



DAILY NEWS PAPER ANALYSIS

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**CIVILS WITH AKASH
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Was a 'proper debate' held in Parliament on CEC and ECs appointment law, asks SC

Krishnadas Rajagopal
NEW DELHI

The Supreme Court on Thursday asked if there had been a "proper debate" in Parliament about the "ethos" of its 2023 judgment that took the appointment of members of the Election Commission out of the exclusive hands of the political executive, namely, "the party which not unnaturally has an interest in perpetuating itself in power".

In a 2023 judgment in *Anoop Baranwal versus Union of India*, a Constitution Bench of the court had replaced the mechanism of the President appointing the Chief Election Commissioner (CEC) and Election Commissioners (ECs) on the sole advice of the Prime Minister with a more participatory appointment process involving a three-member selection committee of the Prime Minister,



the Opposition Leader in the Lok Sabha, and the Chief Justice of India. The court had said the committee would be in place till Parliament brought in a law to replace it.

The Union government had brought in a law which reverted to the dominant role of the executive in the appointments of the CEC and ECs. Under the Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Service, and Term of Office) Act of 2023, the CJI was replaced in the

selection committee by a Union Cabinet Minister nominated by the Prime Minister.

"But was there a proper debate in Parliament about the *Anoop Baranwal* judgment? Is the ethos voiced in the judgment reflected in the Parliamentary debates... That is not clear," said Justice Dipankar Datta, heading a Bench comprising himself and Justice Satish Chandra Sharma.

Senior advocate Shadan Farasat, appearing for an intervenor, said the passing of the law had been preceded by an *en masse* suspension of Opposition MPs. "There was no proper debate in the Parliament," he said.

"A majority of the Opposition was suspended. [AI-MIM MP Asaduddin] Owaisi was the sole objector," advocate Prashant Bhushan, appearing for Association for Democratic Reforms, submitted.

KEY HIGHLIGHTS:

Context of the News

- The Supreme Court questioned whether Parliament adequately debated the spirit of the 2023 judgment in *Anoop Baranwal vs Union of India* Judgment regarding appointments to the Election Commission of India.
- In 2023, the Supreme Court directed that appointments of the Chief Election Commissioner (CEC) and Election Commissioners (ECs) be made by a committee comprising:
 - Prime Minister
 - Leader of Opposition in Lok Sabha
 - Chief Justice of India (CJI)
- Parliament later enacted the Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023.
- The Act replaced the CJI in the selection committee with a Union Cabinet Minister nominated by the Prime Minister.
- Petitioners argued that the law restored executive dominance in appointments.

Key Points

- Article 324 provides for the Election Commission and vests it with the conduct of elections.
- Constitution leaves appointment procedure of CEC and ECs to Parliament.
- Earlier appointments were effectively controlled by the executive.
- Supreme Court in *Anoop Baranwal* case held:

- Independent Election Commission is essential for free and fair elections.
- Free and fair elections are part of the Basic Structure doctrine.
- Under the 2023 Act:
 - Selection Committee:
 - Prime Minister
 - Leader of Opposition
 - Union Cabinet Minister nominated by PM
 - Search Committee headed by Cabinet Secretary prepares shortlist.
- Concerns:
 - Executive gets majority in selection committee.
 - Reduced institutional neutrality.
 - Questions over adequacy of Parliamentary deliberation.

Static Linkages

- Article 324: Election Commission.
- Basic Structure Doctrine.
- Separation of Powers.
- Independence of Constitutional Bodies.
- Judicial Review.
- Constitutional Morality.
- Free and Fair Elections as foundation of democracy.
- Checks and Balances in governance.

Critical Analysis

Significance of Supreme Court Judgment

- Strengthens institutional independence of Election Commission.
- Reduces possibility of partisan appointments.
- Reinforces democratic credibility.

Concerns with 2023 Act

- Executive dominance may affect neutrality.
- Removal of CJI weakens independent oversight.
- Search process lacks transparency.
- May undermine public trust in electoral institutions.

Government's Position

- Parliament has constitutional authority under Article 324 to make law.
- Presence of Opposition Leader provides consultative mechanism.

Way Forward

- Ensure bipartisan and transparent appointment mechanism.
- Include neutral constitutional authority in selection process.
- Establish objective eligibility criteria.
- Increase Parliamentary scrutiny of appointments.
- Strengthen institutional autonomy of Election Commission.

Unwinnable war

The U.S. should pursue a deal with Iran, and not take a maximalist stand

When Donald Trump announced 'Operation Project Freedom', aimed at "guiding" stranded merchant vessels out of the Strait of Hormuz, he warned that any interference from Iran would be dealt with "forcefully". Over the previous weeks, Mr. Trump had issued several ultimatums to Tehran to reopen the waterway, which it closed after the U.S. and Israel launched the war on February 28. As Iran refused to budge, Mr. Trump launched the operation to militarily reopen the strait. But it lasted barely 50 hours. Iran responded by firing at two American destroyers in the strait and attacking a UAE tanker off Oman's coast. The UAE, a close strategic partner of both the U.S. and Israel, also said it was attacked twice. With the ceasefire coming under strain amid hostilities, Mr. Trump, on Wednesday, said he was pausing the operation "at the request of Pakistan". While Mr. Trump continues to make sweeping claims about winning the war, the fact that the Strait of Hormuz remains closed – and that the operation to reopen it did not last even three days – points to a very different reality on the ground. The U.S. not only failed to achieve any of its declared objectives during the 40 days of war, but is now grappling with a crisis created by the war itself – the closure of the strait.

Unlike Mr. Trump, who has made several self-contradictory statements since the war began, Iran has remained consistent in its demands. Supreme Leader Mojtaba Khamenei said last week that Iran would "protect" its missile and nuclear capabilities and continue to exercise control over the Strait of Hormuz. Tehran appears convinced that the war has strengthened its hand and that time is on its side. Mr. Trump has made a series of miscalculations. In the first week of the war, he said he would accept nothing short of Iran's "unconditional surrender". But as the conflict dragged on, he started demanding a deal. Both sides agreed to a ceasefire on April 8, but the U.S., which imposed a blockade on Iranian ports on April 12, failed to exact any meaningful concession from Iran. Contrary to his rhetoric, he holds few strong cards in this war of attrition. If the crisis persists, it will inflict lasting damage on the U.S. and the global economy, potentially endangering Mr. Trump's presidency. If he resumes the war, Tehran will retaliate by targeting Gulf kingdoms, which would be catastrophic for the global economy. America is not winning this war. No amount of social media threats or military posturing is going to alter that reality. Washington should recognise this and pursue a deal with Iran based on accommodating mutual demands and reciprocal concessions if it wants to avoid pushing the world economy towards the precipice.

KEY HIGHLIGHTS:

Context of the News

- The U.S. launched "Operation Project Freedom" to reopen the Strait of Hormuz after Iran allegedly blocked maritime movement following the U.S.-Israel conflict with Iran.
- Iran retaliated through attacks on U.S. naval assets and commercial vessels in the Gulf region.
- The crisis increased tensions in West Asia and raised concerns regarding global energy security and maritime trade.
- The closure of the Strait threatens global oil supply chains and impacts energy-import dependent countries such as India.

Key Points

- Strait of Hormuz is located between Iran and Oman.
- It connects:
 - Persian Gulf → Gulf of Oman → Arabian Sea.
- It is one of the world's most important oil chokepoints.
- Nearly one-fifth of global crude oil trade passes through the Strait.
- Major exporters using this route:
 - Saudi Arabia

- Iraq
- UAE
- Kuwait
- Iran
- U.S. Fifth Fleet is stationed in Bahrain.
- Any disruption in the Strait can lead to:
 - Rise in crude oil prices
 - Inflationary pressures
 - Global supply-chain disruptions
 - Increase in shipping and insurance costs
- India is heavily dependent on crude oil imports from West Asia.
- Strategic Petroleum Reserves (SPRs) are critical during such crises.

Static Linkages

- Important maritime chokepoints of the world
- Sea Lanes of Communication (SLOCs)
- Energy security
- OPEC and crude oil pricing
- Strategic Petroleum Reserves
- UNCLOS and freedom of navigation
- Geopolitics of West Asia
- Impact of oil prices on inflation and current account deficit
- Maritime security in the Indian Ocean Region

Critical Analysis

Significance for India

- West Asia is crucial for India's:
 - Energy imports
 - Trade routes
 - Diaspora security
- Rising oil prices can:
 - Increase inflation
 - Widen fiscal deficit
 - Increase import bill

Global Concerns

- Threat to global energy supply chains
- Increased instability in West Asia
- Risk of wider regional conflict

Strategic Concerns

- Militarisation of maritime chokepoints
- Growing proxy conflicts in West Asia
- Challenge to freedom of navigation

Way Forward

- Promote diplomatic resolution and de-escalation.
- Diversify India's energy import sources.
- Expand Strategic Petroleum Reserves.
- Strengthen India's maritime security capabilities.
- Increase renewable energy adoption for long-term energy security.
- Enhance multilateral cooperation in the Indian Ocean Region.

Building hazards

India needs to do more to both prevent and fight fires

Each major fire accident in cities that ends up claiming human lives fleshes out different sets of causative and exacerbating factors. The recent one in Shahdara in East Delhi highlighted a lack of sufficient attention to planning for evacuating buildings in the case of emergencies, mainly fire. Nine people were killed and some 15 were rescued with grievous injuries in that accident. The residential building – still plus four floors comprising eight houses – had security enhancing features that turned out to be deadly: electronic locks on doors that could not be opened; a terrace that was not easily accessible; and metallic grills around the building including on balconies that had to be cut for access by fire service personnel seeking to rescue the victims. A fire in March in Palam, in which nine of an extended family died, highlighted access problems that fire services face in Delhi. The mixed-use building had few of the recommended firefighting facilities required in such buildings. Eyewitnesses complained that the hydraulic lifts used by fire services personnel to access higher floors were malfunctioning. Though the fire services insist they reached the Shahdara accident spot on time, response times have been longer in the capital city at other times. In a fire in Dwarka in 2025, fire engines could not enter the residential society because the name board of the society was blocking them.

While there is certainly a case for reviewing the fire preparedness and fire-fighting capabilities of Delhi, what often goes unaddressed are electrical problems that cause these fires across Indian cities. As summer sets in, air-conditioning blasts are often casually cited as in the Shahdara fire. What often happens is overloading of equipment such as the airconditioner during hot summer days. The wires that are not designed to handle such loads burn due to heat and the circuit breakers that should have tripped the equipment as protection do not do so. In India, the hierarchy of loads and circuit breakers is often not observed as residences are packed with high load equipment beyond what the system can safely carry. The intent is often to keep the equipment running under all conditions whereas tripping of overloaded equipment is a necessary safety feature. City authorities talk of drones and robots to fight fires when even the basic preventive measures are not in place.

KEY HIGHLIGHTS:

Context

- Recent fire accident in Shahdara, East Delhi caused multiple deaths and injuries.
- Rescue operations were hindered due to:
 - Blocked terrace access
 - Metallic grills on balconies
 - Electronic locks preventing evacuation
- Earlier fire incidents in Palam and Dwarka exposed:
 - Poor firefighting access
 - Inadequate fire safety systems
 - Congested urban planning
- Electrical overload during summer, especially from air-conditioners, identified as a major trigger for urban fires.

Key Points

- Major causes of urban fires:
 - Electrical short circuits
 - Overloaded wiring systems
 - Absence of proper circuit breakers
 - Violation of fire safety norms
- National Building Code (NBC), 2016:
 - Provides standards for fire prevention and evacuation.

- Fire services:
 - State subject under Seventh Schedule.
- Disaster Management Act, 2005:
 - Emphasizes prevention, mitigation, preparedness and response.
- Urban fire risks increase due to:
 - Unauthorized constructions
 - Mixed land use
 - Narrow roads and encroachments
 - Poor enforcement by local bodies

Static Linkages

- Article 21 → Right to life includes safe living conditions.
- Urbanisation without planning increases disaster vulnerability.
- Electrical resistance produces heat leading to fire hazards.
- Disaster mitigation is more effective than post-disaster relief.
- Municipal governance plays key role in public safety.

Critical Analysis

Challenges

- Weak implementation of fire safety norms.
- Illegal and unplanned urban construction.
- Lack of regular fire audits.
- Inadequate firefighting infrastructure.
- Poor public awareness regarding electrical safety.

Governance Issues

- Coordination gaps between municipal bodies and fire departments.
- Delays in emergency response due to congestion.
- Regulatory failures in approving unsafe buildings.

Ethical Dimension

- Negligence in enforcing safety norms threatens human life.
- Public safety often compromised for commercial gains.

Way Forward

- Strict enforcement of National Building Code.
- Mandatory fire and electrical safety audits.
- Retrofitting old buildings with fire exits and alarms.
- Strengthening municipal governance capacity.
- Public awareness campaigns on fire safety.
- Improved urban planning with emergency access routes.
- Modernisation of fire services and equipment.

The Calcutta that once was, the city that can resume its journey again

HOWRAH WAS once called the Sheffield of Asia. The jute mills along the Hooghly were the largest concentration of organized industry in the subcontinent. Calcutta was India's commercial capital. In 1900-01, Bengal produced roughly 27 per cent of the country's manufacturing output. How that Calcutta, before it joined the foreign service, one of my first jobs was at Hindustan Lever in the city, and a young man arriving in Calcutta could be sure he had come to where the country's commerce was conducted. The lights stayed on. The trains ran. The companies hired.

What had taken a century to build was dismantled by something more deliberate than economic mismanagement. The Left Front took office in 1977 and held it for 34 years. Beneath the rhetoric of the working class, an organised shadow state took root. Permission to build, to run a shop, to set up a kiosk, to register a transport route, to hold a panchayat meeting, came with a cut. The cadre collected, the party banked. By the 2000s, when the Left Front itself attempted to reverse course and bring Tata Motors to Singur, the Trinamool Congress in opposition staged a hunger strike that drove the project to Gujarat.

The Trinamool Congress took power in 2011 on the promise of porpoirion. What followed was the same machinery in a new uniform. Bengal's 27 per cent share of national manufacturing has fallen to below 5 per cent. Per capita income, once 127 per cent of the national average, has slipped to 84. More than 6,000 registered companies have moved their head offices out of Kolkata. The voter who watched her jobs and her money walk out of the state

had a score to settle, and a ballot in her hand to settle it with. At the centre of it was a record on women that no incumbent in Independent India has had to defend. A woman Chief Minister presided over the torture and killing of the women of her state. The rape and murder of a postgraduate trainee doctor at the RG Kar Medical College in August 2024. The night-long vandalism at the crime scene by a mob the Kolkata Police chose not to disperse. The Calcutta High Court's order transferring the investigation to the CBI on the finding that the Kolkata Police's inquiry did not inspire confidence. The 43-day strike by junior doctors, many of them women.

Sandeshkhali, January 2024. The women of an island in the Sundarbans came out into the streets against a Trinamool district council member who remained a fugitive for 15 days while the police filed nothing. A Chief Minister whose own movement once spoke of porpoirion has presided over a regime in which the women of her state had to seek refuge in courts, in central agencies, and on the streets, against her own cadre. It is unsurprising.

What the voter has asked for is not difficult to read. Peace and freedom from the violence that has shadowed her streets. Prosperity, and the return of work to the city she lives in.

cancelled the appointments of 25,733 teachers, Group-C and Group-D staff under a recruitment found illegal. An entire school recruitment cycle turned into a counter at which posts were sold. Layered above that scam was the ration scam that pulled in another minister, Jyotipriya Mallick. The voter understood the connections. The first to suffer in a state run by a mafia is the citizen who refuses to pay the bribe.

Against this stood a record of another kind. Four crore 21 lakh houses completed under the Pradhan Mantri Awas Yojana over the past decade. 15 crore crore water connections under Jal Jeevan Mission, against a base of 3 crore in 2019. Roughly 55 crore beneficiaries under Ayushman Bharat. Direct Benefit Transfer rendering obsolete the leakages that once defined every welfare programme in Bengal. This was the floor on which every BJP Karyakartta in Bengal stood when she asked for votes.

Behind that floor stood a network. The party's booth-level cadre, the *panna pramukhs*, the *Karyakarttas* who endured intimidation, threats, and physical violence did the unglamorous work of registration, transport, and turnout. The lives lost in earlier rounds of post-poll violence were not rhetoric the *Karyakarttas* had to be reminded of. She had lived through it. The Home Minister, Amit Shah, walked through Bengal district by district, knowing what his cadre was carrying. What they were attempting was not an electoral upset. It was the breaking of a citadel.

HARDEEP SINGH PURI

The faces of this breakthrough tell their own story. Ratna Debbarth.

The writer is Union Minister of Petroleum & Natural Gas

KEY HIGHLIGHTS:

Context of the News

- Political debate emerged over governance, corruption allegations, women's safety, and economic decline in West Bengal.
- Major issues discussed:
 - RG Kar Medical College case (2024)
 - Sandeshkhali protests
 - School recruitment scam
 - Welfare delivery and DBT model
- Debate centred on:
 - Governance quality
 - Institutional accountability
 - Federal politics
 - Electoral mandate

Key Points

- West Bengal was historically a major industrial hub of India.
- Decline in manufacturing and migration of industries affected employment and investment.
- Calcutta High Court cancelled thousands of school appointments due to recruitment irregularities.
- Allegations raised regarding corruption in recruitment and ration distribution.
- Women's safety and police accountability became major governance concerns.
- Welfare delivery through DBT, PMAY, Jal Jeevan Mission, and Ayushman Bharat highlighted governance reforms.
- High voter turnout reflected strong democratic participation.

Static Linkages

- Rule of Law
- Judicial Review
- Federalism
- Centre-State Relations
- High Court powers under Article 226

- Direct Benefit Transfer (DBT)
- JAM Trinity
- Welfare State
- Transparency and Accountability
- Police Reforms
- Electoral Processes
- Industrialization and Regional Development

Critical Analysis

Positives

- Judicial intervention strengthened institutional accountability.
- DBT reduced leakages in welfare delivery.
- High electoral participation strengthened democratic legitimacy.
- Welfare schemes improved basic service delivery.

Concerns

- Political violence weakens democratic culture.
- Corruption allegations reduce public trust.
- Industrial decline impacts economic growth and employment.
- Women's safety concerns indicate governance gaps.
- Politicization of administration affects institutional neutrality.

Way Forward

- Strengthen police and administrative reforms.
- Ensure transparent digital recruitment systems.
- Promote industrial revival and MSME growth.
- Improve cooperative federalism.
- Strengthen women's safety mechanisms.
- Expand social audits and institutional accountability.
- Improve governance through technology-driven transparency.

Road from Santa Marta, to an equitable green transition



CHIRAG
DHARA

IN APRIL, Colombia and the Netherlands convened the First International Conference for the Just Transition Away from Fossil Fuels. Designed as a forum for countries and stakeholders prepared to move faster than the consensus-bound UN process, Santa Marta sought to bypass the deadlock that has long plagued UN climate negotiations. Participating countries were expected to explore pathways for winding down fossil-fuel dependence. Whether it can become more than diplomatic virtue signalling will depend on today's volatile geopolitics and economic undercurrents.

The US-Israel war on Iran has exposed the fragility of a global economy dependent on imported oil. With shipping through the Strait of Hormuz repeatedly disrupted, households and businesses have suffered from inflation while the world's top oil and gas companies have already banked windfall profits.

The energy shock has left us with two counteracting forces. On the one hand, it has pushed countries to speed up their transition beyond fossil fuels supporting the goals of the Santa Marta conference. On the other hand, the primary opponents of climate action — Big Oil — are flush with billions in windfall profits that, if history is any guide, will strengthen their capacity to lobby, litigate, and delay the transition.

But even if these well-funded headwinds are overcome, the green energy transition faces a structural pitfall of its own: Ecologically unequal exchange. As nations push forward on solar panels, wind turbines, and EVs, they require vast amounts of copper, lithium, nickel, cobalt, and rare earths. Many of these materials are heavily concentrated in the Global South. Ecologically unequal exchange occurs when wealthy nations appropriate these vital resources to power their green transitions, while disproportionately displacing the environmental and social costs of extraction onto developing countries.

Extraction is already devastating local ecologies with nickel mining in Indonesia linked to toxic hexavalent chromium in drinking water, lithium extraction causing extreme water shortages in Chile, and widespread artisanal cobalt mining in the Congo reliant on slavery-like labour conditions.

The irony is palpable. Workers and frontline communities in resource-rich developing countries stand to have their labour exploited and their environments destroyed, to manufacture the "green infrastructure" to sustain the lifestyles of the Global North.

A transition out of fossil fuels is non-negotiable, but a structurally unjust transition is unacceptable. The Global South must shape the terms of transition instead of being reduced to a supplier. This will require large Global South countries with political and economic heft to step up.

India was absent from Santa Marta. However, it has both leverage and moral responsibility to push for a just transition. To this end, it is necessary that India participate in the 2027 conference in Tuvalu to push for a transition that is rapid enough to meet the climate emergency, but equitable enough not to reproduce the hierarchies that caused it in the first place.

The writer is a climate and sustainability scientist at Krea University

As nations push forward on solar panels, wind turbines, and EVs, they require vast amounts of copper, lithium, nickel, cobalt, and rare earths. Many of these are heavily concentrated in the Global South

KEY HIGHLIGHTS:

Context of the News

- Colombia and the Netherlands organised the “Away from Fossil Fuels” conference at Santa Marta (2026) to promote faster global transition away from fossil fuels outside the slow UN climate negotiation framework.
- The development gained significance amid disruptions in the Strait of Hormuz due to the US-Israel-Iran conflict, causing volatility in global oil supply and inflationary pressures.
- Debate emerged on the issue of “Just Energy Transition” and the unequal burden placed on Global South countries supplying critical minerals for green technologies.
- Concerns were raised regarding environmental degradation, labour exploitation and resource extraction in developing countries during the green transition process.
- India remained absent from the conference despite being a major voice of the Global South and an important renewable energy player.

Key Points

- Fossil fuel dependence creates:
 - Energy insecurity
 - Inflationary shocks
 - Geopolitical vulnerability

- Transition to renewable energy requires critical minerals:
 - Lithium
 - Cobalt
 - Nickel
 - Rare earth elements
- Major concerns associated with critical mineral extraction:
 - Water depletion
 - Toxic pollution
 - Deforestation
 - Child and forced labour
- Concept of Ecologically Unequal Exchange:
 - Developed nations benefit from green transition,
 - Developing nations bear extraction costs.
- Important regions:
 - Lithium → Chile, Argentina, Bolivia
 - Cobalt → Democratic Republic of Congo
 - Nickel → Indonesia
- India’s climate commitments:
 - Net Zero by 2070
 - 500 GW non-fossil fuel capacity target by 2030
 - National Green Hydrogen Mission
- Importance of a Just Transition:
 - Climate action with social justice,
 - Equity,
 - Sustainable livelihoods.

Static Linkages

- CBDR-RC principle under UNFCCC
- Paris Climate Agreement
- Sustainable Development Goals:
 - SDG 7
 - SDG 12
 - SDG 13
- Energy security and strategic chokepoints
- Environmental impact assessment of mining
- Circular economy and resource efficiency
- Sustainable development and climate justice
- National Action Plan on Climate Change (NAPCC)

Critical Analysis

Significance

- Reduces dependence on fossil fuels.
- Supports Paris Agreement goals.
- Enhances long-term energy security.
- Promotes renewable energy expansion.

Concerns

Ecological Concerns

- Mining for critical minerals causes:
 - Land degradation
 - Water scarcity
 - Biodiversity loss

Social Concerns

- Exploitative labour conditions in mining regions.
- Displacement of local communities.

Economic Concerns

- Green transition may create new resource dependencies.
- Global South may remain raw material supplier.

Geopolitical Concerns

- Competition over critical minerals may intensify.
- Supply chains vulnerable to strategic rivalries.

India's Role

- Can represent Global South concerns in climate negotiations.
- Needs balance between development needs and decarbonisation goals.
- Requires diversification of critical mineral supply chains.

Way Forward

- Promote a Just and Equitable Energy Transition.
- Strengthen global rules on sustainable mining.
- Develop critical mineral recycling ecosystem.
- Increase investment in clean energy R&D.
- Expand South-South cooperation on climate governance.
- Enhance domestic manufacturing under PLI schemes.
- Ensure climate finance and technology transfer from developed countries.
- India should actively participate in future climate transition forums.

Delhi's air pollution calls for a wider lens

DELHI'S AIR quality index shows that pollution levels have dipped with the onset of summer. That shouldn't be a cause for complacency for policymakers. Analysis by the public-policy think tank Envirocatalysts underscores the need to continually monitor interactions between pollutants and meteorological conditions. Vehicular exhaust, construction dust, coal-based power generation, and waste-burning incidents do not change with the seasons. What changes, instead, is how these emissions behave once released into the atmosphere. In winter, temperature inversions and stagnant atmospheric conditions mean pollutants are trapped close to the ground, leading to high concentrations of particulate matter (PM). The Envirocatalysts study shows that in summer, emissions of nitrogen oxides (NOx) and volatile organic compounds (VOCs) interact with the Sun's strong rays to produce ozone. The think tank's analysis of Central Pollution Control Board data since 2015 shows that the concentration of the pollutant is the highest in May.

Ozone does not produce the haze associated with PM pollution. However, its public-health implications should not be downplayed. Short-term exposure can cause chest pain, cough and throat irritation, while in the long term, it can exacerbate chronic respiratory diseases. Unlike PM, which affects both indoor and outdoor environments, ozone is primarily an outdoor pollutant but can infiltrate indoor spaces. It is also known to affect vegetation, damaging ecosystems.

The country's air-quality standards and emergency response mechanisms — such as Delhi's graded action plans — are largely built around PM thresholds. Regulatory frameworks often operate in silos, targeting specific pollutants without accounting for how they behave in different seasons. For example, measures to reduce vehicular emissions focus largely on particulate filters but overlook NOx emissions, which are critical precursors for ozone formation. VOC emissions are difficult to monitor because they originate from multiple sources. Fundamentally, however, the approach to reduce ozone pollution should not be very different from curbing PM emissions — it requires long-term shifts towards cleaner commuting modes, improving public transport, tighter fuel standards, and reduced dependence on coal-based energy generation. The Envirocatalysts study shows that poor air is becoming an all-weather problem in Delhi. It underlines the need for widening the lens through which pollution is understood.

KEY HIGHLIGHTS:

Context

- Delhi's air pollution is increasingly becoming a year-round environmental challenge rather than only a winter phenomenon.
- Recent analysis of CPCB data highlighted rising summer-time ground-level ozone pollution in Delhi-NCR.
- During summer, Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOCs) react under intense sunlight to form ozone.
- Existing policy mechanisms such as GRAP mainly focus on particulate matter (PM2.5 and PM10), creating gaps in management of seasonal pollutants like ozone.

Key Points

- Ground-level ozone is a secondary pollutant formed through photochemical reactions.
- Major precursor sources:
 - Vehicular emissions
 - Thermal power plants
 - Industrial activities
 - Waste burning
 - Construction-related emissions
- Winter pollution:
 - Dominated by PM2.5 and PM10
 - Temperature inversion traps pollutants close to the surface
- Summer pollution:
 - Dominated by ozone formation
 - High solar radiation accelerates photochemical reactions

- Health impacts:
 - Respiratory illnesses
 - Asthma aggravation
 - Reduced lung efficiency
 - Chest pain and throat irritation
- Ecological impacts:
 - Crop damage
 - Reduced photosynthesis
 - Ecosystem stress
- Important institutions/mechanisms:
 - CPCB
 - CAQM
 - NCAP
 - GRAP

Static Linkages

- Photochemical smog
- Primary and secondary pollutants
- Tropospheric ozone
- Temperature inversion
- Urban heat island effect
- Air (Prevention and Control of Pollution) Act, 1981
- Environment Protection Act, 1986
- Article 21
- Article 48A
- SDG 3, SDG 11, SDG 13

Critical Analysis

Major Concerns

- Current air-quality governance remains PM-centric.
- VOC monitoring infrastructure is weak.
- Poor inter-state coordination in NCR region.
- Continued dependence on fossil fuels increases NOx emissions.
- Lack of integrated multi-pollutant management strategy.

Governance Issues

- Reactive rather than preventive policymaking.
- Weak enforcement of emission norms.
- Inadequate urban public transport.
- Limited scientific integration in policy frameworks.

Significance for UPSC

- Demonstrates linkage between:
 - Urbanisation
 - Climate conditions
 - Public health
 - Environmental governance
- Important example of:
 - Environmental federalism
 - Sustainable urban development
 - Climate-sensitive policymaking

Way Forward

- Adopt integrated air-shed management approach.
- Expand ozone and VOC monitoring networks.
- Strengthen public transport and electric mobility.
- Reduce coal dependence through renewable energy transition.
- Improve emission inventories and source-apportionment studies.
- Enhance regional coordination among NCR states.
- Promote cleaner industrial technologies.
- Increase urban green infrastructure.