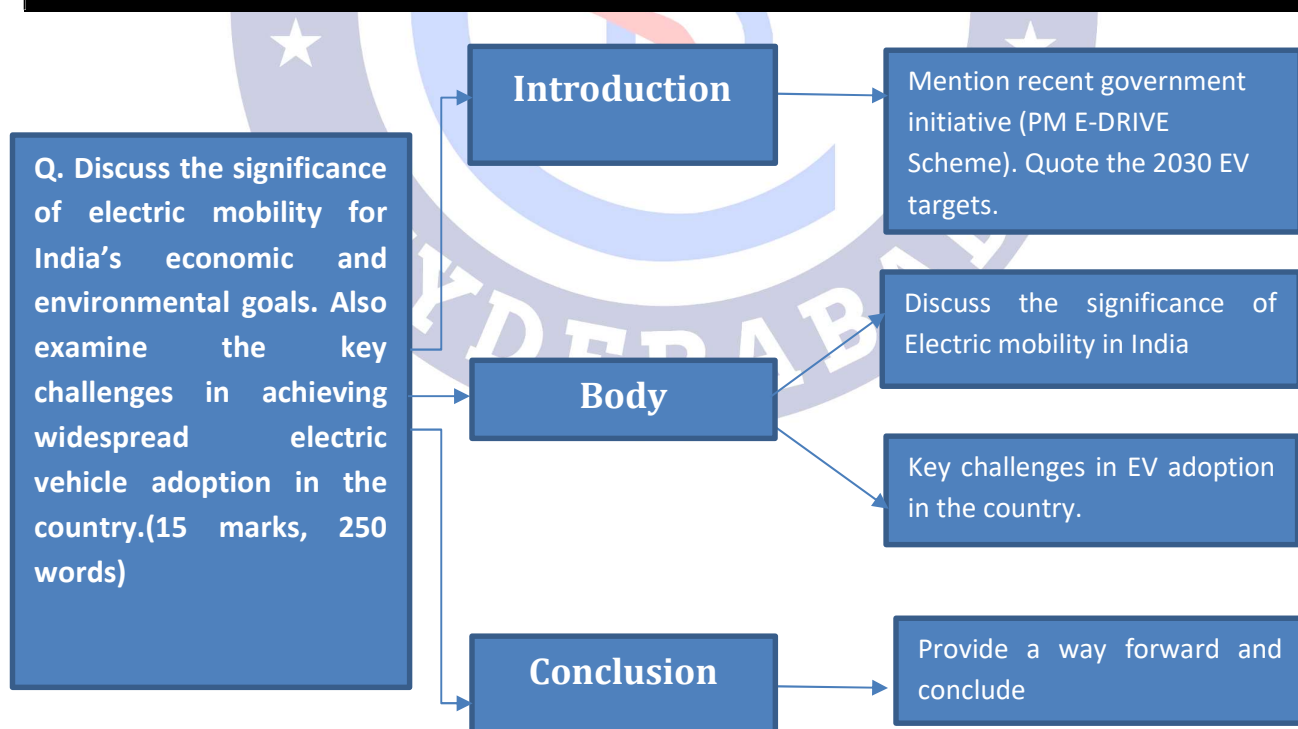
- **Financial incentives:**

Government should provide a waiver of road tax and registration fees, GST refunds and free parking spaces for EVs.

PRACTICE QUESTION

Q. Discuss the significance of electric mobility for India's economic and environmental goals. Also examine the key challenges in achieving widespread electric vehicle adoption in the country.(15 marks, 250 words)

APPROACH



MODEL ANSWER

In line with India's green mobility push, the government launched the ₹2,000 crore **PM E-DRIVE Scheme** in 2025 to install **72,000 EV charging stations** across major highways and high-traffic zones. This supports the target announced by **Union Minister Nitin Gadkari** to achieve **30% EV sales for private cars, 70% for commercial vehicles, and 80% for two- and three-wheelers by 2030**.

Significance of Electric Mobility in India:

1. Climate Change Mitigation: India ranks **6th among the top 10 countries** most affected by extreme weather events (1993–2022), according to the **Climate Risk Index 2025 (Germanwatch)**. Promoting EVs is crucial for reducing GHG emissions and fulfilling commitments under the **Paris Climate Agreement**.

2. Air and Noise Pollution Control: ICE vehicles emit pollutants like **carbon monoxide and nitrogen oxides**, worsening urban air quality. EVs, which produce **zero tailpipe emissions** and operate quietly, help reduce both **air and noise pollution**.

3. Health Benefits: Polluted air exacerbates respiratory and cardiovascular issues, especially among the **elderly, pregnant women, and children**. EV adoption reduces exposure to pollutants like **PM2.5 and NOx**, thus improving public health.

4. Economic Impact

- **Reducing Oil Imports:** India remains the **third-largest crude oil importer** globally (FY 2024–25). EVs help reduce oil dependency and ease **current account deficits**.
- **Cost Efficiency:** Technological advancements and policy incentives (e.g., lower GST and income tax deductions) are making EVs more affordable.
- **Boosting Global Competitiveness:** India's EV sector is attracting major players like **Tesla, Toyota, and Ola Electric**, enhancing manufacturing and innovation.

5. Low Maintenance: EVs have **fewer moving parts**, resulting in **lower maintenance costs** and longer operational life compared to ICE vehicles.

Key Challenges in EV Adoption:

- 1. Low Market Penetration:** Despite growth, EVs constitute only **2.6%** of passenger vehicle sales in FY2025. India is still far from the **30% EV target by 2030**.
- 2. Charging Infrastructure Gaps:** Although **25,202 public charging stations** exist as of Dec 2024, they are **concentrated in urban areas**, leaving rural and semi-urban regions underserved.
- 3. Grid Limitations:** India's electricity demand reached a record **250 GW in May 2024**. Additional EV load may **strain the grid** unless infrastructure is upgraded.

4. **Battery and Raw Material Constraints:** India lacks **domestic battery cell manufacturing** and relies heavily on imports. Although **5.9 million metric tons of lithium** have been discovered in J&K, challenges in extraction remain.
5. **Policy and Regulatory Issues:** Disparities in **state-level subsidies, taxation policies**, and uneven implementation hinder uniform EV adoption nationwide.
6. **Other Technical and Social Issues**
 - **Range anxiety, high upfront costs**, and **fire risks** associated with lithium-ion batteries deter buyers.
 - **Cybersecurity concerns** in connected EVs pose data and safety risks.

Way Forward:

- **Boost R&D and Manufacturing:** Promote indigenous battery tech, recycling, and reduce import dependence.
- **Incentivize Demand:** Shift focus to battery subsidies; prioritize 2W and 3W segments.
- **Retrofitting:** Convert existing CNG fleets (e.g., Delhi autos) to EVs via affordable retrofitting.
- **Expand Charging Infrastructure:** Encourage CSR-backed charging points; resolve grid and tech issues.
- **Public Sensitization:** Bust EV myths and promote awareness through mass outreach.
- **Ensure Raw Material Security:** Acquire lithium assets abroad and diversify via trade agreements.

Electric mobility holds transformative potential for India's economy, environment, and energy security. While initiatives like **PM E-DRIVE, FAME-II**, and **PLI schemes** reflect strong government intent, challenges in infrastructure, manufacturing, and policy must be addressed through sustained efforts. With the right investments, incentives, and innovation, India can position itself as a global leader in clean and smart mobility

26. URBAN FLOODING

IMPACT ANALYSIS

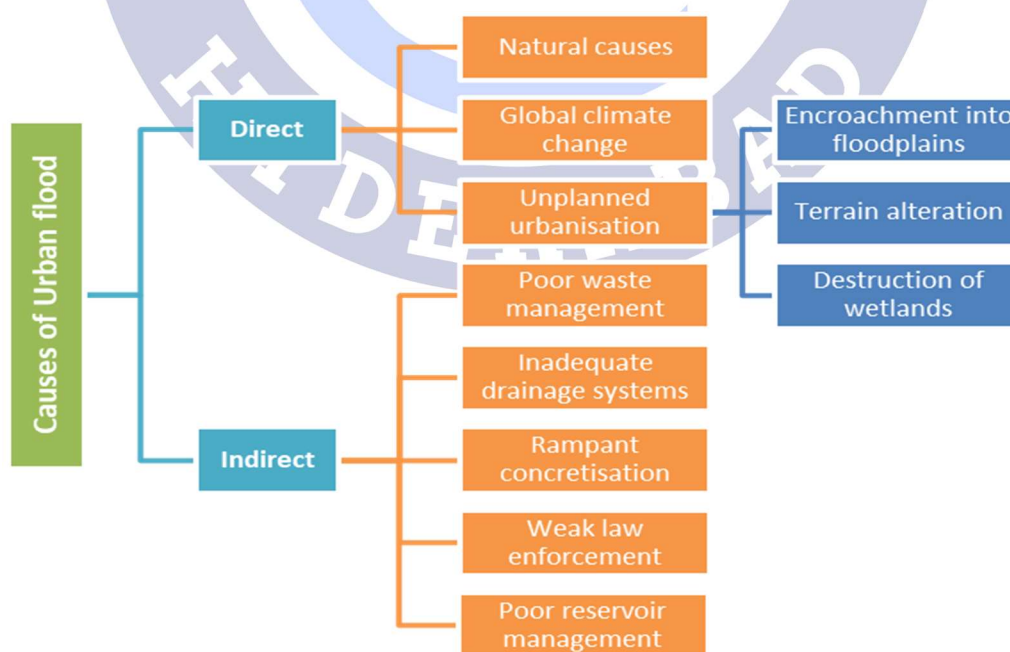
SYLLABUS:

GS 3> Disaster Management > Disasters > Floods

REFERENCE NEWS:

- Urban flooding is now a recurring crisis in India, with **Bengaluru** emerging as a stark example. Recently, the city experienced **severe flooding even before the monsoon**, leading to **four deaths** and rescue operations using boats, tractors, and earth movers. **What was once considered exceptional has become routine** — flooding of roads, homes, tech parks, and public spaces.
- Despite the regularity of such disasters, **systemic solutions remain absent**. **Unchecked urbanisation, encroachment on lakes and stormwater drains, poor sewage planning, and ineffective governance** continue to fuel the crisis.
- Bengaluru's situation is a **warning signal for all major Indian cities**, where rapid growth has far outpaced sustainable planning.

CAUSES OF URBAN FLOODING:



I. NATURAL:

- **Meteorological phenomenon:**
 - Low pressure centres leading to cyclonic activities in Arabian sea and Bay of Bengal induce heavy rainfall resulting in floods.
 - **For instance**, the **2020 Hyderabad flood** was associated with **Deep Depression BOB 02** that developed in the Bay of Bengal.
- **Intense rainfall:**
 - Climate change has increased the intensity of rain falling over a small duration of time. Also, some areas can receive excessive rainfall due to weather anomalies like cloudburst, resulting in floods.
 - **For instance**, the massive flooding Chennai had witnessed in 2015 was sparked by the more than **120 cm of rainfall** the city received in November 2015
- **Change in course of river:**
 - Young rivers can frequently change their course, resulting in floods.
 - **For example**, **Kosi river** causes flood in cities and towns of northern Bihar

II. MAN-MADE:

- **Inadequate drainage infrastructure:**
 - In the last 20 years, the Indian cities have grown manifold with its original built-up area. However, most cities rely on a century-old drainage system, covering only a small part of the core city.
 - **For example**, **Delhi's last drainage master plan was prepared in 1976**, when the population was 6 million. By 2011, it has gone up more than three times and stood at 16.7 million. It is now estimated to be around 20 million. However, the drainage capacity remains stagnant.
- **Pollution:**
 - Increase in the urban population without corresponding expansion of civic facilities such as lack of adequate infrastructure for the disposal of waste results in waste clogging the natural channels and storm water drains.

- Cultural or religious festivals lead to dumping in water bodies, resulting in clogging.
- **Encroachment and terrain alteration:**
 - Lasting irreversible damage has been done to the real estate sector and public agencies by flattening terrain and altering natural drainage routes.
 - **For instance**, of the total 1,547 lakes in Bengaluru, which is spread across 57,932 acres, 10,785 acres have been encroached upon by both government and private agencies.
- **Reducing seepage due to concretisation:**
 - Indian cities are becoming increasingly impervious to water, not just because of increasing built up but also because of **the nature of materials used** (hard, non-porous construction material that makes the soil impervious).
- **Destruction of wetlands:**
 - Marshes and flood plains play a very important role in draining out overflowing rivers. However, they are increasingly destroyed to meet the urban demands.
 - **For instance, the Pallikarni marshland**, also known as the flood sink area of Chennai city was around 5,000 hectares during independence. But it got reduced to almost 600 ha around 2010-11. This destruction is identified as a key reason for the 2015 flood.
- **Poor water management:**
 - Due to poor management and lack of interdepartmental coordination, reservoirs created for flood control have often become the reason for floods.
 - **For instance, in Kerala in 2018, intense rainfall from August 1 filled up the dams and led to the simultaneous opening of all major dams on August 15.** This led to the flooding of coastal areas of Cochin.
- **Illegal mining activities:**
 - Illegal mining for sand and quartzite both on the catchment and on the bed of rivers and lake have reduced the carrying capacity of rivers and alterations in their courses, thereby aggravating floods.
- **Lax regulations:**

- Implementation of provisions of rainwater harvesting, sustainable urban drainage systems and adoption of Environment regulatory mechanisms like the **Environmental Impact Assessment (EIA)** remains weak.

CHENNAI'S URBAN FLOODS:

- The coastal city of Chennai is affected by frequent floods.
- Chennai receives an annual rainfall of 1400 mm of which 800 mm is during the northeast monsoon season.
- The Adyar river basin acts as a permanent water retention structure to the city. However, siltation, pollution and encroachment has significantly reduced the carrying capacity of the river.
- Chennai also has a long history of vanishing lakes and water bodies. A study by Chennai-based Care Earth Trust shows that Chennai's built-up area grew from 47 sq. km in 1980 to 402 sq. km in 2012, while wetlands declined from 186 sq. km to 71 sq. km.
- These factors, coupled with the low elevation terrain, inadequate storm drains and torrential rain results in severe floods.
- In 2023, the Prime Minister approved India's first urban flood mitigation project, with a budget of Rs 561.29 crore, for the Chennai Basin.
- The project was initiated in response to the increasing frequency of major floods in Chennai, which has experienced three significant flooding events in the last eight years, including the 2023 flood after the landfall of Cyclone Michaung.

INDIA'S VULNERABILITY TO URBAN FLOOD:

- Tropical monsoon climate:
 - During the short span of June-September (summer monsoon), the country receives an average of 88 cm rainfall. This accounts for about 70 percent of India's annual precipitation.
- Increasing urban population:
 - **52% of Indians are predicted to live in cities by 2050** and, as per IPCC reports, the area and intensity of flooding events are expected to increase in the country.

- **‘Messy and Hidden’ urbanization:**
 - According to a report by the World Bank, India’s urbanisation is “messy and hidden”, citing the country’s inability to deal with pressures on infrastructure, basic civic services, land and housing, due to increase in urban population.
- **Large vulnerable population:**
 - According to 2011 census, nearly **6.55 crore Indians live in urban slums**, while 13.7% of the urban population lives below the poverty line. This aggravates the impact of any disaster.

NDMA GUIDELINES ON URBAN FLOOD MANAGEMENT:

- **Creation of a National Hydro-meteorological Network:**
 - In 2010, NDMA had issued guidelines on Urban Flood Management in India to create a National Hydro-meteorological Network.
 - The guidelines say that for providing early warning, the **Central Water Commission (CWC) should maximize the real-time hydro-meteorological network** to cover all urban centres to effectively deal with the problem of urban flooding
- **Use of technology:**
 - **Use of Doppler Weather Radars** to be expanded to cover all urban areas in the country.
- **Data collection:**
 - **An inventory of the existing storm water drainage system to be prepared.** The inventory will be both watershed based and ward based
- **Flood resilient infrastructure:**
 - All future road and rail bridges in cities crossing drains to be designed such that they do not block the flows resulting in backwater effect
 - Every building in an urban area must have **rainwater harvesting as an integral component of the building utility.**

- **Land management:**
 - Low-lying areas in cities have to be reserved for parks and other low-impact human activities.
- **Delinking of urban flood and rural flood:**
 - Urban Flooding has to be dealt as a separate disaster, de-linking it from riverine floods which affect the rural areas.

BEST PRACTICES:

Local:

- **Integrated Flood Warning System for Mumbai (I-FLOWS Mumbai):**

It is a monitoring and flood warning system that will be able to relay alerts of possible flood-prone areas in advance.

Similar systems are being developed for Chennai, Bengaluru and Kolkata.

International:

- **China's sponge city initiative:**

Sponge City is a city that has the capacity to mainstream urban water management into the urban planning policies and designs. It should have the appropriate planning and legal frameworks and tools in place to implement, maintain and adapt the infrastructure systems to collect, store and treat (excess) rainwater.

China has set an ambitious goal - by 2020, 80 percent of urban areas should absorb and re-use at least 70 percent of rainwater.

WAY FORWARD:

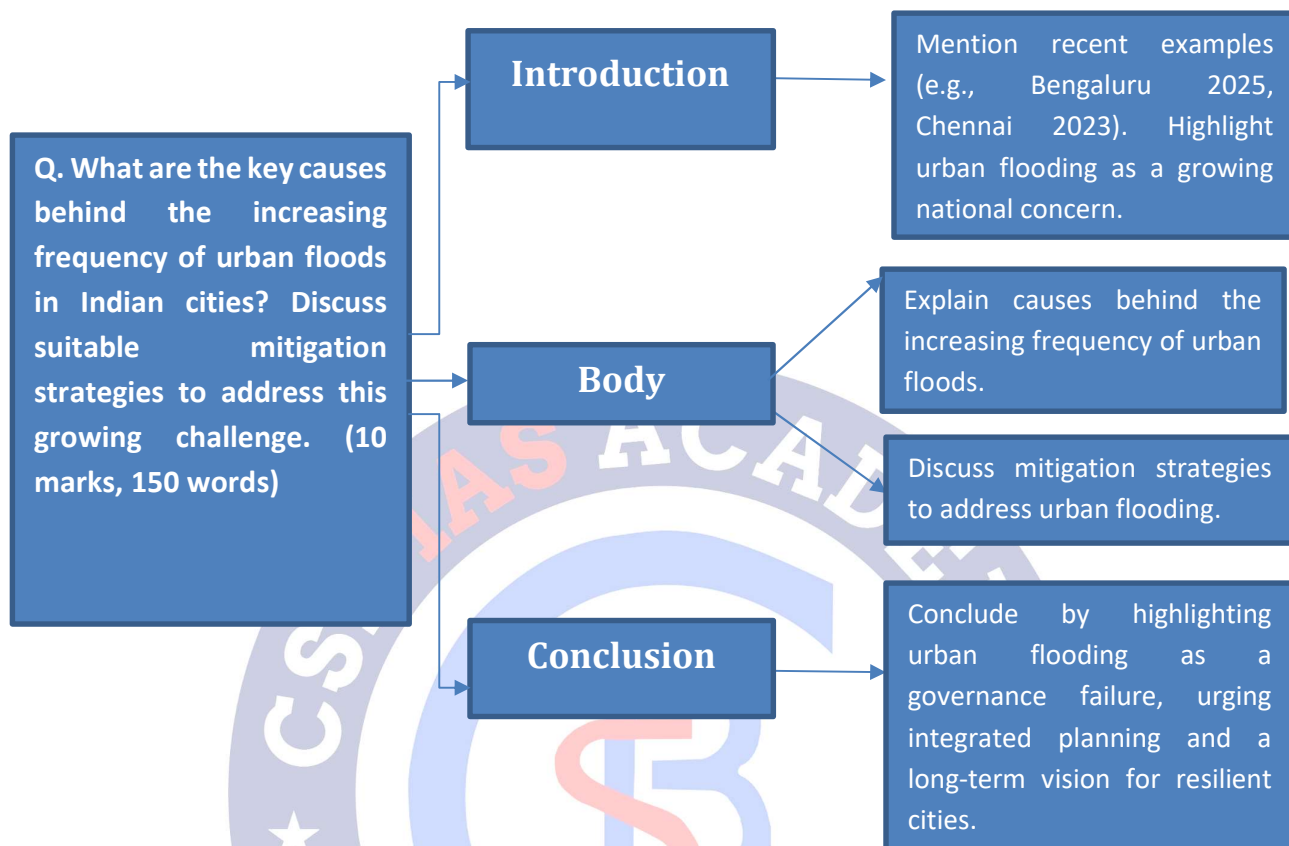
- **Proper planning framework:**
 - To effectively manage floods, cities need to survey wetlands, incorporate water bodies and catchment areas into development rules, and plan urban layouts considering rainfall, topography, and soil. Upgrading storm water drainage systems to adapt to climate change is crucial, as is embedding flood mitigation plans into city master plans.

- **Improve predictions:**
 - Detailed vulnerability mapping of each city should be carried out. Tools such as predictive precipitation modelling can help in this regard.
- **Land use control:**
 - A well-defined land use policy for urban landscapes must be developed. EIAs and building codes should be effectively enforced to ensure that fragile wetlands and floodplains are not concretised.
- **Develop affordable housing:**
 - Disabling spawning of squatter settlements in sensitive zones by providing adequate affordable housing will reduce number of persons vulnerable to changing climate.
- **Proper solid waste management system:**
 - Control of solid waste entering the drainage systems through proper collection, segregation and recycling of wastes.
- **Need For holistic engagement:**
 - Effective flood management requires joint efforts and investments from government agencies and civil society, focusing on collaborative flood mitigation strategies.
- **Developing sponge Cities:**
 - The idea of a sponge city is to make cities more permeable so as to hold and use the water which falls upon it.

PRACTICE QUESTION

Q. What are the key causes behind the increasing frequency of urban floods in Indian cities? Discuss suitable mitigation strategies to address this growing challenge. (10 marks, 150 words)

APPROACH



MODEL ANSWER

Urban flooding has become a recurrent and escalating challenge in Indian cities. Recently, **Bengaluru** experienced **severe pre-monsoon floods** highlighting the increasing vulnerability of urban areas. Similarly, **Chennai** witnessed devastating floods in **2023** following Cyclone Michaung, while **Hyderabad** was severely affected in **2020** due to a deep depression in the Bay of Bengal. These events underline the urgent need to address both natural and man-made causes of urban floods.

Causes Behind the Increasing Frequency of Urban Floods:

I. Natural Causes

- 1. Extreme Weather Events:** Cyclonic systems in the **Arabian Sea and Bay of Bengal** are triggering high-intensity rainfall.
 - *Example:* 2020 Hyderabad floods due to Deep Depression BOB 02.
- 2. Intense and Localized Rainfall:** Climate change is causing **short bursts of intense rain**.
 - *Example:* Chennai 2015 received over **120 cm rainfall in November alone**.

3. **River Dynamics:** Rivers like the **Kosi** in Bihar often change course, flooding urban areas.

II. Man-Made Causes

1. Outdated Drainage Infrastructure

- Cities like Delhi still use drainage plans made in **1976**, despite a **threefold population increase**.

2. Encroachment of Natural Water Bodies

- Bengaluru has lost **over 10,000 acres** of its lake area to encroachments.

3. Loss of Wetlands and Natural Buffers

- Chennai's **Pallikaranai marsh** shrank from **5,000 ha to 600 ha**, reducing its ability to absorb floodwater.

4. Excessive Concretisation

- Hard, impervious surfaces prevent water absorption, increasing surface runoff.

5. Pollution and Blocked Drains

- Unregulated solid waste disposal clogs stormwater drains.

6. Poor Urban Planning

- Flattening of terrain and altering of natural drainage routes by real estate projects worsen flooding.

7. Inefficient Water Management

- *Example:* In **Kerala (2018)**, delayed dam management led to sudden water releases and massive flooding.

8. Lax Regulations

- Weak implementation of **Environmental Impact Assessments (EIA)** and poor enforcement of **rainwater harvesting rules**.

Mitigation Strategies to Address Urban Flooding:

1. Strengthening Urban Planning and Infrastructure

- Integrate **wetlands and catchments** into city plans.
- Ensure all bridges, roads, and railways are **flood-resilient** and do not obstruct natural drainage.

2. Drainage and Water Management

- Create a **ward-based stormwater drainage inventory**.
- Regular desilting and maintenance of drains and lakes.

3. Technological Interventions

- Use **Doppler radars** for rainfall prediction.
- Implement **Integrated Flood Warning Systems** like **I-FLOWS Mumbai**, now being replicated in Chennai and Bengaluru.

4. Land Use and Regulatory Reforms

- Strict enforcement of **building codes** and **land use zoning**.
- Protect low-lying areas as **green buffers and parks**.

5. Community Engagement and Public Awareness

- Educate citizens on **waste segregation** and **flood preparedness**.
- Promote **rainwater harvesting** at individual and community levels.

6. Sponge City Approach

- Develop **permeable urban surfaces** to absorb rainfall.
- Adopt best practices from **China's Sponge City Initiative**.

Urban flooding is not just a natural hazard but a consequence of **unsustainable urban development and planning failures**. Events in **Bengaluru, Chennai, and Hyderabad** are warnings of what unchecked growth can lead to. With increasing urbanisation and climate uncertainties, cities must adopt **resilient, data-driven, and people-centric strategies**. Urban floods must be treated as a distinct disaster category, with targeted mitigation and adaptation efforts embedded in every city's master plan. The future of India's urban safety depends on **proactive governance, scientific planning, and inclusive urban resilience**.

27. DEFENCE INDIGENISATION

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Science and Technology > Defence technology

REFERENCE NEWS:

- Operation Sindoor was not only a strategic military triumph for India but also a powerful demonstration of the country's indigenous defence capabilities. Conducted over four days, it highlighted how years of investment by organisations like **DRDO**, **ISRO**, and others have led to the development of advanced systems across various domains—air defence, missile technology, radar, space assets, and unmanned systems.

INDIAN DEFENCE INDUSTRY:

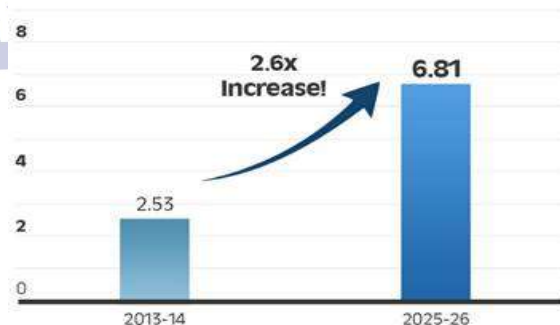
- India's defence industry is primarily dominated by the government and its agencies:

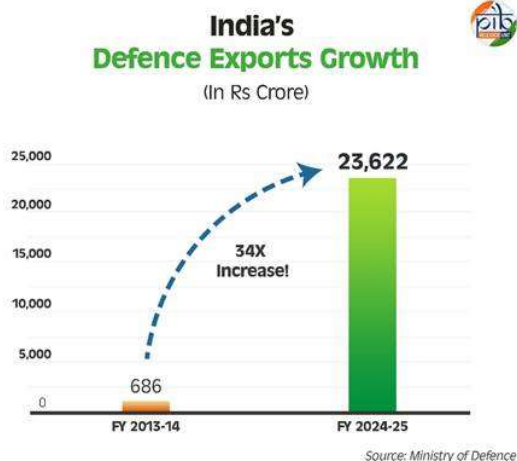
The Indian defence manufacturing sector is largely dominated by the **Defence Public Sector Units (DPSUs)** and **Ordnance Factories (OFs)**.

The Research and Development (R&D) sector is largely controlled by the **Defence Research and Development Organisation (DRDO)**.

- As per the **Ministry of Defence**, India's defence production has grown at an extraordinary pace since the **launch of the "Make in India" initiative**, reaching a **record ₹1.27 lakh crore in FY 2023-24**, with defence exports rising to an all-time high of ₹23,622 crore in FY 2024-25.
- Defence exports have **surged from ₹686 crore in FY 2013-14** to an all-time high of ₹23,622 crore in FY 2024-25, marking a **34 times increase over the past decade**.

**India's
Defence Budget Growth**
(₹ Lakh Crore)





Once dependent on foreign suppliers, the country now stands as a **rising force in indigenous manufacturing**, shaping its military strength through home-grown capabilities.

Strategic policies have fuelled this momentum, encouraging private participation, technological innovation, and the development of advanced military platforms. The **surge in the defence budget, from ₹2.53 lakh crore in 2013-14 to ₹6.81 lakh crore in 2025-26**, underlines the nation's determination to strengthen its military infrastructure.

- **DPSU exports grew by 42.85% in 2024-25**, showcasing the increasing global acceptance of Indian defence products and industry integration into the global supply chain.
- India's diverse **export portfolio includes bulletproof jackets, Dornier (Do-228) aircraft, Chetak helicopters, fast interceptor boats, and lightweight torpedoes.**
- India now exports defence equipment to **over 100 countries, with the USA, France, and Armenia** emerging as the top buyers in 2023-24.
- The government **aims to achieve ₹50,000 crore in defence exports by 2029**, reinforcing India's role as a global defence manufacturing hub while boosting economic growth.

(Source: Ministry of Defence)

SIGNIFICANCE OF INDIGENISATION:

- **Reduce import bill:**

According to the **Stockholm International Peace Research Institute (SIPRI)**, India remained the **world's largest arms importer during the period 2019–2023**, accounting for 9.8% of the global arms imports.

However, recent data indicates a shift in this trend. For the period 2020–2024, **India's share of global arms imports declined to 8.3%**, making it the second-largest arms importer after Ukraine.

This **decline is attributed to India's growing emphasis on self-reliance** in defence production, bolstered by initiatives like "Make in India" and increased participation from the private sector and MSMEs.

- **Make India a manufacturing hub:**

Defence indigenisation adds impetus to the efforts to meet the ambitious target set by the Government to **achieve ₹3 lakh crore in domestic defence production by 2029**.

- **Enhance domestic R&D:**

A strong domestic defence industry can help bring investment and innovation into the country's defence manufacturing.

For instance, strong domestic defence industry is attracting investment and innovation through flagship initiatives like **iDEX** (Innovations for Defence Excellence) and its sub-scheme **ADITI** (Acing Development of Innovative Technologies with iDEX).

As of February 2025, **619 startups and MSMEs** are involved in innovation challenges under iDEX, and **430 defence innovation contracts** have already been signed (Source: Ministry of Defence).

- **Enhance strategic autonomy:**

India is reliant on foreign defence imports, particularly from Russia. Hence, New Delhi has been **forced to walk a diplomatic tightrope on the Ukraine-Russia conflict**. Such constraints can be avoided by developing indigenous defence capabilities.

- **Promote defence exports:**

There is a huge global market for defence equipment. Having strong indigenous capabilities will enable India to **promote more exports and strengthen bilateral ties with other nations**.

For instance, India **now exports to over 100 countries**, including the **USA, France, and Armenia**, boosting its **diplomatic and economic engagement**.

India's defence exports reached an all-time high of ₹23,622 crore in FY 2024–25, a **34-fold increase** from FY 2013–14 levels.

- **Geopolitical significance:**

Chinese aggressions in Indian Ocean region have increased the demand for arms among South East Asian countries.

India's growing indigenous capabilities—highlighted by advanced platforms like the **LCA Tejas**, **ATAGS**, **Akash Missile System**, and **Dhanush artillery**—allow it to position itself as a **“reliable defence partner”** and **“strategic counterbalance to China”**.

- **Adapt to changing warfronts:**

Future military threats are increasingly asymmetric and technology-driven, including **cyber warfare, drone swarms, and AI-enabled combat**. India is investing in cutting-edge solutions such as **Directed Energy Weapons, quantum-secure communication, autonomous platforms, and smart battlefield networks**.

The Ministry of Defence's innovation initiatives, including over **145 MAKE projects**, aim to develop capabilities that address the evolving requirements of future warfare.

The **MAKE Projects** are Ministry of Defence-led initiatives designed to promote indigenous design, development, and manufacturing of advanced defence systems by involving Indian industries, including startups and MSMEs.

CHALLENGES FOR INDIA:

- **Constrained R&D capabilities:**

India's defence R&D spending **remains modest compared to global leaders**.

In FY 2025–26, the allocation to the Department of Defence Research & Development (DRDO) was ₹26,816 crore, marking a **12.41% increase** over the previous year. **Despite this, R&D expenditure constitutes only about 5.1% of the total defence budget**, whereas countries like **the U.S. and China allocate over 10% to defence R&D**. (Source: Ministry of Finance)

- **Underdeveloped private sector:**

The Defence Industry sector was opened up to 100% for Indian private sector participation in 2001. However, **only a handful of Indian firms have been established so far**.

- **Organisational shortcomings:**

Lack of higher organisational structure for defence innovation has often led to ad-hoc decision-making, duplication of efforts and waste of resources.

Rama Rao Committee, constituted by the MoD to review the functioning of DRDO, in its report identified organisational **shortcomings as the key weakness in India's defence innovation system**.

- **Stiff competition:**

The US, Russia, France, Germany, China and Israel are established players in the international arms market.

India needs to develop cutting edge products and competitive prices if it is to compete as a major manufacturer.

- **Deficit of human resource:**

The DRDO, which is at the heart of the defence innovation, is presently faced with major human resource challenges as seen from **poor scientist to other staff ratio**, high rate of attrition, low educational background of scientist, and poor level of training.

Efforts are underway to address these issues by partnering with academic institutions like IISc and IITs to attract skilled talent and enhance research capabilities.

- **Continuing reliance on technology import:**

Most of India's indigenisation success has been in auxiliary and spares. Ambitious projects like the **Kaveri engine project** failed to meet the expected standards. Hence, India continues to be reliant on other countries for technology transfer.

GOVERNMENT EFFORTS:

- **Efforts under Make in India:**

The Ministry of Defence has signed **193 contracts in FY 2024–25 alone**, with a total value exceeding **₹2,09,050 crore**, of which **₹1,68,922 crore (81%)** went to the **Indian industry**. This reflects a significant acceleration under the '**Make in India**' initiative, aiming to boost indigenous manufacturing and reduce import dependence. The Defence Ministry has set a target of **70% self-reliance in weaponry by 2027**, creating huge prospects for industry players.

- **FDI in defence manufacturing**

Foreign Direct Investment (FDI) in the defence sector is allowed up to **74% through the automatic route and up to 100% by government route**.

- **Positive Indigenisation List:**

A **Positive Indigenisation List** is a list of defence materials that India will not import. This would offer a great opportunity to the Indian defence industry to manufacture these items to meet the forces' requirements.

- **Defence Acquisition Procedure 2020:**

DAP 2020 has been aligned with the vision of the Government of Atmanirbhar Bharat and empowering Indian domestic industry through Make in India initiative with the **ultimate aim of turning India into a global manufacturing hub.**

- **Defence Industrial Corridors:**

Government is setting up two Defence Industrial Corridors (**one in Uttar Pradesh and another in Tamil Nadu**) to ensure connectivity among various defence industrial units.

- **Corporatisation of Ordnance Factory Board:**

Ordnance Factory Board (OFB) has been **split into seven different PSUs** to improve functional autonomy, efficiency, growth potential and innovation in the defence sector.

- **Innovations for Defence Excellence (iDEX):**

iDEX, managed and funded by the Defence Innovation Organisation (DIO), aims to boost Defence and Aerospace innovation by engaging industries, **MSMEs, startups, and academic and R&D institutions.**

- **Defence Innovation Hubs (DIHs):**

The iDEX framework plans to establish independent Defence Innovation Hubs (DIHs) for direct interaction between innovators and the Armed Services, focusing on solving major defence challenges. Two DIHs have been announced in **Coimbatore and Nashik.**

- **ADITI Scheme (Acing Development of Innovative Technologies with iDEX):**

Launched under the iDEX framework, **ADITI** focuses on funding critical and strategic technologies such as AI, quantum tech, autonomous systems, and underwater surveillance. It offers **grants of up to ₹25 crore** per project and aims to support high-impact innovations from startups and MSMEs.

- **SAMARTHYA Initiative:**

Unveiled at **Aero India 2025**, **SAMARTHYA** showcased indigenised technologies developed by DRDO, DPSUs, and iDEX startups. It displayed platforms like **RudraM-II missile, VPX-135 single-board computer, and Naval Anti-Ship Missile (Short Range)**, reflecting the success of domestic innovation.

- **Procurement Push via iDEX Startups/MSMEs:**

As of February 2025, the Ministry of Defence has cleared the **procurement of 43 items worth over ₹2,400 crore** from iDEX-linked startups and MSMEs. In addition, **development projects worth ₹1,500 crore** have been approved for startups working under iDEX and ADITI.

- **Defence Testing Infrastructure Scheme (DTIS):**

DTIS aims to reduce the dependence on foreign testing infrastructure. **Seven test facilities** have been approved in domains like **UAVs, electronic warfare, and electro-optics**, with financial support to establish **Greenfield defence testing labs**.

- **Year of Defence Reforms – 2025:**

The Ministry of Defence declared **2025 as the 'Year of Reforms'**, focusing on simplification of procurement, optimising procedures, and enhancing industry participation.

- **TATA Aircraft Complex, Vadodara:**

Commissioned in 2024, this facility will manufacture **40 C-295 transport aircraft** domestically as part of a larger order of 56, marking a major step in **aircraft indigenisation**.

- **Defence India Startup Challenge:**

Launched by Ministry of Defence in partnership with Atal Innovation Mission, it aims to support Startups/MSMEs/Innovators to create prototypes and to commercialize products or solutions in the area of National Defence and Security.

WAY FORWARD:

- **Creating a Supportive Ecosystem for Industrial Base:**
 - Encourage the formation of **Aerospace and Defence (A&D) clusters** integrated with Defence Industrial Corridors in **UP and Tamil Nadu**, especially for MSMEs, to maximise scale and efficiency.
- **Skill Development:**
 - Promote **Defence Sector Skill Council**, technical institutes, and initiatives like the **Defence Internship Programme** to bridge the talent gap. Provide **incentives for international certifications** and exposure.
- **Changing Mindsets Towards the Private Sector:**
 - Promote **equal partnership** between public and private sectors by treating private firms as **strategic partners**, not just vendors. Support their efforts to establish **technology tie-ups** and **IP ownership**.
- **Enhanced Government-Private Sector Collaboration:**

- Simplify procedures to engage with DPSUs and promote **outsourcing to private players**, fostering a resilient domestic supply chain through IDDM and Make categories.
- **IDDM (Indigenously Designed, Developed and Manufactured) Platforms:**
 - Ensure **clarity in procurement policies** and **streamlined approval processes** for platforms with high indigenous content. Increase flexibility to meet the evolving needs of the Armed Forces.
- **Creating a Clear Demand Profile:**
 - Provide **advance information on procurement plans** to the industry for better preparedness, investment confidence, and alignment with capability development.
- **Aligning Tax Policies:**
 - **Rationalise GST and customs duties** on defence inputs to encourage domestic sourcing and reduce cost disadvantages faced by Indian manufacturers.
- **Addressing the High Cost of Capital:**
 - Provide **low-interest, collateral-free loans** to MSMEs in the defence sector, and include defence startups in priority lending programs.
- **Leveraging M-SIPS for Defence Production:**
 - Expand the **Modified Special Incentive Package Scheme (M-SIPS)** to include defence manufacturing, promoting domestic investment through financial incentives.
- **Inclusion of R&D as an Eligible Offset Activity:**
 - Recognise and promote **domestic R&D spending** as a valid offset obligation, incentivising foreign OEMs to invest in Indian innovation.

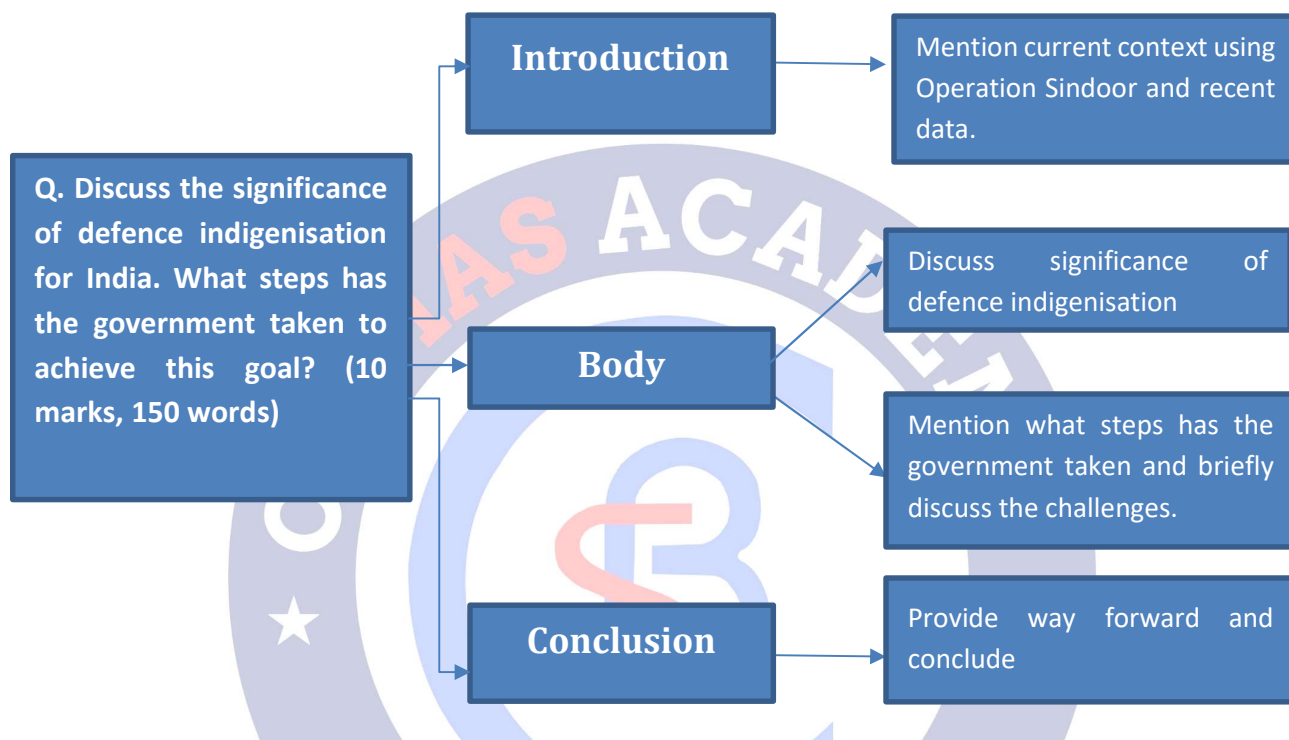
CONCLUSION:

- India's journey towards defence indigenisation is accelerating with policy reforms, innovation-led initiatives, and rising private sector participation. To sustain this momentum, a synergised effort across government, industry, and academia is vital in transforming India into a **self-reliant global defence hub**.

PRACTICE QUESTION

Q. Discuss the significance of defence indigenisation for India. What steps has the government taken to achieve this goal? (10 marks, 150 words)

APPROACH



MODEL ANSWER

The recent success of **Operation Sindoor (2025)**, powered by indigenous missiles, radars, drones, and satellite networks, highlighted India's rising defence manufacturing capabilities. With **defence production reaching ₹1.27 lakh crore in FY 2023–24** and **exports soaring to ₹23,622 crore in FY 2024–25**, India is moving steadily toward self-reliance in defence.

Significance of Defence Indigenisation:

- 1. National Security:** Reduces dependence on foreign suppliers, ensuring uninterrupted access to critical military hardware during geopolitical tensions.
- 2. Strategic Autonomy:** Minimises vulnerabilities like those seen in India's tightrope walk during the Ukraine-Russia conflict due to reliance on Russian imports.
- 3. Economic Development:** Strengthens domestic manufacturing, MSMEs, and employment generation. Aims to reach ₹3 lakh crore in defence production by 2029.

4. **Export Potential:** Defence exports rose 34 times in the last decade, reaching over 100 countries, enhancing India's soft power.
5. **Innovation Ecosystem:** Schemes like **iDEX** and **ADITI** have onboarded 619 startups and signed 430 innovation contracts, fostering cutting-edge tech development.
6. **Geopolitical Leverage:** Indigenous platforms like **LCA Tejas**, **Akash**, and **ATAGS** help India emerge as a **credible defence partner in the Indo-Pacific**, countering China.

Government Steps Taken:

- **Make in India:** 193 contracts worth ₹2.09 lakh crore signed in FY 2024–25 (81% with Indian firms)
- **Positive Indigenisation Lists** banning imports of 3,000+ items
- **FDI liberalisation (up to 100%)** and **Defence Acquisition Procedure 2020**
- Schemes: **iDEX**, **ADITI**, **SAMARTHYA**, **Defence India Startup Challenge**
- Infra push: **TATA C-295 aircraft facility**, **Defence Industrial Corridors**, **Defence Testing Infrastructure Scheme**

Challenges:

- Low R&D allocation (5.1% of defence budget)
- Delays in procurement, red tape
- Talent shortages and DRDO attrition
- Limited private sector depth and critical tech gaps
- Continued dependence on imported sub-systems

Way Forward:

- Raise R&D to global standards and include it in offset norms
- Promote academia–industry–DRDO collaboration
- Ease access to credit for MSMEs and startups
- Simplify procurement and incentivise Make-I and IDDM projects
- Build niche tech clusters for AI, EW, quantum, and aerospace systems

Defence indigenisation is pivotal for India's national sovereignty, economic resilience, and global positioning. With consistent reforms and stakeholder synergy, India can evolve into a **leading global defence manufacturing hub**.

28. SEMICONDUCTOR MANUFACTURING IN INDIA

IMPACT ANALYSIS

SYLLABUS:

GS 3> Industry and infrastructure

REFERENCE NEWS:

- Recently, Union Minister for Electronics & Information Technology, Railways, and Information & Broadcasting, Shri Ashwini Vaishnaw, inaugurated **India's first 3nm semiconductor design centres** by Renesas Electronics India Private Limited in **Noida** and **Bengaluru**.
- These facilities represent a **critical leap in India's semiconductor capabilities, previously limited to 7nm and 5nm technologies**.

MORE ON NEWS:

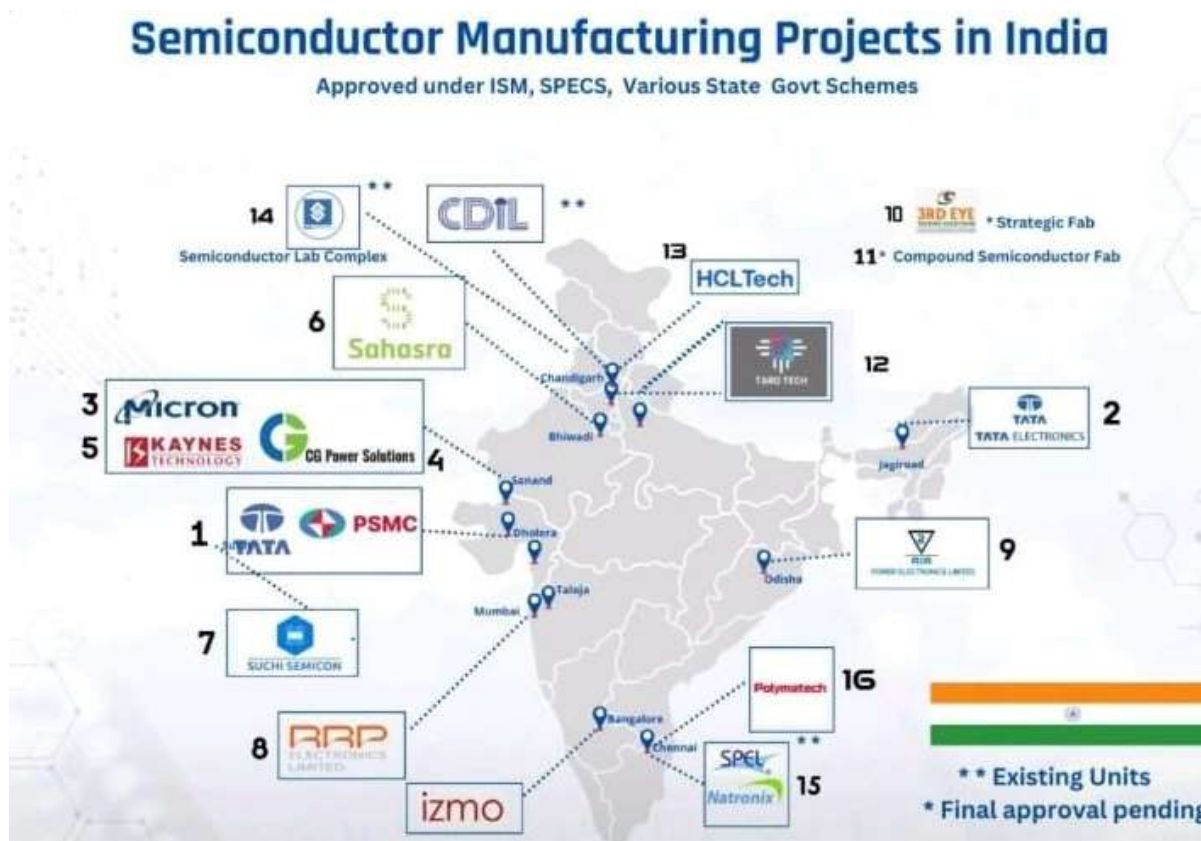
- The Minister also elaborated on India's holistic semiconductor strategy **encompassing design, fabrication, ATMP (Assembly, Testing, Marking, and Packaging), equipment, chemicals, and gas supply chains**.
- He cited industry confidence witnessed at global platforms like Davos and mentioned significant investments already being made by companies such as Applied Materials and Lam Research.
- The Minister announced the launch of a **new semiconductor learning kit** aimed at enhancing practical hardware skills **among engineering students**.
- He also said that 270+ academic institutions that have already **received advanced EDA (Electronic, Design, Automation) software tools** under the **India Semiconductor Mission** will also receive these **hands-on hardware kits**.
- "This integration of software and hardware learning will create **truly industry-ready engineers**. We are not just building infrastructure but investing in long-term talent development," he said.

SEMICONDUCTORS:

- A semiconductor material has an electrical conductivity value falling between that of a conductor, such as metallic copper, and an insulator, such as glass. Common elemental semiconductors are **silicon and germanium**.
- Chipsets are the most commonly used semiconductor component. A chipset is a **group of integrated circuits that control the flow of data** and instructions between the central processing unit (CPU) and external devices.
- Their design and development occur in various stages:
 - A **wafer** is designed and manufactured in **wafer fabrication (FAB) units, also called foundries**, by companies as per the requirements of chip manufacturers like Samsung and Qualcomm.
 - The chipmakers then package, test and sell the chips to equipment manufacturers such as Xiaomi and Cisco.
- End-use industries that depend on semiconductors include mobile and telecommunication devices, industrial machinery, automobiles, automation (workplace, healthcare, manufacturing etc.), the Internet of Things (IoT) and other industries that have applications for computing in some form or other.

STATS:

- The current production of electronic components in India is valued at **USD 11 billion** and is expected to reach **USD 18 billion by FY 26**. (Source: Invest India)
- The **Indian semiconductor market**, which is valued at approximately **USD 23.2 billion** and is projected to reach **USD 80.3 billion by 2028**, is growing at a compound annual growth rate (CAGR) of 17.10%. (Source: Invest India)
- India has the requisite expertise in software and chip design. Yet, **India lags in the establishment of semiconductor wafer fabrication (FAB) units**.



SIGNIFICANCE OF SEMICONDUCTOR MANUFACTURING

- **Boost Domestic Manufacturing and Supply Chain Resilience:**
 - India aims to become **self-reliant** in semiconductor manufacturing under the **Atmanirbhar Bharat initiative**, with the vision to emerge as a global hub for electronic system design and semiconductor manufacturing.
 - For instance, the **COVID-19 pandemic** highlighted vulnerabilities in global supply chains, especially in the semiconductor industry. By bolstering domestic manufacturing, India can reduce its dependency on international suppliers and enhance **supply chain resilience** against global disruptions.
- **Attract Investment:**
 - India has introduced a **USD10 billion incentive package** under the **Production Linked Incentive (PLI) Scheme for Semiconductors** as part of its broader strategy to establish a robust domestic semiconductor ecosystem. This package, managed by the **India Semiconductor Mission (ISM)**, offers up to 50% fiscal support for semiconductor and display manufacturers.

- The goal is to **attract global chip makers** to set up production bases in India, positioning the country as a key player in the global semiconductor market. Major companies such as **Tower Semiconductor, Foxconn, and Vedanta** have already expressed interest.
- **Employment Generation:**
 - With the advent of **Industry 4.0**, the semiconductor industry will create **highly skilled employment opportunities**. For instance, by developing a strong domestic electronics industry, India can harness its **demographic dividend**, generating jobs in advanced technological sectors.
- **Reap Benefits of the Global Chip Shortage:**
 - The global semiconductor shortage has disrupted industries worldwide, presenting India with an opportunity. By attracting fabrication units through favorable policies, India could enhance its self-reliance in semiconductor production, **meeting domestic and global demands**.
- **Strategic Significance:**
 - Manufacturing and supply of semiconductors are concentrated in countries like **Taiwan, South Korea, Japan, the U.S., and China**. Geopolitical tensions in these regions could disrupt supply chains.
 - For instance, **Taiwan, the world's leading chip producer**, faces tensions with mainland China, posing risks to India's imports. Attaining **self-sufficiency** in semiconductor production can protect India from such geopolitical risks.
- **National Security:**
 - Semiconductors are critical components in **defense technologies**. Ensuring a **domestic supply** of these components protects a nation's security apparatus from unreliable foreign sources, thereby enhancing **national security**.
- **R&D Ecosystem Development:**
 - A robust semiconductor manufacturing sector fosters a vibrant **research and development ecosystem**. For instance, **Silicon Valley** demonstrates how a strong semiconductor industry can attract talent and investments in **cutting-edge technologies**.

- **Technological Sovereignty:**
 - Control over **semiconductor technology** is crucial for **technological sovereignty**. For example, it allows countries to set their own standards and regulations, ensuring independence from foreign entities for critical technologies.
- **Economic Diversification:**
 - Investing in **electronics and semiconductor manufacturing** helps diversify a country's economy, **reducing reliance on traditional industries**.
 - For example, **Taiwan's economy** shows how its thriving semiconductor industry has contributed to **economic growth** and diversification.
- **Promote Circular Economy:**
 - A **circular electronics system**, where resources are reused in multiple ways, fosters **sustainability** and enhances **cost-effectiveness**. For instance, building a reliable domestic semiconductor manufacturing base is essential to develop such sustainable systems.
- **Boost to Startups and SMEs:**
 - Readily available, affordable domestically made chips support local hardware start-ups and SMEs, fostering indigenous innovation and reducing barriers to entry in electronics manufacturing.
- **Regional Development and Infrastructure Growth:**
 - Semiconductor fabs drive the development of essential infrastructure (clean power, water, logistics), leading to regional economic upliftment, especially in emerging industrial zones.

CHALLENGES:

- **Capital intensive industry:**
 - A semiconductor fabrication facility can cost multiples of a billion dollars to set up even on a relatively small scale. They also have high operating costs and need frequent technology replacement. This makes it a **viable industry for only a few corporate giants**.

- **Power demand:**
 - Chip fabs require extremely stable power supply. But this is a challenge in India.
 - For instance, India recorded a power supply **shortage of 1,201 million units in October 2021** — the highest in 5.5 years — due to coal shortage in thermal plants. This example highlights **the ongoing challenges in ensuring consistent power supply**, an issue that persists even in 2024, as India continues to face coal-related shortages impacting power generation in several states.
- **Concerns over water use:**
 - Semiconductor manufacturing requires large volumes of **ultra-pure water** to avoid the contamination of electronic devices. For a **water stressed country** like India, such levels of water usage are unsustainable.
 - For instance, Taiwan Semiconductor Manufacturing Company uses around **60 liters of water per layer of chip** and the recent severe drought in Taiwan has affected production.
- **Stiff competition:**
 - India has a weak ecosystem and shortage of resources as compared to more competitive bases **like China and Vietnam**. Hence, it would require immense government support to attract the industries to the country.
- **Challenges and Previous Attempts:**
 - Previous attempts to establish semiconductor fabrication facilities in India faced challenges. Notably, a **joint venture between Foxconn and Vedanta**, aimed at setting up a **USD 19.5 billion chip plant**, was dissolved.
 - Additionally, Tower Semiconductor's initial **proposal for a USD 3 billion plant in Karnataka was stalled** due to its then impending merger with Intel, which was **eventually cancelled due to regulatory hurdles**.
- **Environmental concerns:**
 - India is the **third largest producer of e-waste**, generating about 2.4 kg of e-waste per capita. The arrival of new industries would increase the amount of e waste generated in the country.

- **Supply Chain Dependence on Imports:**
 - India heavily relies on imports for critical semiconductor manufacturing materials and high-end equipment (e.g., photolithography machines, specialty gases). This creates a **strategic vulnerability**.
- **Limited Domestic R&D in Core Manufacturing Technologies**
 - While India excels in chip design, it lags in **advanced research** for fabrication processes, materials science, and chip-making equipment—hindering innovation and self-reliance in manufacturing.
- **Long Gestation Period and High Risk for Investors**
 - Semiconductor fabs take **5–10 years to become profitable**, and rapidly evolving technology makes such investments risky. This deters private sector participation without long-term state support.
- **Talent Gap in Niche Roles**
 - There's a shortage of professionals skilled in **process engineering, photonics, wafer inspection, and ATMP operations**, despite a large engineering workforce. India also faces **brain drain** in these niche areas.
- **Inadequate ATMP Ecosystem**
 - The Assembly, Testing, Marking, and Packaging segment is **underdeveloped**, leading to continued reliance on countries like Malaysia, Vietnam, and Taiwan for back-end processes.
- **Policy and Regulatory Uncertainty**
 - **Delays in approvals, land acquisition bottlenecks**, and lack of **clarity in fiscal incentives** across states lead to investor hesitation and stalled projects.

GOVERNMENT EFFORTS:

- **India Semiconductor Mission (ISM)**
 - India Semiconductor Mission (ISM) has been setup as an **Independent Business Division within Digital India Corporation**.

Digital India Corporation has been set up by the **Ministry of Electronics & Information Technology**, Government of India, to innovate, develop and

deploy ICT and other emerging technologies for the benefit of the common man. It is a **'not for profit' Company** under Section 8 of the Companies Act 2013. The Company has been **spearheading the Digital India programme** of the Government of India, and is involved in promoting use of technology for eGovernance/ e-Health / Telemedicine, e-agriculture, e-Payments etc

- ISM has all the **administrative and financial powers** and is tasked with the responsibility of catalysing the India Semiconductor ecosystem in manufacturing, packaging and design.
- ISM has been working as **nodal agency** for the Schemes approved under **Semicon India Programme**. The **applications were received by ISM and are being appraised by ISM**. ISM has also been engaging with various stakeholders of Semiconductors and Display ecosystem to attract the investments in India.
- **Semicon India Programme:**
 - The government has approved the Semicon India programme with a total outlay of INR 76,000 crore for the development of semiconductor and display manufacturing ecosystems in the country.
 - The following four schemes have been introduced under the programme:
 1. **Modified Scheme for setting up of Semiconductor Fabs in India.**
 2. **Modified Scheme for setting up of Display Fabs in India.**
 3. **Modified Scheme for setting up of Compound Semiconductors / Silicon Photonics / Sensors Fab / Discrete Semiconductors Fab and Semiconductor Assembly, Testing, Marking and Packaging (ATMP) / OSAT facilities in India.**
 4. **Semicon India Future Design: Design Linked Incentive (DLI) Scheme.**
- **National Policy on Electronics 2019 (NPE 2019):**
 - The National Policy on Electronics 2019 (NPE 2019) aims to establish **India as a global hub for Electronics System Design and Manufacturing (ESDM)**.
- **PLI Scheme for Large Scale Electronics Manufacturing:**
 - Under the scheme, electronic manufacturing companies will get an **incentive of 4 to 6% on incremental sales** (over base year) of goods manufactured in India and

covered under target segments, to eligible companies over a period of next 5 years.

- **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS):**
 - Under the scheme, a financial incentive of 25% of capital expenditure has been approved by the Union Cabinet for the manufacturing of goods that constitute the supply chain of an electronic product.
- **Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme:**
 - The scheme will provide financial assistance up to 50% of the project cost subject to a ceiling of Rs 70 crore per 100 acres of land for setting up of Electronics Manufacturing Cluster projects.
- **Indigenous GPU Development:**
 - India plans to roll out a prototype of its indigenous Graphics Processing Unit (GPU) by the end of 2025. This initiative is part of the country's efforts to reduce dependence on imported semiconductor components and enhance self-reliance in critical technologies.
- **SHAKTI-Based Aerospace Chip Development**
 - IIT Madras and ISRO have jointly developed a 64-bit IRIS (Indigenous RISC-V Controller for Space Applications) chip based on the SHAKTI processor.
 - This chip is tailored for space applications and represents a significant step in **indigenous aerospace semiconductor development.**

WAY FORWARD:

- **Fast-track Regulatory Clearances**
 - Establish a **single-window clearance system** for semiconductor projects to streamline land acquisition, environmental approvals, and fiscal incentives.
- **Strengthen Infrastructure Backbone**
 - Prioritize development of **reliable power and water supply**, high-speed connectivity, and plug-and-play industrial clusters near semiconductor hubs.

- **Develop a Skilled Talent Pipeline**
 - Expand semiconductor-focused curricula through partnerships with **academic institutions**, ISM, and industry leaders.
 - Deploy initiatives like **Semiconductor Learning Kits** and internships to create an **industry-ready workforce**.
- **Enhance Research & Innovation Ecosystem**
 - Support public-private R&D collaboration through grants, centers of excellence (like BSRC), and **indigenous IP creation** in chip design and fabrication.
- **Encourage Global-Local Collaborations**
 - Promote **joint ventures, technology transfers**, and strategic tie-ups with leading global semiconductor firms to integrate India into **global value chains**.
- **Ensure Environmental Sustainability**
 - Adopt **green manufacturing practices**, water recycling technologies, and enforce stringent **e-waste management protocols** to make the industry future-ready.
- **Facilitate Access to Capital**
 - Provide **viability gap funding**, promote **venture capital access**, and extend **sovereign backing** to startups and MSMEs in semiconductor design, ATMP, and innovation.
- **Geopolitical and Trade Integration**
 - Align with strategic multilateral groupings like the **Quad, IPEF**, and engage in **bilateral technology agreements** to enhance semiconductor trade and security cooperation.
- **Build Domestic Semiconductor Tooling and Materials Capacity**
 - Invest in the development of **indigenous equipment, chemicals, and ultra-pure materials**, reducing import dependence and increasing supply chain security.
- **Promote India as a Trusted Manufacturing Destination:**
 - Position India as a geopolitically stable, rule-of-law-based alternative to high-risk regions for global chipmakers seeking diversification (**China+1 strategy**).

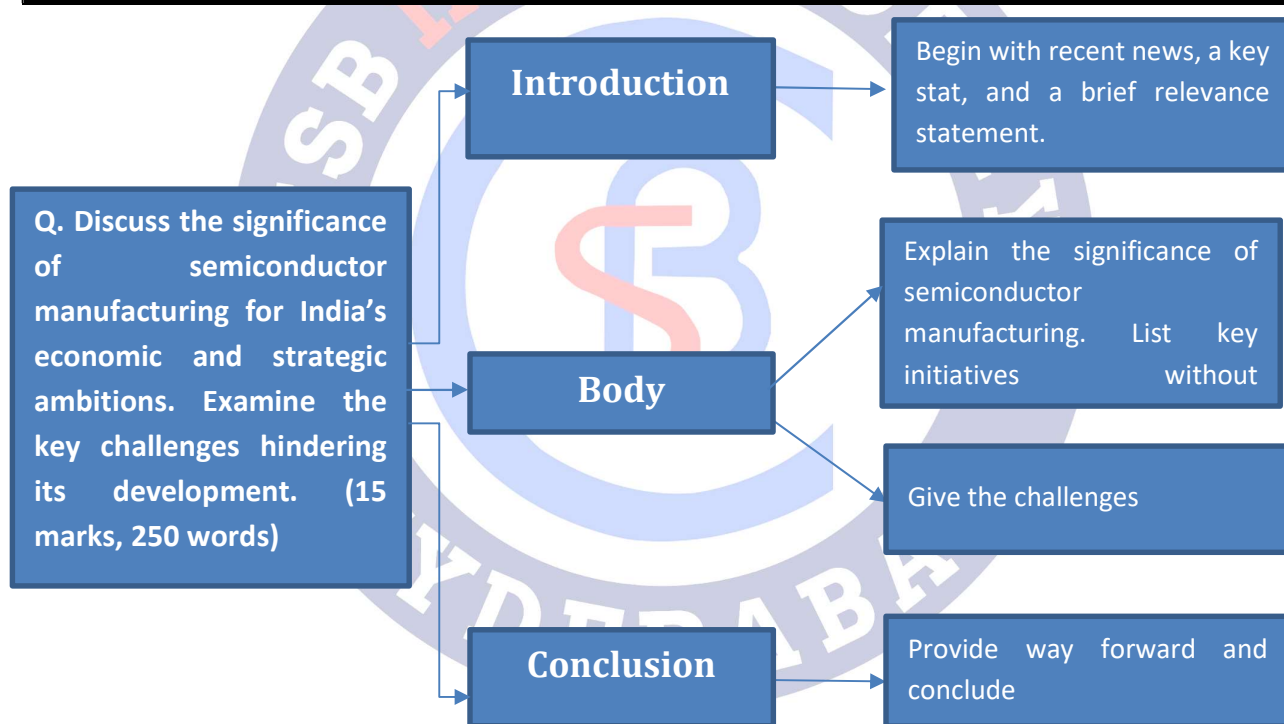
CONCLUSION:

- India is rapidly emerging as a key player in the global semiconductor industry, driven by initiatives like the India Semiconductor Mission and strong design capabilities. To sustain this momentum, India must focus on infrastructure, talent development, and sustainability. With the right policies and strategic partnerships, India can achieve technological self-reliance and become a global hub for semiconductor manufacturing.

PRACTICE QUESTION

Q. Discuss the significance of semiconductor manufacturing for India's economic and strategic ambitions. Examine the key challenges hindering its development. (15 marks, 250 words)

APPROACH



MODEL ANSWER

In May 2025, India marked a significant milestone with the inauguration of its **first 3nm semiconductor design centres** in Noida and Bengaluru by Union Minister Shri Ashwini Vaishnaw. This development highlights India's growing ambition to emerge as a global leader in semiconductor manufacturing. With the **Indian semiconductor market valued at USD 23.2 billion** and projected to reach **USD 80.3 billion by 2028** (CAGR: 17.1%), the sector holds critical importance for **India's economic resilience and strategic autonomy**.

Significance of Semiconductor Manufacturing:

1. Economic Self-Reliance and Supply Chain Resilience: Semiconductors are foundational to modern electronics. Local manufacturing reduces dependency on imports and strengthens India's position in global supply chains, especially highlighted during the COVID-19 pandemic.

2. Attracting Investment and Global Integration: Through schemes like the **USD 10 billion PLI for Semiconductors**, India seeks to draw global players like Foxconn, Tower Semiconductor, and Vedanta to build domestic capabilities.

3. Employment Generation: The sector promises **high-skilled jobs**, supporting India's demographic dividend, especially with Industry 4.0 adoption across sectors like automotive, IoT, and telecommunications.

4. Strategic and National Security Interests: Semiconductors are vital in defense and critical infrastructure. Reducing dependency on external suppliers, especially from geopolitically sensitive regions, enhances national security.

5. Technological Sovereignty and Innovation: Building domestic fabrication units and design ecosystems supports **technological independence**, ensuring control over key digital infrastructure and standards.

6. Economic Diversification and Regional Development:

Semiconductor hubs promote **regional industrialization**, infrastructure development, and diversification beyond traditional sectors.

7. Environmental and Circular Economy Goals:

A local ecosystem enables better waste control, recycling, and environmentally conscious chip manufacturing practices.

Key Government Initiatives

- India Semiconductor Mission (ISM)
- Semicon India Programme (INR 76,000 crore outlay)
- Design Linked Incentive (DLI) Scheme
- Modified Scheme for Semiconductor and Display Fabs
- Production Linked Incentive (PLI) for Large-Scale Electronics
- SPECS (Scheme for Promotion of Electronic Components and Semiconductors)

Challenges Hindering Development:

1. Capital-Intensive Industry: Fabrication facilities require **billions of dollars** in investment and have high operating costs, deterring smaller private players.

2. Power and Water Constraints: Fabs demand **stable power and ultra-pure water**—both limited in India. For instance, **60L of water is needed per chip layer**, making it unsustainable for water-stressed regions.

3. Lack of ATMP Ecosystem: India's **Assembly, Testing, Marking, and Packaging** infrastructure is underdeveloped, increasing reliance on countries like Malaysia and Vietnam.

4. Talent Gap in Specialized Roles: There's a shortage of professionals skilled in **process engineering, photonics, and VLSI**, with continued **brain drain** to global tech hubs.

5. Import Dependency and Supply Chain Risks: India lacks domestic production of key tools and materials like **photolithography machines** and **semiconductor-grade chemicals**.

6. Long Gestation Period and Investor Uncertainty: Fabs take **5–10 years to become profitable**, and frequent tech shifts increase risk for private capital investment.

7. Policy and Regulatory Delays: Bureaucratic bottlenecks, land acquisition issues, and fragmented policy execution across states delay implementation.

8. Environmental Impact: India is already the **third-largest e-waste producer**; more fabs could worsen the environmental footprint without strong safeguards.

Way Forward:

- **Streamline Approvals** through a single-window mechanism.
- **Strengthen Infrastructure** for water, power, and connectivity in fab clusters.
- **Invest in Talent** via academic partnerships, internships, and dedicated semiconductor programs.
- **Promote R&D** through funding, IP support, and Centres of Excellence like **BSRC at IIT Madras**.
- **Foster Global Partnerships** to enable technology transfer and integration into global supply chains.
- **Support Green Practices** including water recycling and sustainable manufacturing.
- **Boost Domestic Capability** in semiconductor tooling, materials, and chemicals.
- **Position India as a Trusted Destination** aligned with geopolitical shifts (e.g., China+1 strategy).

India is at a critical juncture in its journey to becoming a global semiconductor powerhouse. With strong design capabilities, supportive policies, and strategic partnerships, India can overcome its existing hurdles. By aligning infrastructure, skills, and sustainability goals, the country can build a **resilient, self-reliant semiconductor ecosystem** that not only fuels economic growth but also strengthens national security and technological sovereignty.



29. E-WASTE MANAGEMENT

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Environment & Ecology > Pollution > E waste

REFERENCE NEWS:

- India's journey toward Viksit Bharat is being powered by a **rapid digital transformation**, with an **increasing reliance on electronic devices**. This wave of digitization—spanning smartphones, laptops, and industrial systems—has boosted economic growth but also triggered a sharp rise in electronic waste (e-waste).
- As per **Central Pollution Control Board (CPCB) data**, e-waste rose from **7,08,445 metric tonnes** in 2017–18 to **17,78,400 metric tonnes** in 2023–24—a **151% surge** in six years.

WHAT IS E-WASTE?

- The term "e-waste" is an abbreviation of "**electronic and electrical waste**".
- E-waste is any electrical or electronic equipment that has been discarded without the intent of re-use.
- Composition of e-waste:
 - The composition of e-waste is very diverse and differs in products across different categories.
 - It contains more than **1000 different substances**, which fall under '**hazardous**' and '**non-hazardous**' categories.
 - Broadly, it consists of ferrous and non-ferrous metals, plastics, glass, wood and plywood, printed circuit boards (PCB), concrete and ceramics, rubber and other items.



- **Iron and steel constitute about 50%** of the E-waste **followed by plastics (21%), non-ferrous metals (13%)** and other constituents.
- Non-ferrous metals consist of metals like copper (Cu), aluminum (Al) and precious metals, e.g. silver (Ag), gold (Au), platinum, palladium, etc.
- The presence of elements like **lead, mercury, arsenic, cadmium, selenium and hexavalent chromium and flame retardants** beyond threshold quantities of e-waste classifies them as hazardous waste

HARMFUL EFFECTS OF E-WASTE:

- **Air Pollution from E-Waste:**
 - **Toxic Releases:** Dismantling, shredding, or melting e-waste releases **dioxins** and dust, causing air pollution.
 - **Burning Practices:** Burning low-value e-waste for metals like copper emits fine particles, raising health risks.
 - **Chemical Exposure:** **Extracting gold and silver with acids** releases harmful fumes, especially in poorly regulated areas.

In Guiyu, China, an informal e-waste recycling center focused on extracting metals has resulted in extremely **high lead levels in the air**. This pollution spreads, affecting water and soil, leading to significant **neurological damage** among humans and wildlife in the region.

- **Soil Contamination from E-Waste:**
 - **Leaching of Heavy Metals:** Incorrect disposal of e-waste in landfills or illegal dumping grounds allows **heavy metals and flame retardants** to permeate the soil, risking groundwater contamination and affecting nearby crops.
 - **Impact on Agriculture:** Contaminated soil leads to **crops absorbing toxins**, which can trigger various illnesses and diminish agricultural productivity.
 - **Long-term Soil Degradation:** Factors such as temperature, soil type, pH levels, and composition influence the extent of soil contamination. Pollutants can linger in the soil for extended periods, posing threats to microorganisms and plant life.

- **Water Pollution from E-Waste:**
 - **Groundwater Contamination:** Heavy metals from e-waste, like **mercury, lithium, lead, and barium**, seep through the soil to groundwater, eventually reaching ponds, streams, rivers, and lakes, causing **acidification and toxification of water bodies**.
 - **Ecological Harm:** The contamination of water sources leads to the death of marine and freshwater organisms, disrupts biodiversity, and harms ecosystems, affecting communities even miles away from the source of pollution.
- **Human Health Effects from E-Waste:**
 - **Toxic Component Exposure:** E-waste components such as mercury, lead, cadmium, polybrominated flame retardants, barium, and lithium pose significant health risks, including **damage to the brain, heart, liver, kidneys, and skeletal system**.
 - **Systemic Health Risks:** Exposure to e-waste toxins adversely affects the **nervous and reproductive systems**, potentially leading to disease and birth defects.

CHALLENGES TO E-WASTE MANAGEMENT IN INDIA:

- **Predominantly an informal sector activity:**
 - E-waste recycling in India is predominantly an informal sector activity.
 - **According to data from the Ministry of Environment, Forest and Climate Change**, India generated approximately **1.6 million tonnes of electronic waste (e-waste)** in the financial year 2021–22. Of this, **only about 32.9%**—equating to 527,131 tonnes—**was collected, dismantled, and recycled or disposed of through formal channels**.
 - The heavy reliance on an informal sector for e-waste recycling gives rise to the following key challenges,
 - First, the **attempt to impose financial penalties** on non-compliance or violation of e-waste handling and processing rules is **ineffective**.
 - Second, broader public knowledge regarding market prices and health safety costs of e-waste recycling is less because **less paid workers** who do this work **do not have proper training**.

- Third, despite the massive increase in the volume of e-waste generated every year, there is very **little investment** by large-scale industrial infrastructure for recovery and recycling.

Social impact:

- India's e-waste is recycled in the informal sector, dominantly by **women and child labourers**.
 - For instance, a **2020–21 report by the National Commission for Protection of Child Rights (NCPCR)** noted ongoing instances of **children working in hazardous e-waste recycling conditions**, particularly in regions like **Delhi and Uttar Pradesh**.
 - In India, about **4.5 lakh child laborers** in the age group of 10-14 are observed to be engaged in various E-waste activities and that too **without adequate protection and safeguards** in various yards and recycling workshops. (Source: ASSOCHAM)
- The poor management of hazardous e-waste is identified as one of the key reasons for increase in **miscarriages, still births and poor infant health** among the people working in this sector.

Lack of awareness:

- The people handling the waste are **largely illiterate and unaware on how to manage e-wastes**.
- On the consumer side, **people are unaware of how to handle e wastes and the rules that regulate the disposal of e wastes**. They continue to **sell their e-waste to the informal sector**, which end up in unscientific handling and disposal.

Infrastructure deficit:

The number of recycling and collection facilities in India are dismal compared to the amount of e-waste being generated in India. Most of the facilities are **heavily reliant on unskilled manual labour** and uses **crude extraction methods**.

Ineffective enforcement:

There are several inadequacies in the regulatory mechanism. **The current framework continues to ignore the informal sector**. Also, there is **no independent mechanism to verify the**

implementation of Extended Producer Responsibility (EPR). The law mandates random inspections by the Central Pollution Control Board (CPCB) and state PCBs, but they are rarely carried out.

GOVERNMENT INITIATIVES:

- The Ministry of Environment, Forest and Climate Change has introduced the **E-Waste Management Rules, 2022, replacing the 2016 E-Waste Management Rules**. These new rules came into effect on **April 1, 2023**, and include several crucial changes aimed at promoting environmentally sound e-waste management practices.
- key provisions of the **E-Waste (Management) Rules, 2022**:
 - **Wider Scope:** Covers 106 categories of electrical and electronic equipment (up from 21).
 - **Mandatory Registration:** All producers, recyclers, refurbishers must register on a CPCB portal.
 - **Extended Producer Responsibility (EPR) Targets:** Producers must meet phased recycling targets—60% (2023–25), 70% (2025–27), 80% (2027 onwards).
 - **EPR Certificate System:** Enables trade and tracking of recycling responsibilities.
 - **Solar PV Inclusion:** Solar panels/modules now included under e-waste regulations.
 - **Environmental Compensation:** Penalties and audits for non-compliance introduced.
 - **Formalisation Push:** Aims to shift recycling from informal to formal sector and promote circular economy.
- Ministry of Electronics and Information Technology (MeitY) had initiated **“Awareness Program on Environmental Hazards of Electronic Waste through Digital India Initiative” in 2015** to create awareness for hazards of the recycling methods being used by unorganized sector vis-à-vis best practices available for environment friendly recycling.
- **Hazardous and other wastes (Management & Transboundary Movement) Rules 2016:**

- It seeks to ensure management, transboundary movement, resource recovery and disposal of hazardous waste in an environmentally sustainable manner.
- **Under the rules, waste electrical and electronic assemblies scrap are prohibited for import.**
- **Swachh Digital Bharat:**
 - Seeks to **raise awareness among the public regarding the recycling of e-wastes by unorganised sector and to educate them about alternative methods of disposing of their e-waste.** The general public is encouraged to participate in the programme, by giving their e-waste to authorised recyclers only.
- **Greene:**
 - The programme aims to create effective awareness in various levels of **society** to reduce the adverse impact on environment and health arising out of the polluting technologies used in recycling e-waste in the unorganized sector.

WAY FORWARD:

- **Planned Approach:** India needs a regulated e-waste recovery regime to utilize precious minerals efficiently, create jobs, and generate wealth due to its scarcity of minerals.
- **Circular Economy:** India must embed circular economy principles deeper into its electronics sector. This includes designing products for durability, repairability, and recyclability, and incentivizing businesses to recover and reuse components. Introducing fiscal incentives for refurbished electronics could reduce demand for new products and lower waste.
- **Right to Repair Laws:** Countries are recognizing the "right to repair" to reduce e-waste by requiring manufacturers to offer spare parts and repair manuals for electronics.

Right to Repair mandate that electronics manufacturer should **provide spare parts and repair manuals for aging electronics.** Advocates of 'Right to repair' say this is going to help cut down on the growing e-waste problem.

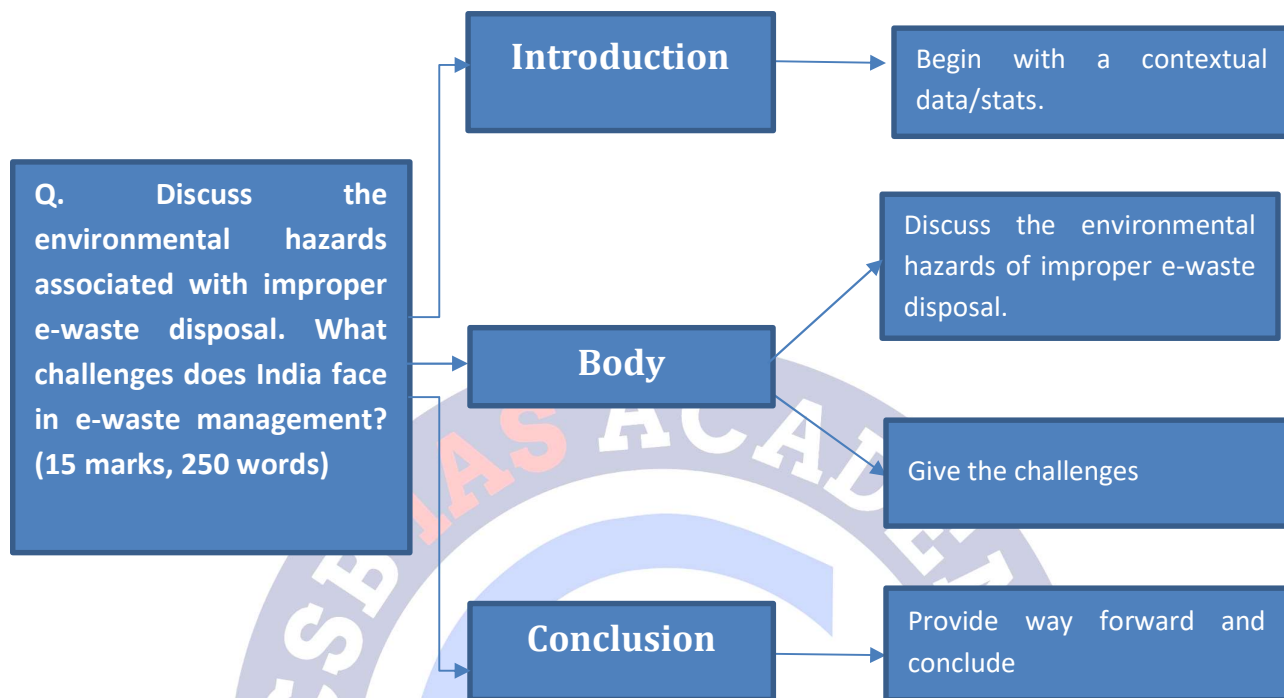
- **Integration of Informal Sector:** Incorporating informal sector workers into the e-waste management system through direct links with producers is vital for success.

- **Industry Status:** Recognizing recycling as an industry is essential for strategic waste management, encouraging its viability and sustainability.
- **Invest in Technology:** The government should promote investments in advanced technology and infrastructure through entrepreneurship and public-private partnerships (PPPs), creating jobs.
- **Effective Enforcement:** Enforcing responsibility on brands for end-of-life product waste management is crucial, alongside enhancing the competency of regulatory agencies like the CPCB.
- **Awareness Generation:** Boosting information campaigns and capacity building is critical to fostering environment-friendly e-waste management.
- **Green Procurement by Government:** Introduce green public procurement guidelines to prioritize electronics that are easily repairable, recyclable, and certified for low environmental impact.
- **International Partnerships and Learning:** Collaborate with countries like the EU, Japan, and South Korea, which have mature e-waste ecosystems, to adopt best practices in technology, compliance models, and design innovation.

PRACTICE QUESTION

- Q. Discuss the environmental hazards associated with improper e-waste disposal. What challenges does India face in e-waste management? (15 marks, 250 words)**

APPROACH



MODEL ANSWER

India's journey toward **Viksit Bharat** is being driven by rapid digitization, with increasing dependence on electronic devices such as smartphones, computers, and industrial electronics. While this digital transformation accelerates economic growth, it has led to a **151% surge in e-waste**, from **7.08 lakh metric tonnes in 2017–18 to 17.78 lakh metric tonnes in 2023–24**, as per Central Pollution Control Board (CPCB) data.

Environmental Hazards of Improper E-Waste Disposal:

1. Air Pollution:

- Open burning of wires and low-value electronics releases **toxic fumes**, including dioxins and furans.
- Melting or acid treatment for metal recovery leads to **fine particulate emissions** and dangerous gaseous pollutants.

2. Soil Contamination:

- Heavy metals like **lead, cadmium, and mercury** leach into soil from unregulated dumping grounds.

- Soil degradation affects **agricultural productivity** and contaminates the food chain.

3. Water Pollution:

- Toxic substances seep through the soil and contaminate **groundwater and surface water bodies**.
- This leads to **acidification of aquatic ecosystems** and poses risks to human health and biodiversity.

4. Human Health Hazards:

- Informal workers, often **women and children**, suffer exposure to hazardous elements like **barium, lithium, and flame retardants**.
- Health risks include **neurological disorders, birth defects, respiratory illnesses, and organ damage**.

Challenges to E-Waste Management in India:

1. Dominance of the Informal Sector:

- Over **60% of e-waste** is handled by untrained, unregistered workers using **crude extraction methods**.
- Formal recycling only accounts for **32.9% of collected e-waste** (2021–22 data, MoEFCC).

2. Social and Ethical Issues:

- **Child labor** is rampant, with over **4.5 lakh children (ASSOCHAM)** involved in e-waste activities without protection.
- Exposure to toxins causes **miscarriages, stillbirths, and infant health issues**.

3. Infrastructure Deficit:

- Recycling and collection centers are **inadequate** compared to the waste generated.
- Facilities rely on **manual labor**, lacking modern processing technology.

4. Lack of Awareness and Public Participation:

- **Consumers lack knowledge** about proper disposal practices and tend to sell e-waste to kabadiwalas.

- **Regulatory information is inaccessible** to most informal sector workers and rural populations.

5. Regulatory Gaps and Weak Enforcement:

- Though the **E-Waste (Management) Rules, 2022** exist, enforcement remains weak.
- **Extended Producer Responsibility (EPR)** lacks independent audits and real-time tracking, reducing accountability.

Way Forward:

- **Strengthen Circular Economy Principles:** Promote repairable and recyclable product design and incentivize use of refurbished electronics.
- **Implement Right to Repair:** Legally mandate manufacturers to provide spare parts and repair manuals.
- **Formalize Informal Sector:** Provide training, certification, and integration opportunities for informal workers.
- **Invest in Technology and Infrastructure:** Encourage public-private partnerships (PPPs) for modern recycling facilities.
- **Green Procurement:** Government should lead by adopting environment-friendly procurement policies.
- **Boost Public Awareness:** Launch digital campaigns and school-level programs for responsible e-waste handling.
- **Ensure Stronger EPR Enforcement:** Use digital tracking and third-party audits to monitor compliance.

India's e-waste problem reflects the darker side of its digital leap. While policies like the **E-Waste Management Rules, 2022** are a step forward, **a holistic approach combining infrastructure, awareness, formalization of labor, and technological investment** is needed. By doing so, India can not only reduce the environmental and health hazards of e-waste but also turn waste into a **sustainable economic opportunity** in line with its *Viksit Bharat* vision.

30. MINIMUM SUPPORT PRICE

IMPACT ANALYSIS

SYLLABUS:

GS 3 > Economic Development >> Agriculture

REFERENCE NEWS:

The Cabinet Committee on Economic Affairs chaired by the Prime Minister Shri Narendra Modi has approved the increase in the Minimum Support Prices (MSP) for 14 Kharif Crops for Marketing Season 2025-26.

Government has increased the MSP of Kharif Crops for Marketing Season 2025-26, to ensure remunerative prices to the growers for their produce. The highest absolute increase in MSP over the previous year has been recommended for nigerseed (Rs.820 per quintal) followed by Ragi (Rs.596 per quintal), Cotton (Rs.589 per quintal) and Sesamum (Rs.579 per quintal)

MINIMUM SUPPORT PRICE:

Minimum Support Price is the price set by the government to purchase crops from the farmers.

- MSP was introduced to give financial stability into the agricultural system and encourage production.
- MSP for major agricultural products is fixed by the Department of Agriculture and Co-operation, Government of India, before the sowing season each year.
- The prices are fixed on the basis of recommendations of the Commission for Agricultural Costs and Prices (CACP).
- CACP calculates cost of production at three levels:
 - **A2**, which includes cost of inputs such as seeds, fertilizer, labour.
 - **A2+FL**, which includes the implied cost of family labour (FL).
 - **C2**, which includes the implied rent on land and interest on capital assets over and above A2+FL.
- Since 2018, **MSPs is fixed at 1.5 times of the A2+FL production cost.**
- At present, Government announces MSPs for a total of 25 crops and fair and remunerative price for sugarcane.

Cereals (7) - paddy, wheat, barley, jowar, bajra, maize and ragi
Pulses (5) - gram, arhar/tur, moong, urad and lentil
Oilseeds (8) - groundnut, rapeseed/mustard, toria, soyabean, sunflower seed, sesamum, safflower seed and nigerseed
Raw cotton
Raw jute
Copra
De-husked coconut
Virginia flu cured (VFC) tobacco
Sugarcane

LEGAL GUARANTEE FOR MSP:

Farmer Welfare

- **Ensure Stability:** A legal guarantee for MSP can offer farmers a consistent income, helping them plan for their future without the stress of unpredictable market prices.
- **Shield from Volatility:** By protecting against sudden price drops, MSP acts as a cushion, especially for small and marginal farmers who are the most vulnerable.
- **Address Distress:** Providing financial security through MSP can reduce the economic hardships that often lead to farmer suicides, offering them hope and dignity.

Economic Impact

- **Support Rural Livelihoods:** Assured income through MSP creates a ripple effect, energizing rural economies and providing a lifeline to local businesses that depend on agricultural prosperity.
- **Encourage Better Practices:** With financial stability, farmers are more likely to invest in quality seeds, irrigation, and sustainable techniques, leading to healthier crops and better yields.

Food Security

- **Ensure Consistent Supply:** A stable MSP framework helps farmers maintain foodgrain production levels, securing the nation's food supply.
- **Support Public Needs:** By stabilizing food prices, MSP strengthens public distribution systems, ensuring affordable access to food for millions of families.

IMPACT OF MSP ON INDIAN AGRICULTURE:

Positive Impacts:

Price assurance and income stability	MSP protects farmers from distress sales during bumper harvests or price crashes. During the COVID-19 lockdown, MSP procurement of wheat and rice ensured income support in Punjab, Haryana, and Madhya Pradesh.
Boosts production of essential crops	Ensures food security by incentivising production of wheat, rice, and pulses. India became self-sufficient in food grains due to MSP-led procurement post-Green Revolution.

Encourages investment in agriculture	Guaranteed price gives farmers confidence to invest in quality seeds, irrigation, and mechanisation. <i>NABARD All India Rural Financial Inclusion Survey (2018)</i> showed higher farm investment in MSP-covered regions.
Government buffer stock and PDS	Enables procurement for Public Distribution System (PDS) and price stabilisation. In 2022–23, FCI procured 60.24 million tonnes of rice and 26.2 million tonnes of wheat .
Political and social assurance	Acts as a socio-political safeguard for farmers against market exploitation. The 2020–21 farmers' protests against farm laws highlighted the trust and dependence on MSP.
Empowers small farmers	Small and marginal farmers with less than two hectares of land account for 86.2% of all farmers in India. Without the MSPs, these farmers, who have neither bargaining power nor expertise for price discovery, will be at the mercy of middlemen and private entities.

Negative Impacts:

Skewed cropping pattern ★	MSP favours wheat and rice, leading to monoculture and neglect of coarse grains, pulses, and oilseeds. Punjab allocates ~80% area to rice-wheat cycle, leading to ecological stress.
Regional imbalance	MSP procurement is effective only in a few states; others are left out. Over 70% of wheat and rice procurement occurs in Punjab, Haryana, MP, and UP. Farmers in Odisha or Bihar often sell below MSP.
Unsustainable water use	Water-intensive crops like rice are promoted in water-scarce areas. Punjab, a semi-arid state, depletes ~33% of groundwater annually due to paddy cultivation supported by MSP.
Fiscal burden and inefficiency	Rising procurement costs and storage expenses stress public finances. In 2023–24, food subsidy bill crossed ₹2.2 lakh crore , with high leakage and wastage in FCI warehouses.
Limited farmer benefit	Only 6% of Indian farmers sell their produce at MSP (Shanta Kumar Committee, 2015). Small and marginal farmers lack access to procurement infrastructure.

Market distortion	MSP discourages diversification and makes farmers dependent on government procurement, reducing competitiveness and market orientation.
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CHALLENGES OF MSP:

- **Weak public procurement mechanism:** The government procurement mechanism varies across the country. In parts of the country where the procurement mechanism is weak, farmers end up selling their produce at a price lower than the MSP.
- **Insufficient pricing:** Farm activists have argued that the current A2+FL MSP formula is not sufficient to make farming profitable and should have been replaced with the C2 costs.
- **Intercrop disparity:** Although MSPs are declared for various crops, public procurement is limited to a few crops such as paddy, wheat and, to a limited extent, pulses.
- **Regional disparity:** The procurement is largely limited to a few states.
 - Three states which produce 49% of the national wheat output account for 93% of procurement. Also, the actual costing for production varies from place to place, more severely so in areas with lack of irrigation facilities and infrastructure. Thus, not all farmers get equal benefits. Also, the Department of Expenditure noted that wheat procurement benefits only a few states, creating imbalances.
- **Lack of awareness:** In a report to measure the efficacy of MSPs, the NITI Aayog found that a low proportion of farmers (10%) were aware of MSPs before the sowing season. 62% of the farmers were informed of MSPs only after sowing their crops.
- **International disputes:** India's MSP regime has been a major bone of contention under the World Trade Organisation (WTO) because it comes under trade distorting support as per the Agreement on Agriculture.
 - Department of Commerce flagged concerns that India has exceeded WTO's subsidy limit of 10% for rice, invoking the 'Peace Clause' to avoid penalties. They advised setting specific procurement targets to ensure compliance with international trade rules while balancing domestic policies.
- **Import Dependence:** The Department of Food & Public Distribution (Ministry of Consumer Affairs, Food & Public Distribution) raised concerns that the MSP for oilseeds has failed to increase domestic production, resulting in India relying on imports for 55% of its oilseed needs. They noted that farmers are inclined toward high-return crops like wheat (102% returns) and mustard (98% returns), while lower returns from pulses and safflower discourage their cultivation, increasing import dependency.

WAY FORWARD:

Make MSP More Inclusive and Effective

- **Universal Access to MSP:** Expand procurement infrastructure beyond wheat and rice to pulses, millets, and oilseeds.
 - Chhattisgarh's decentralized procurement model procures rice directly from farmers at MSP via Primary Agricultural Credit Societies (PACS).
- **Enhance Awareness:** Only **23% of farmers** are aware of MSP (NSSO 77th Round, 2020). Run **awareness campaigns**, use **mobile apps**, and local radio in vernacular languages.

Diversify Cropping Incentives

- **Align MSP with Nutritional and Ecological Goals:** Promote **nutri-cereals (millets)**, pulses, and oilseeds under MSP.
 - Odisha's "Millet Mission" offers price assurance and input support for millet growers — a climate-resilient crop.
- **Agro-Ecological Zoning for MSP:** Link MSP incentives to **agro-climatic suitability** rather than political pressures. Discourage paddy cultivation in arid Punjab, incentivise coarse cereals in dryland Maharashtra.

Reform Procurement and Storage System

- **Decentralize Procurement:** Empower states to procure and store crops through **PACS and Farmer Producer Organizations (FPOs)**. Decrease dependence on **Food Corporation of India (FCI)**.
- **Modernize Warehousing and Reduce Waste:** Expand **eNAM-linked godowns**, use **blockchain for traceability**, and reduce grain loss (~6% of total storage).

Adopt Price Deficiency Payment (PDP) Model

- **NITI Aayog (2016), Ramesh Chand Committee:** Instead of physical procurement, compensate farmers for selling below MSP.
 - Madhya Pradesh's "Bhavantar Bhugtan Yojana" (2017) offered price difference support for oilseeds and pulses. Mixed success but scalable with better digitization.

Strengthen Market Reforms Alongside MSP

- **Expand eNAM and Private Mandis:** Integrate MSP with **eNAM** so farmers can access digital bidding, better price discovery, and non-state buyers.

- **Improve Logistics and Last-Mile Delivery:** Use **AgriStack** and **digital land records** to link farmers directly with markets and MSP payments.

Fiscal Sustainability and Targeting

- **Rationalize Food Subsidy Bill:** Move towards **direct benefit transfers (DBTs)** where feasible. Reduce procurement leakages and off-budget food loans.
- **Targeted Procurement:** Prioritize **small and marginal farmers**, women farmers, and tribal regions for MSP-linked schemes.

Link MSP with Climate and Nutrition Goals

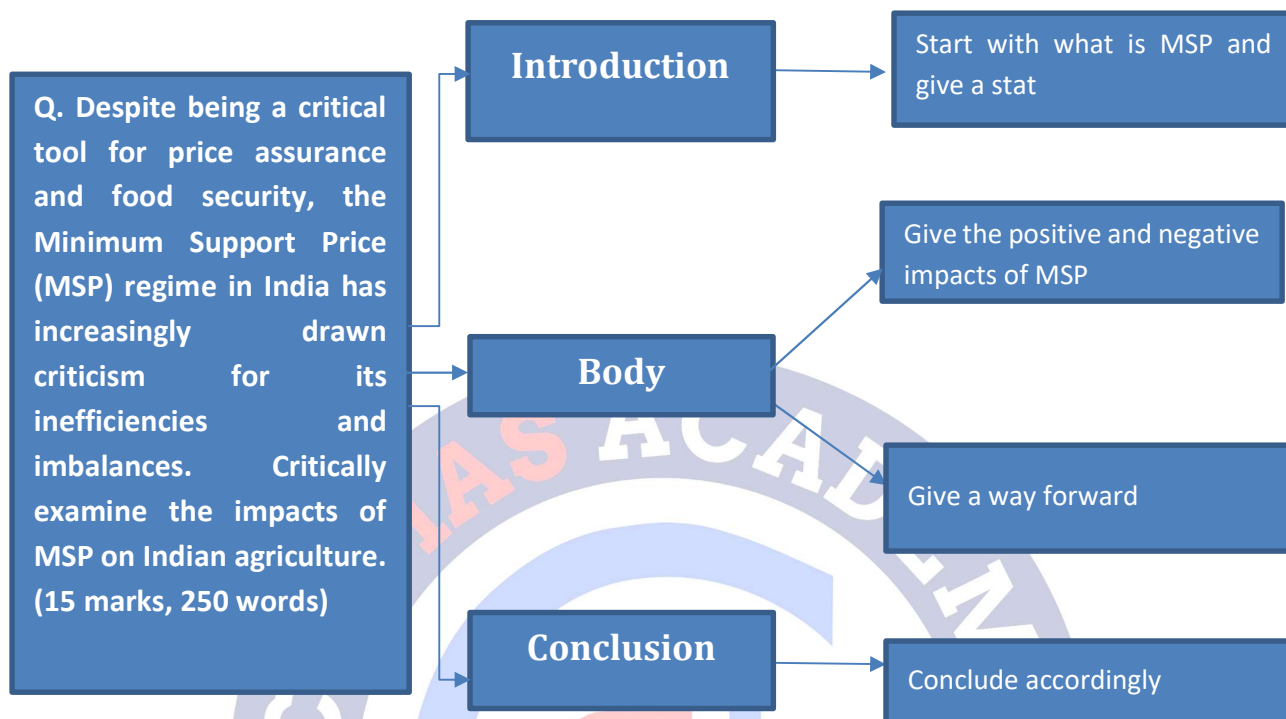
- Incentivize **climate-smart agriculture**, **carbon sequestration crops**, and **biofortified varieties** under MSP. Promote iron-rich millets and drought-resistant pulses through MSP-based assured marketing.

MSP must evolve from a one-size-fits-all price support tool to a **dynamic, regionally adaptive, and nutrition-sensitive policy**. A **hybrid model** combining **physical procurement, price deficiency payments, digital markets, and crop diversification**, supported by **federal cooperation**, will ensure farmer welfare, fiscal prudence, and ecological sustainability — fulfilling the promise of **Doubling Farmers' Income and SDG-2 (Zero Hunger)**.

PRACTICE QUESTION

- Q. Despite being a critical tool for price assurance and food security, the Minimum Support Price (MSP) regime in India has increasingly drawn criticism for its inefficiencies and imbalances. Critically examine the impacts of MSP on Indian agriculture. (15 marks, 250 words)**

APPROACH



MODEL ANSWER

The Minimum Support Price (MSP) is a price floor announced by the Government of India to ensure remunerative returns to farmers. Recommended by the **Commission for Agricultural Costs and Prices (CACP)**, MSP covers 23 crops and aims to provide income security, reduce market volatility, and promote food security. Only **23% of farmers** are aware of MSP (NSSO 77th Round, 2020).

Positive Impacts of MSP:

- **Income stability:** Protects farmers from price crashes and distress sales, especially for wheat and rice. During COVID-19, MSP-based procurement ensured income continuity in Punjab and Madhya Pradesh.
- **Food security:** Facilitates public distribution through FCI; in 2022–23, 60.24 million tonnes of rice and 26.2 million tonnes of wheat were procured.
- **Investment in agriculture:** Promotes better seeds, irrigation, and mechanisation (NABARD Survey 2018).
- **Socio-political assurance:** Especially for small and marginal farmers who form **86.2%** of total farm households.

Negative Impacts of MSP:

- **Skewed cropping pattern:** Encourages rice-wheat monoculture in Punjab and Haryana, leading to **33% groundwater depletion** annually.
- **Regional disparity:** Over **70% of procurement** limited to a few states; marginal impact in Bihar, Odisha, etc.
- **Fiscal burden:** Food subsidy exceeded ₹2.2 lakh crore in FY 2023–24, along with high wastage and storage costs.
- **Limited reach:** Only **6% of farmers** benefit from MSP (Shanta Kumar Committee, 2015).
- **WTO conflict:** India's subsidies breach WTO limits; MSP is flagged as trade-distorting under the Agreement on Agriculture.

Way Forward:

- **Decentralized procurement:** Model like Chhattisgarh's PACS system for direct procurement.
- **Price Deficiency Payments (PDP):** Adopt schemes like *Madhya Pradesh's Bhavantar Yojana* to cover more crops without physical procurement.
- **Diversification incentives:** Link MSP to millets, pulses, and climate-resilient crops; replicate **Odisha's Millet Mission**.
- **Awareness and access:** NSSO (2020) found only 23% farmers knew about MSP before sowing. Improve awareness through vernacular outreach.
- **Digital reforms:** Integrate MSP with **e-NAM, AgriStack**, and blockchain-linked warehousing to enhance transparency and traceability.
- **Targeted procurement:** Prioritize **small farmers, tribal regions, and ecologically sustainable zones**.

The MSP regime must evolve from a uniform price support system to a **regionally differentiated, climate-aligned, and digitally enabled** framework. By combining physical procurement, market-linked payments, and agro-ecological planning, India can ensure farmer welfare while maintaining fiscal discipline and global trade compliance.

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