

DAILY **CURRENT AFFAIRS**

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India's reduction in Russian oil imports during 2025 has come under global attention, especially after the U.S. imposed a 25% additional tariff on Indian imports citing India's continued purchase of discounted Russian oil.

- However, trade data reveal that India's cutbacks began months before the tariff announcement, signalling a deliberate diversification strategy rather than a tariff-driven compulsion.
- The issue is significant for UPSC as it intersects energy security, geopolitics, trade policy, and strategic autonomy.

India's Russian oil cuts predate U.S. tariffs: data

The 25% additional tariff by the U.S. came into effect on August 27 while government figures show a reduction in energy imports from Russia in the previous months compared with 2024; a Commerce Ministry official said Trump tariffs were imposed at the same time and they were a factor to consider, but they are not driving Indian policies

T.C.A. Sharad Raghavan
NEW DELHI

India is implementing a larger strategy to reduce its dependence on oil imports from Russia, with the higher tariffs imposed by the U.S. coming at a time when India was already cutting its Russian oil imports, according to an analysis of official data. This has been confirmed by government officials.

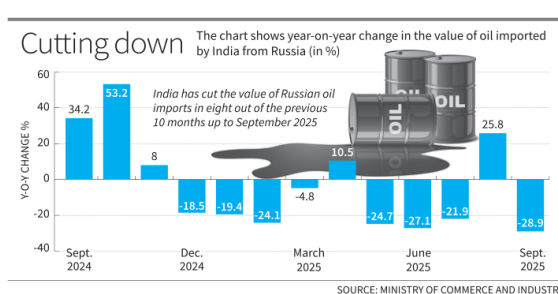
An analysis by *The Hindu* of government trade data shows India's oil imports from Russia in September 2025 – the first full month during which the U.S.'s 50% tariffs on Indian imports were applicable – were 29% lower in terms of value and 17% lower in terms of volume than in September 2024.

However, the data show that this is part of a larger strategy rather than a reaction to the tariffs, half of

which were imposed as a "penalty" for importing Russian oil.

Bigger strategy

The Russian oil-related 25% additional tariff by the U.S. on Indian imports came into effect on August 27. However, data show that India had cut the value of Russian oil imports in eight of the previous 10 months up to September 2025, compared with the corresponding period of 2024. In five of these months – February, May, June, July, and September – the cuts exceeded 20% each. "India has known for a while now that its dependence on Russian oil imports had grown too high and so it was already working on a plan to reduce this," an official in the Union Ministry of Commerce and Industry told *The Hindu* on the condition of anonymity, given the sensitivity



of the issue.

"The Trump tariffs had come during that time," the official said. "Yes, they are a factor to be kept in mind, but they are not driving Indian policies."

Since the 50% tariffs were imposed, U.S. President Donald Trump has been repeatedly claiming that India will be cutting its imports of Russian oil, so-

mething the Indian government has neither confirmed nor denied.

Separately, formal trade talks between India and the U.S. have resumed after a brief hiatus, with statements again being made about tranche one of a Bilateral Trade Agreement expected to be concluded "soon".

Several Indian Minis-

ters, including External Affairs Minister S. Jaishankar, Commerce Minister Piyush Goyal, and Finance Minister Nirmala Sitharaman, have asserted that India will make its energy import decisions as per its needs and best interests, and not under duress.

Declining share

The reduction of Russian

oil is not just in absolute terms, but also in terms of its share in India's total oil imports.

Russian oil accounted for about 41% of India's total oil imports in September 2024, which came down to 31% by September 2025. However, rather than a one-off, the data confirm that this is part of a longer process.

Russia's share in India's oil imports grew from 1.6% in 2020-21 to 2% in 2021-22, before steadily jumping to 19% in 2022-23, 33.4% in 2023-24, and 35.1% in 2024-25.

The first six months of 2025-26 had, however, snapped this four-year increasing trend, with Russia's share falling to 32.3% in the April-September period.

Diversified imports

Russia's war in Ukraine, the resultant sanctions on it by

the U.S. and Europe, and the discounts it provided India resulted in a significant shift in India's oil import basket for a few years after the war started, with an increasing dependence on Russia.

Some of that is now reversing itself as India has started shifting away from Russian oil.

In 2021-22, the U.S. accounted for 9.2% of India's oil imports and the UAE accounted for 12.4%. This was when Russia accounted for only 2% of India's oil imports.

By 2024-25, Russia accounted for 35.1% of India's oil, while the shares of the U.S. and the UAE had fallen to 4.6% and 9.7%, respectively.

In the first six months of 2025-26, the U.S. share has once again increased to 8% and that of the UAE to 11.7%, even as Russia's share has fallen to 32.3%.

Background

1. India's Energy Security

- India imports ~85% of its crude oil.
- Energy security = availability, affordability, and sustainability.
- Diversification of suppliers is a core component of India's energy strategy.

2. Strategic Autonomy in Foreign Policy

- India traditionally follows multi-alignment.
- Decisions on oil purchases are guided by national interest, not bloc politics.
- Similar stance seen during:

- Iran sanctions (2018–2020)
- Russia-Ukraine conflict (post-2022)

3. Trade Measures & Tariffs

- U.S. tariffs are a unilateral trade action.
- Tariffs can be imposed for:
 - Trade imbalance
 - Political leverage
 - Strategic signalling
- WTO provisions allow such actions under certain conditions (national security exception).

4. India-U.S. Trade Relations

- U.S. is India's largest trading partner.
- Negotiations underway for a Bilateral Trade Agreement (BTA).
- Tariff issues often affect bilateral diplomacy.

Current Developments

1. India's Russian Oil Cuts Pre-date U.S. Tariffs

- U.S. imposed a 25% tariff: 27 August 2025 (Russia-linked imports).
- Yet, India reduced Russian oil imports in 8 of 10 months before September 2025.
- Cuts exceeded 20% in multiple months (Feb, May, June, July, Sept). - Shows that the decline is structural, not a reaction to U.S. pressure.

2. Declining Share of Russia in India's Oil Basket

- Sep 2024: 41% share
- Sep 2025: 31% share
- Apr–Sep 2025–26: 32.3% (first reversal after four years)

Trend Shows

- The Russia-driven rise (from 2% in 2021–22 to 35% in 2024–25) is now moderating.

3. Diversification Strategy Underway

The share of other suppliers is rising:

Country	2021-22	2024-25	Apr-Sep 2025-26
USA	9.2%	4.6%	8%
UAE	12.4%	9.7%	11.7%
Russia	2%	35.1%	32.3%

Interpretation

- India is restoring balance in its oil basket.
- Ensures supply resilience amid global geopolitical volatility.

4. Why is India Reducing Russian Oil?

a) Risk Management

- Overdependence on a sanctioned economy increases vulnerability.

b) Global Financial Sanctions & Payment Challenges

- Banking, insurance, and shipping restrictions complicate transactions.

c) Narrowing Discounts

- Russia's discount advantage has reduced compared to 2022–23.

d) Long-term Strategic Alignment

- India seeks to maintain balanced ties with both U.S. and Russia.

5. India Rejects External Pressure

Ministers (EAM, Commerce, Finance) have stated:

- India will make decisions purely based on energy needs.
- No external "duress" will dictate policy.
- India's stance aligns with its long-held strategic autonomy doctrine.

Impact & Implications

1. For India-U.S. Relations

- De-escalation of trade tensions possible as India reduces Russian dependence.
- May help in concluding Tranche-1 of Bilateral Trade Agreement.

2. For India-Russia Relations

- Reduced oil share does not signal a breakdown.
- Defence and strategic cooperation remain strong.
- But India is subtly signalling that excessive dependence is risky.

3. For Global Oil Geopolitics

- India's shift affects:
 - Russia's Asian market strategy
 - Middle Eastern suppliers (UAE, Saudi) regaining market share
 - U.S. strengthening its LNG and crude exports

4. Economic Effects on India

- Diversification - greater stability and bargaining power
- Higher U.S. tariffs - limited impact since shift began earlier
- Potential modest rise in import bill if discounts shrink

Conclusion

India's declining Russian oil imports represent a planned, strategic diversification rather than a knee-jerk response to U.S. tariffs. The data clearly show that India was already moderating its dependence months before tariff imposition. This development reflects India's broader commitment to energy security, supply diversification, and strategic autonomy amid a turbulent geopolitical environment.

UPSC Mains Practice Question

Ques: India's reduction in Russian oil imports is driven more by long-term strategic diversification than by U.S. tariff pressure. Discuss. **(150 Words)**

COP30 in Belém, Brazil, was expected to be the “COP of implementation”, pushing countries toward decisive action on fossil fuel phase-out and climate finance. However, negotiations have drifted into disputes over finance, equity, and pathways, revealing deep divides between developed and developing countries. The stalled progress underscores long-standing tensions around climate justice.

Climate talks veer away from ‘implementation’

Differences over financing and pathways have hurt progress on a decisive deal on climate action; observers say European nations have reached the ‘maximum’ they can deliver in terms of finance

Jacob Koshy
BELEM

Stop “the *blah-blah*, down with gas in Asia,” chants a group of activists in the hallways of the COP30 venue in Belém, Brazil, while they raise colourful banners and placards condemning oil and gas drilling.

The walls of this sprawling venue hosting the climate talks – once this harbour-city’s airport – are makeshift and porous and these chants bleed through into the more sombre rooms, where teams of delegates from a coalition of countries – nearly all of them Asian – cobble together common ground to stonewall and delay firm action on eschewing fossil fuel use. The countries are collectively called the Like Minded Developing Countries (LMDC).

Saudi Arabia is a vocal representative of the LMDC that comprises several oil and gas producing nations and given the criticality of fossil fuel to their economies, have for years resisted a phase-out plan for fossil fuel. The ‘Like Mindedness’ of these countries is fuzzy.



Activists participate in a demonstration outside the venue for the COP30 UN Climate Summit in Belém on Wednesday. AP

The climate talks in Baku, last year, concluded with the rich countries promising to deliver \$300 billion annually by 2035, which was viewed as insufficient to keep the world from heating beyond two degrees Celsius (2C). The push-back against this – a position India has independently articulated multiple times – is that these sums are never available as low-cost loans or grants and available largely as part of commercial transactions.

“Grants and concessional resources can lower the cost of capital, facilitating a robust pipeline of invest-

ments and making these investments more sustainable by lowering the cost of capital,” India said on November 15.

Differing views

On the other hand, observers as part of European delegations say that several Western European countries have reached the “maximum” they can deliver in terms of such public finance. “While it is well understood that (developing) countries have their own limitations and planned pathways regarding their dependence on fossil fuel, the sense is that

the maximum funds that can be made available as public finance have already been done so,” said Jen Mattias Clausen, EU Program Director with Concipto, a think tank in Denmark and who has been part of COP negotiations for over a decade.

This fundamental logjam guides attempts by the President of COP negotiations, at present Andre Lago of Brazil, to opt for a process whereby all countries – nearly all of them who are part of about 19 negotiating blocs – feel heard, rather than crafting an ambitious decisive deal that would ratchet climate action. This, when COP30, in the run up to the two-week jamboree was pitched as a “..COP of implementation.”

As things stand on Wednesday, the Presidency has asked countries to evolve consensus on four of the most pressing climate concerns – finance, trade, transparency and the fact that countries’ emissions-cutting plans – known as nationally determined contributions or NDC, are inadequate to limit temperature rises to 1.5 degrees Celsius.

Background

1. UNFCCC Framework

- Established 1992; basis for global climate negotiations.
- Principles: Common But Differentiated Responsibilities (CBDR-RC), equity, climate justice.

2. Paris Agreement (2015)

- Target: limit warming to 1.5°C (or “well below 2°C”).
- Each country submits Nationally Determined Contributions (NDCs).
- No enforcement—but transparency mechanism & global stocktake.

3. Climate Finance

- 2009 pledge: \$100 billion annually by 2020 (missed).
- New goal expected post-2025 (“New Collective Quantified Goal”).
- Finance must be: predictable, concessional, and accessible.

4. Negotiating Blocs

- LMDC (Like-Minded Developing Countries): India, China, Saudi Arabia, etc.
- Emphasize development space, fossil-fuel dependence, equity.
- Developed blocs: EU, Umbrella Group, emphasize mitigation ambition.

Current Developments

1. Activist Pressure vs. Negotiation Slowdown : Activists demand fossil-fuel phaseout, chanting “down with gas in Asia.” Inside the negotiation rooms, LMDC nations push back against rapid fossil fuel exit.

Why?

- Many LMDC nations (Saudi Arabia included) are fossil-fuel dependent.
- Fear economic disruption and lack of adequate finance.

2. The LMDC Stance

- Resist fossil fuel phase-out language.
- Oppose binding timelines.
- Argue that:
 - Developed countries owe the global South climate finance.
 - Transition must be just and equitable.

India echoes this view:

“Grants and concessional finance can lower the cost of capital... commercial loans are not meaningful.”

3. Developed Countries Claim “We Have Reached Our Maximum”

European observers state:

- Western countries have already delivered the highest possible public finance.
- There is limited political space for further commitments.

Implication:

- The climate finance gap remains unaddressed.
- Without finance, developing countries refuse mitigation commitments.

4. The \$300 Billion Finance Pledge (Baku COP29)

- Rich countries promised \$300 billion annually by 2035.
- Widely considered insufficient to keep warming within 2°C, let alone 1.5°C.
- Most funds are loans/commercial investments → create debt burden.

India argues this model is unfair and ineffective.

5. COP30 Failure to Deliver ‘Implementation’ : Instead of decisive action, the presidency is pushing consensus building:

Countries asked to negotiate on:

1. Climate finance
2. Trade and climate linkages
3. Transparency mechanisms
4. Strengthening NDCs

But political divides remain too wide.

Key Analysis

1. Why Implementation Is Stalling?

a) Finance Deficit

- Developing nations need \$4–6 trillion annually for net-zero pathways.
- Current commitments are a fraction of this.

b) Fossil-Fuel Dependence

- Gulf countries, Asian economies (including India) need fossil fuels for:

- energy security
- development
- industrialization
- Sudden phase-out is impractical.

c) Trust Deficit

- Developed countries have not met their past promises (e.g., \$100bn by 2020).
- Leads to suspicion that new promises will also remain unfulfilled.

d) Geopolitical Fragmentation

- Wars, inflation, and domestic politics reduce willingness to commit stronger climate finance.

2. Is India's Position Justified?

Yes, based on:

- CBDR principle
- Low per capita emissions
- Need for climate-resilient development

India demands:

- Grants, not loans
- Low-cost, long-term finance
- Technology transfer
- No unilateral pressure on fossil-fuel phaseout

Implications for India**1. Energy Transition Will Slow Down**

- Lack of concessional funds → higher cost of renewables
- Coal dependence may remain for longer
- Risk of being blamed globally for "insufficient ambition"

2. Diplomatic Balancing

India must balance:

- LMDC solidarity
- Strategic ties with EU and U.S.
- Domestic developmental needs

3. Opportunity to Lead Global South

India can push for:

- Climate justice narrative
- South-South climate cooperation
- A new global financing architecture

Conclusion

COP30's drift away from "implementation" reflects a deep structural divide in global climate politics. Developed nations claim they cannot deliver more finance; developing nations refuse stronger commitments without it. The logjam prevents progress on fossil-fuel phaseout, NDC strengthening, and climate equity.

- Unless a credible climate finance architecture emerges — one that includes grants, technology sharing, and low-cost capital — COP processes will remain symbolic rather than transformative. India, positioned between development needs and global expectations, will continue advocating for equity-based, finance-backed climate action.

UPSC Prelims Practice Question

Ques : Consider the following statements about the LMDC (Like-Minded Developing Countries):

1. LMDC is a negotiating group within the UNFCCC.
2. Most LMDC member countries strongly push for a rapid global phase-out of fossil fuels.
3. LMDC members emphasize equity and CBDR in climate talks.

Which of the statements is/are correct?

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

Ans: c)

UPSC Mains Practice Question

Ques : Finance remains the biggest roadblock in achieving meaningful climate action. Discuss in the context of the stalled negotiations at COP30. **(250 words)**

As global warming pushes the planet toward a likely $>2^{\circ}\text{C}$ temperature rise by 2100, extreme events—heatwaves, floods, cyclones, air pollution episodes—are becoming more intense and frequent. A major challenge now is to determine how much of each disaster is due to climate change and who bears responsibility for these impacts. This is where climate attribution science plays a crucial role.

- It aims to identify whether an event was made stronger or more probable due to human activities such as greenhouse gas emissions, land-use changes, or industrial pollution. In a world increasingly seeking accountability—from governments, corporations, financiers, and courts—attribution science is steadily becoming central to climate negotiations and legal frameworks.

Attribution science: the tricky task of linking disasters to emitters

The earth's surface is likely to warm by over 2°C over preindustrial times by 2100, bringing about potentially life-altering changes to ecosystems and living conditions; the evolving robustness of climate attribution will play a crucial part in how governments, banks, courts, and the people respond

Delhi's air became distinctly unbreathable. A thick blanket of smog enveloped the capital, which recorded an average Air Quality Index (AQI) of over 400, and the pollution was categorised as "severe." On November 8, Delhiites, aware of the possible respiratory ailments this noxious crisis could lead to, processed at India Gate. Many were detained.

Meanwhile, in April, the India Meteorological Department (IMD) and the Indian Institute of Tropical Meteorology, Pune, released a three-decade-long study that established that rainwater, in several parts of the country, was becoming increasingly "acidic."

In August, there was another environmental disaster, this time in the Himalayas: flash floods inundated Uttarakhand, washing away people and buildings, reportedly caused by a glacial lake burst. While it was small in scale, it was reminiscent of the 2013 Kedarnath tragedy, when over 6,000 people died after an avalanche ruptured the banks of the Chorabari Lake, causing it to burst and release 262 million litres of water within minutes. This was the worst environmental disaster in the country after the 2004 tsunami.

Real world v. models. But can we authoritatively attribute these environmental catastrophes to human-induced climate change? Put another way, while the irrefutable fact is the earth has warmed by more than 1°C since pre-industrial times, thanks to local human-generated greenhouse gases and there are local events that result in local environmental disasters as well, how sure can we be that climate change made a drought or a cyclone more likely?

This is where climate attribution science comes in. The field is concerned with estimating how the probability of events or their intensity, duration or frequency are altered by climate change.

"Models try to create a world where climate change didn't happen and look at the real world where events happened," earth system scientist Hrishabh Murgude explained. "Models are imperfect, and depending on which of these changes you try to estimate, you can get different answers. An event may have occurred naturally but attribution may say its intensity was made stronger or that its probability was increased, and so on," he told *The Hindu*.

In general, the attribution of heat waves is more accurate than the attribution of extreme rain events, J. Srinivasan, honorary professor at the Directa Centre for Climate Change, said.

"When a major heat wave strikes Europe or Asia, scientists try to estimate the contribution of the increase in carbon dioxide to that particular heat wave. Their attribution will be accurate if the model is good at simulating the past heat waves in that region," Prof. Srinivasan said.

For instance, acid rain has been associated with fossil fuel emissions from a power plant and a shipping yard, among other activities in the vicinity. Delhi's extreme pollution has been linked to the city's many vehicles spewing carbon dioxide and, seasonally, to crop residue burning in neighbouring States (which release organic aerosols, the unchecked use of fertilisers during flood, and particular wind patterns).

Identifying point sources Earlier this year, researchers at Utah State University reported studying the 2013 Kedarnath floods and finding through attribution analysis that northern India has received increasingly larger amounts of rain in June since the late 1980s due to more greenhouse gases and aerosols in the atmosphere. There are two forms of emission attribution, Amit Gang, professor at the Indian Institute of Management Ahmedabad, who specialises in energy, climate change, and sustainable development issues, told *The Hindu*.

"Point sources of emissions mean large sources at one location, such as power plants, steel plants and cement plants, while non-point are dispersed sources such as cars and rice fields."

A 2007 study published in *Environmental Monitoring and Assessment* investigated the chemical composition of precipitation over Bhubaneswar's Bhubaneswar, the "cool city of India." The rain water samples were found to have an average pH of 5.37, "indicating acidic to alkaline nature of rainwater." This is how researchers tracked down the "point source" of emissions responsible.

Coal mining in Baria, Dhanbad, emits methane, carbon dioxide, sulphur dioxide, nitrogen oxides, and "that particles in the atmosphere ... [that] act as good at catalysing chemical reactions, leading to the formation of secondary pollutants such as smog and acid rain," according to a 2025 paper in *International Journal of Scientific Research in Science and Technology*.

A nascent science This said, climate attribution science is still forming up.

When a heat wave strikes Europe or Asia, scientists try to estimate the contribution of carbon dioxide. Their attribution will be accurate if the model is good at simulating past heat waves in the region.

J. SRINIVASAN HONORARY PROFESSOR AT THE DIRECTA CENTRE FOR CLIMATE CHANGE

For instance, chemical transport modelling can now track changes and satellites can monitor emissions, and "the increase in model resolution has improved the accuracy of attribution," says Prof. Srinivasan. "If the number of heat waves or floods increases in the simulation with increasing carbon dioxide, we can use statistics to estimate the probability that the increase in floods or heat waves was caused by an increase in carbon dioxide."

Satellite observations are showing that cyclones are intensifying rapidly on account of high sea-surface temperatures, he added. "With global warming, the water vapour in the atmosphere increases. Weather forecasts from IMD have become more accurate and so deaths from cyclones have reduced dramatically."

But when there isn't enough data, "researchers run models for the planet's climate without increasing greenhouse gas emissions and other anthropogenic forcings. When there is sufficient data, they use trends in the data to compare conditions today with a period from the past in which human effects on the planet were relatively minimal," Prof. Murgude wrote in *The Hindu* in May 2024.

One climate attribution model that needs to be better fine-tuned is per-capita entitlements, according to Prof. Gang: "Climate change attribution would require per-capita entitlements for greenhouse gas emissions and equivalent climate risk coverage across populations in all countries and generations for equity and justice."

Attribution also could, in theory, translate into a way to fix responsibility, especially for rich and developed countries as Prof. Gang said. "They should ideally commit to pay for the losses imposed on developing countries and the poor. All over the world due to unbridled GHG emissions growth since 1850s."

India's contribution to the global increase in cumulative CO₂ emissions since 1850 is less than 6%, Prof. Srinivasan said.

"So what we do in the next 10 years is not as relevant as what we plan to do during the next 50 years, India has made good progress in solar and wind power plants. In the case of batteries, the availability of materials may be a bottleneck."

Going to court One paper published in *Nature* in April 2025 went a step further and asked: "Will it ever be possible to sue anyone for damaging the climate?" Because, the paper said, "the scientific and legal implications of an end-to-end attribution that links fossil fuel producers to specific damages from warming" are now available.

Using emissions data from major fossil fuel companies, and advances in empirical climate economics, the authors described "The trillion in economic losses attributable to the extreme heat caused by emissions from individual companies." If extreme weather events such as floods, droughts and extreme heat that spend lives "could be linked to climate change, the logic goes, injured parties could seek monetary or injunctive relief through courts."

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1. What Is Attribution Science?

Attribution science analyses whether climate change altered the intensity, likelihood, or duration of specific extreme events.

Two major approaches:

- Model-based attribution
 - Scientists simulate two worlds:
 - real world with human-induced warming

(b) world without anthropogenic GHG emissions

- Comparing the two shows how much climate change increased the event's probability/intensity.

2. Data-based attribution

- Uses long-term climatic, chemical, and statistical datasets
- Particularly useful for tracing point-source pollution (power plants, steel plants, ports) and non-point sources (vehicles, agriculture, aerosols).

Heatwave attribution is more robust than rainfall attribution because heatwave patterns are easier to model and historically better documented.

2. Evidence from India: How Events Are Being Attributed

a) Delhi's Pollution Crisis

Attribution identifies multiple sources:

- Vehicular emissions
- Crop residue burning
- Firecrackers
- Wind patterns
- Industrial pollution

These are clear anthropogenic factors, allowing sharper responsibility tracing.

b) Acid Rain Findings

Rain in Visakhapatnam and Dhanbad (coal city) showed increasing acidity linked to:

- Fossil fuel combustion
- Shipping yard emissions
- Coal mining (emits SO_2 , NO_x , CO_2 , methane)

Chemical analysis of rainwater has directly traced pollutants to specific industries.

c) Himalayan Flash Floods

Attribution studies (Utah State University) show:

- Higher June rainfall since the late 1980s due to greenhouse gases and aerosols
- Increased likelihood of glacial lake outburst floods (GLOFs) in a warming Himalayan region

d) Cyclone Intensification

Satellite data confirm:

- Rising sea surface temperatures → more moisture → stronger cyclones
- Rapid intensification trends linked directly to global warming

IMD's improved forecasting has reduced deaths, but event severity is rising.

3. Strengths and Weaknesses of Attribution Science

Strengths

- Better models, higher resolution, improved satellite monitoring
- Enables risk assessment for infrastructure, insurance, and development
- Supports climate litigation and policymaking
- Helps quantify economic losses from emissions

Weaknesses

- Still emerging in accuracy for rainfall, floods, and multi-factor disasters
- Limited historical data in many developing countries
- Models differ in sensitivity and reliability
- Some events have overlapping natural and anthropogenic drivers

4. Attribution, Responsibility & Climate Justice

A core debate: Who is responsible for losses and damages?

- Developed nations have emitted the largest historical share of CO₂.
- India's cumulative emissions since 1850 are <6%.
- Attribution can enable:
 - Climate compensation
 - Loss and damage claims
 - Legal action against fossil fuel corporations
 - Equitable distribution of risk and adaptation support

A 2025 Nature paper shows it is now possible to link emissions from individual companies to specific economic losses caused by extreme heat.

This has created a new frontier: Can courts hold emitters accountable?

5. Ethical & Governance Dimensions

Attribution raises questions of:

- Intergenerational equity
- Climate justice
- Corporate responsibility
- Right to clean environment (Article 21)
- Equity between low-emitting and high-emitting countries

Prof. Garg highlights the need for per-capita entitlements and equal climate risk protection across generations, anchoring climate responsibility in fairness.

Conclusion

Attribution science is transitioning from an academic field to a powerful instrument for policy, finance, and justice. As climate impacts intensify, the ability to credibly link events to emissions will shape:

- International climate negotiations
- National disaster management
- Insurance and banking systems
- Corporate accountability
- Climate litigation in courts
- Public understanding and advocacy

For India, attribution offers a scientific basis to highlight its low historical responsibility, demand global equity, and plan climate-resilient development. As the world warms past dangerous thresholds, attribution science will be critical in determining who pays, who adapts, and who is responsible.

UPSC Prelims Practice Question

Ques: "Nationally Determined Contributions (NDCs)" are related to:

- A. WTO dispute settlement
- B. Paris Climate Agreement
- C. WHO pandemic preparedness
- D. SDG financing framework

Ans: b)

UPSC Mains Practice Question

Ques : India has repeatedly emphasised that climate finance commitments are insufficient, non-concessional, and not accessible. Examine India's position in the context of equitable climate transition for developing economies. **(150 words)**

The Red Fort car blast of November 10, 2025, which killed 15 people and injured over 30, has exposed a new frontier in terrorism: the use of advanced digital tradecraft, encrypted communication, and self-hosted platforms to evade detection. The investigation reveals that modern terror modules are evolving faster than traditional counter-terror systems, forcing a re-evaluation of India's internal security architecture.

This development sits at the intersection of technology, radicalisation, cyber-security, and counter-terrorism.

The threat of digital tradecraft in terrorism

A car explosion near Delhi's Red Fort on November 10, killing at least 15 people and injuring over 30, has revealed the use of advanced digital tradecraft in terrorist attacks. This is a sobering reminder that the next frontier in counter-terrorism is not just on the physical terrain, but also in encrypted, and deeply private digital spaces.

EXPLAINER

Kripa Nautiyal

The story so far: The unfolding investigation into the recent car explosion near Delhi's Red Fort has exposed a chilling dimension – modern terror modules are no longer merely exploiting ideological or logistical networks, they are also leveraging advanced digital tradecraft to plan and coordinate such attacks. While law enforcement agencies continue to verify all leads, emerging revelations from the probe reify well-established academic research on how violent actors exploit encrypted platforms, decentralised networks, and spy-style communication to evade surveillance.

What happened? On November 10, a car exploded near Gate No. 1 of the Red Fort Metro Station. The blast killed at least 15 people, and over 30 others were injured, making it one of the deadliest terror incidents in Delhi in recent memory. Indian authorities moved quickly to treat the incident as a terrorist attack, rather than a mere accident, and handed over the investigation to the National Investigation Agency (NIA) under counter-terrorism laws.

Central to the probe are three doctors allegedly connected to the terror module: Dr. Umar Un Nabi, Dr. Muzammil Gansie, and Dr. Shaheen Shahid, all linked to the Al Falah University in Faridabad. According to investigators, these individuals were deeply involved in the operational planning of the attack.

What were the major findings? So far, some of the more alarming aspects uncovered include:

Encrypted communication: The trio is alleged to have communicated via the Swiss messaging app Threema, a platform known for its high privacy design. Threema does not require a phone number or email to register; instead, it assigns users a random user ID unlinked to any personal identifier. Investigators suspect that the three accused may have established their own private Threema server, creating a closed, isolated network through which they shared maps, layouts, documents, and instructions. The server may have been hosted either within India or abroad (investigations are ongoing as to its origin). Threema's architecture is particularly useful to evade detection because it offers end-to-end encryption, no storage of metadata, and allows message deletion from both ends. These features make it extremely difficult for digital forensics teams to reconstruct full communication chains.

Sharing information using 'dead-drop emails': In what is being described as a classic 'spy-style' technique, the suspects apparently used a shared email account (accessible to all module members) to communicate via unsent drafts. Instead of sending messages, they would save drafts; another member would log in, read or update them, and delete them – leaving no outgoing or incoming record on conventional mail logs. This method, sometimes referred to as a 'dead drop', is particularly insidious because it generates almost no digital footprint.

Reconnaissance and ammunition stockpiling: As per interrogations and forensic data, the accused conducted multiple recon missions in Delhi before the attack. Investigators allege that



Remains of the debris: The Delhi police cordons off the blast site in New Delhi on November 11 AM

ammonium nitrate, a powerful industrial explosive, was stockpiled, possibly via a red EcoSport vehicle that has now been seized. The use of a familiar vehicle, rather than something more suspicious, may have helped the module remain under the radar during logistics buildup.

Operational discipline and external linkages: Sources suggest that Dr. Umar, who was reportedly the driver of the car that caused the blast, "switched off his phones" and cut digital ties after the arrest of his associates. A sophisticated tactic to limit exposure. Moreover, though investigations are ongoing, some sources suggest that the attack has links with the Jaish-e-Mohammed (JeM) or was following a JeM-inspired module. The layered communication architecture – encrypted apps, dead-drop emails – coupled with infrequent but deliberate physical recon, suggests a cell that counts operational security among its highest priorities.

What about academic scholarship? The tactics reportedly used in this attack directly align with patterns documented in counter-terrorism scholarship. Researchers have long warned that extremist actors are increasingly using end-to-end encrypted (E2EE) tools to coordinate, share files, and plan in relative anonymity.

Apps like Threema, which minimise or eliminate metadata retention, make it significantly harder for surveillance agencies to reconstruct communication graphs. Moreover, by running a private server, the threat actor effectively bypasses centralised infrastructure and associated law-enforcement touchpoints. The use of unsent email drafts is characteristic of old-school spy craft adapted to the digital age. This method leaves no obvious transmission record,

thereby thwarting standard surveillance or legal intercepts.

The blending of encrypted apps, anti-trace techniques (like VPNs), and physical tradecraft (recon, minimal digital footprint) suggests a multi-domain approach to operational security – exactly what academic counter-terrorism analysts have been warning about for years.

What are the implications?

As more terror modules adopt privacy-preserving technologies, traditional surveillance such as phone tapping, metadata collection, and email intercepts have become less effective. This should force law enforcement agencies to rethink investigative architectures.

Threema is reportedly banned in India (under Section 69A of the Information Technology Act, 2000), yet the suspects seem to have continued using it via VPNs and foreign proxies. This suggests that bans alone may not stem the misuse of such apps, especially by sophisticated operators. Investigators need advanced capabilities such as being able to track private servers, reverse engineer encrypted networks, and apply memory device seizures may not be sufficient without specialised technical expertise.

Moreover, if a link to external handlers (such as the JeM) is proved to be true, this attack may be part of a wider network. The level of planning and security discipline shown suggests not a lone cell, but a well-trained, possibly transnational, group.

What are some policy solutions?

There are multiple policy and strategic solutions to strengthen counter-terrorism

capabilities and posture. First, is to build a dedicated digital forensics teams. There is a necessity to establish and expand teams skilled in encrypted-platform analysis, server forensics, and memory dumping to recover ephemeral data. The government should invest in units that specifically monitor misuse of E2EE platforms, anonymising services, and VPN exit nodes for potential terror tradecraft.

Secondly, self-hosted communication infrastructure needs to be regulated. The state needs to craft regulatory frameworks mandating private servers hosting communication platforms to comply with lawful access obligations, while balancing privacy rights. Cooperation with technology providers needs to be encouraged in order to enable lawful interception under strictly controlled, judicially-supervised processes.

Third, legal frameworks need to be enhanced. For example, counter-terrorism laws need to be updated so that it explicitly addresses threats posed by encrypted, decentralised communication. Introduce or refine digital dead-drop detection mechanisms in investigations. Law enforcement should be trained to look for shared accounts, draft-only mailboxes, and similar tradecraft.

Fourth, community and institutional engagement needs to be prioritised. The fact that the suspects were reportedly doctors from a university is deeply concerning; such institutions need support to detect radicalisation early. Counter-radicalisation programs tailored to highly educated recruits may be deployed. Modules operating in professional spaces (doctors, academics) are often less visible, but may wield more technical or ideological sophistication.

And finally, international collaboration needs to be strengthened. Given the possible transnational nature of encrypted apps, private servers, cross-border funding of the attack, the state should deepen cooperation with foreign intelligence and law enforcement agencies. It should also encourage tech diplomacy, and engage with countries where encrypted-messaging apps like Threema are based to explore lawful but privacy-respecting access to self-hosted infrastructure linked to terror cases. There should also be public awareness about how modern terror cells operate.

What next?

The Red Fort blast investigation illustrates how modern terrorist modules are evolving rapidly. They no longer rely solely on brute force or mass propaganda – they are integrating advanced digital tradecraft with traditional radicalisation and operational planning.

These developments resonate strongly with academic insights into extremist behaviour in the digital age. As violent actors become more technically adept, states too must adapt – not just by strengthening brute force capacity, but by cultivating sophisticated, multidisciplinary intelligence, cyber-forensics, and legal tools.

For India – and democracies globally – this case is a sobering reminder that the next frontier in counter-terrorism is not just on the physical terrain, but also in encrypted, decentralised, and deeply private digital spaces. If we are to safeguard our cities and societies, we must meet this threat not only on the streets and borders, but also on servers and in code.

The author is a retired Additional Director General of the Indian Coast Guard.

THE GIST

Central to the probe are three doctors allegedly connected to the terror module: Dr. Umar Un Nabi, Dr. Muzammil Gansie, and Dr. Shaheen Shahid, all linked to the Al Falah University in Faridabad.

The trio is alleged to have communicated via the Swiss messaging app Threema, a platform known for its high privacy design. Threema does not require a phone number or email to register; instead, it assigns users a random user ID unlinked to any personal identifier.

The Red Fort blast investigation illustrates how modern terrorist modules are evolving rapidly. They no longer rely solely on brute force or mass propaganda – they are integrating advanced digital tradecraft with traditional radicalisation and operational planning.

Key Findings from the Investigation

1. Encrypted, metadata-free communication

- Suspects used Threema, a Swiss private messaging app banned in India.
- Threema accounts do not require phone numbers or emails; users operate via random IDs.
- Investigators suspect the module ran a private Threema server—a major escalation in operational sophistication.

2. Spycraft-style “dead-drop” email communication

- Shared email accounts used only to save drafts.
- No sent/received logs → almost no digital footprint.
- A method commonly used by intelligence agencies, highlighting the module’s professional discipline.

3. Reconnaissance & logistics

- Multiple physical recces conducted.
- Industrial explosives (ammonium nitrate) stockpiled discreetly.
- Use of a normal-looking car reduced suspicion.

4. Operational discipline

- Main accused cut off digital traces after associates’ arrests.
- Possible linkage to Jaish-e-Mohammed (JeM), indicating a trained, non-lone-wolf, transnational influence.

Static Linkage

1. Evolution of Terrorism

- Shift from hierarchical organisations → networked, decentralised, tech-driven cells.
- Blending physical reconnaissance with encrypted digital coordination.

2. Challenges of Encrypted Platforms

- End-to-end encryption (E2EE),
- Private servers,
- No metadata retention,
- VPN anonymity

3. Legal Frameworks

- UAPA, NIA Act, IT Act Sec. 69A, however:
 - No explicit legal provisions on private encrypted servers.
 - Dead-drop and ephemeral communication techniques fall into legal grey areas.

4. Counter-Terrorism Architecture

- PIN (Police/Intelligence Network),
- NATGRID,
- Cyber Forensics Labs,
- CERT-In,
- Multi-Agency Centre (MAC).

But gaps remain in deep digital forensics capacity.

Why This Matters: Implications for India

1. **Traditional surveillance is becoming obsolete** : Phone tapping, metadata mapping, IP tracking → ineffective against private servers and E2EE.
2. **Radicalisation entering professional spaces** : Doctors, engineers, academics → "silent radicalisation" among educated individuals.
3. **Encrypted apps continue despite bans** : VPNs, TOR, foreign hosting → make banning ineffective for sophisticated operators.
4. **Rise of hybrid tradecraft** : Mix of:
 - digital anonymity
 - operational secrecy
 - low digital footprint
 - targeted reconnaissance

Policy Solutions

1. Build specialised digital forensics & cyber counterterrorism units

- Memory forensics, private server tracking, network traffic anomalies.
- AI-based pattern recognition for dead-drop behaviour.

2. Regulate self-hosted encrypted servers

- Mandatory compliance protocols for private messaging servers operating in India.

- Require logs under court-supervised, privacy-respecting conditions.

3. Strengthen legal framework

- Update UAPA/IT Act for:
 - digital dead-drops
 - private encrypted networks
 - ephemeral messaging
 - virtual radicalisation trails

4. University & professional-institution engagement

- Early-warning mechanisms for detecting extremist behaviour.
- Psychosocial counselling + awareness against online radicalisation.

5. International cooperation

- Intelligence sharing
- Joint cyber-taskforces
- Agreements with countries hosting encrypted apps
- Tech diplomacy to ensure lawful access under strict judicial oversight

Conclusion

The Red Fort terror attack underscores a dramatic evolution in India's security landscape: terrorism is now as much digital as it is physical. Encrypted communication, private servers, dead-drop emails, VPN anonymity, and professional radicalisation mark a new phase in extremist behaviour.

- For India to stay ahead, counter-terrorism must move beyond traditional tools and embrace advanced digital forensics, robust legal frameworks, institutional vigilance, and global cooperation. The attack is a stark reminder that the battlefield has shifted — from open spaces to encrypted codes — and India must adapt rapidly to secure its national security.

UPSC Mains Practice Question

Ques: How are contemporary terror modules using encrypted platforms, private servers and 'dead-drop' digital techniques to evade surveillance? Examine with reference to recent incidents. (250 Words)

Page 15 : GS 2 : International Relations

Afghanistan's eastern provinces—already weakened by drought, economic collapse and limited state capacity—have been hit by devastating earthquakes. A new UN-led Joint Rapid Recovery Needs Assessment (JRRNA) estimates that Afghanistan needs \$128.8 million over three years to restore housing, schools, health facilities and essential services.

- The shortfall reflects broader global donor fatigue toward Afghanistan since the Taliban's return in 2021, posing major humanitarian and geopolitical concerns.

Key Highlights of the Report

1. Scale of Damage

- \$86.6 million worth of physical damage across 10 districts.
- 56,000 families affected.
- 6,200 homes collapsed and 2,000 severely damaged.
- 22 health facilities and 80 schools damaged.
- Full recovery cost: \$128.8 million.

2. Priority Sectors Needing Funds

- Housing: \$54.9 million
- Education: \$14.9 million
- Water systems, irrigation, farmland, rural roads → large unmet needs.

3. Funding Shortfall

- UN estimates \$3.2 billion needed for Afghanistan in 2025–26.
- Less than 50% of humanitarian funding is being met.
- Donor support has dropped sharply due to:
 - Taliban governance concerns
 - Sanctions and restrictions
 - Global competition for aid (Ukraine, Gaza, Sudan)

4. Humanitarian Stress Multipliers

UN officials warn:

- Affected communities are already weakened by:



Worrying state: Housing is the biggest challenge, costing \$54.9 million to rebuild thousands of homes. REUTERS

Afghanistan needs \$129 million for quake recovery: UN

Reuters
KARACHI

A UN-led assessment says Afghanistan requires \$128.8 million to restore housing, schools and key services in its quake-hit eastern provinces, warning that reconstruction faces "significant short-falls" as donor support for the country falls sharply.

The Joint Rapid Recovery Needs Assessment (JRRNA), conducted with the World Bank, EU and ADB, outlines a three-year plan to rebuild homes, health facilities, water systems and farmland in the eastern provinces of Kunar, Nangarhar and Laghman. It comes as aid to Afghanistan shrinks, with the UN estimating a \$3.2 billion need this year and a similar requirement in 2026, less than half of which has been funded.

"The earthquakes-hit communities are already strained by drought, mass returns and a sharp economic contraction," UN Resident Representative Stephen Rodriguez told Reuters. "There is very limited capacity left to cope with another shock." Spokespeople for the Taliban administration and the government's disaster management authority did not respond to requests for comment.

The JRRNA says the quakes caused \$86.6 million in damage across 10 districts, affecting 56,000 families, with more than 6,200 homes collapsed, 2,000 severely damaged, and 22 health facilities and 80 schools hit. The full recovery bill is higher at \$128.8 million.

Housing is the biggest challenge, costing \$54.9 million to rebuild thousands of homes. Education needs \$14.9 million, with more funding needed for water, irrigation, farmland and rural roads.

- Drought
- Mass refugee returns from Pakistan/Iran
- Economic contraction since 2021
- Collapse of public services
- “Very limited capacity left to cope with another shock.”

Static Linkages

1. Humanitarian Assistance in International Relations

- Principles: neutrality, impartiality, independence.
- Challenges in politically unstable regions.

2. Disaster Management

- Importance of rapid damage assessment.
- Reconstruction vs. relief funding gaps.

3. Afghanistan's Geopolitical Importance

- Key players: UN, World Bank, EU, ADB.
- India's role: historical development partnership, infrastructure, health, education projects.

4. Development Economics

- Post-conflict reconstruction challenges:
 - funding gaps
 - governance deficits
 - institutional collapse
 - lack of economic drivers

Implications for India and the Region

1. Humanitarian Stability and Refugee Pressure

Unstable Afghanistan can:

- Trigger migration to Pakistan/Iran
- Increase regional humanitarian burden
- Create instability spilling into South Asia

2. Space for Other Regional Actors

Low Western aid gives greater influence to:

- China
- Gulf countries
- Russia

This affects India's long-term strategic interests.

3. Security Risks

Economic collapse increases:

- Terrorist recruitment
- Drug trafficking
- Safe havens for extremist groups

4. India's Development Policy

India traditionally supports Afghan people regardless of political regime. Opportunities for:

- Health and education assistance
- Capacity building
- Disaster relief supplies
- Working through UN agencies to bypass Taliban controls

Conclusion

Afghanistan's quake recovery needs highlight the deep humanitarian crisis unfolding in a country already crippled by economic collapse and dwindling global aid. The \$129 million requirement is modest, yet funding gaps persist as donor fatigue and geopolitical concerns overshadow humanitarian priorities. For the region, including India, prolonged instability in Afghanistan poses significant security and developmental risks. Addressing these challenges through coordinated international support, depoliticized humanitarian aid, and community-level resilience building is essential for long-term regional stability.

UPSC Prelims Practice Question

Ques: Disaster recovery in conflict-affected regions is as much a governance challenge as it is a financial one. Critically examine with reference to the earthquake-affected provinces in eastern Afghanistan.

Recognise the critical role of the childcare worker

On July 24, 2023, the United Nations General Assembly adopted a resolution to declare October 29 each year as International Day of Care and Support. This resolution recognised the critical role of comprehensive care and support policies, aimed at reducing, redistributing and valuing unpaid care and domestic work, to the well-being of society and all its members – in particular, children, older persons and persons with disabilities – more so, as a disproportionate share of care and domestic work is undertaken by women and adolescent girls. It also remains invisible, undervalued and unaccounted for in national statistics, and neglected in economic and social policymaking.

India has had a long history of care provision with institutions outside the family emerging in the late 19th and early 20th centuries with the work of educationists such as Tarabai Modak and Gijubai Badheka. These pioneering efforts, with developmentally appropriate practices, gradually declined as modern childcare provisioning emerged post-Independence. With modern childcare mostly in the private, voluntary sector, low-income families, those who needed childcare services the most, were excluded.

The report of the study group on the development of the preschool child, submitted to the Government of India in 1972, with Mina Swaminathan as its convenor, transformed the history of childcare services in the country. It set out a clear social justice agenda, emphasising a holistic approach to address the health, nutrition and developmental needs of the young child, especially from poor and marginalised communities.

This resulted in the launch of the Integrated Child Development Services Scheme (ICDS) in 1975. It is one of the world's largest early childhood development programmes today, with 1.4 million Anganwadi (childcare) centres operating across the country, reaching 23 million children, and serviced by around 2.4 million Anganwadi workers and helpers. Based on estimated population projections, and the need to reach over 60 million children by 2030, this number is likely to almost double to 2.6 million centres with over five million workers.

Underpaid and undervalued

As several national and global studies have revealed, despite recognising the importance of care for societal growth and well-being, care-workers have remained underpaid and undervalued, and their contributions to the early development of the child not fully recognised. The pressure on the ICDS to rapidly expand to ensure universal coverage has led to a lower emphasis on pre-service and in-service training to build competencies of the care-workers in practice-based learning, that is crucial for quality childcare. This is partly driven by the perception of early years teachers as carers, addressing



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primary needs of food, hygiene and immunisation, not as professionals. The devaluation of their roles, of not being treated as professional workers, results not just in low pay but also a lack of attention to working conditions (including paid leave), social security benefits, opportunities for career advancement, and collective organisation and representation. In many States, their wages, in the range of ₹8,000-₹15,000 a month, are barely on a par with the minimum wages for unskilled workers.

The impact of climate change

In the context of climate change, the need for good quality childcare services for the rural and urban poor is rapidly rising. There is sufficient evidence to show that poor women and children are the worst affected by the impacts of climate change and extreme weather events, such as floods or droughts. They confront reduced access to health and care services, alongside diverse and healthy food. While the Sustainable Development Goals suggest the need for a more equal sharing of care responsibilities between women and men in households, climate change is forcing many men to migrate out of their rural homes to urban centres in search of work.

Apart from their own dire circumstances, as witnessed during the COVID-19 pandemic in India, their physical absence makes such sharing impossible. When families migrate to urban areas, the higher costs of living – in particular rentals – make it imperative for women to find work too, which is often domestic and care work in the homes of the middle classes. There is, however, little care provision for their own children, with only 10% of Anganwadi centres currently functioning in urban areas.

The Government of India's Time Use in India 2024 survey confirms the feminisation of care-work, with women spending an average of 426 minutes a day (over seven hours) on unpaid domestic and care work as against 163 minutes (over two hours) by men (Ministry of Statistics and Programme Implementation). Together, this would constitute 15%-17% of GDP. Smaller scale studies demonstrate clear links between the mother's lack of time for care and feeding and child undernutrition, as visible in the persistently high child stunting levels at over 35%. Only 11% of children aged six months-23 months had a minimum acceptable diet (National Family Health Survey 5, 2019-21), raising cognitive and developmental concerns.

In this context, Mobile Creches and the Forum for Creches and Childcare Services (FORCES) organised the India Childcare Champion Awards on October 28, 2025 in New Delhi. The awards were presented across seven categories that honoured excellence and dedication in the field of childcare – the Mina Swaminathan Special Jury Award for Best Creche Worker, Best Creche Worker, Best Creche Supervisor, Best Local Leader, Best NGO, Childcare Champion, and

Gratitude to CSR Funders in Childcare. The awards sought to give recognition to frontline childcare workers and supervisors as well as local panchayat leaders, employers and civil society organisations. It was to celebrate their tireless efforts working on the ground, within communities, and at the policy level to make quality childcare accessible and equitable for all.

The event gave voice to childcare workers, bringing out clearly not just the fact that these workers were skilled professionals but that they were also change-makers, challenging social norms and structures. The workers spoke about breaking caste and class barriers, building self-confidence to overcome social stigma and dealing with critiques of themselves by their families and communities, as working with 'dirty' children.

Slowly, but surely, they have built trust with parents and emotional bonds with the children, hoping to give them a chance in life that they would not otherwise have. Caring for the children of migrant workers is even more demanding as the parents work full-time, often living in poor conditions. Children here confront a range of health issues, so care-workers have, in addition, become advocates for health insurance, for clean and adequate space and care infrastructure, amongst others. They play multiple roles – as children playing with children, as carers nurturing them, and as adult decision-makers, monitoring their key milestones, and intervening when needed.

Match the standard in Scandinavia

Recognition of childcare workers is clearly a first step in highlighting their critical role in providing quality, nurturing care, and laying the foundation for a strong and inclusive nation. Yet, there is a lot more to do – apart from ensuring that they have decent wages and working conditions, there is a need to redirect resources to both skill-building of these care-workers and the strengthening of care infrastructure. There is still little provision for the child below the age of three years, with only 2,500 of the over 10,000 crèches approved under the Government of India's Palna Scheme, currently operational. As compared to the current public investment of approximately 0.4% of GDP, the ambitions of universalising good quality care would need a tripling of budgetary allocation to between 1%-1.5% of GDP – the standard in Scandinavian countries that have universal childcare coverage.

A focus on care spotlights the rights of women and children. Achieving this requires both individual and systemic changes. Recognition of the knowledge and skills of childcare workers has to be accompanied by rules and policies that ensure adequate resources and voice to the sector. Decentralisation, convergence and collective ownership are critical if the rights of women workers and underprivileged children are to be realised.

The childcare worker in India needs better policies, decent wages and working conditions, and a strengthened care infrastructure

GS. Paper 2 Social Justice

UPSC Mains Practice Question : Care-work in India remains feminised, unpaid, and undervalued. Analyse how this affects women's labour force participation and child nutrition outcomes. (250 words)

Context :

The UN General Assembly's decision to observe October 29 as the International Day of Care and Support highlights the global urgency of recognising unpaid and underpaid care work. In India, where women contribute over 7 hours a day to unpaid care work, the article emphasises the invisibility, undervaluation and poor working conditions of childcare workers—especially Anganwadi workers—despite being central to social development, early childhood education, and women's empowerment.

Background**Evolution of Childcare in India**

- Early pioneers: Tarabai Modak and Gijubai Badheka (developmentally appropriate practices).
- Modern childcare: Post-Independence expansion largely through private/voluntary sector, excluding low-income families.
- Transformational moment: Mina Swaminathan Committee (1972) → holistic approach to health, nutrition, education.
- Result: Integrated Child Development Services (ICDS), 1975 – now the world's largest early childhood programme.

Current Scale of ICDS

- 1.4 million Anganwadi centres, catering to 23 million children.
- Workforce: 2.4 million Anganwadi workers and helpers.
- Estimated need by 2030: 2.6 million centres & 5+ million workers.

Core Analysis**1. The Invisible Backbone of Social Development**

Anganwadi and childcare workers are:

- First responders for child nutrition, immunisation, early learning.
- Support systems for working women (especially poor and migrant labourers).
- Monitors of developmental milestones and social protection access.

Despite this, they remain:

- Underpaid (₹8,000–₹15,000/month).
- Undervalued, seen as "carers" not professionals.
- Excluded from social security, career progression, and labour rights.

This undermines:

- Quality of Early Childhood Care and Education (ECCE).

- India's targets under SDGs 1, 3, 4, 5, 8.
- Long-term human capital development.

2. Climate Change and the Rising Care Burden (Static + Current)

Climate-induced migration (droughts, floods, crop failures) is accelerating:

- Men migrate to cities → women bear full childcare and livelihood burden.
- Migrant children face poor nutrition, unsafe living conditions, disease.
- Only 10% of Anganwadi centres are urban, creating an acute service gap.

Time Use Survey 2024 confirms:

- Women spend 426 minutes/day on unpaid care work vs. 163 minutes by men.
- This work equates to 15–17% of India's GDP — yet unpaid.

Links to malnutrition crisis:

- 35% child stunting persists.
- Only 11% of children (6–23 months) receive acceptable diet.

3. New Developments: Childcare Champion Awards 2025

The 2025 Awards (CARE, Mobile Creches, FORCES) highlight:

- Creche workers as professionals, change-makers, community leaders.
- Their role in breaking caste/class barriers.
- Their advocacy for health, sanitation, safe spaces, and migrant children's rights.

The awards aim to:

- Recognise care work as skilled.
- Strengthen community and policy-level commitment.
- Increase visibility of the sector.

4. Structural Challenges

a. Low wages and poor working conditions

- Below minimum wage equivalents.
- No social security or leave benefits.

b. Inadequate training

- Rapid ICDS expansion → compromises in pre-service and in-service training.

c. Weak infrastructure

- Only 2,500 functional crèches under Palna Scheme out of 10,000 sanctioned.

d. Limited public investment

- India spends 0.4% of GDP on childcare.
- Scandinavian benchmark: 1%–1.5% of GDP.

e. Urban Care Deficit

- Migrant families most in need but least covered.

Way Forward**1. Professionalising Childcare Work**

- Treat Anganwadi workers as skilled professionals, not volunteers.
- Improve wages, contracts, social security, insurance.

2. Investment in ECCE Infrastructure

- Tripling budget to Scandinavian standards (1%–1.5% of GDP).
- Expand urban Anganwadis and crèches for migrant communities.

3. Skilling and Capacity Building

- Mandatory certification and structured training.
- Digital tools and community-based learning.

4. Addressing Gender Inequality in Care Work

- Promote shared household responsibilities.
- Expand employer-supported childcare.

5. Decentralisation & Convergence

- Strengthen coordination between WCD, Health, Education, Panchayats.

6. Representational Voice

- Platforms for childcare workers to participate in policy design.

Conclusion

Childcare workers form the foundation of India's human development architecture, yet remain underpaid and undervalued. Recognising their work is not merely a welfare measure but an investment in the nation's future—enhancing nutritional outcomes, educational attainment, gender equality, and productivity.

- To build an inclusive and resilient India—especially in the face of climate change-driven migration—the country must professionalise, finance, and dignify childcare workers. Recognition is the first step; structural reform must follow.