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No. 5, AKS Nagar, Near Gandhi Park, Coimbatore - 641 001

## GS Paper I – Geography

# Earth's orbits are filling up because governance hasn't kept pace

There is no regular way to check whether satellite operators follow through on promises to make satellites safe when they stop working, to move them out of the way or to bring them down once their mission ends; thus, regulators often go by what companies say they will do before launch rather than on what regulators can confirm

Shrawani Shagun  
Abhiram Nair

**T**hroughout human history, the sky symbolised freedom – vast, open, untouched. Today, that no longer holds. The earth's orbital environment has become crowded, fragile, and vulnerable, threatened by what is today evidently a failure of governance rather than just of engineering.

The language of space sustainability has grown familiar in international forums and policy documents. Yet familiarity has bred complacency. As launches become more frequent and the number of private actors multiplies, the gap between what is promised and what is implemented has continued to widen. The result is an orbital environment that is actively used, commercially exploited, and strategically warranted but ethically under-governed.

Orbital harm is difficult to govern because much of the debris capable of causing damage is impossible to track consistently. Authorities are also able to say which fragment came from which object only after it has caused some damage, and even then with limited certainty.

Reducing risk depends on having accurate information about when objects in orbit might come close to one another and exactly where they are.

But access to this information is uneven across satellite operators and countries, and it may be withheld for commercial reasons or kept secret for security reasons.

There's also no regular way to check whether operators actually follow through on promises to make satellites safe when they stop working, to move them out of the way or to bring them down once their mission ends, especially for small satellites or missions that last only a short time.

As a result, regulators mostly go by what companies say they will do before launch rather than on what regulators can confirm once the satellite is in orbit, which ultimately leaves responsibility unclear.

**Responsibility and prevention**  
Even debris smaller than a coin, travelling at orbital velocities, carries enough energy to disable or destroy active satellites. Each collision generates thousands of new fragments, multiplying risk. International law obligates states to take reasonable measures to prevent foreseeable harm arising from activities under their jurisdiction. In the context of orbital debris, this means states need to plan for collisions, fragmentation, and long-term congestion – but do they? Indeed, choosing not to mitigate risk is itself a decision because it expects others to deal with dangerous situations. Orbital governance also remains



By dramatically cutting launch costs, reusable boosters allowed SpaceX to deploy the large Starlink satellite constellation at an economically viable scale.

anchored in outdated assumptions. The existing treaties were written for an era when space activity was limited, controlled by states, and innovation was slow. Importantly, they do not address cumulative harm and stewardship. Article VI of the Outer Space Treaty makes states internationally responsible for national activities in outer space, including those carried out by private actors. Article VII establishes liability for damage caused by space objects. Yet these provisions were not designed to prevent cumulative harm and are also poorly suited to preventing cumulative harm before it becomes irreversible.

At present, there is no international duty-of-care standard for the earth's orbits and no ethical threshold for 'acceptable' congestion.

National licensing regimes are one of a few mechanisms that can enforce orbital responsibility before damage occurs. Increasingly of late, before they approve a rocket launch or a mission, regulators need to be told the orbital lifetime, the ways in which the payload can be disposed of, whether it has provisions to avoid collisions, and whether it can be passivated (i.e. deprived of the ability to move around). However, regulators in different jurisdictions ask for different levels of details, so operators register in permissive regulatory environments.

To avoid this, licensing conditions need to be standardised, alongside mandating launch operators to use measurable debris-mitigation thresholds, compulsorily share data to improve space situational awareness, and use verifiable end-of-life disposal strategies.

**Orbital harm is difficult to govern because much of the debris capable of causing damage is impossible to track consistently. Authorities are also able to say which fragment came from which object only after it has caused some damage**

The ethical vacuum is becoming more pronounced as new actors enter space. Nations entering spaceflight for the first time and private enterprises are central to the future of orbital activity – but will these actors inherit the permissive norms that produced today's congestion or will they help redefine responsibility for the decades ahead?

Principles embedded in international environmental law, including precaution, proportionality, and intergenerational equity, offer a useful guide. These principles recognise that uncertainty does not excuse inaction and that the way we use (non-rivalrous) resources today should not foreclose future generations' access to the same resources.

### India's opportunity

The present moment is particularly significant for India. Its space programme has for a long time operated with tight constraints while delivering global benefits. As commercial participation expands and launch capabilities grow, India can either remain a silent participant or help shape their ethical norms. Specifically, as India develops its national space legislation and licensing

regime, it has a chance to embed orbital responsibility as a legal requirement.

Ethical governance means recognising that shared environments demand shared restraint and that access to orbit carries obligations beyond national interest or commerce. Setting up such a governing system in turn requires us to answer some tough questions first: When does congestion become negligence? Who bears responsibility for cumulative risk? What obligations do present-day operators owe to future spacefarers?

Voluntary guidelines and rhetorical commitments no longer work; instead, governments and private sector enterprises must express the best principles of environmental governance in enforceable terms in space policy. Existing guidelines to mitigate debris in orbit, while being technically sound, rely largely on voluntary compliance and lack uniform monitoring or sanctions for non-compliance. This has resulted in an uneven regulatory landscape in which the responsible operators absorb higher costs.

Space should be sustainable, which means we should be willing to make it so. In space as on the earth, governance that waits for damage before assigning responsibility will arrive too late.

*(Shrawani Shagun is a researcher focusing on environmental sustainability and space governance.*

*shrawani.shagun@gmail.com  
Abhiram Nair is a space sustainability researcher and entrepreneur shaping the future of responsible orbits. ceo@erets.uk)*

### THE GIST

▼ The earth's orbital environment has become crowded, fragile, and vulnerable, threatened by what is today evidently a failure of governance rather than just of engineering

▼ Reducing risk depends on having accurate information about when objects in orbit might come close to one another and exactly where they are

▼ Even debris smaller than a coin, travelling at orbital velocities, carries enough energy to disable or destroy active satellites

▼ The existing treaties were written for an era when space activity was limited, controlled by states, and innovation was slow



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## GS Paper II – Social Issue

### Counting people is not counting disaster risk

**O**disha is, by any measure, one of India's most disaster-prone States. Its 574.7-kilometre coastline has absorbed some of the most powerful cyclones to make landfall on the subcontinent. Over two decades, through investment in early warning systems, cyclone shelters, and mass evacuations, the State has reduced cyclone mortality to near zero. It is, therefore, not merely paradoxical but troubling that the 16th Finance Commission has awarded Odisha the single largest reduction in disaster funding share among all 28 States, a decline of 1.57 percentage points relative to the 15th Finance Commission's allocation.

How does a State with the highest hazard score in the country, and the deepest investments in preparedness, end up losing the most? The answer lies in a structural problem in the Finance Commission's allocation formula.

#### The revised formula and its rationale

The 16th Finance Commission has allocated ₹2,04,401 crore to State Disaster Response Funds (SDRF), a 59.5% increase over its predecessor. The Commission adopted a multiplicative Disaster Risk Index (DRI = Hazard X Exposure X Vulnerability), drawing on the theoretical framework. This is a departure from the additive approach of the 15th Finance Commission, which treated hazard and vulnerability as substitutes rather than complements. Risk arises only when hazard intersects with exposed and vulnerable populations. A powerful cyclone striking an uninhabited coastline is a natural event, not a disaster. The logic is correct. The operationalisation is not.

The first problem lies in the measurement of 'Exposure'. The Commission uses the total population of each State, scaled linearly between 1 and 25, as its exposure metric. Uttar Pradesh receives 25 and Sikkim receives 1. This is administratively convenient but scientifically indefensible. Exposure, per the United Nations Intergovernmental Panel on Climate Change



**Aswathy Rachel Varughese**

Assistant Professor, Gulati Institute of Finance and Taxation, Thiruvananthapuram, Kerala

Structural problems in the 16th Finance Commission's disaster funding formula leave India's most hazard-prone States underserved

(IPCC)'s Sixth Assessment Report, is the presence of people in places that could be adversely affected by hazards, not simply the number of people within a political boundary. A State with 10 crore people on a hazard-safe inland plateau has lower exposure than a State with three crore people settled entirely along a cyclone-prone coastline. Total population and hazard-zone population are not the same variable.

The practical consequences are stark. Odisha's hazard score of 12 is the highest in the country. But because its population score is only 5, its computed DRI of 79.8 is overshadowed by Bihar's 224.2 and Uttar Pradesh's 413.2, two States with lower hazard scores. The multiplicative formula, in practice, rewards demographic size. A State can face the most intense hazard in India and still lose funding because it is not populous. This is precisely the outcome that a risk-based allocation framework was designed to prevent.

The second problem compounds the first. Vulnerability is measured through each State's average per capita Net State Domestic Product (NSDP), inverted so that poorer States score higher. The intuition is clear – poorer States have fewer fiscal resources to absorb disaster shocks. But the NSDP measures fiscal capacity, not disaster vulnerability. Vulnerability is multidimensional, encompassing housing quality, health infrastructure in hazard zones, early warning reach, and the share of population in structurally unsafe dwellings. Average per capita income conceals enormous intra-state inequality.

In 2018, Kerala suffered its worst flooding in a century, causing estimated damages of ₹31,000 crore. Yet, the formula assigns Kerala a vulnerability score of just 1.073, near the minimum, because its per capita income is relatively high. Combined with a population score of 4, Kerala's DRI, of 34.5, is lower than many States with negligible disaster history. Jharkhand, with the second-highest vulnerability score reflecting genuine poverty and tribal fragility, still loses 0.78 percentage points of funding share

because its population score cannot compensate in the multiplicative framework. Twenty States in total have lost relative share. The common thread is not that they are safer; it is that they are smaller, wealthier on average, or both.

#### What needs to change

Exposure should be measured as the number of people living within defined hazard zones, flood plains, cyclone-prone coastal belts, earthquake-susceptible zones, using the Building Materials and Technology Promotion Council (BMTPC) Vulnerability Atlas cross-referenced with Census enumeration block data. Vulnerability should be reconstituted as a composite index incorporating the share of kutcha housing, agricultural labour dependence, health infrastructure density in high-hazard districts, crop insurance penetration, and early warning effectiveness. The National Family Health Survey (NFHS)-5, the Pradhan Mantri Fasal Bima Yojana (PMFBY) database, National Health Mission (NHM) facility surveys, and India Meteorological Department (IMD) monitoring records collectively provide that information. The Finance Commission should mandate the National Disaster Management Authority to publish an annual State Disaster Vulnerability Index as the authoritative input for each subsequent award period, institutionalising the methodology and ending contested metrics at every Commission.

India cannot afford to get disaster finance wrong. Climate projections indicate intensifying cyclone frequencies along both coastlines, expanding drought belts across peninsular and central India, and escalating extreme rainfall in already-stretched States. The States most likely to face the sharpest increase in disaster frequency – Odisha, Andhra Pradesh, Kerala, Assam – are precisely those the current formula underserves. A formula that measures total population rather than the exposed population is not a risk index. It is a headcount.



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## GS Paper II – Polity

# An impeachment move with no winners

**A** win-win situation benefits all stakeholders even if a compromise is reached in search of a workable alternative. It could even be a way in which the winning side deludes the losing side to perceive its loss as a necessary price it paid for survival.

The impeachment motion of the Opposition parties against the Chief Election Commissioner (CEC) is one such example. It is a motion destined not to carry. Yet its prime movers may not see the loss as a defeat. But can the CEC see their loss as his victory?

The move of the Opposition parties is doubtlessly dramatic. However, the question that needs to be pondered by the well-wishers of the Election Commission of India (ECI) is what prompted them to don the gloves for a fight with no chance of victory. Perhaps, sometimes one fights not to win but to wound the opponent. And the troubling part is that political parties treat the CEC as an opponent.

### Steadfast defiance

The move to impeach the CEC is a first in the history of an institution that is supposed to be a vanguard of Indian electoral democracy. "India built many institutions after attaining freedom and adopting a Republican constitution...If anyone were to conduct an opinion poll on which of these institutions rendered the best service to Indian democracy with the highest degree of integrity, I have no doubt that the ECI will be our people's first choice," said Atal Bihari Vajpayee, the then Prime Minister at the ECI's golden jubilee celebrations on January 17, 2001.

And now, 25 years later, 193 parliamentarians of the Opposition have submitted notices for an impeachment motion against the CEC citing charges of "partisan and discriminatory conduct", "obstruction of investigation into electoral fraud" and disenfranchisement via the Special Intensive Revision (SIR) of electoral rolls. The notice is as



**Ashok Lavasa**

Former Election Commissioner and Union Finance Secretary of India

The exclusion of even a single eligible voter due to the way the SIR has been conducted would legitimise the criticism of this arbitrary and aggressive exercise

unprecedented as the manner in which the revision of electoral rolls has been undertaken despite serious challenge by most political parties, except the ruling dispensation. Such an alignment of thinking disconcerted the Opposition, which sharpened their attack against the CEC. The repeated press conferences by the Leader of the Opposition (LOP) exposing discrepancies in the electoral rolls of States where elections had been held, further eroded trust in the body.

While the aggressive style and severity of the LOP's attack on the poll body, questioning its integrity was surprising, what was more surprising was the poll body's obduracy in not providing a credible response to the doubts raised on its functioning and impartiality. As the attacks became more and more bitter, communication channels between the poll body and the opposition political parties seemed to choke.

The nation had seldom seen such a relentless campaign against a CEC even as the Supreme Court heard endless petitions against his decisions. As the petitions failed to yield any substantive relief, frustration mounted and so did the CEC's apparent indifference. The CEC persisted with the SIR despite the fortnight-long Vote Adhikar Yatra just before the Bihar State elections.

Not that there was no dialogue. The one between the poll body and the Trinamool Congress caused more rancour culminating in the theatrical presence of Mamata Banerjee in the Supreme Court. Never before had a Chief Minister appeared in Court arguing against the ECI's unfair decisions. The dharnas against the SIR in West Bengal or officials dying in the course of conducting the SIR failed to deter the CEC or change his avowed commitment to "purify" the electoral rolls.

The ECI invented the "logical discrepancy" tool that pitted electors against the AI used to detect discrepancies. West Bengal saw 58,20,899 electors deleted at

the draft stage and 60,06,675 "under adjudication" in the final list. But the ECI went on to announce elections in the State, where the fate of nearly 10% electors remained undetermined. It employed micro-observers for finalising the revised rolls, something never done in the past. The SC also took the extraordinary step of appointing over 500 judicial officers to decide the fate of these electors in a short span.

It is unusual for a constitutional body mandated with electoral rolls preparation to involve another constitutional body in discharging its routine functions by disregarding the elector's voting right, which it was created to protect. The exclusion of even a single eligible voter due to the way the SIR has been conducted would legitimise the criticism of this arbitrary and aggressive exercise.

### A loss for the common man

However, does all of this justify the impeachment move? The answer depends on which side of the divide one stands. The crores of voters who figure in the final electoral roll might not protest, treating the tension and trauma during the revision process as part of the routine struggle that helpless citizens go through to secure their rights. The voice of those excluded doesn't count in the elections in any case.

Eventually, the valid concern of protecting the right to vote turns into the lament of losers who are left with no choice but to resort to the ultimate constitutional weapon against the CEC.

Meanwhile, the ECI has sounded the poll bugle asking players to contest against each other rather than against the referee. It is now in full control. The successful completion of the poll process will justify all its decisions. Victors will exult; losers will find reasons to complain.

What the nation would be left with will be a poll body in which the Opposition, representing more than half the voting population, has expressed no confidence.

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## GS Paper II – Polity

# How women voters are shaping State politics in 2026

Even though women are increasingly shaping party strategies and political outcomes, their representation in State Assemblies remain low

### DATA POINT

Sanjay Kumar  
Vibha Attri

**W**omen voters have become a central point of discussion in elections in India in recent times. Rightly so, because parties in power roll out women-centric schemes, sometimes even direct cash transfer ones, to win their support. Opposition parties too make promises about initiating schemes for women's welfare, if elected. These promises seem to making some impact, reflected in the rising turnout of women voters. Parties appear to have mobilised women through welfare schemes, and this mobilisation is seen as a key factor for electoral success.

The upcoming Assembly elections in Assam, Kerala, West Bengal and Tamil Nadu are unlikely to be different. Women, who constitute nearly half of the electorate in each State (and slightly more in Kerala), are a key focus of all political parties. Electoral trends show that while turnout has increased, women remain underrepresented in State assemblies. However, evidence from Lokniti-CSDS data suggest that their voting choices have somewhat shaped party strategies and political outcomes.

Across all four States, women's voter turnout has remained high and largely stable over the past three decades, often matching or slightly exceeding men's participation (Table 1). In Assam, the gender gap narrowed from -1.48 percentage points in 1991 to +0.41 in 2021. Kerala shows a similar trend, with women voting at levels equal to or slightly higher than men. In 2016, women's turnout surpassed men's, with a gap of +2.17 percentage points. By 2021, the turnout was nearly equal, with a gap of +0.09 percentage points.

In West Bengal, women's turnout remained slightly below men's until 2011, when it sur-

passed men's for the first time and maintained a marginal lead in the subsequent election (+0.38 percentage points in 2021). Tamil Nadu, historically lower in voter participation compared to other States, reached near parity by 2011, and women's turnout has remained close to men's turnout through 2021, with only a minimal gap of -0.27 percentage points.

**Representation in Assemblies**  
While women have consistently shown high voter participation, converting this engagement into representation in State Assemblies remains a persistent challenge. Over the past three decades, the proportion of women elected to Assemblies in all four States have varied, but remained low.

In Assam, women's representation rose from 3.97% in 1991 to a peak of 11.11% in 2011, but fell to 4.76% in 2021 (six of 126 seats). Kerala shows a relatively stable but persistently low level of women's representation, with women legislators occupying between 5% and 9% of seats over the years. In 2021, only 11 women were elected, accounting for just 7.86% of the 140-seat Assembly.

West Bengal stands out for gradual gains rising from 7.14% in 1991 to 13.95% in 2016, and 13.61% in 2021. In 2021 about 40 women were elected to the 294-member Assembly, the highest among these States. Tamil Nadu presents the most volatile trajectory: Representation peaked at 13.68% in 1991 but fell sharply to 3.85% in 1996. In 2021, women's representation stood at 5.13%, with 12 women elected to the 234-seat Assembly.

### On voting patterns

Survey-based estimates from Assembly election studies conducted by the Lokniti-CSDS provide insight into how women have voted over time. In Assam, there has been a clear shift. In 2011, the Congress led among women voters with 39% of women voting for them, while the BJP secured 10%.

By 2021, the BJP-led alliance increased its women's vote share to 44%. The Mahajot alliance also secured significant support, receiving 33% in 2016 and 41% in 2021, making the contest more competitive (Table 2).

Kerala presents a closely contested pattern between the United Democratic Front (UDF) and the Left Democratic Front (LDF) with women's support nearly equal in 2011 and 2016. In the 2021 Assembly elections, the LDF gained a modest advantage securing 45% of women's votes compared to the UDF's 41%. The BJP which contested independently in 2011 received 5% of the women's votes. In 2016 and 2021, contesting as part of an alliance, its share rose to 12% and 11% respectively, but it remains a secondary player in a largely bipolar contest (Table 3).

In West Bengal, the Trinamool Congress (AITC), whether contesting alone or in an alliance, has consistently secured close to 50% of the women's vote. The BJP, contesting independently in 2011 and 2016, received 4% and 10% of the women's votes, respectively. By 2021, the BJP and its allies expanded sharply among women voters, receiving 36% of the votes, pointing to some restructuring of the electoral landscape (Table 4).

Tamil Nadu shows alternating patterns between the All India Anna Dravida Munnetra Kazhagam (AIADMK) and the Dravida Munnetra Kazhagam (DMK). The AIADMK led among women voters in 2016 (46%), but the DMK alliance overtook it in 2021 with 45% compared to the 42% of the AIADMK and its allies (Table 5).

Despite their high participation, women remain a small minority in State legislatures. Over the past three decades, structural barriers such as limited party nominations, competitive electoral dynamics and social and cultural constraints have constrained representation. Yet, their voting patterns increasingly shape party strategies and influence political contests.

## Women's electoral power

The data for the tables were sourced from Lokniti-CSDS



**TABLE 1:** The gender gap in voter turnout in State elections. (+) indicates higher turnout of women compared to men, (-) indicates lower turnout of women

Year	Assam	Kerala	West Bengal	Tamil Nadu
2021	+0.41	+0.09	+0.38	-0.27
2016	+0.34	+2.17	+0.9	+0.17
2011	-1.91	-0.3	+0.23	+0.98
2006	-1.6	-2.09	-1.59	-3.66
2001	-5.49	-3.72	-5.3	-4.47
1996	-2.54	-1.65	-1.94	-4.3
1991	-1.48	-0.31	-1.57	-4.25

**TABLE 2:** Party-wise women's voting trends in Assam Assembly elections (in %)

Year	Mahajot/Congress/Congress+	NDA/BJP	AJUDF	Others
2021	41	44	-	15
2016	33	42	13	12
2011	39	10	13	38

**TABLE 3:** Party-wise women's voting trends in Kerala Assembly elections (in %)

Year	UDF	LDF	NDA/BJP	Others
2021	41	45	11	3
2016	42	42	12	4
2011	46	45	5	4

**TABLE 4:** Party-wise women's voting trends in West Bengal Assembly polls (in %)

Year	AITC+/AITC	BJP+/BJP	Sanyukth Morcha/INC	Left	Others
2021	50	36	10	-	4
2016	47	10	11	25	7
2011	49	4	-	40	7

**TABLE 5:** Party-wise women's voting trends in Tamil Nadu Assembly polls (in %)

Year	DMK+	AIADMK/ADMK+	BJP	Others
2021	45	42	-	13
2016	35	46	3	16
2011	40	51	2	7

Sanjay Kumar is a Professor and Political Analyst. Vibha Attri is a Research Associate at Lokniti-CSDS



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## GS Paper II – Polity

### SC wants practical SOP to combat human trafficking

**The Hindu Bureau**

NEW DELHI

The Supreme Court has called for framing a practical, time-sensitive, and uniform Standard Operating Procedure (SOP) to combat human trafficking cases.

"The court is not interested in any hypothetical or academic formula, but rather a practical strategy/approach which can be implemented/put into place right away, at the local police station level under whose jurisdiction the incident occurs," a Bench headed by Justice Ahsanuddin Amanullah observed in a recent order.

#### **Running against time**

The nine-page court order said time was of the "greatest importance" from the moment the police get a complaint of a missing person.

The guidelines must help in creating a procedural framework for the police to act on as soon as the complaint is received, it stated.

The court directed the Union Home Secretary, the Home Secretaries and the Directors-General of Police of the States and the Union Territories to hold a discussion with stakeholders who were specifically dealing with issues of human

#### **Top court seeks a strategy to be implemented right at level of the local police station**

trafficking within their jurisdictions to come up with specific proposals/suggestions for the perusal of the top court.

The Bench scheduled the next hearing on April 21.

"The exercise initially shall be limited to the very basic issue of investigation not only being initiated but seriously pursued immediately upon a report received relating to any missing person, more so in the background that till the person is not finally located, the case shall be kept alive not just on paper, but actually on the ground also," the top court reiterated in the order.

Besides seeking the aid of senior advocate H.S. Phoolka, who had assisted the Delhi High Court in crafting an SOP for dealing with trafficking cases in the national capital, the top court constituted a committee of P.M. Nair, former Director-General, NDRF; Veerendra Kumar Mishra, Director, Home Ministry; and S.D. Sanjay, Additional Solicitor General.



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## GS Paper III – Economics

### Unexpected surge

#### The Index of Industrial Production diverges from previous data

India's industrial growth held a positive surprise in February 2026, coming in at 5.2%, marginally faster than the growth in January. Apart from November and December last year, February's industrial performance – as measured by the Index of Industrial Production (IIP) – was the best in nearly two years. Why this was a surprise was because this performance diverges quite sharply from what was indicated by the Index of Eight Core Industries released earlier this month. The eight core sectors – crude oil, natural gas, refinery products, coal, fertilizers, steel, cement, and electricity – saw their combined growth slow to 2.3% in February, about half the growth rate in January. These core sectors have a weightage of about 40% in the IIP, and so the expectation was that they would drag the IIP down too. Yet, something else happened. This would imply that sectors outside the core ones did well. Most notably, the manufacturing sector in the IIP saw growth accelerate to a respectable 6% in February. The capital goods sector's growth accelerated to a 28-month high of 12.5%, on an already strong base of 8.1%. These are good signs for labour and capital. What is more concerning is that some elements of consumer demand are going in the opposite direction. Consumer durables grew 7.3%, but consumer non-durables contracted 0.6%, the second consecutive month of shrinkage. It had contracted in February last year as well, so this was not a statistical anomaly.

In general, spending on non-durables involves greater discretion on a day-to-day basis, and so is a better gauge of consumer sentiment. At the moment, at least this data suggest that sentiment is low. This also correlates with the new series of national accounts data showing that household expenditure has had a shrinking contribution to GDP. The government should also look into why the IIP and the Eight Core Industries index moved in opposite directions in February. The two are normally highly correlated, and so a divergence is immediately noteworthy. From the looks of things, February's strong IIP performance is likely to be a short-lived acceleration. The West Asia crisis is already having an impact on the economy. The monthly economic review by the Finance Ministry has said that early high-frequency economic indicators for March are pointing towards a "moderation in economic momentum". The longer the war persists, the sharper this "moderation" is likely to be. On a positive note, while what is being measured might turn dismal, how it is being measured will soon improve. The new, upgraded series of IIP data will be released in May. As the new GDP and CPI have done, the new IIP is sure to provide a clearer picture of the economy – the good and the bad.

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## GS Paper III – Economic Development

# On global tensions and India's economy

In an economy that imports more than four-fifths of its crude oil, external shocks transmitted through energy prices, shipping route, and volatile commodity markets can significantly reshape fiscal arithmetic. In this context, India must rebalance toward income-led demand, more resilient revenue bases and greater energy diversification

### ECONOMIC NOTES

#### Deepanshu Mohan

**R**ising geopolitical instability in West Asia is forcing a reassessment of how India's macroeconomic strength is measured. As of March 2025, this instability has translated into active macroeconomic stress. The rupee has depreciated to a record low of 85 per dollar, the Indian basket of crude oil hit \$156.29 per barrel, and the Reserve Bank of India has deployed billions of dollars of foreign exchange reserves to contain volatility. In such conditions, strong quarterly GDP prints capture domestic activity but often overlook vulnerabilities linked to energy imports, shipping routes and fiscal buffers.

Against this backdrop, India enters the post-Budget season with a striking macroeconomic contraction. Headline indicators remain robust: the State Bank of India expects Q3 FY26 GDP growth of about 8.1 percent, public capital expenditure is near 4 percent of GDP, and fiscal consolidation toward a 4.3 percent deficit by FY27 remains intact. At the same time, external buffers are weakening. Foreign exchange reserves have declined from recent highs to about \$709.76 billion, while foreign portfolio outflows of over \$8 billion following the onset of the conflict have intensified currency pressures.

Yet income dynamics are weaker. Real wages remain subdued, household liabilities have risen to roughly 48 percent of GDP, and private investment continues to lag the state's capex-led expansion. This divergence reflects a deeper shift in India's fiscal architecture: revenue buoyancy is increasingly driven by transaction-linked taxation while expenditure tilts toward capital formation. In a stable global environment this model can sustain growth, but when energy markets become volatile, its durability depends on whether fiscal revenues, consumption and investment can withstand external commodity shocks.

#### Shifts in revenue structure

India's revenue structure has been shifting in ways that matter more in a volatile global environment. Revenue receipts have risen from 8.5 percent of GDP in FY16-20 to about 9.1 percent in FY22-FY25 (PA), but the increase reflects reclassification rather than a broadening of income taxation. The Union Budget 2025-27 estimates gross tax revenue at \$44.04 lakh crore, yet much of the buoyancy now comes from transaction-linked channels. GST collections reached ₹22.8 lakh crore in FY25, while levies on financial and cross-border transactions have also expanded.

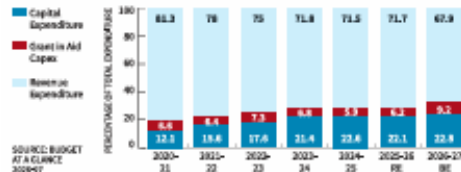
Direct taxes typically expand when more workers move into stable paid employment. As a result, revenue growth increasingly depends on the volume of economic transactions rather than income deepening.

External shocks particularly energy price spikes that raise transport costs and compress household spending can quickly slow transactions. In such conditions, a fiscal model reliant on activity-linked taxation becomes more sensitive to geopolitical disruptions that ripple through consumption, trade and financial markets.

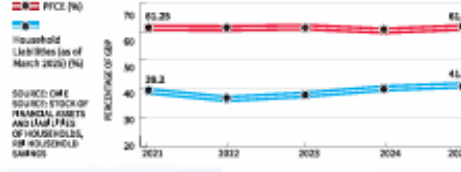
This vulnerability has been evident

### Fiscal trends

India's fiscal stability is tied to capital spending and transaction-based revenues, leaving it vulnerable to energy shocks and geopolitical tensions



SOURCE: BUDGET AT A GLANCE 2024/25



SOURCE: OME

SOURCE: OME

SOURCE: OME

SOURCE: OME

SOURCE: OME

SOURCE: OME

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longer refill cycles and local shortages, raising household energy costs even as leverage remains elevated.

At the same time, India's expenditure strategy has pivoted toward infrastructure-led growth. The Union Budget 2025-27 places effective capital expenditure at ₹17.15 lakh crore.

While such front-loaded investment strengthens long-term productive capacity, it compresses fiscal space for welfare stabilisers. Allocations for the Mahatma Gandhi National Rural Employment Guarantee Act fell to ₹60,000 crore in 2024-25, 33 percent below the previous year's revised estimate; by December 2024, States had already spent 117 percent of available funds, with ₹8,449 crore in pending liabilities.

In a low-wage environment, imported energy inflation compresses real incomes while debt servicing obligations remain fixed. Rising household leverage therefore becomes a macroeconomic vulnerability, especially when fiscal policy prioritises capital formation over income support.

**Implications for industrial sector**  
India's industrial upswing is increasingly concentrated in capital-intensive sectors aligned with public investment. Industrial output rose 7.8 percent in December 2025, with manufacturing expanding 8.1 percent year-on-year and 4.8 percent over April-December. High- and medium-technology industries now account for about 46 percent of manufacturing value added, according to the Economic Survey 2025-26.

By contrast, labour-intensive industries remain weak. Private investment remains cautious despite rising project announcements. CMIE (Centre for Monitoring Indian Economy) data shows private firms account for nearly 80 percent of new project announcements, yet only about 9 percent reached completion in 2022-25, suggesting a recovery that expands production capacity more than wage-linked income.

In a volatile global environment, this financial strength has translated into greater risk selectivity rather than broader credit expansion.

The recent LPG crisis induced shortages of commercial cylinders have forced the closure of restaurants, cloud kitchens and small food businesses, with gig worker unions reporting a 50-60 percent decline in food delivery orders. Such shocks disproportionately affect labour-intensive and informal sectors, where incomes are directly tied to daily demand and lack institutional protection, even as capital-intensive sectors remain relatively insulated within the financial system.

As external pressures intensify, they raise a broader question of fiscal optionality: the state's ability to absorb shocks without abandoning consolidation targets. With fiscal space tied to capital expenditure and revenues dependent on economic transactions, geopolitical disruptions can quickly narrow the room for counter-cyclical intervention. In such a context, India must rebalance toward income-led demand, more resilient revenue bases and greater energy diversification, or risk turning external shocks into a recurring source of fiscal stress.

(Deepanshu Mohan is professor and dean, O.P. Jindal Global University. He is a visiting professor at LSE and a visiting academic fellow at University of Oxford. Saksham Raj and Aditi Lazarus contributed to this column.)

### THE GIST

India's fiscal system remains structurally exposed to oil price volatility. External shocks, particularly energy price spikes raise transport costs and compress household spending.

Private consumption accounts for roughly 61.4 percent of India's GDP, yet household liabilities have risen sharply, increasing sensitivity to inflationary shocks. At the same time, India's expenditure strategy has pivoted toward infrastructure-led growth.

In a low-wage environment, imported energy inflation compresses real incomes. Rising household leverage therefore becomes a macroeconomic vulnerability, especially when fiscal policy prioritises capital formation.

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## GS Paper III – Disaster Management

# Most parts of India to see more heatwave days: IMD

East, central and northwest India may experience above-normal temperatures, while North India is likely to see a cooler-than-normal summer; country likely to get 12% more rainfall in April

**Jacob Koshy**  
NEW DELHI

North India is likely to experience a cooler-than-normal summer this time, while other parts of the country may see more number of heatwave days, the India Meteorological Department (IMD) said on Tuesday.

From April to June, above-normal maximum temperatures are expected over most parts of east and northeast India, as well as eastern parts of central India, and adjoining peninsular regions. Maximum temperatures are likely to be "normal to below normal" over the remaining parts.

There will likely be more than the usual number of heatwave days over parts of east, central and northwest India, and southeast peninsula during this period. Many parts of coastal Odisha, West Bengal, Tamil Nadu, Puducherry, Andhra Pradesh, and some regions of Gujarat, Maharashtra and Karnataka are likely to see heatwaves in April.

### El Nino fears

The country will likely receive 12% more rain than



The IMD says 2004 and 2014 were years that saw relatively cooler summers over northwestern India. SHASHI SHEKHAR KASHYAP

usual in April.

In July, however, forecasts suggest the emergence of an El Nino, a 1+ degree Celsius warming of regions of the Central Pacific Ocean that frequently links to reduced rain in India.

Experts said it is still early to link cooler summers to diminished monsoon rainfall though it is a pattern that has held in the past. The IMD is expected to provide an initial forecast on the expected performance of monsoon

2026 on April 15. India experienced surplus monsoon in 2024 and 2025. Save for 2023, India has received 'normal' or excess rainfall in all years since 2020. With fertilizer output expected to be hit this year on account of the Iran-U.S. war, weak rainfall could impact kharif sowing. "Cooler than normal summer means less heating of the landmass, which typically acts as a natural pull for moisture and monsoon. This could affect the onset of the monsoon and

its initial progress [over Kerala in June]," said Madhavan Rajeevan, climatologist and former Secretary, the Ministry of Earth Sciences.

"However a clearer picture could emerge only around end May. There is also a forecast for a 'super' El Nino. We shouldn't worry now but if these signals persist in May, the government should prioritise drought management."

### Historical temperatures

At a press briefing, IMD Director-General M. Mohapatra said that while there were "textbook" relationships between landmass temperature and rainfall, the relationship was not simple and there were several meteorological factors that influenced the monsoon. IMD historical records suggest that 2004 and 2014 were years that saw relatively cooler summers over northwestern India followed by weak monsoon rainfall.

March this year has seen several rain episodes bringing 12% more rain than is usual for the month. There were eight western disturbances that brought rain to northern India as opposed to six.



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## GS Paper III – Science & Technology

# Sanand 'bridge' to Silicon Valley: PM on rise in semiconductor ecosystem

**Abhinay Deshpande**

AHMEDABAD

Prime Minister Narendra Modi on Tuesday positioned Gujarat's Sanand as an emerging link in the global semiconductor network as he inaugurated a semiconductor assembly and test facility of Kaynes Semicon in Sanand, declaring that a "bridge" now connects the industrial town with Silicon Valley.

Addressing the gathering, the Prime Minister described the current period as the "decade of India" and underscored the rapid expansion of the country's electronics sector. He projected that India's semiconductor market could exceed \$100 billion by the end of the decade.

The plant, built at an estimated cost of ₹3,300 crore, will serve as a signif-



**Switching on:** Prime Minister Narendra Modi at the inauguration of the Kaynes Semiconductor Plant in Ahmedabad on Tuesday. ANI

icant milestone under India's semiconductor mission.

### Global market

Stating that India is emerging as a reliable semiconductor supplier in the global market, Mr. Modi added that chips manufactured in Sanand will reach the United States and il-

luminate the world. "India's current global semiconductor market stands at ₹4.5 lakh crore, with a target of reaching ₹9 lakh crore by 2030," he said.

"As a result, the Semiconductor Mission was launched in India in 2021. This is not merely an industrial policy, but a declaration of India's confidence

on the global stage. He added that today's New India is not just witnessing change but is moving forward to lead it," he said.

### India's position

Referring to India's recent participation in the Pax Silica initiative, a U.S.-led coalition focused on securing supply chains for semiconductors, artificial intelligence and rare earth elements, Mr. Modi said such collaborations will enhance resilience in critical technology sectors.

### 'Techade'

Describing the current period as India's 'Techade', Mr. Modi noted that India is among the leading adopters of artificial intelligence and pointed to the success of Digital India and fintech as evidence of growing public trust in technology.