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Daily News Analysis

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Page 07:GS III :Environment / Preliminary Examination

A landmark study published in Geophysical Research Letters provides definitive statistical evidence that the rate of global warming has significantly accelerated since roughly 2015. By filtering out short-term natural climate variability—such as volcanic eruptions, solar activity, and ENSO cycles—researchers confirmed with over 98% statistical confidence that the Earth is warming faster than during any previous decade on record. This acceleration drastically reduces the remaining carbon budget and pulls forward the timeline for breaching the critical 1.5°C Paris Agreement threshold to around 2030, presenting severe implications for global climate governance, adaptation planning, and disaster risk reduction.

Key Highlights of the Article

- **Methodological Breakthrough:** Scientists analyzed five major global surface temperature datasets and used advanced statistical filtering to isolate natural "noise" (volcanic eruptions, solar variations, and natural oceanic oscillations) from human-induced warming trends.
- **Statistical Certainty:** The research establishes a **>98% statistical certainty** that the post-2015 acceleration in global surface temperatures is a real, sustained shift rather than a short-lived anomaly.
- **Breaching 1.5°C by 2030:** Under earlier, slower baseline warming estimates, international climate targets hoped for a longer window to arrest warming below 1.5°C above pre-industrial levels. The accelerated rate projects this threshold will be surpassed by **2030**.
- **The "Aerosol Masking" Paradox:** Aside from rising greenhouse gas emissions, a major contributor to the recent warming surge is the reduction of anthropogenic atmospheric aerosols (air pollution). Historically, sulphate aerosols reflected incoming solar radiation, creating a temporary cooling mask. As clean air regulations take effect globally, this cooling mask is disappearing, exposing the full impact of accumulated atmospheric greenhouse gases.

WHAT IS IT?

Global warming: picking speed

Vasudevan Mukunth

A new study published in *Geophysical Research Letters* has reported evidence that global warming is speeding up.

In the past, it was difficult for scientists to prove warming was accelerating because global temperatures are noisy, meaning they fluctuate year to year due to natural factors like volcanic eruptions and changes in solar activity.

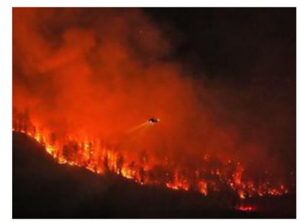
Such events can also temporarily mask the underlying human-caused temperature trend.

To sidestep this issue, the study's authors analysed five major global temperature datasets and used statistical methods to subtract the influence of these factors.

Once this noise was removed, the authors found that the rate of warming had jumped. They also wrote that they were more than 98% certain that this jump was real rather than a random, short-lived fluctuation.

Specifically, they reported that the earth has warmed faster over the last decade than during any previous decade on record, with the change beginning around 2015.

Under the previous, slower warming rate, scientists had hoped that the world would have more time to keep global warming under 1.5 degrees Celsius. However, under the new accelerated pace, the earth will breach 1.5 degrees Celsius of warming by 2030.



A helicopter conducting night operations prepares to drop water on the Quilpituk Creek wildfire burning on the west side of Okanagan Lake near Fintry, British Columbia on August 3. THE CANADIAN PRESS

While greenhouse gas emissions are the primary cause, the study noted that a drop in air pollution may be a contributing factor.

Historically, certain pollutants called aerosols had a cooling effect as they reflected sunlight. As the air got cleaner, the cooling mask disappeared, allowing the full force of global warming to be felt.

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Core Issues & Analytical Perspectives

1. The Climate Paradox: Clean Air vs. Accelerated Warming

- **The Aerosol Termination Shock:** Aerosols act as cloud condensation nuclei and scatter sunlight back into space, providing a net negative radiative forcing (cooling effect).
- **Unintended Thermal Consequences:** Tightening regulations on industrial emissions and shipping fuels (e.g., IMO 2020 low-sulphur regulations) have rapidly reduced atmospheric aerosol burdens. While beneficial for human health, the sudden reduction in sulfur pollution has unleashed unmasked "rebound warming."

2. Shrinking Carbon Budgets and Climate Inequity

- **Exhaustion of the Carbon Budget:** The IPCC Sixth Assessment Report (AR6) stressed that keeping warming below 1.5°C required global emissions to peak before 2025 and fall by 43% by 2030. Accelerated warming implies that the remaining global carbon budget is consuming much faster than anticipated.
- **Disproportionate Impact on the Global South:** Climate-vulnerable developing nations—such as India, Small Island Developing States (SIDS), and Sub-Saharan Africa—face severe physical risks (extreme heatwaves, erratic monsoons, glacial retreat) despite having contributed minimally to historical cumulative emissions.

3. Failure of Global Climate Finance & Mitigation Commitments

- **Inadequate Nationally Determined Contributions (NDCs):** Current NDCs under the Paris Agreement put the world on track for 2.4°C–2.7°C warming by 2100.
- **Finance Gaps:** The transition from the pledged $100 billion annual climate finance to the New Collective Quantified Goal (NCQG) remains hindered by geopolitical tensions and delayed fund delivery from developed economies.

Related Static Dimensions

Physical Geography & Climatology

- **Radiative Forcing & Energy Balance:** The balance between incoming solar radiation and outgoing longwave terrestrial radiation; positive vs. negative radiative forcing mechanisms.
- **Atmospheric Aerosols:** Types (sulfates, black carbon, mineral dust) and their direct (scattering/absorption) and indirect (cloud microphysics) effects on climate.
- **Feedback Mechanisms:** Positive climate feedbacks, such as permafrost thawing (methane release), ice-albedo decay, and ocean thermal expansion.

Environment, Ecology & Climate Governance

- **Paris Agreement Framework:** Targets for 1.5°C and 2°C limits, Net-Zero targets, and the Global Stocktake (GST) under the UNFCCC.
- **Climate Vulnerability & India's Context:** Impacts of accelerated warming on Indian agriculture, coastal inundation, urban heat islands, and monsoon variability.
- **Mitigation vs. Adaptation:** The urgent requirement to scale up adaptation financing (Loss and Damage Fund) alongside rapid decarbonization.

Way Forward

- **Dual Focus on Short-Lived Climate Pollutants (SLCPs):** Prioritize rapid abatement of non-CO_2 greenhouse gases—especially methane (CH_4) and hydrofluorocarbons (HFCs)—which have high global warming potential and offer fast thermal relief.

- **Massive Scaling of Renewable Capacity:** Accelerate transition away from fossil fuels by tripling global renewable energy capacity by 2030, in line with outcomes from COP28.

- **Enhancing Climate Adaptation and Resilience:** Invest heavily in resilient infrastructure, early warning systems (such as Early Warnings for All initiative), and climate-smart agriculture to protect vulnerable communities from irreversible climate shocks.

- **Operationalizing the Loss and Damage Fund:** Ensure rapid capitalization and streamlined disbursements from the Loss and Damage Fund to compensate developing countries suffering from non-adaptable climate impacts.

- **Targeted Geoengineering & Solar Radiation Management (SRM) Governance:** As warming accelerates, research into Solar Radiation Modification (e.g., stratospheric aerosol injection) will gain traction; establishing international legal governance and ethical frameworks under the UN is imperative to manage risks.

Conclusion

The statistical confirmation that global warming has entered an accelerated phase signals a critical juncture for humanity. The vanishing timeline to stay within 1.5°C invalidates incremental climate action. Mitigating the consequences of this accelerated warming requires a fundamental shift: moving from delayed pledges to immediate, deep decarbonization, accompanied by robust financial and technical transfers to developing nations to build climate resilience.

UPSC Prelims Practice Questions

Question: Consider the following statements regarding the Paris Agreement:

1. It aims to limit global warming to well below 2°C while pursuing efforts to limit it to 1.5°C.

2. Nationally Determined Contributions (NDCs) are legally binding emission reduction targets.

3. The Global Stocktake assesses collective progress towards achieving the Agreement's goals.

Which of the statements given above is/are correct?

A. 1 and 3 only

B. 2 only

C. 1 and 2 only

D. 1, 2 and 3

Ans: d)

UPSC Mains Practice Questions

Question: "The recent acceleration in global warming has altered the scientific understanding of climate change and narrowed the window for climate action." Discuss.**(10 Marks, 150 Words)**

Page 08 :GS II :Indian Constitution& Polity / Preliminary Examination

Marking seven years since the abrogation of Article 370 and the reorganization of Jammu and Kashmir (J&K) into two Union Territories under the J&K Reorganisation Act, 2019, the question of restoring Statehood remains a central issue in Indian federal governance. While the Union government initially projected constitutional integration as a pathway to economic growth, conflict reduction, and political stability, ground metrics reveal persistent security challenges, economic distress, and institutional asymmetry. Restoring Statehood and empowering elected local institutions are essential for rebuilding democratic accountability and federal trust in the region.

Jammu and Kashmir — the elusive quest for Statehood

Radha Kumar

Former Member, Group of Interlocutors for Jammu and Kashmir, and the author of the book, 'The Republic Relearnt: Renewing Indian Democracy, 1947-2024'

Seven years on, J&K still awaits restored Statehood and accountable governance

August 5 marks seven years since Jammu and Kashmir (J&K)'s special status (Article 370) was revoked by the Narendra Modi administration; a few days hence, August 9 will mark seven years of J&K's loss of Statehood. Both actions were accompanied by the most dubious lockdown in India's history. Thousands of troops were flown in, over 5,000 political leaders and cadre were detained, and curfew was imposed together with a communications blockade.

These were emergency measures, yet no emergency was either visible or declared. The Modi administration argued that its measures were temporary and would lead to a violence-free region in which economic growth would be unleashed. Instead, and predictably, violence has continued, as last year's terrorist attacks in Kashmir's Pahalgam (April) and Delhi's Red Fort (November) attest; indeed, it has spread to areas that were relatively dormant, such as Poonch-Rajouri, and from there to adjoining districts of J&K.

Economically, the region continues to suffer. According to the J&K Economic Survey 2025-2026, the ratio of the region's per capita income to the national average is 76.6%, whereas it was 79.9% in 2013-14, a fall of 3.3 percentage points. Unemployment remains close to twice that of the national average; graduate unemployment is as high as 23.9%.

Lockdowns and summons

Kashmiri response to the Pahalgam attack was a wholehearted rejection of violence, expressed in peace marches and candlelit demonstrations. It offered the Modi administration an opportunity for peacebuilding on the ground, beginning with the restoration of Statehood. Instead, the Union Home Ministry chose an even more heavy-handed security response. This year's Amarnath yatra is the most militarised in the history of J&K. Citizens are routinely charged under the draconian Jammu and Kashmir Public Safety Act (PSA) and the Unlawful Activities (Prevention) Act on the flimsiest of grounds; mass summons are common – over 2,000 were called in for questioning after Constable Ashiq Hussain Qureshi was shot on July 22 this year – curfews are more often in place than not; and the Union Territory has had the highest number of Internet and communications shutdowns in the country since 2019.

At the time, few recognised how momentous the Modi administration's actions were, not only in what they did but also in how they did it. Article 370 was hollowed out by executive fiat – a Governor who later said he was 'ordered' to sign by the Union Home Minister. Statehood was removed by legislative fiat, via a Parliament which did not even consider consulting J&K's people or political leaders. No Indian State had been stripped of its Statehood since Delhi lost its Statehood in 1956.

Together, the two actions comprised a breathtaking violation of India's constitutional principles and the basic structure of the Union. They should have been seen as the second major salvo against India's democracy – the first being the re-communalisation of the Indian polity through state-sanctioned attacks on Muslims and Christians – but instead they were hived off as specific to conflict-ridden Jammu and Kashmir.

The belief that draconian measures are justified in a conflict-ridden region is fundamentally flawed both morally and pragmatically, as India knows from its own colonial past. Morally, the argument that subjugation is a means towards a desirable end masks the point that subjugation is a repugnant end *per se*, never a means. Pragmatically, as India knows from its more recent past, subjugation only breeds disaffection which will likely express itself in violence when peaceful means of expression are disallowed.

Yet, the deployment of the argument has allowed the Modi administration to get away with direct rule for seven years. The Supreme Court of India let Solicitor General of India Tushar Mehta parrot the argument for four years before weakly advising that Statehood be restored as soon as possible.

Three more years have passed since then, without the Court hearing petitions seeking a timeline for restoration. At no point did the Court question the Union on the utility of its measures on constitutionally moral, or even merely pragmatic, grounds.

Lieutenant-Governor holds power

The Constitution limited the imposition of emergency conditions to six months. Yet, in J&K, emergency conditions have not been lifted for seven years. Though the J&K High Court has repeatedly and increasingly lamented the misuse of draconian laws by the J&K police, its strictures do not appear to have led to reform. J&K held elections two years ago, but the elected administration has few powers. It is the Lieutenant-Governor who controls the administration, the police and government prosecutors under the 2024 Transaction of Business Rules; he has now been granted emergency powers over telecommunications. As an appointee rather than an elected representative, the Lieutenant-Governor is not accountable to the people.

Accountability through democracy

Thanks to India's young, who so joyfully turned the derogatory 'cockroach' into an assertion of strength, accountability has acquired a salience that it had been stripped of over the past decade. Fortuitously, J&K's ruling National Conference party had already decided to renew a campaign for the restoration of Statehood that the Congress party had launched two years ago but persisted with only fitfully. Now the campaign for Statehood must couch itself in the name of accountability.

As the Constitution clearly recognised, an elected administration is the only way to provide for accountability. Though accountability needs guarantees by an independent legislature, oversight and autonomous institutions and a free media, these too require an elected administration to develop. At base, civil society acquires some space to push for reform under an elected administration, which it lacks under an appointed administration.

Over the past decade, J&K has acquired a number of ugly firsts. It was the first State to undergo wide use of the semi-lethal pellet guns in 2016. (Ironically, pellet guns were developed partly as a less lethal response to the stone-pelting agitation in 2010. Our Interlocutors report had criticised their induction.) It was the first State to lose its special status and its Statehood in 2019. It was the first State to undergo a communal delimitation in which Jammu's demography was altered by the creation of additional Hindu-majority constituencies, some of them with populations below 50,000, in 2022.

Is it not time for J&K to experience some positive firsts instead of suffering only ugly ones? After all, it was the first State to overcome communal gerrymandering when the 2024 elections yielded a majority for the pluralist National Conference-Congress alliance. It is only fitting that it also be the first State to regain the Statehood that has been withheld for so long.

Key Highlights of the Article

- **Seven-Year Benchmark:** Marks seven years since the revocation of J&K's special status under Article 370 (August 5, 2019) and the downgrading of its Statehood into Union Territory status (August 9, 2019).

- **Security Dynamics:** Despite executive assurances of a violence-free environment, security challenges persist and have geographically shifted toward previously tranquil zones like the Poonch-Rajouri sector and adjoining districts.
- **Economic Indicators:**
    - According to the **J&K Economic Survey 2025–26**, the region's per capita income ratio relative to the national average declined from **79.9% in 2013–14 to 76.6%**, reflecting economic deceleration.
    - Unemployment remains elevated at nearly double the national average, with graduate unemployment reaching **23.9%**.
- **Administrative & Power Asymmetry:** While Legislative Assembly elections were conducted, administrative authority remains heavily centralized with the Lieutenant-Governor under the modified Transaction of Business Rules, limiting the decision-making scope of the elected representative government.
- **Democratic Accountability:** The author argues that appointed bureaucratic governance cannot replace an accountable, elected state government that provides civil society with space for grievance redressal and participatory peacebuilding.

Core Issues & Analytical Perspectives

1. Federalism and Constitutional Precedent

- **Unprecedented Reorganization:** Reorganizing a full-fledged State into a Union Territory without consultation through its State Legislative Assembly marked an unprecedented application of **Article 3** of the Indian Constitution, raising core federalism concerns under the Basic Structure Doctrine (S.R. Bommai case).
- **Delayed Restoration:** Although the Supreme Court directed the holding of Legislative Assembly elections, the timeline for restoring full Statehood remains open-ended, creating an ongoing constitutional asymmetry.

2. Governance Friction in Asymmetric Union Territories

- **The Dyarchy Model:** Under the J&K Reorganisation Act (as amended via Transaction of Business Rules), key subjects—including public order, police, service cadra, and prosecution—rest exclusively with the Lieutenant-Governor.
- **Erosion of Public Accountability:** An elected executive lacking control over local administrative machinery creates structural friction between the elected state leadership and the central-appointed executive, impacting service delivery and public trust.

3. Socio-Economic and Security Trade-Offs

- **Persistent Structural Deficits:** The anticipation of massive private investment flows has been hampered by prolonged communication blackouts, regulatory uncertainty, and security risks. High youth unemployment risks exacerbating social disaffection if unaddressed through employment creation.

- **Over-reliance on Executive Security Measures:** Frequent invocations of preventive detention frameworks (e.g., Public Safety Act and UAPA) without adequate institutional oversight risk alienating local populations, underscoring the need for community-centric policing and political reconciliation.

Related Static Dimensions

Indian Constitution, Polity & Governance

- **Article 3 of the Constitution:** Parliamentary authority to alter state boundaries, areas, or names, and the procedural requirements regarding state consultation.
- **Asymmetric Federalism:** Comparative analysis of Union Territories with Legislatures (Puducherry, Delhi, J&K) vs. Full States; distribution of legislative and executive powers under Schedule VII.
- **Role of the Governor / Lieutenant-Governor:** Constitutional limits on discretionary powers and the balance between central oversight and local democratic representation (NCT of Delhi vs. Union of India, 2023).
- **Judicial Review & Fundamental Rights:** Balance between national security imperatives and civil liberties (Freedom of Speech, Article 19, Article 21, and proportionality testing as in Anuradha Bhasin v. Union of India).

Internal Security & Economy

- **Internal Security Management:** Hybrid warfare, cross-border infiltration, non-state actors, and security challenges in border regions.
- **Economic Development in Conflict Zones:** Role of capital expenditure, infrastructure development, tourism, and industrial policy in stabilizing conflict-affected areas.

Way Forward

- **Time-Bound Restoration of Full Statehood:** Translate political assurances into a clear legislative timeline to restore complete Statehood, restoring federal parity and strengthening institutional governance.
- **Devolution of Executive Powers:** Rebalance administrative authority under the Transaction of Business Rules to empower the elected Cabinet in matters of local development, civil administration, and social welfare.
- **Targeted Economic and Youth Interventions:** Address the 23.9% graduate unemployment rate through skill alignment, incentivizing manufacturing and service-sector investments, and promoting sustainable tourism initiatives.
- **Transition to Community-Oriented Security Governance:** Gradually reduce reliance on blanket preventive detentions and routine internet shutdowns, prioritizing intelligence-led security operations and civil-military cooperation.
- **Strengthening Grassroots Democracy:** Empower District Development Councils (DDCs), Block Development Councils (BDCs), and Gram Panchayats to ensure decentralized planning and participatory development.

Conclusion

Democracy and federalism are reinforcing pillars of India's constitutional framework. Security measures and infrastructure investments serve as temporary stabilization tools, but long-term peace and integration depend on institutionalized democratic accountability. Restoring full Statehood to Jammu and Kashmir will honor constitutional commitments, fulfill popular democratic aspirations, and fortify national integration through cooperative federalism.

UPSC Prelims Practice Questions

Question: With reference to Article 3 of the Constitution of India, consider the following statements:

1. Parliament has the power to form a new State by separation of territory from an existing State.

2. The President must refer such a Bill to the concerned State Legislature for expressing its views.

3. The views expressed by the State Legislature are binding on Parliament.

Which of the statements given above is/are correct?

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

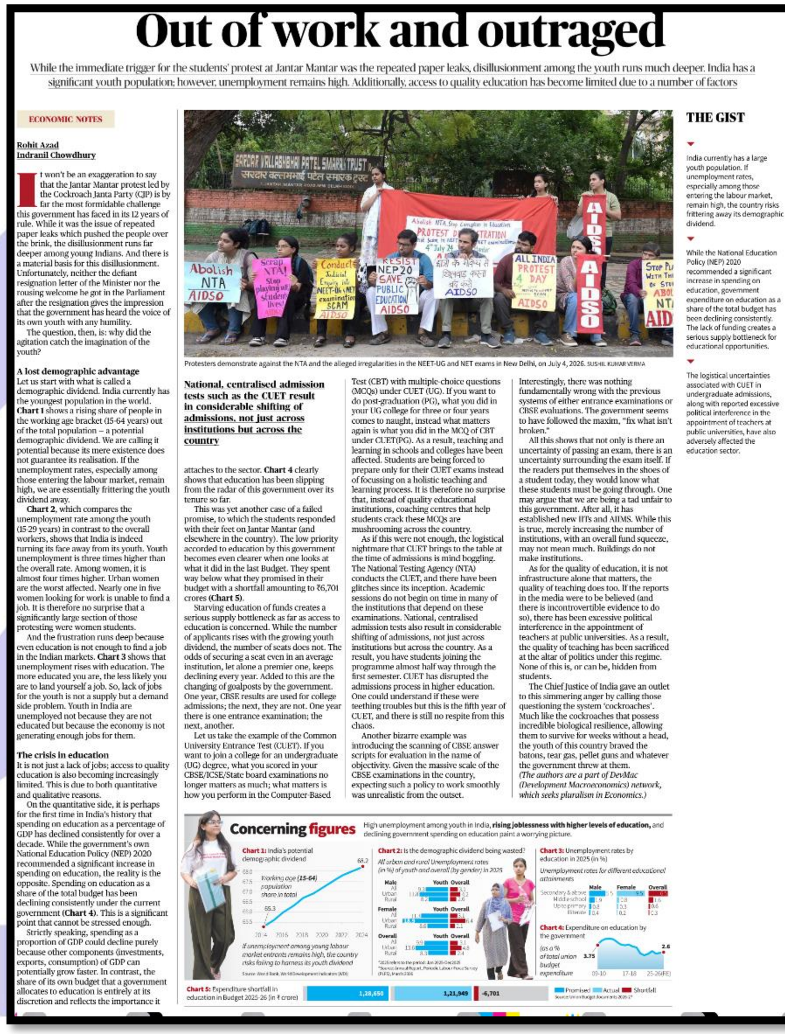
Ans: a)

UPSC Mains Practice Questions

Question: Critically examine the role of the Lieutenant Governor in Union Territories with Legislatures. How can institutional conflicts between the elected government and the Lieutenant Governor be minimized?**(10 Marks, 150 Words)**

Page 10 :GS II :Governance and Social Justice / Preliminary Examination

The student protests at Jantar Mantar, triggered by systemic examination lapses and paper leaks, reflect a much deeper structural crisis among India's youth. Despite possessing the world's largest young working-age population, India faces a growing disconnect between educational attainment and employment generation. A declining allocation of public funds toward education, combined with centralized examination bottlenecks (e.g., CUET, NTA) and severe demand-side job shortages, threatens to turn India's demographic dividend into a demographic vulnerability.



Out of work and outraged

While the immediate trigger for the students' protest at Jantar Mantar was the repeated paper leaks, disillusionment among the youth runs much deeper. India has a significant youth population; however, unemployment remains high. Additionally, access to quality education has become limited due to a number of factors

ECONOMIC NOTES

Rohit Azad
Indranil Chowdhury

It won't be an exaggeration to say that the Jantar Mantar protest led by the Cockroach Janta Party (CJP) is by far the most formidable challenge this government has faced in its 12 years of rule. While it was the issue of repeated paper leaks which pushed the people over the brink, the disillusionment runs far deeper among young Indians. And there is a material basis for this disillusionment. Unfortunately, neither the defiant resignation letter of the Minister nor the rousing welcome he got in the Parliament after the resignation gives the impression that the government has heard the voice of its own youth with any humility.

The question, then, is: why did the agitation catch the imagination of the youth?

A lost demographic advantage

Let us start with what is called a demographic dividend. India currently has the youngest population in the world. **Chart 1** shows a rising share of people in the working age bracket (15-64 years) out of the total population – a potential demographic dividend. We are calling it potential because its mere existence does not guarantee its realisation. If the unemployment rates, especially among those entering the labour market, remain high, we are essentially frittering the youth dividend away.

Chart 2, which compares the unemployment rate among the youth (15-29 years) in contrast to the overall workers, shows that India is indeed turning its face away from its youth. Youth unemployment is three times higher than the overall rate. Among women, it is almost four times higher. Urban women are the worst affected. Nearly one in five women looking for work is unable to find a job. It is therefore no surprise that a significantly large section of those protesting were women students.

And the frustration runs deep because even education is not enough to find a job in the Indian markets. **Chart 3** shows that unemployment rises with education. The more educated you are, the less likely you are to land yourself a job. So, lack of jobs for the youth is not a supply but a demand side problem. Youth in India are unemployed not because they are not educated but because the economy is not generating enough jobs for them.

The crisis in education

It is not just a lack of jobs; access to quality education is also becoming increasingly limited. This is due to both quantitative and qualitative reasons.

On the quantitative side, it is perhaps for the first time in India's history that spending on education as a percentage of GDP has declined consistently for over a decade. While the government's own National Education Policy (NEP) 2020 recommended a significant increase in spending on education, the reality is the opposite. Spending on education as a share of the total budget has been declining consistently under the current government (**Chart 4**). This is a significant point that cannot be stressed enough.

Strictly speaking, spending as a proportion of GDP could decline purely because other components (investments, exports, consumption) of GDP can potentially grow faster. In contrast, the share of its own budget that a government allocates to education is entirely at its discretion and reflects the importance it attaches to the sector. **Chart 4** clearly shows that education has been slipping from the radar of this government over its tenure so far.

This was yet another case of a failed promise, to which the students responded with their feet on Jantar Mantar (and elsewhere in the country). The low priority accorded to education by this government becomes even clearer when one looks at what it did in the last Budget. They spent way below what they promised in their budget with a shortfall amounting to ₹6,701 crores (**Chart 5**).

Starving education of funds creates a serious supply bottleneck as far as access to education is concerned. While the number of applicants rises with the growing youth dividend, the number of seats does not. The odds of securing a seat even in an average institution, let alone a premier one, keeps declining every year. Added to this are the changing of goalposts by the government. One year, CBSE results are used for college admissions; the next, they are not. One year there is one entrance examination; the next, another.

Let us take the example of the Common University Entrance Test (CUET). If you want to join a college for an undergraduate (UG) degree, what you scored in your CBSE/ICSE/State board examinations no longer matters as much; what matters is how you perform in the Computer Based Test (CBT) with multiple-choice questions (MCQs) under CUET (UG). If you want to do post-graduation (PG), what you did in your UG college for three or four years comes to naught, instead what matters again is what you did in the MCQ of CBT under CUET(PG). As a result, teaching and learning in schools and colleges have been affected. Students are being forced to prepare only for their CUET exams instead of focussing on a holistic teaching and learning process. It is therefore no surprise that, instead of quality educational institutions, coaching centres that help students crack these MCQs are mushrooming across the country.

National, centralised admission tests such as the CUET result in considerable shifting of admissions, not just across institutions but across the country

As if this were not enough, the logistical nightmare that CUET brings to the table at the time of admissions is mind boggling. The National Testing Agency (NTA) conducts the CUET, and there have been glitches since its inception. Academic sessions do not begin on time in many of the institutions that depend on these examinations. National, centralised admission tests also result in considerable shifting of admissions, not just across institutions but across the country. As a result, you have students joining the programme almost half way through the first semester. CUET has disrupted the admissions process in higher education. One could understand if these were teething troubles but this is the fifth year of CUET, and there is still no respite from this chaos.

Another bizarre example was introducing the scanning of CBSE answer scripts for evaluation in the name of objectivity. Given the massive scale of the CBSE examinations in the country, expecting such a policy to work smoothly was unrealistic from the outset.

Interestingly, there was nothing fundamentally wrong with the previous systems of either entrance examinations or CBSE evaluations. The government seems to have followed the maxim, "fix what isn't broken."

All this shows that not only is there an uncertainty of passing an exam, there is an uncertainty surrounding the exam itself. If the readers put themselves in the shoes of a student today, they would know what these students must be going through. One may argue that we are being a tad unfair to this government. After all, it has established new IITs and AIIMS. While this is true, merely increasing the number of institutions, with an overall fund squeeze, may not mean much. Buildings do not make institutions.

As for the quality of education, it is not infrastructure alone that matters, the quality of teaching does too. If the reports in the media were to be believed (and there is incontrovertible evidence to do so), there has been excessive political interference in the appointment of teachers at public universities. As a result, the quality of teaching has been sacrificed at the altar of politics under this regime. None of this is, or can be, hidden from students.

The Chief Justice of India gave an outlet to this simmering anger by calling those questioning the system 'cockroaches'. Much like the cockroaches that possess incredible biological resilience, allowing them to survive for weeks without a head, the youth of this country braved the batons, tear gas, pellet guns and whatever the government threw at them.

(The authors are a part of DevMac (Development Macroeconomics) network, which seeks pluralism in Economics.)

Protesters demonstrate against the NTA and the alleged irregularities in the NEET-UG and NET exams in New Delhi, on July 4, 2026. SUSHIL KUMAR VERMA

THE GIST

India currently has a large youth population. If unemployment rates, especially among those entering the labour market, remain high, the country risks frittering away its demographic dividend.

While the National Education Policy (NEP) 2020 recommended a significant increase in spending on education, government expenditure on education as a share of the total budget has been declining consistently. The lack of funding creates a serious supply bottleneck for educational opportunities.

The logistical uncertainties associated with CUET in undergraduate admissions, along with reported excessive political interference in the appointment of teachers at public universities, have also adversely affected the education sector.

Concerning figures High unemployment among youth in India, **rising joblessness with higher levels of education,** and declining government spending on education paint a worrying picture.

Key Highlights of the Article

- **Lost Demographic Dividend:** India's working-age population (15–64 years) is at an all-time high, yet high youth unemployment prevents the realization of this potential dividend.
- **Severe Youth & Gender Imbalance:** Youth unemployment (15–29 years) is nearly **three times higher** than the overall national unemployment rate. Urban women face the highest burden, with approximately 1 in 5 active job seekers unable to find employment.
- **Paradox of Educated Unemployment:** Unemployment rates increase directly with higher levels of education, proving that youth unemployment in India is primarily a **demand-side failure** (lack of job creation) rather than a supply-side skill deficit.
- **Declining Educational Expenditure:** Public expenditure on education as a percentage of total government budget has consistently declined over the past decade, defying the National Education Policy (NEP) 2020 target of 6% of GDP.
- **Centralization & Disruption via CUET:** The shift toward mandatory Computer-Based Tests (CBT) with Multiple Choice Questions (MCQs) under the Common University Entrance Test (CUET) has distorted high-school/undergraduate learning, fueled coaching center culture, and caused massive administrative delays in academic calendars.
- **Institutional & Quality Deficits:** Despite infrastructure expansion (new IITs, AIIMS), budgetary shortfalls and political interference in faculty appointments have compromised the quality of teaching in public universities.

Core Issues & Analytical Perspectives

1. Structural Crisis in Youth Employment

- **Jobless Growth:** India's economic growth over recent years has been capital-intensive rather than labor-intensive, failing to absorb millions of educated graduates entering the labor market annually.
- **Informed Disillusionment:** Educated youth invest significant time and household resources into higher education, only to face an economy that offers predominantly informal, low-wage, or insecure employment.

2. Fiscal Squeeze on Higher Education

- **Discretionary Allocations vs. Policy Goals:** While the NEP 2020 recommended raising education spending to 6% of GDP, actual budgetary allocations show continuous real-term squeezes and under-utilization.
- **Seats vs. Applicants Gap:** Starving public institutions of operational funds caps seat availability in higher education institutions, creating intense competition and administrative friction.

3. Over-Centralization and Flaws of High-Stakes Testing

- **Distortion of Learning Pedagogy:** Standardized MCQ-based entrance exams reduce broad, holistic humanistic/scientific education into rote memorization optimized for commercial coaching institutes.
- **Single-Point Failure Vulnerability:** Centralizing national-level examinations under single entities like the National Testing Agency (NTA) creates single points of failure, where paper leaks or technological glitches jeopardize millions of students across the country.

Related Static Dimensions

Issues Relating to Development & Management of Social Sector (Education & Human Resources)

- **National Education Policy (NEP) 2020:** Mandate for public spending (6% of GDP), structural equity, and holistic assessment frameworks vs. ground-level implementation gaps.
- **Governance & Institutional Autonomy:** Structural integrity of examination bodies (NTA, CBSE), university recruitment, and administrative decentralization.

Indian Economy, Employment, and Demographic Dividend

- **Demographic Dividend Dynamics:** Utilizing the 15–64 age group window to boost productivity, savings, and national income.
- **Types of Unemployment:** Educated unemployment, structural unemployment, and female labor force participation rate (FLFPR) gaps.
- **Public Finance & Budgetary Priorities:** Capital vs. revenue allocation in human capital formation (education, health, skill development).

Way Forward

- **Expand Labor-Intensive Sector Growth:** Re-align industrial and trade policy to incentivize high-employment sectors such as manufacturing, food processing, green technology, and social infrastructure (care economy).
- **Fulfill Statutory Education Funding Commitments:** Increase public spending on education progressively toward 6% of GDP, ensuring budget utilization matches policy commitments.
- **Decentralize Assessment Systems:** Review single-window national entrance tests like CUET; restore weightage to secondary and undergraduate school/college performance to eliminate dependency on coaching ecosystems.
- **Strengthen Examination Integrity & Accountability:** Enforce strict accountability frameworks, multi-tier security protocols, and institutional decentralization under the Public Examinations (Prevention of Unfair Means) Act, 2024.
- **Promote University Autonomy:** Eliminate non-academic considerations in university appointments, protecting academic freedom, research infrastructure, and faculty quality.

Conclusion

Resolving the outrage among India's youth requires moving beyond short-term administrative fixes for paper leaks toward addressing deep-rooted structural crises in public education and job creation. Unlocking India's demographic dividend demands robust fiscal investment in public universities, decentralized assessment frameworks, and a macro-economic strategy prioritizing labor-intensive employment generation.

UPSC Prelims Exam Study Questions

Question: The Public Examinations (Prevention of Unfair Means) Act, 2024 primarily seeks to:

A. Regulate private coaching institutions.

B. Prevent unfair practices such as paper leaks and cheating in notified public examinations.

C. Standardize school education across States.

D. Introduce a common syllabus for all universities.

Ans:b)

PSC Mains Exam Study Questions

Question: Labour-intensive manufacturing is essential for achieving inclusive economic growth. Discuss the policy measures required to generate quality employment for India's youth.**(10 Marks, 150 Words)**

Page 12 :GS III :Science and Technology/ Preliminary Examination

According to the Department of Science and Technology's (DST) latest **Research and Development Statistics 2025–26** report, India's research ecosystem is undergoing a landmark structural shift. Gross Expenditure on Research and Development (GERD) crossed **0.84% of GDP** in 2023–24, breaching the 0.8% mark for the first time since 2009–10. More significantly, the **private**

sector accounted for 51.8% of total national R&D spending in 2023–24, outspending government contributions for the first time in India's recorded scientific history. Driven primarily by transportation, pharmaceuticals, biotechnology, and IT, this shift reflects a maturing industrial landscape where private enterprise is becoming an active engine of commercial research and human capital deployment.

Transport, pharma and biotech become India's biggest research investors

Jacob P. Koshy
NEW DELHI

India's private-sector research effort is now being driven overwhelmingly by the transportation, pharmaceutical, biotechnology and information technology (IT) industries, with transport companies emerging as the country's largest corporate R&D investors, according to the Department of Science and Technology's (DST) Research and Development Statistics 2025-26.

The report also shows that industry now employs more researchers than the public sector in core R&D activities, underscoring a broader shift in the country's innovation landscape.

The report follows a disclosure by the DST in the Lok Sabha last week that showed India's spending on research and development (R&D) surged to 0.83% of GDP in 2021-22, the first time that the country crossed the 0.8% threshold since 2009-10.

The report estimates that India's R&D expenditure will approach 0.9% of GDP in 2025-26.

The figures also reveal a structural shift in India's innovation landscape: private industry accounted for 45.5% of national R&D spending in 2021-22, rising further to 51.8% in 2023-24, the first time businesses have contributed more to India's research effort than all levels of government combined.

Transportation companies spent ₹39,137 crore on R&D in 2023-24, making them the single largest industrial R&D contributor, followed by drugs and pharmaceuticals (₹25,847 crore), biotechnology (₹10,321 crore), IT (₹9,587 crore) and electrical and electronics (₹6,779 crore).

Together, these sectors accounted for the bulk of private industrial research expenditure.

Transportation companies spent ₹39,137 crore on R&D in 2023-24.

The latest figures represent a marked departure from the pattern seen in the last publicly available DST statistical compendium released in 2020, which contained data up to 2018-19. At that time, pharma and transportation were already among the country's leading industrial research sectors, but transportation R&D was only about ₹14,000 crore while biotechnology and IT accounted for a much smaller share of industrial research spending.

Since then, the transport-sector R&D has almost tripled, biotechnology has emerged as one of India's largest research-intensive industries, and IT has joined the country's leading corporate R&D spenders.

An official, who declined to be identified but familiar with the data compendium, attributed the sharp rise in private sector spending to "post COVID."

The "realisation" that investments in R&D were "critical" to companies' future prompted greater investments, he told *The Hindu*. Though nearly 8,000-odd companies populated the DST database, 90% of the R&D investments came from 500-odd companies.

He underlined that the DST had not made any methodological changes to how it sourced this data from industries, which is done through self-reported questionnaires. Stricter requirements by RBI on transparently disclosing R&D spends may also have played a role, he added.

The expansion in spending has been accompanied by a shift in India's research workforce. The latest survey estimates that private industry employed more full-time equivalent (FTE) R&D personnel than government institutions in 2023-24, with business enterprises accounting for the largest pool of researchers and technical staff engaged in core research activities. In contrast, the 2020 edition of the report, based on 2017-18 data, showed government institutions, including central agencies, state organisations and higher educational institutions, as the dominant employers of India's R&D workforce.

The report attributes the increase in private research primarily to business enterprises rather than private universities or research organisations.

Of the ₹1.27 lakh crore spent by the private sector in 2023-24, private industry accounted for ₹1.11 lakh crore, while Scientific and Industrial Research Organisations contributed ₹7,798 crore and private higher educational institutions ₹9,164 crore.

Key Highlights of the DST Report

- **Surge in Gross R&D Spending:** India's GERD reached **₹2.45 lakh crore ($244,767 crore)** in 2023–24, up from ₹1.27 lakh crore during the 2020–21 pandemic baseline.
- **Private Sector Surpasses Government:** Private industry contributed **51.8%** (₹1.18 lakh crore) to total R&D expenditure in 2023–24, compared to the government sector's **48.2%**.
- **Sectoral Breakdown of Private Industrial R&D (2023–24):**
    - **Transportation:** ₹39,137 crore (32.6% of private industrial spend)
    - **Drugs & Pharmaceuticals:** ₹25,847 crore (21.4%)
    - **Biotechnology:** ₹10,321 crore (8.6%)
    - **Information Technology (IT):** ₹9,587 crore (7.9%)
    - **Electrical & Electronics:** ₹6,779 crore (5.9%)
- **Workforce Realignment:** For the first time, private business enterprises employ more Full-Time Equivalent (FTE) R&D personnel and technical researchers than public sector research agencies and state-run higher educational institutions combined.
- **Concentration of Capital:** While nearly 8,000 corporate entities populate the DST database, **90% of total private R&D investment originates from roughly 500 major companies**.

Core Issues & Analytical Perspectives

1. Structural Realignment: From State-Led to Business-Led R&D

Historically, India's R&D profile resembled a developing nation model—overwhelmingly dependent on government funding (often 60%–70%) focused on strategic sectors (Defence, Space, Atomic Energy). In advanced industrial economies (e.g., South Korea, US, Japan), businesses routinely generate 70%–80% of total research spend. India's transition past the 50% private participation threshold aligns its innovation structure closer to OECD norms.

2. Drivers of the Private Spending Surge

- **Post-COVID Strategic Realignment:** The disruption of global supply chains accelerated domestic corporate investments in deep-tech, EV technologies, vaccine platforms, and API self-reliance.
- **Regulatory Transparency & Disclosure:** Stricter Reserve Bank of India (RBI) and SEBI mandate transparency for corporate R&D expenditures, prompting cleaner reporting of in-house technology spending.
- **MNC R&D Global Capability Centers (GCCs):** Foreign multinationals have rapidly expanded their Global Capability Centers and dedicated R&D hubs in India, drawing heavily on local engineering talent.

3. Persistent Challenges: The Intensity Gap

- **Underwhelming R&D-to-GDP Ratio:** Despite reaching 0.84% of GDP, India trails far behind global peers like **China (2.6%)**, **United States (3.5%)**, **South Korea (4.8%)**, and **Israel (~5%)**.
- **Academic Exclusion:** Private higher education institutions and scientific research organizations (SIROs) accounted for only a modest fraction of private research spending, reflecting a continued disconnect between industry demand and university-based fundamental research.

Related Static Dimensions

Science & Technology, Economy, and Innovation

- **Gross Expenditure on Research and Development (GERD):** Trends, composition, and economic impacts of R&D intensity on total factor productivity (TFP).
- **Industrial Policy & Green Mobility:** Transformation of the transportation sector driven by Electric Vehicles (EVs), battery chemistry, autonomous systems, and strict emission norms (BS-VI).
- **Biotechnology & Pharma (BioE3 Policy 2024):** Bio-manufacturing, precision medicine, active pharmaceutical ingredients (APIs), and clinical trials.
- **National Technology Missions:** Public co-investments such as the **₹1 lakh crore Research, Development and Innovation (RDI) Fund**, **Anusandhan National Research Foundation (ANRF)**, and the **India Semiconductor Mission**.

Government Policies & Institutional Interventions

- **Public-Private Partnerships (PPP) in Research:** Role of government incentives (Production Linked Incentives - PLI, tax concessions) in de-risking private industrial innovation.
- **Intellectual Property Rights (IPR):** Strengthening domestic patent filings, commercialization pathways, and technology transfer frameworks from labs to markets.

Sectoral Breakdown of R&D Expenditure (2023–24)

Sector / Pillar	Spend / Share	Key Innovation Drivers
Transportation	₹39,137 crore (32.6%)	EV Powertrains, Battery Systems, Advanced Driver Assistance (ADAS), Safety Compliance
Drugs & Pharma	₹25,847 crore (21.4%)	Biosimilars, Complex Generics, Novel Drug Delivery Systems (NDDS), API Synthesis
Biotechnology	₹10,321 crore (8.6%)	Synthetic Biology, Biomanufacturing, Agritech Traits, Recombinant Vaccines
IT & Electronics	₹16,366 crore (13.8%)	Enterprise AI, Cloud Architecture, Semiconductor Design, Embedded Systems
Public Scientific Agencies	~48.2% of GERD	DRDO, ISRO, DAE, ICAR, CSIR (Strategic & Basic Research)

Way Forward

- **Operationalize the ANRF & RDI Fund:** Seamlessly deploy the **Anusandhan National Research Foundation (ANRF)** and the **₹1 lakh crore RDI Fund** to provide long-term, low-cost capital for private-led high-risk strategic research.
- **Incentivize Industry-Academia Linkages:** Offer tax credits or matching grants to corporations that fund research labs and doctoral fellowships at public and private universities.
- **Broaden the Corporate R&D Base:** Expand tax incentives and simplified DSIR (Department of Scientific and Industrial Research) recognition to MSMEs and mid-tier firms to reduce the current reliance on the top 500 spenders.
- **Target 1.5% of GDP by 2030:** Formulate a national roadmap to scale total GERD to at least **1.5% of GDP** over the next five years, balancing private industrial development with public funding for basic sciences.

Conclusion

The DST's 2025–26 statistics signal a major milestone in India's journey toward a knowledge-driven economy. As private industry assumes the lead in research spending and scientific employment, India is shedding its historical reliance on state-dominated R&D. Harnessing this momentum will require sustained public policy support, robust industry-academia collaboration, and targeted fiscal incentives to ensure that private research translates into global technological competitiveness.

UPSC Prelims Practice Questions

Question: With reference to Gross Expenditure on Research and Development (GERD), consider the following statements:

1. GERD represents the total expenditure incurred on research and development by both public and private sectors.

2. GERD is generally expressed as a percentage of a country's Gross Domestic Product (GDP).

3. A higher GERD-to-GDP ratio is often associated with greater innovation capacity.

Which of the statements given above are correct?

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Ans: d)

UPSC Mains Practice Questions

Question: "India's innovation ecosystem is witnessing a structural transition from state-led research to industry-driven innovation." Discuss the significance of this transition for economic growth and technological self-reliance.**(10 Marks, 150 Words)**

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In a strategic policy move to enhance regulatory predictability, attract global capital, and deepen domestic manufacturing, the Union Finance Minister introduced the **Taxation and Other Laws (Amendment) Bill, 2026** in the Lok Sabha. The legislation amends three key statutes—the Income-tax Act, 2025, the Finance Act, 2026, and the Payment and Settlement Systems Act, 2007. By dismantling cumbersome approval layers for data centres, rationalizing safe-harbor conditions for offshore fund managers, extending tax holidays for high-tech electronics manufacturing, and restoring tax parity for infrastructure business trusts (REITs/InvITs), the Bill seeks to solidify India's position as a predictable destination for global investment.

Key Highlights of the Bill

- **Streamlining Data Centre & Cloud Ecosystems:**
    - Removes multi-layered government notification and approval requirements for foreign cloud companies utilizing Indian data centres.
    - Permits Indian data centres to operate on a **leased basis** in addition to direct ownership, expanding operational flexibility for global cloud service providers.
- **Relocation Incentives for Global Fund Managers:**
    - Slashes onerous compliance conditions that previously raised fears of treating global funds as having a permanent establishment (taxable business connection) in India merely due to local fund managers.
    - Retains essential anti-abuse provisions to prevent money laundering and round-tripping, while enabling skilled fund managers to relocate to India (including the IFSC-GIFT City) without creating adverse tax liabilities for their offshore funds.
- **Tax Exemption Parity for REITs and InvITs:**
    - Restores tax-free dividend distribution to unit-holders of Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InvITs) even when underlying Special Purpose Vehicles (SPVs) migrate to the new corporate tax regime.
    - Offsets revenue loss by adjusting tax surcharges at the corporate SPV level, insulating retail and institutional unit-holders.
- **Extended Tax Breaks for Electronics Manufacturing:**

Govt. introduces Bill to 'make it easier to do business in India'

T.C.A. Sharad Raghavan
NEW DELHI

The Taxation and Other Laws (Amendment) Bill, 2026 seeks to amend several existing Acts

Finance Minister Nirmala Sitharaman on Tuesday introduced the Taxation and Other Laws (Amendment) Bill, 2026 in the Lok Sabha, seeking to amend several existing Acts in a bid to attract more foreign capital, make it easier to do business in India, and to push the Make in India mission.

The Taxation and Other Laws (Amendment) Bill, 2026 will amend the Payment and Settlement Systems Act, 2007, Income-Tax Act, 2025, and the Finance Act, 2026.

The Bill proposes a key tax exemption for data centres in India.

"Foreign cloud companies that use Indian data centres were earlier promised a tax exemption, but with conditions of clearing several layers of government notification and approval," a Finance Ministry official explained.

The proposed Bill seeks to remove these approval requirements. In addition, it will allow Indian data centres to be run on a leased basis rather than only under direct ownership. "Global investment funds are typically run by skilled fund managers, and India has deep talent in this field," the official further explained. "Until now, a long and demanding list of conditions discouraged those managers from basing themselves in India, for fear that doing so might make the entire foreign fund taxable here."

The proposed Bill seeks to slash this list of conditions, retaining only those that are expressly aimed at preventing misuse and round-tripping of money by Indians. Under the proposed rules, fund managers will be allowed to relocate to India without the foreign fund being treated as doing business in India.

Dividends paid by REITs and InvITs to their investors were tax free only if the operating company stayed in the old tax regime. However, as companies increasingly move to the new tax regime, investors risked losing this benefit.

The Bill introduced on Tuesday seeks to restore this exemption.

  - Extends income-tax exemptions until **2040–41** (by an additional 10 years) for foreign companies supplying specialized capital goods, tooling machinery, and components to local contract manufacturers.
  - Provides a 15-year tax exemption for foreign companies storing components in Indian customs bonded warehouses for local assembly.

- **Regulatory Adjustments to Payment Systems:**
  - Amends Section 10A of the Payment and Settlement Systems Act, 2007 to allow flexible frameworks for Merchant Discount Rates (MDR) or fees on specific notified digital payment channels to support digital infrastructure sustainability.

Core Issues & Analytical Perspectives

1. Addressing "Tax Uncertainty" as an Investment Barrier

- **Eliminating Tax Ambiguity:** Foreign institutional investors (FIIs) and global tech firms frequently cite retroactive tax interpretations and multi-tiered bureaucratic clearances as significant hurdles. Removing individual notification layers provides statutory certainty.
- **Preventing Business Connection Risks:** Domiciling fund managers in India previously risked pulling the global income of multi-billion-dollar offshore funds into the Indian tax net. Easing these "safe harbor" rules incentivizes high-value fund management talent to relocate to India.

2. Scaling Digital Infrastructure & "AI Data Cities"

- **Capitalizing on AI & Cloud Spurt:** Data centers are capital- and energy-intensive. Decoupling physical facility ownership from operational leasing enables hyperscalers to scale capacity rapidly in response to growing artificial intelligence (AI) and cloud computing demand.
- **Localization of Data Infrastructure:** Removing tax friction aligns with India's data localization directives under the Digital Personal Data Protection (DPDP) Act, ensuring sensitive data is processed locally within compliant domestic facilities.

3. Deepening Electronics Manufacturing Ecosystems

- **Moving Beyond Simple Assembly:** Extending tax holidays up to 2041 encourages global tech giants (such as Apple and component vendors) to shift high-value tooling, equipment, and component supply chains directly into Indian customs warehouses.
- **De-risking Contract Manufacturing:** Tax certainty over a 15-year horizon matches the long payback periods required for semiconductor and precision electronics manufacturing plants.

4. Unlocking Capital for Real Estate and Infrastructure

- **Protecting Investor Yields in Business Trusts:** REITs and InvITs are crucial financial instruments for monetizing real estate and infrastructure assets. Ensuring dividend tax neutrality maintains attractive yields for retail investors, unlocking long-term patient capital.

Related Static Dimensions (GS Paper II & III Syllabus Mapping)

Indian Economy & Mobilization of Resources

- **Direct Tax Reforms & Ease of Doing Business:** Transition toward simplified tax regimes, removal of nuisance compliance, and promotion of non-resident investment.
- **Foreign Direct Investment (FDI) & Infrastructure Creation:** Role of specialized vehicles (REITs, InvITs, Data Center Parks) in building physical and digital infrastructure.
- **Make in India & Electronics Manufacturing:** Production-Linked Incentive (PLI) schemes, contract manufacturing ecosystem, and supply chain localization.

Governance, Policy Stability & Regulatory Frameworks

- **Policy Certainty and Delegated Legislation:** Moving away from excessive reliance on administrative notifications toward clear statutory exemptions.
- **Cooperative and Competitive Federalism:** State-level readiness (power availability, land leasing) to absorb investments incentivized by central tax exemptions.

Way Forward

- **Ensure Robust Bilateral & GAAR Oversight:** While easing conditions for offshore fund managers, tax authorities must maintain effective monitoring through General Anti-Avoidance Rules (GAAR) to prevent round-tripping or illegitimate tax avoidance.
- **Augment Supporting Infrastructure for Data Centers:** Tax exemptions must be accompanied by state-level power purchase reforms, uninterrupted green energy supply, and advanced cooling infrastructure required for modern data centers.
- **Streamline Customs & Bonded Warehousing Procedures:** Align customs clearance workflows with the 15-year component storage tax break to ensure seamless movement of raw materials for electronics assembly.
- **Strengthen GIFT-IFSC Ecosystem:** Integrate these tax relaxations with GIFT City's regulatory framework to establish a competitive international financial hub capable of rivaling Singapore and Dubai.

Conclusion

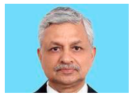
The **Taxation and Other Laws (Amendment) Bill, 2026** represents a targeted refinement of India's direct tax framework, prioritizing administrative ease and structural certainty over short-term revenue extraction. By resolving long-standing tax friction points across data infrastructure, offshore fund management, electronics manufacturing, and infrastructure trusts, the legislation strengthens India's competitiveness in attracting sustained global capital while accelerating the domestic Make in India vision.

UPSC Mains Exam Study Questions

Ques: "India cannot become a global technology leader without significantly increasing investment in research and development." Discuss.**(10 Marks, 150 Words)**

Page :08 : Editorial Analysis

NATO enters a new strategic era of transformation



Advitya Madan

Commanded 15 Punjab in Lebanon under the United Nations Flag, commanded 27 Sector as DIG in Churachandpur, Manipur, and was Brigadier, Operational Logistics, in HQ Western Command. He is currently an analyst on geopolitics, international and defence affairs

For the first time since the creation of the North Atlantic Treaty Organization (NATO) in 1949, Washington is asking Europe not merely to spend more on defence but also to assume primary responsibility for its own security. This marks a fundamental shift in the transatlantic compact and signals the emergence of a new phase in the Alliance's evolution. The question is no longer whether NATO will endure, but how it is adapting to a changing strategic landscape.

America's shift

The National Security Strategy of the United States of America (November 2025) maintained NATO as America's principal transatlantic alliance while signalling a significant shift in Washington's expectations of European allies, particularly regarding burden-sharing and collective defence responsibilities. It argued that the era of the U.S. serving as Europe's primary security guarantor was drawing to a close and that prosperous European allies must shoulder greater responsibility for defending their own continent. While endorsing NATO's commitment to increase defence spending to 5% of GDP as the new benchmark for burden sharing, the strategy envisaged the U.S. remaining the Alliance's strategic enabler, nuclear guarantor and political convener rather than its sole military backbone. The objective is a stronger, more self-reliant Europe that allows Washington to devote greater strategic attention to the Indo-Pacific.

This rebalancing is already evident. Following Russia's invasion of Ukraine in 2022, U.S. troop strength in Europe rose to around 1,00,000 personnel. Since then, Washington has gradually reversed that surge. During 2025-26, it withdrew around 5,000 troops from Germany, cancelled the planned deployment of 4,000 troops to Poland, and reduced Brigade Combat Teams in Europe from four to three, bringing the U.S. military presence in Europe down to approximately 75,000-80,000 troops – close to pre-Ukraine war levels. The 36th NATO Summit in Ankara in July 2026 reinforced this transition. While reaffirming the Alliance's commitment to Article 5, members pledged €70 billion in military assistance for Ukraine in 2026, committed to sustaining comparable support in 2027, endorsed European-led development of long-range precision strike capabilities and accelerated efforts to strengthen NATO's defence industrial base. The underlying message was unmistakable: Europe must assume greater responsibility for its conventional defence as the U.S. increasingly prioritises the Indo-Pacific.

Lord Ismay, NATO's first Secretary General, famously described the Alliance's original purpose as "to keep the Russians out, the Americans in, and the Germans down". While that dictum captured the strategic logic of the Cold War, NATO today has entered a distinctly different phase that may be summed up as keeping Russia deterred, America engaged and Europe prepared.

NATO's evolution over time

The Alliance's evolution can be viewed in three phases. NATO 1.0 (1949-1991) relied overwhelmingly on American military and nuclear power to deter Soviet aggression and preserve transatlantic unity. NATO 2.0 (1991-2022) followed the collapse of the Soviet Union, expanding eastwards, incorporating former Warsaw Pact members and undertaking operations in the Balkans and Afghanistan. Yet, this period also witnessed declining European defence expenditure and growing dependence on the U.S. for intelligence, logistics, strategic mobility and high-end military capabilities, making burden sharing an increasingly contentious issue.

The Russian invasion of Ukraine has ushered in NATO's third phase, a more balanced transatlantic partnership in which Europe assumes primary responsibility for conventional defence while the U.S. continues to provide strategic enablers such as nuclear deterrence, intelligence, long-range precision strike capabilities and global power projection. This is less a story of American disengagement than one of strategic redistribution.

The scale of Europe's response was evident at the 2025 Hague Summit, where NATO members committed to increasing core defence spending to at least 3.5 % of GDP by 2035, with progress to be reviewed in 2029. Germany has doubled defence expenditure since 2023 and aims to reach the same target by 2029 while rebuilding military capability to deter Russia. Moscow, meanwhile, has reorganised its western military posture with new headquarters, formations and bases facing NATO.

The more difficult challenge, however, is not spending but replacing the American military ecosystem. Even as European armies become stronger, they continue to depend heavily on the U.S. for intelligence, surveillance, satellite support, command and control systems, strategic airlift, missile defence, long-range precision strike capabilities and, above all, the nuclear umbrella. Washington's reduction of rapid reaction assets, including bombers, fighter aircraft, air-refuelling tankers, warships, aircraft carriers and attack submarines, together with the deferred deployment of Tomahawk cruise missiles to Germany, illustrates the extent of that dependence. Europe's central dilemma is therefore not simply building larger armed forces but developing the integrated capabilities that have long underpinned NATO's effectiveness. As Poland's Foreign Minister recently observed, Europe does not need to match American military power; it simply needs to be stronger than Russia.

New Delhi and the rebalance

For India, NATO's transformation is less about Europe than about the redistribution of American strategic attention. A Europe capable of assuming greater responsibility for its own security would enable Washington to devote more diplomatic attention, military resources and strategic investments to the Indo-Pacific, reinforcing the regional balance amid China's growing assertiveness. At the same time, a more capable Europe could emerge as an important partner for India in defence manufacturing, advanced technologies, artificial intelligence, cybersecurity, semiconductors and space.

New Delhi should therefore view these changes through the prism of strategic opportunity rather than alliance politics. Closer cooperation with both the U.S. and Europe can complement, not compromise, India's long-standing commitment to strategic autonomy. If navigated prudently, NATO's new strategic model can expand India's defence industrial partnerships, accelerate technological modernisation and strengthen its position as a leading power in an increasingly multipolar world.

NATO's European shift offers India new strategic and defence opportunities

GS Paper II: International Relations

UPSC Mains Exam Practice Questions: Discuss the strategic significance of the United States' Indo-Pacific pivot. How does it affect India's foreign and security policy?(**10Marks, 150 Words)**

Context : The North Atlantic Treaty Organization (NATO) is undergoing its most profound structural shift since its founding in 1949. As Washington increasingly pivots its military assets, political focus, and strategic resources toward deterrence in the Indo-Pacific, European allies are being called upon to assume primary responsibility for their own conventional continental defense.

Rather than signaling an outright American withdrawal, this transformation represents a **strategic redistribution of burden**—transitioning NATO from an asymmetric dependency into a more balanced transatlantic alliance where Europe acts as its own primary defender while the United States functions as a strategic enabler, nuclear guarantor, and political convener.

Key Highlights of the Article

- **Shift in U.S. Security Guarantees:** Washington's evolving strategic posture (reaffirmed in national security updates and NATO summits) expects European allies to shoulder the burden of conventional defense, establishing higher defense spending targets (up to 3.5%–5% of GDP).
- **U.S. Troop Adjustments in Europe:** Following a temporary force surge post-2022 (reaching ~100,000 personnel), U.S. presence has recalibrated down to pre-war levels (~75,000–80,000 troops), accompanied by reductions in forward-deployed Brigade Combat Teams and tactical strike assets.
- **The Ankara & Hague Summit Commitments:** European nations pledged significant long-term military assistance for Ukraine (€70 billion in 2026), endorsed European-led long-range precision strike initiatives, and committed to rebuilding their defense-industrial base.
- **Redefining NATO's Operational Logic:** Transitioning from Lord Ismay's Cold War formulation ("keep the Russians out, the Americans in, and the Germans down") to a modern doctrine of **"keeping Russia deterred, America engaged, and Europe prepared."**
- **Strategic Opportunities for India:** The U.S. rebalance allows Washington to direct greater diplomatic and military focus toward the Indo-Pacific, while a defense-ready Europe opens new avenues for Indian partnerships in advanced technology, cyber defense, AI, space, and supply chain resilience.

NATO's Evolution Across Three Eras

NATO 1.0 (1949–1991) ──► NATO 2.0 (1991–2022) ──► NATO 3.0 (2022–Present)

(Cold War Deterrence) (Out-of-Area Expansion) (Transatlantic Rebalance)

1. **NATO 1.0 (1949–1991):** Defined by bipolar Cold War containment. Relied almost entirely on American conventional force projection and the nuclear umbrella to deter the Soviet Union and preserve Western European stability.
2. **NATO 2.0 (1991–2022):** Post-Cold War eastward expansion, absorbing former Warsaw Pact members and executing out-of-area crisis management (Balkans, Afghanistan). This era saw declining European defense budgets, growing military atrophy, and near-total reliance on U.S. strategic enablers.
3. **NATO 3.0 (2022–Present):** Triggered by the Russia-Ukraine war and rising Indo-Pacific friction. Characterized by European self-reliance in conventional forces, deep defense-industrial investments, and a redistributed partnership with the United States.

Core Issues & Analytical Perspectives

1. European Spending vs. Replacing the "American Ecosystem"

- **The Capability Gap:** Increasing defense budgets (e.g., Germany doubling spending, Poland expanding forces) is necessary but insufficient.
- **Dependency on Critical Enablers:** Europe continues to face systemic deficits in high-end military enablers long provided by Washington—including **C4ISR** (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance), satellite surveillance, strategic airlift, aerial refueling, integrated air/missile defense, and long-range strike systems.
- **Fragmented Defense Industry:** European defense spending remains geographically and industrially fragmented across national lines, causing duplication and interoperability hurdles compared to the consolidated U.S. defense-industrial complex.

2. Strategic Pivot to the Indo-Pacific

- **Resource Realignment:** Washington's insistence on European burden-sharing is directly linked to its primary geopolitical objective: containing military and economic assertiveness in the Indo-Pacific.
- **Reduction of European Footprint:** Lowering tactical troop deployments and naval presence in the European theater frees up American maritime, air, and technological assets for deployment in the Western Pacific.

3. Russia's Military Reorganization

- **Long-Term European Theater Confrontation:** Moscow has restructured its western military districts, setting up dedicated command structures and troop formations facing Baltic and Nordic NATO frontiers. This ensures that Europe must maintain high-readiness standing armies even if active kinetic operations in Ukraine freeze or diminish.

Related Static Dimensions

International Relations & Bilateral/Global Groupings

- **Transatlantic Security Architecture:** Historical background of NATO, Article 5 collective defense, and post-Cold War security dynamics in Eurasia.
- **U.S. Foreign Policy Shifts:** Pivot to Asia / Indo-Pacific strategy, burden-sharing dynamics in alliance systems, and regional power balances.
- **India's Foreign Policy & Strategic Autonomy:** Balancing relationships with major global powers (U.S., European Union, Russia) without joining formal military alliances.

Security, Defense Technology & Economy

- **Defense Industrial Modernization:** Lessons for India's indigenization (Atmanirbhar Bharat in defense) regarding supply chain resilience, C4ISR infrastructure, and ammunition stockpiling.
- **Dual-Use Critical Technologies:** International collaboration in emerging technologies (AI, cyber defense, quantum computing, semiconductors, and space systems).

Implications for India and Strategic Opportunities

- **Enhanced Focus on Indo-Pacific Balance:** As Europe assumes greater responsibility for its conventional neighborhood defense, U.S. diplomatic attention, naval force projection, and technological investments will increasingly concentrate in the Indo-Pacific, strengthening regional deterrence against unilateral aggressive behavior.
- **Diversified Defense and Technological Partnerships:** A self-reliant, re-industrializing Europe offers India alternative sources for co-development and co-production of military hardware (e.g., jet engines, submarine systems, cyber security, advanced radar platforms).
- **Reinforcing Strategic Autonomy:** Engaging with both a newly self-reliant European security pillar and a re-focused United States aligns with India's multi-aligned foreign policy, deepening defense links without compromising autonomous decision-making.

Way Forward

- **Accelerate European Defense Integration:** European allies must move beyond individual national spending targets to establish consolidated, cross-border procurement frameworks and joint command systems to reduce structural reliance on U.S. enablers.
- **Strengthen India-EU Defense & Security Dialogue:** Expand institutional security dialogues between India and major European powers (France, Germany, UK, Poland) focusing on maritime security, supply chain de-risking, and defense-industrial co-production.
- **Prioritize High-Tech Defense Collaboration:** Leverage initiatives like the EU-India Trade and Technology Council (TTC) to collaborate on critical technologies including semiconductor supply chains, AI-driven intelligence tools, and space-based maritime domain awareness.
- **Sustain Strategic Autonomy in Multipolarity:** India must continue navigating its partnerships with Western allies while maintaining pragmatically balanced relations across Eurasia to preserve regional stability.

Conclusion

NATO's transition into a new strategic era marks the end of decades of European reliance on American conventional military superiority. By demanding that Europe take ownership of its continental defense, Washington is rebalancing the transatlantic relationship to better address global shifts. For India, this evolution creates significant strategic advantages: it frees up Western attention and assets for the Indo-Pacific while opening new avenues for defense-industrial and technological partnerships with a more self-reliant European continent.