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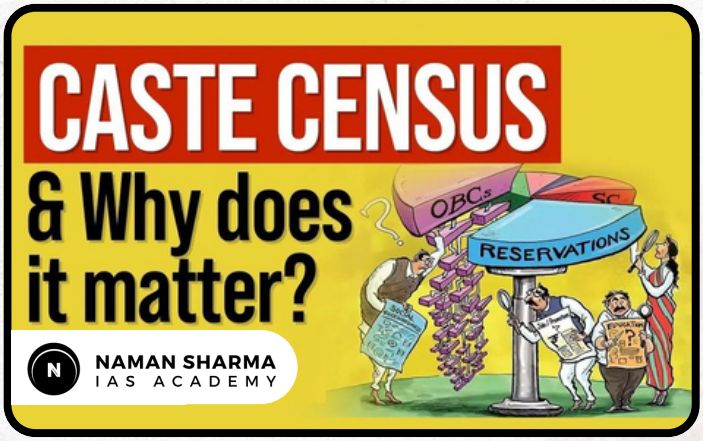
Why India must get the Caste Census right

The Government's recent decision to include caste enumeration in the upcoming Census marks a transformative moment in Indian policymaking. Far from being a concession to identity politics, caste enumeration is an act of acknowledgement, a mirror reflecting the socio-economic realities of India. It is a foundational step towards evidence-based policymaking in pursuit of a more equitable and inclusive society.



Historical background

- Post-Independence India adopted a dual strategy: abolishing caste-based discrimination while pursuing social justice through reservations. This contradiction, often described as policy schizophrenia, stemmed from a refusal to officially acknowledge caste.
- The exclusion of caste enumeration, except for Scheduled Castes (SCs) and Scheduled Tribes (STs), reinforced a flawed ideal of caste-blind governance, which neglected the lived realities of millions. While the Constitution mandates social justice through affirmative action, including reservations in education, employment, and politics, implementing these policies effectively requires precise, disaggregated caste data.
- The Supreme Court has consistently affirmed that caste is a legitimate proxy for identifying social and educational backwardness.

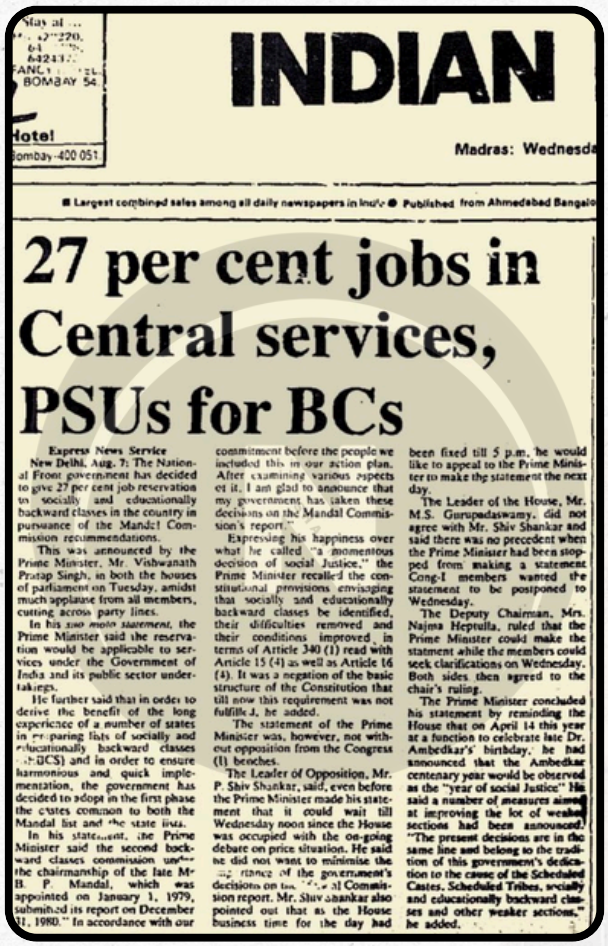
Learning from Past Failure

- The failed Socio-Economic and Caste Census (SECC) of 2011 is a cautionary tale. Conducted without legal authority and technical expertise, the SECC produced an unusable dataset listing 46 lakh castes due to methodological flaws. Open-ended questions, untrained enumerators, and the absence of standardised caste classifications led to chaos.
- In contrast, Bihar's 2022 caste survey offers a successful model. By using a vetted list of 214 State-specific castes and structured enumeration methods, the survey achieved clarity and credibility. This proves that a well-planned and legally backed caste census is feasible.

The Case for Caste Data:

- Caste enumeration is not merely a political gesture; it is a legal and administrative necessity. The **73rd and 74th Constitutional Amendments,** which mandated OBC reservations in local governance, require granular, area-specific caste data.
- Furthermore, the inclusion of Economically Weaker Sections (EWS) among upper castes in reservation policies in 2019 further underlines the need for comprehensive data covering all caste groups. The current reservation system operates in an evidence vacuum, making it susceptible to manipulation by dominant groups.

- Limited existing data shows stark disparities: a small number of OBC castes dominate reservation benefits, while many receive little or nothing.
- For example, **just 10 OBC castes receive 25% of all reserved benefits, while 38% of OBC castes receive only 3%, and 37% are entirely excluded.**



INDIAN

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27 per cent jobs in Central services, PSUs for BCs

Express News Service

New Delhi, Aug. 7: The National Front government has decided to give 27 per cent job reservation to socially and educationally backward classes in the country in pursuance of the Mandal Commission recommendations.

This was announced by the Prime Minister, Mr. Vishwanath Pratap Singh, in both the houses of parliament on Tuesday, amidst much applause from all members, cutting across party lines.

In his suo moto statement, the Prime Minister said the reservation would be applicable to services under the Government of India and its public sector undertakings.

He further said that in order to derive the benefit of the long experience of a number of states in preparing lists of socially and educationally backward classes (SEBCS) and in order to ensure harmonious and quick implementation, the government has decided to adopt in the first phase the castes common to both the Mandal list and the state lists.

In his statement, the Prime Minister said the second backward classes commission under the chairmanship of the late Mr B. P. Mandal, which was appointed on January 1, 1979, submitted its report on December 31, 1980." In accordance with our commitment before the people we included this in our action plan. After examining various aspects of it, I am glad to announce that my government has taken these decisions on the Mandal Commission's report."

Expressing his happiness over what he called "a momentous decision of social Justice," the Prime Minister recalled the constitutional provisions envisaging that socially and educationally backward classes be identified, their difficulties removed and their conditions improved in terms of Article 340 (1) read with Article 15 (4) as well as Article 16 (4). It was a negation of the basic structure of the Constitution that till now this requirement was not fulfilled, he added.

The statement of the Prime Minister was, however, met without opposition from the Congress (I) benches.

The Leader of Opposition, Mr. P. Shiv Shankar, said, even before the Prime Minister made his statement that it could wait till Wednesday noon since the House was occupied with the on-going debate on price situation. He said he did not want to minimise the significance of the government's decisions on the Mandal Commission report. Mr. Shiv Shankar also pointed out that as the House business time for the day had been fixed till 5 p.m. he would like to appeal to the Prime Minister to make the statement the next day.

The Leader of the House, Mr. M.S. Gurupadaswamy, did not agree with Mr. Shiv Shankar and said there was no precedent when the Prime Minister had been stopped from making a statement. Cong-I members wanted the statement to be postponed to Wednesday.

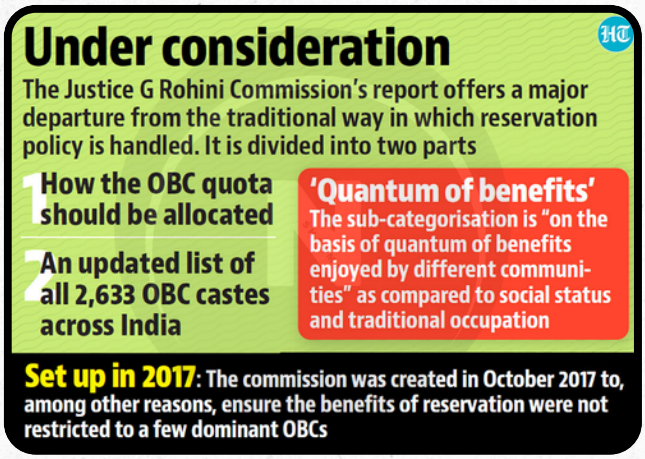
The Deputy Chairman, Mrs. Najma Heptulla, ruled that the Prime Minister could make the statement while the members could seek clarifications on Wednesday. Both sides then agreed to the chair's ruling.

The Prime Minister concluded his statement by reminding the House that on April 14 this year at a function to celebrate late Dr. Ambedkar's birthday, he had announced that the Ambedkar centenary year would be observed as the "year of social Justice." He said a number of measures aimed at improving the lot of weaker sections had been announced. "The present decisions are in the same line and belong to the tradition of this government's dedication to the cause of the Scheduled Castes, Scheduled Tribes, socially and educationally backward classes and other weaker sections," he added.

Such inequities underscore the need for accurate data to prevent elite capture, enable rational **sub-categorisation, and refine the definition of the "creamy layer."**

Rohini Commission

- It was constituted in 2017 under Article 340 of the Constitution with the approval of the President of India.



Under consideration

The Justice G Rohini Commission's report offers a major departure from the traditional way in which reservation policy is handled. It is divided into two parts

1 How the OBC quota should be allocated

2 An updated list of all 2,633 OBC castes across India

'Quantum of benefits'
The sub-categorisation is "on the basis of quantum of benefits enjoyed by different communities" as compared to social status and traditional occupation

Set up in 2017: The commission was created in October 2017 to, among other reasons, ensure the benefits of reservation were not restricted to a few dominant OBCs

- Article 340 empowers the President of India to appoint a commission to investigate issues concerning OBCs and make recommendations to improve their situation.
- Before constituting the Rohini Commission, the Centre had granted the National Commission for Backwards Classes (NCBC) constitutional status by the 102nd Amendment Act, 2018.

Highlights on Caste Census Decision

Digital Mode & Drop-Down Caste Directory

- For the first time, the Census will be conducted in digital mode, using a mobile app.
- A new "Other" column with a drop-down caste code directory will be included beside the SC/ST column. The software is currently being tested to ensure smooth implementation.

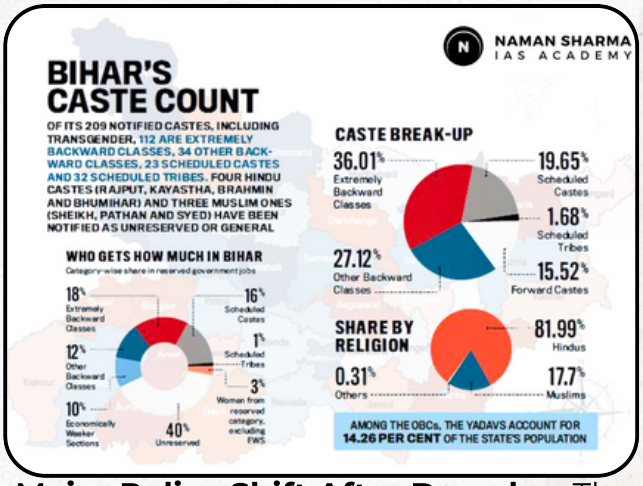
About 30 lakh government officials will need retraining for the new digital format.

The Census will occur in two phases:

- Phase 1: House listing & housing schedule (31 questions; already notified in 2020).
- Phase 2: Population enumeration (28 questions; tested in 2019, yet to be officially notified).

Directory Development & Testing

- The Central OBC list (2,650 communities), SC list (1,170), and ST list (890) will be merged with State OBC lists to form a comprehensive codebook. A pre-test will be conducted to iron out glitches before the actual enumeration.



Major Policy Shift After Decades: The CCPA's approval to include caste data in the upcoming census marks the first comprehensive caste enumeration since 1931 (excluding SC/ST data).

Inconsistent State-Level OBC Lists

- Different states have varying OBC lists and sub-categories like Most Backwards Classes, complicating efforts to create a standardised national caste database.

Significance for Delimitation & Women's Reservation

- **The new Census findings will be used to:**
- Redraw Lok Sabha constituencies (delimitation).
- Implement a 33% women's reservation in Parliament and State Assemblies.

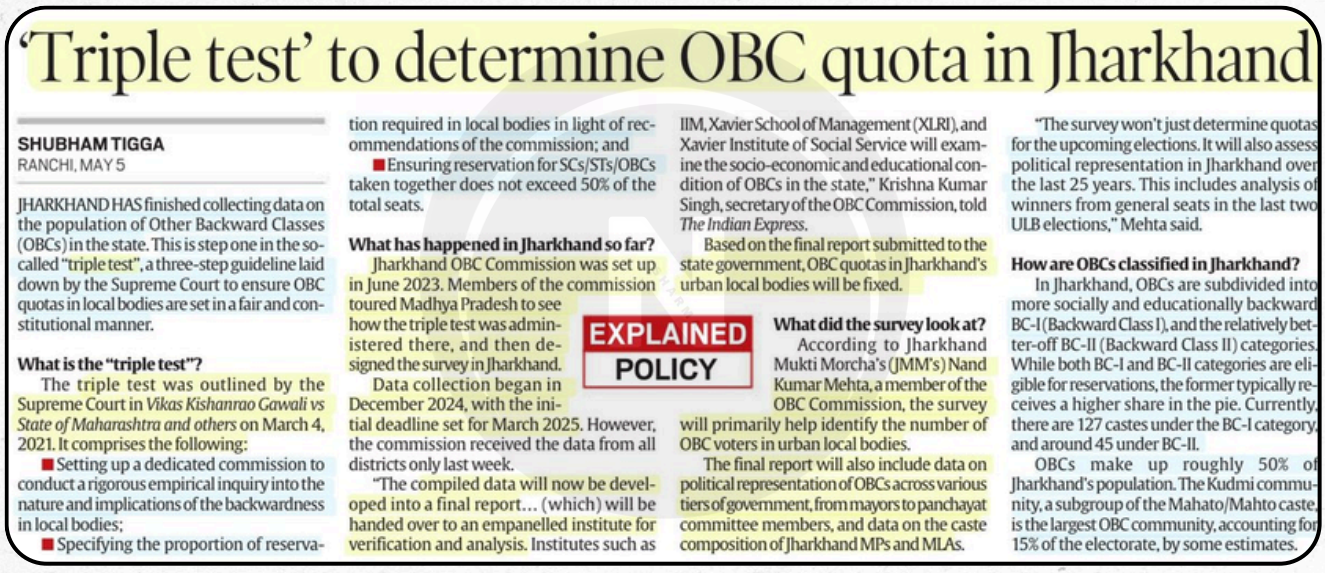
Jharkhand Completes OBC Data Collection for Urban Local Body Quotas under Supreme Court's "Triple Test"

- Recently, Jharkhand has completed its data collection on **Other Backwards Classes (OBCs).** This initiative aims to establish quotas for OBCs in urban local bodies.

About Triple Test

The triple test consists of three steps.

- First, a dedicated commission must empirically **investigate backwardness** in local bodies.
- Second, the commission specifies the required reservation proportion. This ensures that **reservations do not exceed legal limits.**



'Triple test' to determine OBC quota in Jharkhand

SHUBHAM TIGGA
RANCHI, MAY 5

JHARKHAND HAS finished collecting data on the population of Other Backward Classes (OBCs) in the state. This is step one in the so-called "triple test", a three-step guideline laid down by the Supreme Court to ensure OBC quotas in local bodies are set in a fair and constitutional manner.

What is the "triple test"?

The triple test was outlined by the Supreme Court in *Vikas Kishanrao Gawali vs State of Maharashtra and others* on March 4, 2021. It comprises the following:

- Setting up a dedicated commission to conduct a rigorous empirical inquiry into the nature and implications of the backwardness in local bodies;
- Specifying the proportion of reservation required in local bodies in light of recommendations of the commission; and
- Ensuring reservation for SCs/STs/OBCs taken together does not exceed 50% of the total seats.

What has happened in Jharkhand so far?

Jharkhand OBC Commission was set up in June 2023. Members of the commission toured Madhya Pradesh to see how the triple test was administered there, and then designed the survey in Jharkhand.

EXPLAINED
POLICY

Data collection began in December 2024, with the initial deadline set for March 2025. However, the commission received the data from all districts only last week.

"The compiled data will now be developed into a final report... (which) will be handed over to an empanelled institute for verification and analysis. Institutes such as IIM, Xavier School of Management (XLRI), and Xavier Institute of Social Service will examine the socio-economic and educational condition of OBCs in the state," Krishna Kumar Singh, secretary of the OBC Commission, told *The Indian Express*.

Based on the final report submitted to the state government, OBC quotas in Jharkhand's urban local bodies will be fixed.

What did the survey look at?

According to Jharkhand Mukti Morcha's (JMM's) Nand Kumar Mehta, a member of the OBC Commission, the survey will primarily help identify the number of OBC voters in urban local bodies.

The final report will also include data on political representation of OBCs across various tiers of government, from mayors to panchayat committee members, and data on the caste composition of Jharkhand MPs and MLAs.

"The survey won't just determine quotas for the upcoming elections. It will also assess political representation in Jharkhand over the last 25 years. This includes analysis of winners from general seats in the last two ULB elections," Mehta said.

How are OBCs classified in Jharkhand?

In Jharkhand, OBCs are subdivided into more socially and educationally backward BC-I (Backward Class I), and the relatively better-off BC-II (Backward Class II) categories. While both BC-I and BC-II categories are eligible for reservations, the former typically receives a higher share in the pie. Currently, there are 127 castes under the BC-I category, and around 45 under BC-II.

OBCs make up roughly 50% of Jharkhand's population. The Kudmi community, a subgroup of the Mahato/Mahto caste, is the largest OBC community, accounting for 15% of the electorate, by some estimates.

- Third, the total reservation for **Scheduled Castes (SCs), Scheduled Tribes (STs),** and OBCs **combined must not surpass 50% of total seats.**

The "triple test" is a legal framework laid down by the Supreme Court in **Vikas Kishanrao Gawali vs State of Maharashtra (2021)** to ensure that OBC reservations in local bodies are fair, evidence-based, and within constitutional limits.

Jharkhand's Commission and Data Collection

- The Jharkhand OBC Commission was constituted in June 2023.

Commission members studied Madhya Pradesh's implementation of the triple test as a model.

- **Data collection timeline:** Data collection completed (between December 2023 - March 2024) and submitted (recently, several districts missed their submission deadlines) to the Commission.

Verification and analysis:

- For socio-economic and educational analysis, data will be handed to empanelled institutions like **IIM, Xavier School of Management (XLRI) and Xavier Institute of Social Service (XISS)**.
- A final report will be submitted to the state government post-verification. Based on this, Jharkhand will determine **OBC quotas in the 48 ULBs across the state.**

OBC Classification in Jharkhand

- In Jharkhand, OBCs are divided into two categories.
  - **BC-I (Backwards Class I):** More socially and educationally backwards; includes 127 castes.
  - **BC-II (Backwards Class II):** Relatively better-off; includes around 45 castes.
- The Kudmi community, a subgroup of the **Mahato/Mahto caste, is the largest OBC** group, representing about **15% of the electorate.**

Survey Focus and Methodology

- The survey aimed to identify OBC voters and estimate their share in urban local bodies. It differed from the nationwide caste census, focusing solely on urban areas.
- The survey gathered data on the political representation of OBCs across various government tiers.
- It included mayors, panchayat committee members, and the caste affiliations of Jharkhand's MPS and MLAs.

Credible Caste Census

- **Legal Framework:** Amend the Census Act, 1948, to explicitly authorise caste enumeration and protect it from political interference.
- **Institutional Expertise:** Assign responsibility to the Registrar General and Census Commissioner, not to non-specialist ministries.
- **Standardised Questionnaire:** Employ closed-ended, drop-down-based forms with coded caste identifiers to avoid ambiguity.
- **State-Specific Lists:** Collaborate with State governments, sociologists, and communities to prepare caste lists, followed by public feedback.
- **Enumerator Training:** Ensure region-specific training with practical guidance on caste identification.
- **Digital Tools:** Use handheld devices preloaded with validated options to minimise manual errors.

Conclusion

- India has enumerated nearly 2,000 SC and ST castes since 1951 with consistency and accuracy.
- Extending this enumeration to the remaining OBC and upper-caste groups, estimated to be around 4,000 and mostly State-specific, is not only manageable but also essential.
- The delayed 2021 Census offers a unique opportunity to close this long-standing data gap and without caste data, the promise of social justice remains unfulfilled and policy continues to drift in darkness.
- The moment for delay has passed. The time for a credible, comprehensive caste census is now.

A credible caste census is essential not just for ensuring social justice but also for improving the effectiveness of governance." In light of this statement, critically examine the significance and challenges of conducting a comprehensive caste enumeration in India.

Q. Regarding the inclusion of caste enumeration in the upcoming Census of India, consider the following statements:

1. The Census Act, 1948, currently provides a specific legal mandate for caste enumeration beyond Scheduled Castes and Scheduled Tribes.
2. The failure of the Socio-Economic and Caste Census (SECC) of 2011 was primarily due to the absence of legal backing, standardised caste codes, and technical expertise.
3. The triple test laid down by the Supreme Court requires empirical data collection, justification of quota proportions, and a cap on the total reservation across SCs, STs, and OBCs at 60% of the seats in local bodies.
4. Bihar's 2022 caste survey achieved higher data reliability by using a pre-vetted list of state-specific castes and structured digital enumeration methods.

Which of the above statements are correct?
A. 1 and 3 only
B. 2 and 4 only
C. 1, 2 and 4 only
D. 2, 3 and 4 only

Answer: B. 2 and 4 only

Explanation:

- **Statement 1 Incorrect:** The Census Act, 1948, does not currently provide a specific legal mandate for conducting caste enumeration beyond SCs and STs. Amendments are being proposed to allow explicit legal backing for such enumeration.
- **Statement 2 Correct:** The SECC 2011 failed due to methodological issues, including the lack of legal authority, open-ended questions, the absence of standardised caste lists, and untrained enumerators.
- **Statement 3 Incorrect:** The Supreme Court's "triple test" (Vikas Kishanrao Gawali vs. State of Maharashtra, 2021) caps total reservation at 50%, not 60%, across SCs, STs, and OBCs in local bodies.
- **Statement 4 Correct:** Bihar's 2022 caste survey succeeded due to the use of a vetted list of 214 state-specific castes and a structured, well-planned method, demonstrating the feasibility of accurate caste data collection.

A fundamental reset to drive manufacturing growth

This transformation is fuelled by advancements in research and development (R&D), the growth of complex supply chains, and the need for a highly skilled workforce. In the context of a rapidly evolving global economy, manufacturing and trade are shifting towards innovation-driven, medium-high- and high-tech products. With major global players such as the United States introducing high tariffs and redefining their manufacturing strategies, countries like India face an urgent need to adapt by setting the right fundamentals.

Approaches India Must Adopt to Revive Its Manufacturing Sector

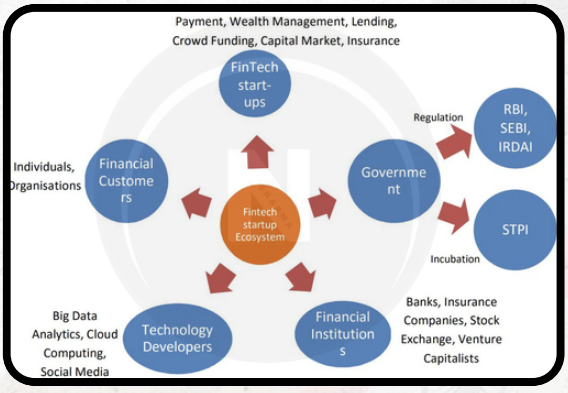
- Reimagining Technical Education for Industrial Transformation. One of the foundational pillars of industrial competitiveness is education, specifically, technical education.
- While engineering institutions in India have contributed significantly to human capital development, they now require a paradigm shift to meet the demands of a rapidly innovating manufacturing sector. A fundamental rethink is needed, starting with entrance examinations. Instead of testing mere endurance and rote memorisation, entrance exams should be designed to assess creativity, problem-solving abilities, and interest in fundamental knowledge.
- The current academic culture, heavily focused on grades, theoretical inputs, and lecture notes, often sidelines the development of innovative and critical thinking. Graduates, while adept at solving predefined problems, cannot visualise complex, real-world engineering challenges.
- To bridge this gap, technical education must prioritise hands-on experience and practical application. At least 50% of the engineering curriculum should be dedicated to laboratory work, workshops, and live projects, complemented by the development of state-of-the-art facilities such as tool rooms, R&D assembly lines, and product design studios.

Emphasising Core Engineering Disciplines

- While emerging fields such as artificial intelligence (AI) and information technology (IT) have garnered significant attention, the essence of a strong manufacturing sector lies in the robustness of core engineering.

- India needs to refocus on strengthening fundamental branches such as civil, mechanical, electrical, automobile, chemical, textiles, and biotechnology.
- These disciplines form the backbone of machinery, infrastructure, and systems development.
- Developing robust engineering units will not only support large-scale equipment production but also facilitate rapid infrastructure creation across varied geographical terrains. This calls for substantial investment in engineering R&D and the creation of a sophisticated, responsive supply chain that can support diverse manufacturing needs. The integration of AI and IT should be seen as an enabler, not a replacement, for core engineering competencies.
- Global success stories like Silicon Valley in the United States or the industrial rise of East Asian economies are anchored in the development of comprehensive innovation ecosystems.

In India, while the services sector has thrived due to an enabling startup ecosystem, manufacturing lacks similar institutional support.



- This imbalance can be addressed by developing state-specific manufacturing parks equipped with plug-and-play capabilities, R&D facilities, and in-house prototype development labs. Such industrial parks should offer facilities for design, product certification, performance testing, and access to advanced software and instrumentation.
- Engineering colleges should play a crucial role by aligning their curriculum with the needs of industry, focusing on skill development and innovation-driven education. Manufacturing startups must be incentivised to cluster around these facilities, fostering collaborative development.

The Way Forward: Strategic Investments and Policy Framework

- Transforming India's manufacturing sector demands not just isolated reforms but a systemic transformation supported by strategic investment. First, R&D expenditure must be increased from the current 0.65% of GDP to at least 2% to build advanced research capabilities.
- Second, an additional 1% of GDP should be allocated to develop world-class industrial infrastructure.
- Lastly, a dynamic and flexible policy framework is essential, one that continuously evolves in response to global trends and encourages innovation across all levels of the manufacturing ecosystem.

Conclusion

- This requires a multidimensional approach, strengthening technical education, reinvesting in core engineering disciplines, building a conducive innovation ecosystem, and making bold investments in infrastructure and R&D.

Q. About the strategies needed to revitalise India's manufacturing sector, consider the following statements:

1. A paradigm shift in technical education involves moving away from rote learning towards an education model that emphasises creativity, problem-solving, and hands-on experience.
2. Core engineering disciplines are to be prioritised over emerging technologies like AI and IT, as they are no longer relevant to modern manufacturing needs.
3. Manufacturing innovation ecosystems in India are underdeveloped, and creating state-specific industrial parks with R&D and prototype facilities can address this gap.
4. Increasing R&D expenditure to at least 2% of GDP and enhancing industrial infrastructure are key policy imperatives for systemic manufacturing transformation.

Which of the above statements is/are correct?

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

Answer Key: B) 1, 3 and 4 only

Explanation:

- **Statement 1 is correct** – The passage advocates for reforming technical education by replacing rote learning with creativity and hands-on experience.
- **Statement 2 is incorrect** – The passage emphasises that AI and IT should complement, not replace, core engineering disciplines.
- **Statement 3 is correct** – The text highlights the lack of innovation ecosystems in manufacturing and proposes manufacturing parks as a solution.
- **Statement 4 is correct** – The passage recommends increasing R&D spending to 2% of GDP and dedicating 1% of GDP to infrastructure.

Why are digital banking units so few

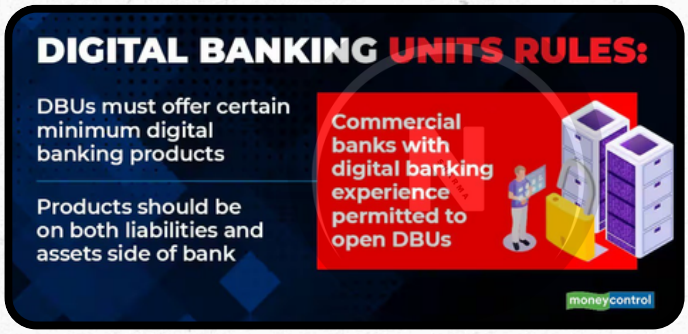
In October 2022, to commemorate India's 75th year of Independence, 75 Digital Banking Units (DBUs) were launched across remote districts to extend banking access to the last mile. As defined by the RBI, DBUs are specialized hubs equipped with digital infrastructure to offer banking services in both self-service and assisted modes.

Digital Banking Units (DBUs)

DBUs, as defined by the Reserve Bank of India (RBI), are specialised fixed-location hubs equipped with essential digital infrastructure to deliver and service banking products digitally.
These units offer a range of digital banking services in both self-service and assisted modes.
DBUs aim to provide customers with cost-effective, secure, paperless, and year-round access to banking services, enhancing their overall digital banking experience.

Services Offered by DBUS

- As mandated by the RBI, DBUS must offer a minimum set of digital banking products and services, covering both asset and liability segments.



Liability Products: Savings accounts (under various schemes), Current accounts, Fixed and recurring deposits
Customer Services: Digital kits for Internet and mobile banking, Debit cards, credit cards, and mass transit system cards
Merchant Services: Digital kits including UPI QR codes, BHIM Aadhaar, and PoS devices
Loan Services

- Application and onboarding for retail, MSME, and schematic loans
- End-to-end digital processing from application to disbursal
- Access to government-sponsored schemes via the national portal

Benefits of DBUs for Customers

- **Convenience:** Offers paperless, cost-effective, and secure banking.
- **Accessibility:** Self-service is available with manual help for rural and less tech-savvy users.
- **Financial Inclusion:** Expands digital banking awareness and services to underserved regions.
- **Efficiency:** Reduces the need for physical branches, lowering operational costs while improving service reach in remote areas.

Digital Banking Units (DBUs) in India

- In October 2022, to commemorate India's 75th year of Independence, PM Modi launched 75 DBUs across 75 remote districts. The initiative aimed to bring banking services to the last mile, moving away from the old expectation that the poor should visit banks. Despite the initial enthusiasm, over two years later, there has been little to no expansion of DBUs.

Challenges

- Banks were given only **45 days to set up DBU**s and instructed on specific locations. However, bankers pointed out that such top-down directives don't work uniformly across different banks and regions. Setting up a digital branch doesn't guarantee business, especially in areas where physical presence and fieldwork remain crucial. Experts highlighted that in tier-III cities and smaller towns, just installing a digital-looking branch does not ensure increased deposits.

Building trust and visibility remains essential in such areas.

RBI Guidelines for DBUs

- Be housed separately from existing branches.
- Have distinct entry and exit points. It should be designed appropriately for digital users.
- Use smart equipment like Interactive Teller Machines, Service Terminals, and Cash Recyclers. Each DBU must be integrated into the bank's overall digital strategy and led by a senior, experienced executive.

Conclusion:

Despite the ambitious launch of 75 Digital Banking Units (DBUs) in 2022 to enhance financial inclusion and last-mile connectivity, their limited expansion highlights deeper structural and strategic challenges. While DBUs offer significant benefits, such as year-round digital access, cost efficiency, and improved outreach, their deployment has remained sparse due to operational and contextual hurdles.

Q. Regarding the limited expansion of Digital Banking Units (DBUs) in India, consider the following statements:

1. The RBI's guidelines required DBUs to be standalone, technology-integrated branches, which increased both setup complexity and operational costs.
2. The success of DBUs in rural and tier-III regions is largely constrained by the lack of digital literacy, trust in tech-enabled banking, and the continuing importance of human interaction.

3. The fixed-location nature of DBUs undermines their ability to adapt to varying local banking needs and customer behavior in remote areas.
4. The top-down implementation model, with rigid timelines and pre-decided locations, limited banks' flexibility to align DBUs with their regional strategies and market dynamics.

Which of the above statements best explain the slow expansion of DBUs in India?
A) 1, 2 and 4 only
B) 1, 3 and 4 only
C) 2, 3 and 4 only
D) 1, 2, 3 and 4

Correct Answer: D) 1, 2, 3 and 4

Explanation:

- **Statement 1 is correct.** RBI's design mandates for DBUs (distinct from branches, with smart equipment and digital infrastructure) significantly raised deployment costs and complexity.
- **Statement 2 is correct**. Trust-building, human support, and digital literacy are major bottlenecks in smaller towns, affecting customer engagement with DBUs.
- **Statement 3 is correct**. The fixed, physical format limits flexibility and responsiveness to evolving or mobile demand in remote regions.
- **Statement 4 is correct.** Top-down rollout (with only 45 days and pre-allocated locations) ignored regional realities, limiting customisation and ownership by banks.

India’s air pollution strategy needs Atma Nirbharata

India's accomplishments in space technology, the Moon Mission, COVID-19 vaccines, and Vande Bharat trains, the Made in India campaign raised both national morale and technological prowess.

India lags in combating air pollution - a critical environmental and public health challenge, showcasing the dual face of India’s progress.

Air Quality Monitoring:

- 1984: National Ambient Air Quality Monitoring Programme (NAAQMP).
- 2010: India developed its first indigenous air quality forecasting system - SAFAR (System of Air Quality and Weather Forecasting and Research), despite foreign resistance.
- Delhi’s CNG transition: A landmark policy decision for cleaner urban transport.

- EV transition: Some Indian states (Maharashtra, Karnataka, Tamil Nadu) are now taking commendable steps towards rapid EV transition.

Air Pollution: Global rankings and foreign influence:

Indian cities frequently rank among the world’s most polluted, according to various studies. It raises the issues of data dependence, climate justice, and unequal climate sanctions on developing nations.

Underutilisation of domestic resources:

- Pollution Control Boards often return unspent funds.

- Disproportionate allocation of resources to elite institutions and foreign-aligned collaborations.

Central Pollution Control Board

- **It is a statutory organisation constituted in September 1974, under the Water (Prevention and Control of Pollution) Act, 1974.** Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981. It serves as a field formation and also provides technical services to the Ministry of Environment and Forests under the provisions of the Environment (Protection) Act, 1986.

Functions of the CPCB:

- To promote the cleanliness of streams and wells in different areas of the States by prevention, control, and abatement of water pollution. To improve the quality of air and to prevent, control or abate air pollution in the country.
- It advises the Central Government on matters related to the control and abatement of air and water pollution. It also coordinates the affairs of other State Pollution Control Boards, assists them, furnishes guidance, and helps in conflict resolution in case of any disagreement among them.
- **CPCB has delegated its powers and functions under the Water (Prevention & Control of Pollution) Act, 1974, the Water (Prevention & Control of Pollution) Cess Act, 1977,** and the **Air (Prevention & Control of Pollution) Act,** 1981, to the respective regional administration concerning Union Territories.

CPCB develops Standards for:

- Water Quality Criteria from different sources
- Standards for Emission or Discharge of Environmental Pollutants from various Industries **(Issued under Environment Protection Rules, 1986)**
- Standards for Treatment and Disposal of Bio-Medical Waste by Incineration
- Emission standard, Noise limits for Diesel Engines
- **Emission and Noise Limit of LPG and CNG Generator Sets**
- CPCB also formulates the Minimal National Standards (MINAS) specific for various categories of industries concerning their effluent discharge (water pollutants), emissions (air pollutants), noise levels, and solid waste.
- These standards are required to be adopted by State Governments as minimal standards.

Domestic Research and Institutional Gaps:

- **Innovation and missed opportunities: Positive steps**: Anusandhan National Research Foundation (ANRF), which signals the government's commitment to strengthening research and innovation with industrial contribution.
- However, the question is: Why are developed countries, with no direct stake in India's air quality, so keen on studying it? Why are Indian institutes not leading such research?

Dependence on foreign data:

- The shutdown of climate research in the US under the Trump administration highlighted the risks of relying on foreign datasets.
- India's need: Indigenous polar-orbiting satellites for global data to support local modelling.

Framework:

- **Institutional collaboration and scientific strategy**: For example, India's world-class agencies like the **Earth System Science Organisation (ESSO) and the India Meteorological Department (IMD)** could collaborate with the **Central Pollution Control Board (CPCB)** for setting a global benchmark in air quality management and forecasting.
- **NARFI - Encouraging collaborative governance:** A new model under study - The National Air Quality Resource Framework of India (NARFI) must be designed to act as a catalyst for Inter-organisational collaboration, inter-disciplinary research, and

Evidence-based decision-making.

- Promoting airshed-level pollution management: Airshed management enables region-specific pollution control by considering cross-boundary air flow patterns, enhancing the effectiveness of policy interventions.
- According to the **National Institute of Advanced Studies, rethinking air quality strategies by scientifically integrating broader airshed factors** (rather than adopting city-centric approaches) is the need of the hour.
- Health-centric and food security approach: Future air quality strategies must align with net-zero goals, public health, and agricultural resilience.

Conclusion

- True self-reliance requires leveraging India's scientific talent, decentralising research and funding, developing indigenous data infrastructure, and creating a unified, science-based knowledge hub.
- India's air quality mission must reflect the same ambition as Make in India, with climate resilience, public health, and national innovation at its core.

Q. About India's air pollution management and strategy, consider the following statements:

1. The Central Pollution Control Board (CPCB) has no role in framing emission standards for specific industrial categories; this is solely done by the Ministry of Environment, Forest and Climate Change (Moefcc).
2. India's SAFAR (System of Air Quality and Weather Forecasting and Research) was developed indigenously despite international resistance.
3. The National Air Quality Resource Framework of India (NARFI) promotes a city-centric, rather than region-specific, approach to pollution control.
4. The dependence on foreign datasets for air quality monitoring has raised concerns about data sovereignty and scientific self-reliance.

Which of the statements given above is/are correct?

A. 2 and 4 only
B. 1 and 3 only
C. 1, 2 and 4 only
D. 2, 3 and 4 only

Answer: A. 2 and 4 only

Explanation:

- **Statement 1 is incorrect:** CPCB does frame emission standards, including Minimal National Standards (MINAS), under the Environment Protection Act and other related legislation.
- **Statement 2 is correct:** SAFAR was developed indigenously in 2010 despite foreign resistance.
- **Statement 3 is incorrect:** NARFI supports airshed-level and inter-disciplinary pollution management, moving away from city-centric strategies.
- **Statement 4 is correct:** The article explicitly mentions risks arising from dependence on foreign datasets, especially highlighted by the shutdown of U.S. climate research under Trump.

Protect India's workers from the heat

Delhi crossed a critical environmental threshold with temperatures soaring above 41°C. Nights offered little respite, signalling an emerging reality: extreme heat is no longer an anomaly but a fixture of life in Indian cities. As climate change accelerates, urban areas in India have become the epicentres of this increasing crisis. Among the most vulnerable to this shift are India's millions of urban informal workers, individuals whose livelihoods are intimately tied to the outdoors and are thus most exposed to the lethal consequences of rising temperatures.

Gaps in Current Heat Action Plans

- **Informal Workers Remain Invisible:** Most Indian Heat Action Plans (HAPs) do not directly mention informal workers. NDMA's 2019 guidelines refer to them under broad categories. No detailed safety measures exist for vendors, construction workers, gig workers, or waste collectors.
- **Short-Term, Crisis-Focused Approach:** HAPs treat heatwaves as seasonal disasters, not long-term climate threats. Plans focus only on immediate summer responses. Ministries like Labour, Health, and Urban Affairs operate separately, causing fragmented and inconsistent protection.
- **Neglect of Work and Livelihood Impacts:** Most plans emphasise general health awareness. They ignore income loss, unsafe working hours, and lack of rest or hydration options. Without occupational protections, informal workers face daily heat risks with no support.

Informal Workers:

- Informal workers, construction labourers, street vendors, waste pickers, gig workers, and rickshaw pullers play indispensable roles in the daily functioning of India's urban economy. Yet, despite their essential services, these workers remain largely invisible in policy responses to climate-related heat stress.
- In 2024, the Reserve Bank of India acknowledged the growing economic threat posed by extreme heat, projecting a **4.5% loss to India's GDP due to its effects on occupational health and productivity.**

Global and Domestic Models for Protection

- International Good Practices: California and Oregon require employers to provide water, breaks, and shade.

France mandates work adjustments and opens public buildings for cooling. Qatar and Australia limit outdoor work during peak heat hours.

- Indian Success Stories: Ahmedabad's HAP introduced shaded rest zones and adjusted work hours. Odisha banned outdoor work during peak times. These local examples offer replicable models for heat-resilient urban planning.

Worker-Centric Heat Response

- Revise National Heat Guidelines: NDMA must update its guidelines to explicitly include informal workers. Protocols should define safe hours, rest breaks, emergency support, and water access tailored to each worker group.
- **Engage Workers in Decision-Making:** HAPs must involve worker unions, collectives, and welfare boards. Policies developed with workers are more practical, realistic, and effective. Community engagement ensures local relevance and acceptance.
- **Ensure Basic Heat Protections in Cities:** Cities must set up hydration points, shaded rest areas, and cooling centres in public places and work zones. These facilities must be accessible, gender-sensitive, and co-maintained by the community.

Strengthening Infrastructure and Finance

- **Fund Local Adaptations and Health Coverage:** CSR, city budgets, and community funding must support heat response measures. Informal workers should be covered by health insurance for heat-related illnesses, which they currently lack.
- **Make Cooling Infrastructure a Standard Practice:** Features like cool roofs, shaded walkways, and natural ventilation must be part of regular city planning. These should no longer be pilot projects but standard elements of urban design.
- **Institutional Reforms and Integrated Planning:** Embed Heat Resilience in City Policies: Master plans, building codes, and infrastructure policies must legally include heat adaptation and worker protection. Cities must increase tree cover and create more shaded, water-rich public spaces.

Conclusion

- Rising temperatures translate into real human costs: illness, income loss, and even death. Addressing this crisis requires not just technical fixes but a profound shift in how we govern, design, and finance our cities.
- A truly inclusive urban heat strategy must put workers at the centre, recognising their contributions and safeguarding their rights.

Q. Regarding India's urban heat response strategies, consider the following statements:

1. The National Disaster Management Authority (NDMA)'s current Heat Action Plan guidelines include detailed, occupation-specific safety measures for informal workers such as gig workers and waste collectors.
2. One of the key weaknesses of existing Heat Action Plans (HAPS) is their focus on short-term crisis management rather than long-term climate resilience.
3. Ahmedabad and Odisha have implemented locally adapted heat mitigation strategies, including bans on outdoor work and the establishment of shaded rest zones.
4. The Reserve Bank of India has projected that India's GDP could decline by more than 10% by 2030 due to the effects of extreme heat on labour productivity.

Which of the statements given above is/are correct?

A. 2 and 3 only
B. 1, 2 and 4 only
C. 2, 3 and 4 only
D. 1 and 4 only

Answer: A. 2 and 3 only

Explanation:

- **Statement 1 is incorrect:** NDMA's 2019 guidelines do not provide detailed, occupation-specific protections; informal workers are only broadly referenced.
- **Statement 2 is correct:** A core criticism is that most HAPs are short-term and reactive, treating heatwaves as seasonal disasters.
- **Statement 3 is correct:** Both Ahmedabad and Odisha have implemented localised, practical heat responses such as shaded rest zones and bans on peak-hour outdoor work.
- **Statement 4 is incorrect:** The RBI projected a GDP loss of 4.5%, not over 10%, due to heat-induced productivity declines.

Indian Grey Wolf

Indian grey wolves, apex predators and ecological regulators of grasslands, are facing rapid population decline due to rising threats from feral dogs.

About the Indian Grey Wolf (Canis lupus pallipes):

- The Indian Grey Wolf is a subspecies of the Grey Wolf, found in India, Southwest Asia, and parts of the **Middle East.** It has a brownish-grey coat with black and white markings and is less vocal, living in **small packs of 2 to 6 members**.
- This wolf is nocturnal, meaning it hunts mainly at night, preying on small animals like **chinkaras (gazelles), rodents, and sometimes livestock.**
- It lives in scrublands, grasslands, and semi-arid regions, and prefers warm climates. As an apex predator of the grasslands, it plays a vital role in the ecosystem by controlling the population of herbivores and smaller predators.
- The species is under threat due to habitat loss, **disease from stray dogs, crossbreeding, and human conflict.**

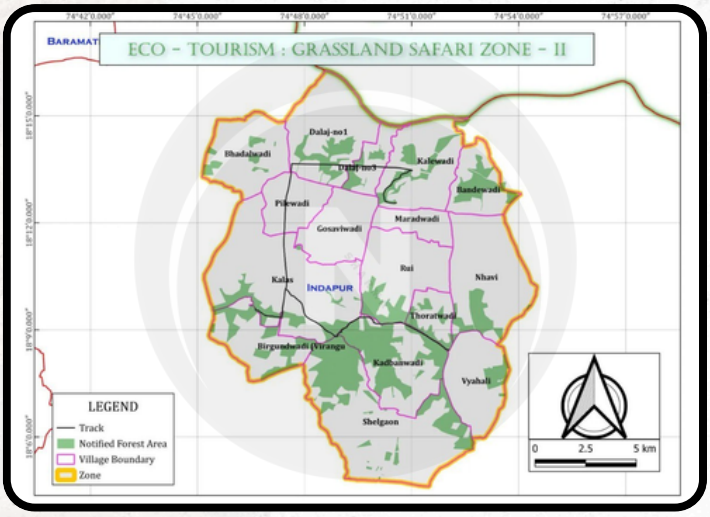
Distribution: From Israel in the west to the Indian subcontinent in the east.

Conservation status

- IUCN: Endangered
- CITES: Appendix I (highest international protection)
- Wildlife Protection Act, 1972: Schedule I (maximum legal protection).

Kadbanwadi Grassland

- Located in Indapur tehsil, Pune, the Kadbanwadi grassland spans over 2,000 hectares and supports species such as the Bengal fox, striped hyena, Brahminy kite, and Indian grey wolf.



Question [UPSC 2002] Which one of the following is monogamous?

Options:

(a) Wolf
(b) Walrus
(c) Seal
(d) Deer

The correct answer is (a) Wolf.

Explanation: Wolves are known for their monogamous behavior, forming lasting pairs with their mates. They stay together throughout their lives, raising their pups together.

Baglihar Hydroelectric Power Project Dam, Chenab River

Recently, India opened multiple gates at the **Baglihar Hydroelectric Power Project Dam**, built on the Chenab River in Ramban.

About Chenab River:

The Chenab River literally means "Moon" (Chan) and "River" (aab), is a river of the **Indian subcontinent in northwestern India** and **northeastern and eastern Pakistan.**

- It is a tributary of the Indus River.
- **Origin**: It is formed by the confluence of two streams, Chandra and Bhaga, at Tandi in the upper Himalayas in the Lahaul and Spiti Districts of Himachal Pradesh. In its upper reaches, it is also known as the Chandrabhaga.
- It flows west through the Jammu and Kashmir union territory, between the steep cliffs of the Siwalik Range (south) and the Lesser Himalayas (north).
- Turning southwest, it continues into Pakistan, descending from the uplands into the broad alluvial lowlands of Punjab province.
- After receiving the Jhelum River near Trimmu, the Chenab empties into the Sutlej River, a tributary of the Indus River.
- Its total length is about 605 miles (974 km), and it feeds several irrigation canals.
- It is the largest river of Himachal Pradesh in terms of volume of water.
- Tributaries: The tributaries of the Chenab River include Miyar Nalla, Sohal, Thirot, Bhut Nalla, Marusudar, and Lidrari.
- The waters of the Chenab are shared by India and Pakistan as per the terms of the Indus Water Treaty.

Concerning the Baglihar Hydroelectric Power Project on the Chenab River, consider the following statements:

1. The Baglihar Dam is located upstream of the confluence of the Chandra and Bhaga rivers, where the Chenab originates.
2. The project has been a point of contention between India and Pakistan under the provisions of the Indus Waters Treaty, 1960.
3. The Chenab River flows through both the Siwalik and the Greater Himalayas before entering Pakistan.
4. The Baglihar Project uses water from a river that is primarily allocated to India under the Indus Waters Treaty.

Correct Answer: B) 2 only

Explanation:

- **Statement 1: Incorrect.** Baglihar Dam is not located upstream of the Chandra and Bhaga confluence. It is located downstream on the Chenab River in the Ramban district of Jammu and Kashmir, well after the river is formed.
- **Statement 2: Correct.** The Baglihar Project was indeed a dispute under the Indus Waters Treaty; Pakistan raised objections over its design, and the matter was taken to a neutral expert appointed by the World Bank.
- **Statement 3: Incorrect.** The Chenab flows between the Siwalik Range (south) and the Lesser Himalayas (north), not the Greater Himalayas.
- **Statement 4: Incorrect.** Under the Indus Waters Treaty, the Chenab is primarily allocated to Pakistan, not India. India can use it for non-consumptive purposes like hydropower generation, but must not obstruct the flow beyond certain limits.

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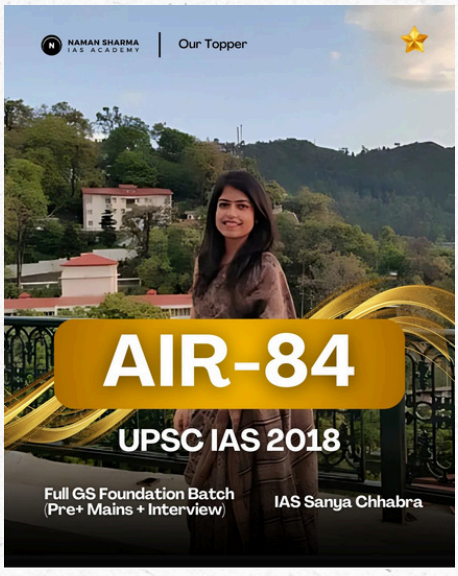

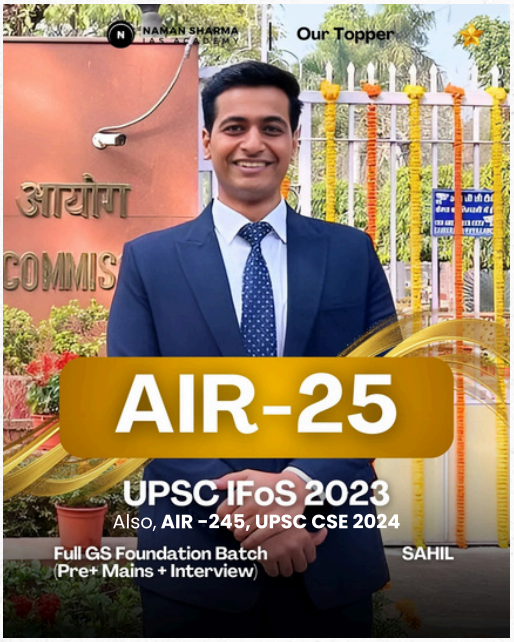

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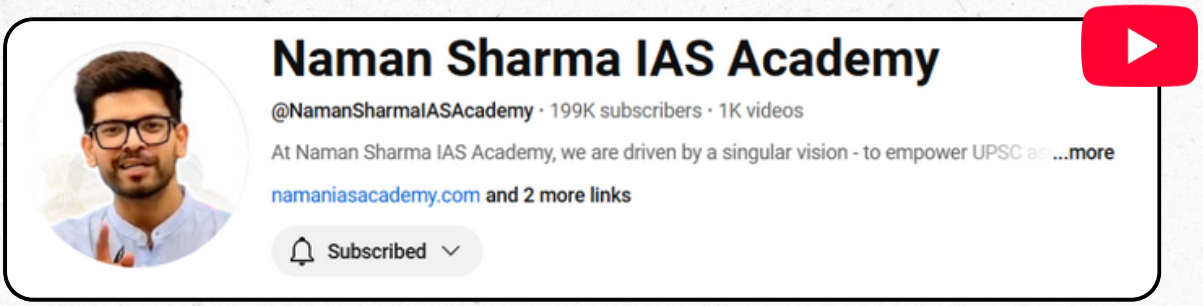

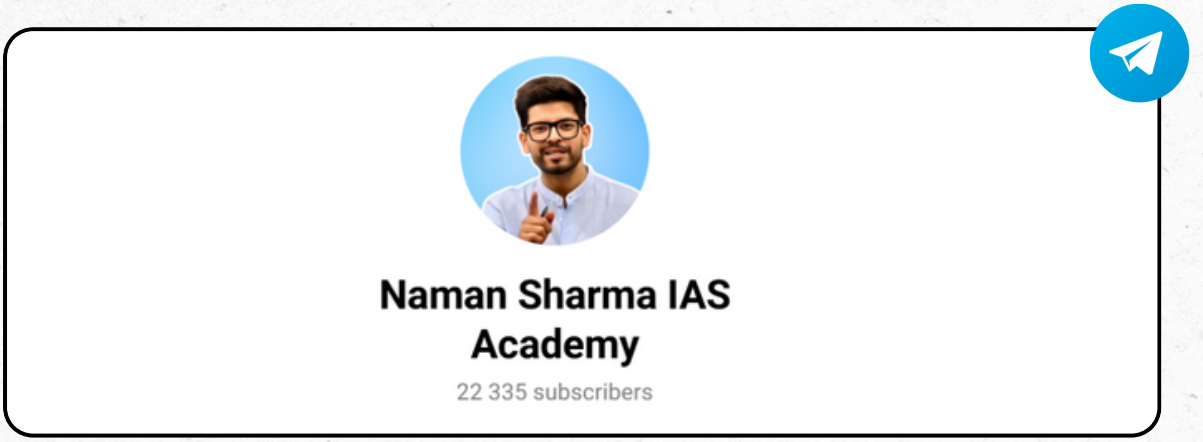

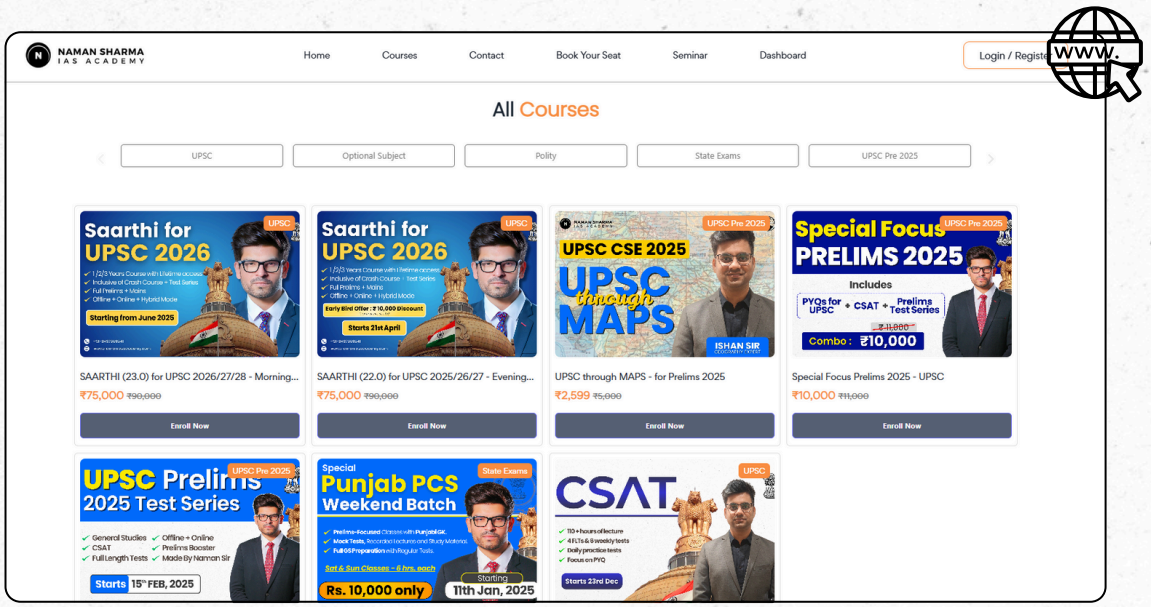

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