



DAILY NEWS PAPER ANALYSIS

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**CIVILS WITH AKASH
SECTOR 25 CHANDIGARH**

Industrial output growth hits 5-month high of 5.1%

Strong show by manufacturing, electricity, capital, and consumer goods sectors drives growth; mining and quarrying sector contracts for fifth straight month as govt. further tweaks IIP series

T.C.A. Sharad Raghavan
NEW DELHI

Growth in industrial activity quickened to a five-month high of 5.1% in May, buoyed by stronger performances by the manufacturing, electricity, capital goods, and consumer goods sectors, the latest government data show.

While releasing the data, the Ministry of Statistics and Programme Implementation also said that it has further tweaked the new series of the Index of Industrial Production (IIP), which had first been released on June 1. The new series has an updated base year of 2022-23 and incorporates new data sources. It explained that it has decided to discontinue the use of the Wholesale Price

Growth accelerates

Growth in the Index of Industrial Production quickened to a five-month high of 5.1% in May 2026



Index (WPI) in the measurement of some value-based outputs in the IIP and has instead adopted the Producer Price Index (PPI) for the purpose. "Accordingly, the present release supersedes the earlier WPI-based IIP 2022-23 series released on 1st June 2026," the release said. "Users are advised to use the PPI-based IIP series

presented in this release for all analytical, research, and policy purposes." According to Rahul Agrawal, principal economist at the ICRA, this change has "led to material changes in growth across segments such as manufacturing and is also likely to lead to revisions in the GDP data". The manufacturing sector grew 5.5% in

May, down from 6.1% in April but faster than the 4.2% growth registered in May last year.

"Manufacturing has grown by 5.8% which can be attributed to a revival in consumption – both [consumer] durables and non-durables have done well at 7.2% and 3.6%, respectively," Madan Sabnavis, chief economist at the Bank of Baroda, said. "Within durables, the auto sector was once again the leader followed by computers and other electronic goods."

The electricity and gas supply category saw growth quicken to a two-year high of 9.9%, driven by a delayed monsoon and higher temperatures. The mining and quarrying sector contracted by 1.6%, the fifth consecutive month of contraction.

KEY HIGHLIGHTS:

Context of the News

- India's Index of Industrial Production (IIP) grew by 5.1% in May 2026, the highest growth in the last five months.
- Growth was led by manufacturing, electricity and capital goods, indicating improving industrial activity.
- The Ministry of Statistics and Programme Implementation (MoSPI) revised the newly introduced IIP Series (Base Year: 2022–23).
- Producer Price Index (PPI) has replaced the Wholesale Price Index (WPI) for estimating value-based outputs in the IIP.
- The revised PPI-based IIP series will now be used for official policy, research and analytical purposes.

Key Points

- Index of Industrial Production (IIP): Monthly indicator measuring the volume of industrial production.
- Compiled by: Ministry of Statistics and Programme Implementation (MoSPI).
- Base Year: 2022–23.
- Industrial Growth (May 2026): 5.1%.
- Manufacturing Growth: 5.5%.
- Electricity & Gas: 9.9%.
- Mining & Quarrying: –1.6% (continued contraction).
- Consumer Durables and Capital Goods recorded robust growth, indicating improving demand and investment.
- Adoption of PPI aligns India's industrial statistics with international statistical practices.
- Methodological revision may lead to revision in GDP estimates, as IIP is an important input for estimating industrial Gross Value Added (GVA).

Static Linkages

- IIP measures volume, not value or prices.

- Three sectors covered:
 - Mining
 - Manufacturing
 - Electricity
- Use-based classification:
 - Primary Goods
 - Capital Goods
 - Intermediate Goods
 - Infrastructure/Construction Goods
 - Consumer Durables
 - Consumer Non-Durables
- Manufacturing carries the highest weight in IIP.
- IIP is a high-frequency indicator of industrial performance.
- Industrial sector contributes to Gross Value Added (GVA), which forms the basis for GDP estimation.
- Producer Price Index (PPI) measures prices received by producers before wholesale or retail margins.
- Wholesale Price Index (WPI) measures price changes at the wholesale level.

Critical Analysis

Significance

- Indicates improving industrial momentum.
- Strong manufacturing supports economic growth.
- Capital goods growth reflects investment recovery.
- PPI-based methodology improves statistical reliability.
- Updated base year better captures structural changes in the economy.

Challenges

- Persistent contraction in mining sector.
- Electricity growth influenced by temporary weather factors.
- Methodological revisions may affect historical comparability.
- Industrial growth remains uneven across sectors.

Way Forward

- Strengthen mining sector reforms.
- Improve manufacturing competitiveness through technology adoption.
- Enhance industrial infrastructure and logistics.
- Continue periodic revision of statistical methodologies.
- Promote investment in capital-intensive industries.
- Improve quality and coverage of producer price statistics.

Radio-tagged white-rumped vulture electrocuted

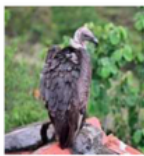
Rohan Premkumar
UDHAGAMANDALAM

A captive-bred, radio-tagged white-rumped vulture (*Gyps bengalensis*) that was released earlier this year at the Mudumalai Tiger Reserve in Nilgiris district of Tamil Nadu was electrocuted on Sunday.

The bird came into contact with a power line and was killed at Ebbanad village overlooking the Sigur plateau, Forest Department officials said.

The bird, initially released in the Tadoba-Andhari Tiger Reserve in Maharashtra in December 2025, made its way into Karnataka, where it had to be captured and treated after showing signs of illness.

In April, the Bombay Natural History Society (BNHS) and the Karnataka Forest Department had



The radio-tagged vulture that was electrocuted on Sunday. M. SATYANANDH/PTI

the region. However, officials said the release proved to be more difficult than expected, with the vulture failing to acclimatise to its new surroundings and embarking on exploratory forays around the tiger reserve, including to Gudalur, and later up the slopes towards Kalhaty and Ebbanad.

"We had captured the bird multiple times and released it into the Sigur, hoping it would acclimatise," said R. Kiruba Shankar, Field Director of Mudumalai Tiger Reserve.

However, on Sunday, during one of the bird's explorations of Ebbanad in the Nilgiris forest division, it came into contact with a power line and was killed, officials from the forest department confirmed.

The death of the vulture has signalled the end of the

first attempted reintroduction of a captive-bred bird of the species into the landscape and could have consequences for conservation policies in the future.

Identifying threats

"There have long been calls for captive-bred birds to be released into Mudumalai to bolster populations. With this reintroduction having failed, steps must be taken to identify why the bird was unable to adapt and also to identify the threats to the endangered species, such as power lines which have led to multiple vulture deaths in the region over the last few years," said a conservationist from the Nilgiris.

S. Bharathidasan, secretary of Arulagam, a conservation NGO working on protecting vultures in the

region, said power lines that cross through vulture habitats need to be reinforced with bunch-cabling and need to be insulated to prevent birds and other wildlife from being accidentally electrocuted.

"We will have discussions with the BNHS and other researchers to understand the reasons for why this particular bird was unable to acclimatise and adapt. We will also find out if the other captive-bred birds released in other parts too have faced similar challenges," said Mr. Kiruba Shankar.

Besides, The Forest Department is also looking into the possibility of adapting power infrastructure in the region towards minimising threats to avian species, such as installing bird diverters on transmission lines.

- Ex-situ conservation: Captive breeding followed by scientific reintroduction.
- Species reintroduction requires:
 - Suitable habitat
 - Threat-free environment
 - Genetic diversity
 - Long-term post-release monitoring
- Linear infrastructure (power lines, roads, railways) is an important source of wildlife mortality.
- Scavengers provide essential ecosystem services by nutrient recycling and disease control.
- Diclofenac is toxic to Gyps vultures, whereas Meloxicam is considered vulture-safe.

Critical Analysis

Significance

- Demonstrates the complexity of restoring critically endangered species.
- Highlights the importance of scientific monitoring after release.
- Reinforces the need for wildlife-friendly infrastructure.

Challenges

- Captive-bred birds may fail to adapt to wild conditions.
- Unsafe power infrastructure remains a major mortality factor.
- Conservation requires coordination among Forest Departments, power utilities and research institutions.
- Existing threats reduce the success of reintroduction programmes.

Way Forward

- Insulate power lines and install bird diverters in vulture habitats.
- Expand scientifically managed Vulture Safe Zones.
- Strengthen enforcement against illegal veterinary Diclofenac.
- Improve behavioural conditioning before release.
- Increase satellite-based post-release monitoring.
- Integrate wildlife safeguards into infrastructure planning.
- Promote landscape-level conservation across State boundaries.

KEY HIGHLIGHTS:

Context

- A captive-bred White-rumped Vulture (*Gyps bengalensis*) released in Mudumalai Tiger Reserve (Tamil Nadu) was electrocuted after colliding with a power line.
- It was the first reintroduction attempt of a captive-bred White-rumped Vulture in South India, undertaken by the Bombay Natural History Society (BNHS) and State Forest Departments.
- The incident highlights the challenges of species reintroduction, power-line mortality, and habitat management.

Key Points

White-rumped Vulture

- Scientific Name: *Gyps bengalensis*
- IUCN Red List: Critically Endangered
- Wildlife (Protection) Act, 1972: Schedule I
- CITES: Appendix II

Importance

- Natural scavenger that removes carcasses rapidly.
- Prevents spread of zoonotic diseases.
- Acts as an indicator of ecosystem health.

Causes of Population Decline

- Veterinary Diclofenac poisoning (major cause).
- Power-line collision and electrocution.
- Habitat degradation.
- Decline in food availability.
- Disturbance at nesting sites.

Government Initiatives

- Action Plan for Vulture Conservation in India (2020–2025).
- Establishment of Vulture Conservation Breeding Centres (VCBCs).
- Promotion of Meloxicam as a safe veterinary alternative.
- Development of Vulture Safe Zones (VSZs).
- Monitoring through radio/satellite telemetry.

Static Linkages

- In-situ conservation: Protection of species in their natural habitat.

Reforms 3.0 — towards the Bharat rate of growth

For 45 years after Independence, India grew at an anemic 3% — the infamous “Hindu rate of growth”. Triggered by a balance-of-payments crisis, India found the gumption to liberalise. Within a decade, GDP growth surged. The lesson: crisis breeds reform, and reform breeds opportunity. Artificial Intelligence (AI) provides the same transformational leverage that liberalisation provided in 1991. The question is not whether India can afford to invest — it is whether India can afford not to. After 12 years of Prime Minister Narendra Modi's leadership, India has reached another WhatsApp moment in history — dare I say, to take it from a Hindu rate of growth to the Bharat rate of growth — 8% and beyond for the next decade.



Srivatsa Krishna
IAS officer

The case for making tokens free

India has since proven that it can leapfrog entire generations of infrastructure. Aadhaar enrolled 1.38 billion people in a biometric identity system, the largest on earth. UPI now processes 250 billion annual transactions worth \$3.4 trillion, handling 50% of the world's real-time digital payments. Reliance Jio, launched in 2016, added 100 million subscribers in just five months and made mobile data essentially free. How India can replicate its Aadhaar, data availability debate and UPI miracles in the age of AI — by embracing open models, diversifying compute hardware, and making tokens as free as data.

India spends just about 0.65% of its GDP on research and development (R&D), well below China (2.4%), the United States (3.5%), South Korea (4.5%), and Israel (5.4%). The exit of the socialist Congress governments of 1947-1991 was: “we can't afford anything more”, which does not and should not apply now. The central question is this: Has the time come to make AI tokens free? If so, how do we do it? Can we begin by making tokens free for the country's top 100 national R&D institutions and 5,000 schools, so that AI becomes a teammate for scientists and students alike?

India spends approximately \$49 billion each year subsidising calories, chemicals, and carbon. The question is whether it is now ready to subsidise cognition. The answer is that it already can — at a fraction of what it spends today. The entire AI token subsidy for the country's top 100 universities and national R&D institutions, along with 5,000 high schools, would cost about \$2 billion annually — roughly 0.06% of GDP. The AI investment is around one-fourth of India's food subsidy, one-tenth of its fertilizer subsidy, and less than the amount paid to compensate oil marketing companies for LPG under-recoveries in a single quarter. This is not a moonshot budget; it is a rounding error in India's existing welfare expenditure — but one with the potential to generate transformative, compounding returns. India does not need more money; it needs new priorities, new frameworks, and some reallocation. First, AI tokens can be funded

Reforms 3.0
should focus on
building an AI
nation, and
India cannot
afford to miss
this opportunity

without cutting a single rupee from existing beneficiaries by merely freezing subsidy growth for a year. (The fertilizer subsidy alone has been compounding at 18% CAGR over the past decade.) Second, India should forge a public-private partnership with hyperscalers such as AWS, Google, and Microsoft, exchanging data centre land, power subsidies, and data sovereignty assurances for free inference capacity. India's 1.4-billion-user market gives it negotiating leverage that few countries can match, though such techno-commercial negotiations, shaped by geopolitics and uncertainty, will require considerable skill. Third, if necessary, paid enterprise tiers can cross-subsidise free access for schools and research institutions.

Free data worked and free tokens will too. The government did not directly subsidise Jio. Instead, it created the right regulatory environment through spectrum auctions, net neutrality, infrastructure sharing, and a controversial long pilot.

The result: data prices fell from about \$3 per GB to \$0.10 in under three years. The same playbook can apply to AI tokens. Create the right conditions, and the market will deliver abundance. India's role is not to write the cheque, but to make it unnecessary.

Hosting models

India must build the competence to host and operate large language models, not merely consume them through APIs from San Francisco or Beijing. With Sarvam, it has already shown that frontier models can be trained on Indian soil. The next step is to host models such as Qwen, DeepSeek, Kimi, Llama, and Sarvam on sovereign infrastructure, even if some open-source models originate from China. The models may be free, but the intelligence to host them at scale is not. AI infrastructure should be treated as a strategic national capability, much like what the government has already done for space and nuclear programmes. India should pursue a hybrid strategy that combines sovereign and open-source models to avoid dependence on any single ecosystem. Open-source models offer four key advantages: sovereignty by reducing reliance on foreign APIs that can be restricted overnight; lower costs by eliminating per-token licensing fees, thereby enabling free education and research uses; customisation for Indic languages and cultural contexts; and transparency through auditable model weights for government and defence applications.

Hosting LLMs at national scale is not “just deploy a container”. India must develop deep expertise in availability (multi-region redundancy, 99.99% uptime SLAs for critical government services; latency <200ms token latency across Tier-2/3 cities); efficiency (like batch scheduling to maximise per-watt security (data residency compliance, prompt injection defence, audit trails).

India cannot afford to be locked into a

single-vendor monopoly for its AI compute future. NVIDIA's dominance comes at extraordinary cost — both financial and strategic. NVIDIA controls 80% of AI training hardware but creates deep vendor lock-in that extends far beyond hardware. For India to build sovereign AI infrastructure for 1.4 billion people, the math simply does not work at NVIDIA pricing. India spent relatively little to build UPI; it cannot afford to spend \$50 billion on NVIDIA GPUs. The alternative hardware ecosystem is not just more economical — it is strategically essential. India should adopt a 40:30:30 hardware mix rather than rely on a single vendor. Around 40% should be built on AWS Trainium and AMD for cost-effective inference workloads available in India. Another 30% should use Google TPUs for research, model training, and academic partnerships. The remaining 30% should rely on NVIDIA for specialised training, legacy compatibility, and a domestic silicon hedge.

AI token policy, implementation timeline

India should announce a National AI Token Policy and implement it over the next 24 months. It should begin by signing public-private partnership agreements with AWS, Google, and Microsoft to establish a multi-vendor sovereign compute framework. The first pilot should provide unlimited research tokens to the top 20 IITs and the IISc. As hyperscaler inference capacity comes online, India should open an API sandbox for 500 startups, expand access to 100 universities, and launch an AI literacy pilot across 500 high schools in 10 states. The programme should culminate in the publication of the country's first sovereign Indic AI model benchmarks.

Thereafter India needs to scale the ecosystem through cross subsidies as mentioned above and deploy fine-tuned models into health care, agriculture, judiciary and education. It must follow this up with full deployment at 5,000 high schools and all 22 languages. With this India's token consumption will enter the global top five. In two years, India-trained models will become competitive on international benchmarks and 10,000+ AI-native startups will bloom, rocketing GDP growth.

In sum, India's AI leapfrog is a *sine qua non* for national transformation. India needs to replicate its DPI (digital public infrastructure) miracles in the age of AI by embracing open models, diversifying compute hardware, and making tokens as free as data. India has all the necessary conditions — favourable policies, stable macroeconomy, prodigious talent and technology institutions — to become a global leader in AI applications. The sufficient condition is India's decisive, visionary leadership. It will take three decades. One decade. And a transformed (AI) nation.

The views expressed are personal

- Development of sovereign AI compute infrastructure.
- Adoption of open-source foundation models.
- Diversification of AI hardware ecosystem to reduce vendor dependence.
- AI applications envisaged in:
 - Agriculture
 - Healthcare
 - Education
 - Judiciary
 - Scientific Research
 - Governance

Static Linkages

- IndiaAI Mission.
- National Strategy for Artificial Intelligence (NITI Aayog, #AIForAll).
- Digital India Programme.
- India Semiconductor Mission.
- Anusandhan National Research Foundation (ANRF), 2023.
- National Supercomputing Mission.
- Digital Personal Data Protection Act, 2023.
- Digital Public Infrastructure (DPI).
- Public-Private Partnership (PPP) model.
- Open-source software ecosystem.

Critical Analysis

Potential Benefits

- Accelerates AI research and innovation.
- Democratizes AI access for academia and startups.
- Strengthens Digital Public Infrastructure.
- Promotes indigenous AI ecosystem.
- Enhances productivity across sectors.
- Reduces dependence on proprietary foreign AI services.
- Supports development of Indic-language AI models.

Challenges

- Low public expenditure on R&D.
- Heavy dependence on imported AI chips.
- Limited domestic AI compute capacity.
- Data privacy and cybersecurity concerns.
- High energy requirements of AI infrastructure.
- Shortage of advanced AI researchers.
- Need for responsible AI governance and regulation.

Way Forward

- Increase R&D expenditure towards 2% of GDP.
- Fast-track implementation of the IndiaAI Mission.
- Expand sovereign AI compute infrastructure.
- Strengthen semiconductor manufacturing under the India Semiconductor Mission.
- Promote open-source and indigenous AI foundation models.
- Develop secure AI governance and data protection frameworks.
- Invest in AI skilling, research institutions and Centres of Excellence.
- Encourage academia-industry collaboration through PPP.
- Integrate AI into governance while ensuring transparency, accountability and ethical use.

KEY HIGHLIGHTS:

Context of the News

- A policy proposal advocates treating Artificial Intelligence (AI) as the next generation of Digital Public Infrastructure (DPI) by providing affordable/free AI inference tokens for research institutions, universities, schools and startups.
- The proposal draws parallels with India's successful digital public goods such as Aadhaar, UPI and affordable internet, arguing that AI access can become a catalyst for productivity-led economic growth.
- It recommends a National AI Token Policy, sovereign AI infrastructure, open-source AI adoption and diversified compute hardware to strengthen India's AI ecosystem.

Key Points

- India spends ~0.65% of GDP on R&D, significantly lower than:
 - China — ~2.4%
 - USA — ~3.5%
 - South Korea — ~4.9%
 - Israel — ~5.4%
 - (UNESCO/OECD)
- IndiaAI Mission (2024) has an approved outlay of ₹10,371.92 crore to build India's AI ecosystem.
- Proposal suggests:
 - Free AI inference tokens for premier R&D institutions, universities and selected schools.
 - Public-Private Partnerships (PPP) with global cloud providers.

Preparing India for China's missile challenge

Missiles are reshaping warfare, making conflicts faster, cheaper, and more political. A limited volley of conventional missiles can paralyse a country, disrupt critical infrastructure, and complicate decision-making. With China having deployed more than 200 conventional missile launchers opposite India, the key question is how this missile superiority could shape a future conflict.

China's arsenal
While India views conventional missiles primarily as deterrents, China sees them as instruments of both political coercion and war fighting. The threat of missile strikes alone may achieve strategic objectives without triggering a full-scale war. A barrage targeting critical infrastructure deep inside India could force New Delhi to fight on two fronts: a border conflict and a missile campaign against its hinterland.

The two missile bases located at Korla and Kunming can fire a range of conventional missiles (DF-15B, DF-16, DF-21C and DF-26). DF-15B, DF-16 and DF-21C are most suited to hit military targets along the borders, whereas the DF-26 can hit high-value targets in depth. Further, their hypersonic missiles (DF-100 and Q4000) can hit deeper, with no launch warning. This becomes a major vulnerability, as India has no real-time defence against it.

Consequently, China's inventory reduces the salience of the Himalayas to provide strategic depth. The DF-26, being dual-role, raises the risk of escalation. While China shoots down from the Tibetan Plateau, India has to shoot over the Himalayas. This impacts missile detection timings. Moreover, India's missile inventory is still evolving, with limitations in both range and diversity. Its long-range systems – including Agni, the Long Range Land Attack Cruise Missile (LR-LACM) – Nirbhay, and BrahMos – and their variants are yet to be fully integrated. India also lacks robust real-time targeting capabilities, has



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finite missile stockpiles, and is still developing its hypersonic technology. Importantly, its rocket force remains a conceptual construct, with significant policy and organisational issues yet to be resolved.

Without a rocket force, India would have little choice but to absorb a Chinese missile strike. On the contrary, if India has one, both get hurt to varying degrees. That is when the missile math kicks in – in terms of mutual vulnerability. If China launches 100 missiles, India must be able to inflict significant damage – not necessarily through equal numbers, but through comparable effects. India should therefore aim to build a credible conventional missile inventory; otherwise, it risks being forced into a stalemate even before the border war begins.

Ideally, India's rocket force should deliver three effects. First, it should be able to hold the PLA's Western Theatre Command (WTC) at risk by having the threat to target deep inside Tibet and Xinjiang. Second, it should be capable of degrading the PLA's road and rail infrastructure, airbases, and logistics installations along the border. Third, it must enable field commanders to strike PLA camps, gun positions, and ammunition dumps in the tactical battle area. In essence, India needs a rocket force capable of engaging strategic, operational, and tactical military and economic targets from a single command authority.

Three aspects are important. First, at the doctrinal level, India must adopt counter-value strikes as part of its conventional missile strategy. This would require rethinking the scope and scale of its counter-force doctrine and developing a unified target list. Service- or agency-specific target lists have little place in time-sensitive missile warfare. The rocket force must also have the authority to execute pre-designated precautionary strikes in the opening hours of a conflict. Without pre-delegated launch authority, India would risk defeat at the outset.

Second, at the structural level, whatever blueprint is adopted for the rocket force, it must be placed under the Chief of Defence Staff (CDS). Keeping it service-specific would undermine operational effectiveness. India must also expand its medium- and intermediate-range ballistic missile (MRBM/IRBM) inventory, including Agni variants, to hold targets such as Korla and Kunming at reciprocal risk. This would raise the costs of any Chinese use of the DF-26. Fast tracking the development of hypersonic missiles is vital, especially since the DF-100 is already part of the PLA Rocket Force's order of battle (ORBAT).

Third, at the technological level, India's missile industry faces significant challenges. Private sector participation must expand to complement the efforts of the DRDO. Major missile programmes have suffered from cost overruns and delays, while critical gaps in advanced air propulsion systems, semiconductor, and high-grade materials continue to hamper self-reliance. Dependence on foreign suppliers for high-end components remains a strategic vulnerability. Greater investment in R&D and end-to-end private-sector manufacturing will be essential.

Interim steps
Since a rocket force will take time to become operational, India must adopt interim measures. First, disperse IAF assets and harden airbases to reduce vulnerability and force an adversary to expend more missiles. Second, optimise air-defence deployment to compel the PLA Rocket Force to target the air-defences rather than critical infrastructure. Third, strengthen long-range conventional strike capabilities to hold targets in Tibet and Xinjiang at risk, creating reciprocal vulnerability. Finally, expand satellite surveillance to detect mobile launchers, particularly DF-26 systems, improving the chances of early neutralisation.

- Developing hypersonic strike capability.
- Need for integrated ISR (Intelligence, Surveillance & Reconnaissance).

Static Linkages

- PLA Rocket Force (PLARF) is one of China's five military services.
- Ballistic missiles follow a ballistic trajectory; cruise missiles remain guided throughout flight.
- Hypersonic weapons travel at Mach 5 or above with high manoeuvrability.
- IRBM: 3,000–5,500 km.
- MRBM: 1,000–3,000 km.
- Chief of Defence Staff (CDS) promotes jointness among the three Services.
- Strategic Forces Command (SFC) manages India's nuclear delivery systems under the Nuclear Command Authority.
- DRDO is India's principal missile research organisation.

Critical Analysis

Significance

- Strengthens conventional deterrence.
- Enhances long-range precision strike capability.
- Supports integrated theatre operations.
- Improves strategic stability through reciprocal vulnerability.

Challenges

- Technological gaps in hypersonic systems.
- Dependence on imported critical components.
- Limited missile stockpiles.
- Requirement of integrated command-and-control architecture.
- High financial and technological costs.

Way Forward

- Establish an Integrated Rocket Force under the CDS.
- Expand MRBM, IRBM and long-range cruise missile inventories.
- Accelerate indigenous hypersonic weapon programmes.
- Improve satellite-based ISR and targeting capability.
- Harden military infrastructure and disperse critical assets.
- Increase private-sector participation in missile manufacturing.
- Strengthen defence R&D under Atmanirbhar Bharat.

KEY HIGHLIGHTS:

Context

- China has deployed 200+ conventional missile launchers opposite India, significantly enhancing its long-range precision strike capability.
- The debate has gained importance over the establishment of an Integrated Rocket Force to strengthen India's conventional deterrence and operational preparedness.
- The issue is closely linked to border security, defence modernisation, joint military reforms, and indigenous missile development.

Key Points

China's Missile Capability

- PLA Rocket Force (PLARF) is responsible for China's land-based missile arsenal.
- Major missile bases relevant to India:
 - Korla (Xinjiang)
 - Kunming (Yunnan)

Major Missile Systems

- *DF-15B = SRBM = ~600 km = Tactical battlefield strikes*
- *DF-16 = SRBM/MRBM = ~1,000 km = Precision conventional strikes*
- *DF-21C = MRBM = ~1,700 km = Operational-level strikes*
- *DF-26 = IRBM = ~4,000 km = Dual-capable (Conventional/Nuclear)*
- *DF-100 = Hypersonic = Long-range = Deep precision strike*

India's Capability

- Agni series (strategic ballistic missiles)
- BrahMos (supersonic cruise missile)
- Nirbhay / LR-LACM (long-range cruise missile)
- Pinaka (multi-barrel rocket launcher)

Key Concerns

- Absence of a dedicated Rocket Force Command.
- Limited conventional long-range missile inventory.

Caught in the middle

India must prioritise reduction of harm from drug abuse

India is located between two major drug-producing regions: Afghanistan, Pakistan, and Iran to the west and Myanmar, Thailand, and Laos to the east. While the West has historically dominated heroin production, the International Narcotics Control Board has said Myanmar has become the world's leading source of illicit opium while East and Southeast Asia remain major sources of methamphetamine. Officials have said drugs are being received at Gujarat, Kerala, and Tamil Nadu via maritime routes. Similarly, some drugs are produced domestically using illegally diverted pharmaceutical ingredients, aided by the fact that individuals possessing small quantities of heroin can attract up to six months' imprisonment, whereas drugmakers that cannot account for lakhs of doses often face only slaps on the wrist. The rise of Myanmar, where the territory under ethnic armed organisations is expanding, as a key source is also troubling since it shares a border with India. The Narcotics Control Bureau has noted a dramatic surge in the use of drones to smuggle drugs across borders, especially over Punjab. Traffickers are organising over the darknet and using cryptocurrencies. The pillars of India's response thus aim to keep the enforcement regime from being out-innovated and improve regulatory certainty.

States are trying to adopt a 'whole of society' approach recognising the public health and social dimensions. However, India needs to do more. Physical abuse and forced detoxification are frequently reported from many private centres. Punjab has an extensive network of de-addiction centres providing opioid substitution therapy, and some northeastern States to a secondary extent, but most large States have much less access relative to need. Most Integrated Rehabilitation Centres for Addicts are located in urban areas whereas the highest density of addicts in Punjab are in border villages and rural pockets. Likewise, relapse is often treated as a moral failure and many addicts avoid government centres fearing social ostracisation, particularly in rural North India. The persistence of criminal records for small-scale possession prevents youth from getting jobs, reducing their odds of escaping the drug-crime cycle. Although the Nasha Mukta Bharat Abhiyaan has said it has sensitised over six crore women, facilities dedicated to women are scarce and concentrated in urban areas; stigma, caregiving responsibilities, and lack of gender-responsive treatment keep many women from seeking or completing care. Finally, as evidence shows, disrupted supply can drive many users to cheaper alternatives unless accompanied by effective treatment. India must therefore shift public focus from seizures and arrests to the number of lives restored.

KEY HIGHLIGHTS:

Context

- India lies between the Golden Crescent (Afghanistan–Pakistan–Iran) and the Golden Triangle (Myanmar–Thailand–Laos), making it highly vulnerable to narcotics trafficking.
- The International Narcotics Control Board (INCB) identifies Myanmar as the world's leading source of illicit opium, while East and Southeast Asia remain major methamphetamine-producing regions.
- The Narcotics Control Bureau (NCB) reports increasing use of drones, maritime routes, darknet platforms, and cryptocurrencies for drug trafficking.
- The issue demands a balance between internal security, border management, and public health.

Key Points

Drug Trafficking

- Golden Crescent: Major source of heroin.
- Golden Triangle: Major source of opium and synthetic drugs.
- Major trafficking routes:
 - Land borders (Punjab, Rajasthan, Northeast)

- Maritime routes (Gujarat, Kerala, Tamil Nadu)
- Drone-based cross-border smuggling.

Emerging Trends

- Diversion of pharmaceutical precursor chemicals.
- Increased use of:
 - Cryptocurrencies
 - Darknet marketplaces
 - Encrypted communication
 - Drones

Drug Abuse

- Uneven availability of de-addiction centres across States.
- Rural and border districts remain underserved.
- High relapse due to inadequate rehabilitation.
- Women face stigma and limited gender-responsive treatment.

Government Initiatives

- NDPS Act, 1985
- Narcotics Control Bureau (NCB)
- Nasha Mukta Bharat Abhiyaan (2020)
- National Action Plan for Drug Demand Reduction (NAPDDR)
- Integrated Rehabilitation Centres for Addicts (IRCA)
- Seizure Information Management System (SIMS)

Static Linkages

- Article 47: State shall improve public health and prohibit intoxicating drugs except for medicinal purposes.
- Drug trafficking is a major form of organised transnational crime.
- Closely linked with:
 - Terror financing
 - Money laundering
 - Illegal arms trafficking
 - Human trafficking
- PMLA, 2002 applies to proceeds from NDPS offences.
- India is a party to:
 - Single Convention on Narcotic Drugs (1961)
 - Convention on Psychotropic Substances (1971)
 - UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (1988)

Critical Analysis

Challenges

- Porous international borders.
- Instability in Myanmar fuels trafficking.

- Technology-enabled smuggling (drones, darknet, crypto).
- Weak regulation of precursor chemicals.
- Inadequate rehabilitation infrastructure.
- Stigma and criminalisation of addicts.
- Limited women-centric treatment facilities.

Significance

- Threatens national security.
- Fuels organised crime and terror financing.
- Weakens demographic dividend through youth addiction.
- Increases public health burden.
- Undermines border governance.

Way Forward

- Strengthen smart border management with anti-drone systems.
- Enhance coastal surveillance and maritime intelligence.
- Tighten regulation of pharmaceutical precursor chemicals.
- Expand de-addiction facilities in rural and border areas.
- Promote community-based rehabilitation.
- Improve coordination among NCB, BSF, Coast Guard, and State Police.
- Strengthen cooperation through UNODC, INCB, and regional intelligence-sharing.
- Prioritise demand reduction, rehabilitation, and social reintegration alongside enforcement.

FCRA's new rules shrink space for civil society



JOHN BRITTAS

SINCE THEIR notification on June 22, the Foreign Contribution (Regulation) Amendment (FCRA) Rules, 2026 have largely been discussed in terms of their impact on NGOs. But the changes compel us to confront a deeper question: Where does legitimate regulation end and executive control begin?

No responsible democracy can object to regulating foreign contributions. The difficulty arises when regulation gradually ceases to concern itself with money and begins to concern itself with institutions. The latest amendments mark such a transition. They prescribe the purposes for which organisations may function, require them to pre-empt the states in which they may operate, create fresh benchmarks for assessing organisational legitimacy and expand reporting obligations into areas extending far beyond financial accountability.

Civil society occupies the constitutional space between the individual and the state, a space of charitable institutions, educational establishments, etc. Our Constitution consciously protects this plural institutional landscape. It recognises the freedom to form associations. It guarantees freedom of conscience and the right to profess, practise and propagate religion; it protects the rights of minorities to establish and administer educational institutions. These guarantees were never intended to immunise organisations from regulation; equally, they were never intended to permit regulation to become an instrument for narrowing their autonomy.

One provision of the new rules illustrates this concern vividly. The schedule appended to the Rules repeatedly excludes "proselytisation" from specified religious activities. No constitutional democracy can countenance conversion through force, fraud or coercion. Yet, the expression "proselytisation" finds no definition either in the parent Act or in the amended rules. It has no settled statutory meaning in Indian law. In effect, an undefined expression carrying potentially serious consequences has been introduced into subordinate legislation.

Laws cannot leave citizens or institutions guessing where legality ends and illegality begins. When vague terminology is used, its

practical meaning is left to executive interpretation. The danger of vague law is that it discourages perfectly lawful conduct.

Equally significant are the amendments relating to reporting obligations, now requiring disclosures extending to publications, articles, official websites, social-media accounts and descriptions of institutional activities.

There is a distinction between monitoring how an organisation spends money and monitoring what it thinks or communicates. That distinction acquires particular importance after the decision in *Justice K. S. Puttaswamy (Retd) vs Union of India*, where the Supreme Court recognised privacy as intrinsic to the right to life and personal liberty under Article 21. Privacy is not confined to physical spaces. It also encompasses informational autonomy.

These concerns assume greater significance when viewed alongside the pending Foreign Contribution (Regulation) Amendment Bill, 2026, which proposes even more extensive governmental powers over institutions and assets.

The present amendments must also be viewed against the trajectory of FCRA administration over the past 10 years. The new Rules represent the latest stage in the process of progressively tightening regulatory control over India's voluntary sector. During this period, thousands of FCRA registrations have been cancelled. Equally disquieting is the diminution of transparency itself. Detailed organisation-wise information once publicly accessible through the Ministry's FCRA portal has been withdrawn, while even parliamentary questions seeking particulars of FCRA licence cancellations have repeatedly been disallowed on the ground that such information is "secret in nature".

As compliance obligations imposed on civil society become increasingly intrusive, public transparency regarding the exercise of regulatory power appears to have diminished. A constitutional democracy demands the opposite: Greater executive accountability as regulatory authority expands.

Brittas is Rajya Sabha Member of Parliament belonging to CPM. With inputs from Aneesh Babu

The new Rules represent the latest stage in the process of progressively tightening regulatory control over India's voluntary sector

- Enhanced compliance and reporting obligations.
- Increased executive oversight over foreign-funded organisations.

Issues

- The term "proselytisation" is referred to in the Rules but is not defined under the FCRA Act or Rules.
- Raises concerns regarding administrative discretion and legal certainty.
- Greater compliance burden for NGOs and charitable institutions.
- Concerns over reduced transparency in FCRA administration.

Static Linkages

- Article 14 – Equality before Law.
- Article 19(1)(c) – Freedom to form associations.
- Article 19(4) – Reasonable restrictions.
- Articles 25–28 – Freedom of Religion.
- Articles 29–30 – Minority Educational Rights.
- Article 21 – Right to Privacy (Informational Privacy).
- Delegated Legislation.
- Doctrine of Ultra Vires.
- Rule of Law.
- Natural Justice.

Critical Analysis

Positives

- Strengthens monitoring of foreign contributions.
- Enhances financial accountability.
- Addresses concerns relating to national security.
- Improves regulatory oversight.

Concerns

- Increased compliance burden.
- Undefined legal terminology may enable discretionary interpretation.
- Possible impact on institutional autonomy.
- Reduced transparency in regulatory actions.
- Potential constitutional challenges on grounds of proportionality and reasonableness.

Way Forward

- Clearly define ambiguous legal terms.
- Ensure delegated legislation remains within the parent Act.
- Balance regulatory oversight with constitutional freedoms.
- Increase transparency in FCRA administration.
- Adopt risk-based compliance mechanisms.
- Strengthen independent appellate and grievance mechanisms.

KEY HIGHLIGHTS:

Context

- The Foreign Contribution (Regulation) Amendment Rules, 2026 have expanded compliance requirements for organisations receiving foreign contributions under the FCRA, 2010.
- The Rules widen reporting obligations beyond financial disclosures and prescribe additional conditions regarding organisational activities.
- The amendments have revived debates on the balance between national security, regulatory oversight, and constitutional freedoms.

Key Points

Foreign Contribution (Regulation) Act, 2010

- Administered by the Ministry of Home Affairs (MHA).
- Regulates acceptance and utilisation of foreign contributions and foreign hospitality.
- Objective:
 - Protect sovereignty and integrity of India.
 - Safeguard national security, public interest and democratic institutions.
 - Ensure transparency in utilisation of foreign funds.

Important Changes under FCRA Rules, 2026

- Expanded disclosure requirements relating to:
 - Publications
 - Official websites
 - Social media accounts
 - Institutional activities
- Organisations must specify intended operational States.

For peace deal, first protect ceasefire

THE FOUR-day cycle of attacks may have subsided, but it underscores how fragile the nearly two-week-old ceasefire between Iran and the US continues to be. At the centre of the renewed tensions, again, is the Strait of Hormuz. A Singapore-flagged container ship that Iran is accused of striking last Thursday was using the toll-free temporary shipping route announced by Oman in coordination with the International Maritime Organisation. The incident prompted a US military response, triggering further exchanges, with the Islamic Revolutionary Guard Corps warning that ships transiting the Strait of Hormuz must use only the "authorised route" through Iranian territorial waters. Clearly, Tehran regards control over the Strait as a strategic lever, worth risking the ceasefire for, even if preserving it could bring substantial economic relief.

Adding to the uncertainty is the ambiguous language of the Memorandum of Understanding. While it requires Iran to "make arrangements using its best efforts for the safe passage of commercial vessels" through the Strait of Hormuz for 60 days, it does not define what those "arrangements" entail. Tehran's interpretation appears to be that it alone can determine the routes commercial ships must follow. The vague language is now being exploited, as both sides accuse the other of violating the agreement. The other problem is Lebanon. The US-brokered security agreement between Lebanon and Israel, signed on Friday, provides for a phased Israeli withdrawal from parts of the south alongside the deployment of the Lebanese Army, contingent on the dismantling of Hezbollah. Iran has, however, displayed its willingness to close the Strait and resume hostilities if it believes the agreement's terms on Lebanon are being violated by the US and Israel. With competing interpretations of the MoU, interlinked ceasefires, continuing proxy conflicts and overlapping security arrangements all pulling in different directions, any one of these fault lines could trigger a wider conflagration.

The situation remains in flux. The fallout of the instability extends far beyond the region and the energy sector, disrupting global supply chains, and countries the world over. The economic and military costs of an escalation appear to have given both sides an incentive to seek pathways to preserve the ceasefire framework. Sustained diplomatic engagement and a shared commitment to resolving the differences will be needed to prevent a spiralling of the conflict. This will be tested on Tuesday in Qatar where the two sides are expected to meet for talks.

KEY HIGHLIGHTS:

Context

- The Iran-US ceasefire remains fragile amid renewed tensions over the Strait of Hormuz.
- Iran allegedly attacked a commercial vessel using a temporary shipping corridor coordinated by Oman and the International Maritime Organization (IMO).
- Iran asserted that commercial ships should use only routes authorised through its territorial waters, raising concerns over freedom of navigation.
- Simultaneous tensions involving Lebanon, Israel and Hezbollah have increased the risk of wider regional instability.
- The developments have renewed concerns regarding global energy security, maritime trade and India's strategic interests.

Key Points

- Strait of Hormuz Connects the Persian Gulf with the Gulf of Oman and the Arabian Sea.
- Bordered by Iran (North) and Oman & UAE (South).
- One of the world's most critical maritime chokepoints.
- Around one-fifth of global petroleum liquids consumption passes through the Strait. (Source: U.S. Energy Information Administration)
- Major exporters: Saudi Arabia, Iraq, UAE, Kuwait, Qatar and Iran.
- Any disruption may lead to:

- Spike in crude oil and LNG prices.
- Supply chain disruptions.
- Higher freight and insurance costs.
- Global inflationary pressures.
- India imports nearly 85% of its crude oil requirement, making Gulf stability crucial for energy security.

Static Linkages

- UNCLOS, 1982 provides for Transit Passage through international straits used for international navigation.
- Strait of Hormuz is a major Sea Line of Communication (SLOC).
- Maritime chokepoints are critical for global trade and energy security.
- Strategic Petroleum Reserves (SPR) enhance national energy resilience.
- Freedom of navigation is an essential principle of international maritime law.

Critical Analysis

Significance

- Strait remains the world's most important oil transit chokepoint.
- Stability is essential for global energy markets.
- Direct implications for India's energy security and current account balance.
- Reinforces the strategic importance of the Indian Ocean Region (IOR).

Challenges

- Ambiguity in ceasefire arrangements.
- Possibility of disruption by state and non-state actors.
- Escalation of proxy conflicts.
- Increased shipping and insurance costs.
- Vulnerability of energy-import dependent countries like India.

Way Forward

- Strengthen diplomatic engagement through regional and multilateral platforms.
- Uphold UNCLOS and freedom of navigation principles.
- Diversify India's crude oil import sources.
- Expand Strategic Petroleum Reserves.
- Accelerate renewable energy and green hydrogen adoption.
- Enhance maritime domain awareness and naval cooperation in the Indian Ocean Region.

Overheated Europe, Underprepared world

FOR SEVERAL years, weather extremes seemed a distant crisis for much of the Western world. The devastating heatwave of 2023 did leave an imprint on the ecological consciousness of a section of Europeans. But it's only been about a decade since people outside the developing world began to feel the impact of global warming acutely. In Europe, temperature records were broken during the summers of 2019, 2022 and 2023. The hot weather has been particularly distressing for people across the continent this year. Temperatures have exceeded 40 degrees Celsius in several countries, red alerts have spread across France and other parts of Europe, schools have shut, transport systems have been disrupted, and health services have come under immense pressure. The UK has recorded its hottest June day on record, while Spain, Portugal, Belgium, the Netherlands and Germany have all experienced conditions that until recently would have been considered highly unusual. The exact toll taken by the climate vagaries is not yet known, but the tragedy of people drowning in France after jumping into rivers and canals to escape the heat underscores the severity of the crisis.

Municipalities in several parts of Europe are now discussing cooling centres, expanding green spaces, redesigning buildings, framing heat action plans and improving emergency response systems. Such conversations are necessary in a continent where buildings are designed to retain warmth. But adaptation addresses only one side of the problem. The European heat crisis is a reminder of something scientists have always asserted: Climate change is an interconnected planetary emergency. For instance, the current weather pattern, a blocked high-pressure system trapping hot air over Europe and drawing warm air up from the Sahara, is not unusual in European summers. But climate change has made such occurrences more frequent and exacting, especially because Europe is the fastest-warming continent.

Delays in global warming mitigation impose burdens all over the world. Most European countries have taken initiatives to cut net GHG emissions to negligible levels. But many of these plans have been criticised for being vague on near-term accountability. Ambitious emissions reductions are indispensable. Equally critical is ensuring that Europe honours its financial and technological commitments to developing countries. The heatwave should alert its policymakers to the fact that every unfulfilled climate promise makes future heatwaves more dangerous.

KEY HIGHLIGHTS:

Context

- Europe witnessed severe heatwaves (June–July 2026) with temperatures exceeding 40°C in several countries.
- France, Spain, Portugal, Germany, Belgium, the Netherlands and the UK experienced record-breaking temperatures, disrupting transport, education and public health services.
- Scientists attribute the event to a blocking high-pressure system, whose impacts have been intensified by anthropogenic climate change.
- The event reinforces the urgency of climate adaptation, mitigation and fulfilment of global climate commitments under the UNFCCC and the Paris Agreement.

Key Points

- Europe is the fastest-warming continent, warming nearly twice as fast as the global average (WMO).
- Climate change has increased the frequency, intensity and duration of heatwaves.
- Heatwaves are recognised as one of the deadliest weather-related disasters globally.
- Urban areas experience higher temperatures due to the Urban Heat Island (UHI) effect.
- European countries are strengthening:
 - Heat Action Plans (HAPs)
 - Early Warning Systems
 - Climate-resilient urban planning
 - Cooling centres and green infrastructure

- Developed countries are expected to fulfil commitments on:
 - Climate finance (New Collective Quantified Goal under UNFCCC)
 - Technology transfer
 - Capacity building for developing countries.

Static Linkages

- Greenhouse Effect and Global Warming.
- Weather vs Climate.
- Heatwave conditions (high temperature + atmospheric stability).
- Blocking High-Pressure System.
- Urban Heat Island Effect.
- Climate Adaptation vs Climate Mitigation.
- Nationally Determined Contributions (NDCs).
- Paris Agreement (2015).
- UNFCCC (1992).
- IPCC Assessment Reports.
- Climate Finance and Loss & Damage Fund.
- Heat Action Plans (NDMA Guidelines).

Critical Analysis

Significance

- Highlights climate change as a global systemic challenge.
- Demonstrates the growing importance of heat resilience in urban planning.
- Reinforces the need for stronger global cooperation on mitigation.

Challenges

- Increasing mortality and health risks.
- Stress on power, water and transport infrastructure.
- Higher incidence of droughts and wildfires.
- Slow progress in achieving global emission reduction targets.
- Gap between climate finance commitments and actual disbursement.

Way Forward

- Accelerate implementation of NDCs.
- Strengthen Heat Action Plans using scientific forecasts.
- Expand urban green cover and climate-resilient infrastructure.
- Improve early warning and emergency response systems.
- Ensure timely delivery of climate finance and technology transfer.
- Promote sustainable urban planning to reduce heat vulnerability.

Behind Europe's heatwave, climate change the culprit

While the link may seem self-evident, establishing scientific cause is key to driving policy action, which has been lacking



AMITABH SINHA

A NEW study has confirmed what was already evident — climate change is behind the scorching heat in large parts of Europe right now.

A study by World Weather Attribution (WWA), a group of scientists that examines the causes of extreme weather events worldwide, has found climate change to be "unavoidably to blame" for the European heatwave, which has seen several places record unprecedented temperatures in recent days. WWA said this was the most severe heatwave ever recorded in Europe.

On Sunday, WHO Director-General Tedros Adhanom Ghebreyesus wrote in a post on X that "Europe is the fastest warming continent on Earth, heating at twice the global average... More than 1500 excess deaths have been recorded since 21 June linked to high temperatures in Europe."

This is the third time in five years that Europe finds itself in the grip of an intense heatwave. Similar scenes were witnessed in 2022 and 2023 as well. More than 1,00,000 people are estimated to have died owing to extreme heat in those two years.

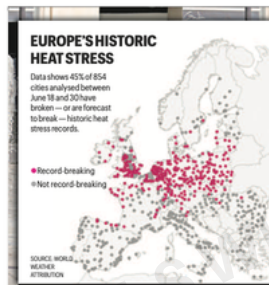
While the current episode of extreme heat is expected to slightly subside this weekend onwards, Europe's ordeal might not be over yet, according to forecasts by meteorological offices of the UK and France. Historically, June has not been the hottest month for Europe — July is. With the El Niño phenomenon in the Pacific Ocean expected to get stronger in July, Europe might be starting at fresh heatwave spells in the coming weeks.

Climate change-driven heatwave

The WWA study, however, was categorical in assigning the cause of this heatwave. It said it was not because of El Niño, which is still to reach its peak, or any other reasons, but climate change.

"Both the daytime highs and overnight temperatures seen during this heatwave would have been virtually impossible to occur at this time of year as recently as 1976 — just 50 years ago," it said.

Many of the temperature records now being broken in Europe were set in 1976, when the region had experienced an unusually hot summer.



usually hot summer.

Europe experienced its first heatwave of this century in 2003. The study said that heatwave was nothing in comparison to what the region is witnessing now. The record-breaking high temperatures during the night are about 100 times more likely today than they were in 2003, it said. The daytime peak temperatures observed during the current spell are almost 10 times more likely.

Daytime temperatures in most of Europe, barring the northern part, are usually between 30 and 38°C during June. Night-time temperatures typically vary between 11 and 17°C. But in many parts of the region, peak temperatures during the ongoing heatwave have been 10 to 15°C higher than normal. A similar situation had prevailed in May this year as well, when an early heatwave had prevailed in Europe.

The analysis found that the El Niño Southern Oscillation (ENSO) phase had no role in driving the heat (in this spell), the study said.

ENSO is an ocean-atmospheric interaction over the Pacific Ocean region. El Niño is one of the two phases of ENSO and is known to have a warming effect on the planet. Its opposite phase, La Niña, tends to bring temperatures down.

Why accurate attribution is important

Though the intensity of this particular

Concrete evidence

Climate attribution science is a relatively new discipline. It examines the likelihood of a particular extreme weather event, if climate change were not taking place.

Attribution science seeks to remove ambiguity and determine the exact extent of responsibility that climate change bears.

Climate attribution science is a relatively new discipline, developed just over the last two decades. It tries to examine the likelihood of a particular extreme weather event happening if climate change were not taking place.

Earlier, it used to take scientists a couple of months, even years, to make this assessment. But in the last three to four years, mainly owing to the efforts of WWA, a much faster assessment has been made possible, sometimes even when the event is still ongoing, as in the present case.

Attribution science seeks to remove ambiguity and determine the exact extent of responsibility of climate change in causing major extreme weather events.

In the last few years, it has established the footprint of climate change on several events. Besides preparing scientific evidence, this exercise is also aimed at forcing policymakers and decision makers to act more rapidly on climate change.

Action awaited

The scientific evidence on climate change is already voluminous and compelling. Climate change seems to have dropped a few notches down in the list of global priorities, particularly after Donald Trump took office as US President. The recent G7 meetings, for example, hardly had any climate-related agenda or outcomes. A few years earlier, climate change used to be one of the most important items at such international meetings, especially those involving influential leaders.

Scientists insist that there is still time for countries to take rapid action and attempt to achieve the Paris Agreement targets of containing the global rise of temperatures within 1.5 or 2°C from pre-industrial times.

But governments appear to have all but given up on these targets. For them, it seems, these targets have already gone beyond reach, or require the kind of mobilisation of resources on a global scale that is neither practical nor realistic to organise.

Countries seem to have decided to let climate change play itself out and do their best to deal with its impact and adapt to it — a strategy scientists routinely warn against. Adaptation has its limits, they maintain.

But global action on climate change has continued to woefully lag behind global warming. Events such as the European heatwave are only expected to increase both in frequency and intensity over the next few years.

spell of European heatwave and the trend over the last few years had made the imprint of climate change fairly clear, scientists are usually wary of linking any individual extreme weather event to climate change without an attribution study like this one.

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A man cools off at a fountain during a heatwave in Saint Germain en Laye, west of Paris, on Thursday.

- Increasing frequency, duration and intensity of heatwaves.
- High urbanisation leading to Urban Heat Island effect.
- Growing impacts on health, agriculture, water resources and energy demand.
- Climate Attribution Science Quantifies the influence of anthropogenic climate change on specific extreme weather events.
- Strengthens scientific evidence for climate policy, disaster preparedness and adaptation planning.

Static Linkages

- Heatwave: Prolonged period of abnormally high temperatures relative to local climatology.
- Climate vs Weather: Climate represents long-term average weather (≥30 years); weather is short-term atmospheric conditions.
- Greenhouse Gases: CO₂, CH₄, N₂O and fluorinated gases are the principal anthropogenic greenhouse gases.
 - ENSO El Niño: Warming of central and eastern equatorial Pacific; generally raises global temperatures.
 - La Niña: Cooling phase with opposite effects.
 - ENSO modifies weather patterns but is not the sole cause of every heatwave.
- Urban Heat Island Effect: Urban areas remain warmer due to concrete surfaces, reduced vegetation and waste heat.
 - Paris Agreement (2015): Hold global warming well below 2°C above pre-industrial levels.
 - Pursue efforts to limit warming to 1.5°C.
 - IPCC AR6 Human influence has unequivocally warmed the atmosphere, ocean and land.
 - Heatwaves have become more frequent and intense due to anthropogenic climate change.

Critical Analysis

Significance

- Strengthens scientific evidence linking climate change with extreme weather.
- Supports evidence-based climate policymaking.
- Improves disaster preparedness through rapid attribution studies.
- Highlights limits of adaptation without emission reduction.

KEY HIGHLIGHTS:

Context

- A World Weather Attribution (WWA) study concluded that the ongoing European heatwave is primarily caused by anthropogenic climate change, with ENSO (El Niño) having no significant role.
- The WHO stated that Europe is the fastest-warming continent, warming at nearly twice the global average.
- Around 45% of 854 European cities analyzed either broke or were forecast to break historic heat-stress records.
- The event highlights the growing importance of climate attribution science in understanding extreme weather events and guiding climate policy.

Key Points

- World Weather Attribution (WWA): International scientific initiative that conducts rapid attribution studies of extreme weather events.
- Uses climate models and observational data to assess the role of human-induced climate change.
- Major Findings Present heatwave would have been virtually impossible without climate change.
- Daytime extreme temperatures are ~10 times more likely due to climate change.
- Extreme nighttime temperatures are ~100 times more likely than in 2003.
- ENSO had no significant contribution to the present heatwave.
- Why Europe is Highly Vulnerable Fastest warming continent globally.

Challenges

- Weak global commitment towards emission reduction.
- Increasing heat-related mortality and economic losses.
- Urban infrastructure remains poorly adapted to extreme heat.
- Climate finance and technology transfer remain inadequate.

Way Forward

- Accelerate implementation of Nationally Determined Contributions (NDCs).
- Strengthen Heat Action Plans and early warning systems.
- Promote climate-resilient urban planning and green infrastructure.
- Enhance renewable energy adoption and energy efficiency.
- Expand climate attribution research for informed policymaking.
- Increase global climate finance for adaptation and mitigation.