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# Moon's upper surface has two distinct layers within centimetres, reveals Chandrayaan-3 'hop' experiment

Anjali Marar  
Bengaluru, May 19

THE FAMOUS 'hop' experiment performed by the Chandrayaan-3 lander on the Moon was not just about demonstrating Indian space agency ISRO's ability to launch from the lunar surface. Scientists have now revealed new details about the upper surface of the Moon at the landing site using data collected during that 'hop' manoeuvre performed towards the end of planned active mission life of Chandrayaan-3.

In new findings published in the *Astrophysical Journal*, scientists from the Physical Research Laboratory (PRL) in Ahmedabad have reported that the Moon's upper surface, the regolith as it is called, is not uniform, and its physical and thermal properties show sharp changes at just a few centimetres of depth. The loose porous layer at the top very quickly gives way to a denser compact

paper, which is based on analysis of data produced by the ChaSTE (Chandra's Surface Thermophysical Experiment), suggests that the 'hop' experiment disturbed the upper loose layer enough to expose the subsequent layers to the instruments onboard the lander.

On September 4, 2023, just before it went into hibernation to survive the lunar night, the Chandrayaan-3 lander, which had made a historic soft-landing 10 days earlier, was made to perform a small jump. The lander fired its engines, lifted itself up about 40 cm from the surface, and landed again 30-40 cm away. The 'hop' experiment was never publicised in the Chandrayaan-3 plans and had come as a surprise. It was seen as a demonstration of the capability of ISRO to get the lander to fire its engines and produce enough thrust to lift itself up from the surface. This capability is key for future missions in which the space-



The lander was made to perform a small jump on Sep 4, 2023. ISRO

The new findings have put a more precise measurement for the distance travelled by lander during the 'hop' experiment -- about 50 cm, instead of the earlier estimate of 30-40 cm. The paper says that the rocket plume generated during the 'hop' was enough to blow away about 3 cm of the top layer of the surface

beneath. A rod-shaped probe with a sharp tip and fitted with temperature sensors, ChaSTE was able to do a thermal profile of the new site post 'hop'. It was deployed for 57 minutes during lunar twilight, which lasts for a few hours unlike the Earth twilight that lasts for a few minutes before sunset. The analysis re-

## E. EXPLAINED

### Mining information

Data from instruments onboard Chandrayaan-3 mission are continuing to generate very useful information about the Moon. ChaSTE, one of the four instruments on the lander, has itself produced at least three major papers in important international publications until now.

composed of two distinct layers.

The paper represents a first-of-its-kind thermal profile, density and layering structure of the Moon's surface at the lunar twilight time, just ahead of sunset on this part of the Moon. The information could be useful at the time of planning future moon walks or for building

displacement caused by rocket plumes at the time of the 'hop' experiment is very useful information for space agencies planning return missions. It helps them to understand what to expect when a rocket engine is fired so close to the surface.

Data from ChaSTE has resulted in other findings as well, which have been published earlier. Last year, the same group of scientists had reported that water-ice on the Moon could be more prevalent than understood earlier. Using ChaSTE data, they had reported that there was a good probability that water-ice was present in locations outside of the polar regions of the Moon.

In another publication, scientists had shown that temperature of the lunar surface dropped drastically with depth. At depths of just 10 cm, the temperature was about 60 degree Celsius less than at the surface. Such extreme heat non-conductivity was considered very useful information from the perspec-

- **Key Terms and Explanations**

- Understanding the scientific terminology associated with lunar exploration is foundational for analyzing space technology advancements. The recent data regarding the Moon's surface relies on specific instrumentation and physical phenomena.

- **Lunar Regolith:** This refers to the layer of loose, heterogeneous, and dusty material covering solid rock on the Moon. Unlike Earth's soil, which is rich in organic matter and formed through biological and chemical weathering, lunar regolith is created primarily by continuous micrometeorite impacts over billions of years.

- **Thermophysical Profiling:** This is the scientific process of measuring how materials conduct, store, and transfer heat. On the Moon, specialized probes equipped with temperature sensors map how the lunar soil reacts to extreme solar radiation and the freezing lunar night.

- **'Hop' Experiment:** A unique maneuver where a space lander, after its initial touchdown, briefly reignites its engines to lift off the surface and land a short distance away. This tests engine reignition capabilities and studies how rocket plumes displace topsoil. \* **Lunar Twilight:** The brief period just before sunset or after sunrise on the Moon. Because the Moon lacks a substantial atmosphere to scatter light, this twilight is very short and localized, offering unique thermal conditions where surface temperatures drop rapidly.

- **Main Arguments and Substantive Parts**

- Recent empirical data from lunar landers has fundamentally altered our understanding of the Moon's topography, specifically regarding the stratification and thermal properties of its uppermost layers.

- **Stratification of Lunar Topsoil:** The upper surface of the Moon is not uniformly composed. Scientific probing reveals that the top layer (approximately 3 centimeters) is highly porous and loose. However, immediately beneath this loose dust, just 2 to 6 centimeters down, lies a significantly denser and highly compact layer of regolith. \* **Drastic Thermal Gradients:** The lunar regolith acts as an extreme thermal insulator. Data indicates that temperatures can drop by as much as 60 degrees Celsius just 10 centimeters below the surface. This proves that the Moon's surface is a highly effective heat non-conductor.

- **Rocket Plume Dynamics:** When a lander fires its engines close to the lunar surface, the resulting thrust displaces a specific volume of the loose upper layer. Observing this displacement is crucial for understanding soil mechanics and preparing for heavier return missions that will require more powerful thrusters.



- **Historical Evolution of the Issue**

- The study of the lunar surface has evolved from distant telescopic observation to highly localized, in-situ physical experimentation, marking significant milestones in human spaceflight.
- **Early Telescopic and Orbital Observation:** In the mid-20th century, lunar knowledge was restricted to orbital photographs and remote sensing, which could only hypothesize the depth and consistency of lunar dust.
- **The Apollo Era and Physical Sampling:** The late 1960s and 1970s saw humans physically bringing back regolith samples. However, these were localized to equatorial regions and disrupted by the physical collection process, leaving the precise, undisturbed thermal stratification somewhat ambiguous.
- **Modern Precision Landers:** The contemporary era of space exploration has shifted toward autonomous, highly specialized probes capable of landing in complex terrains (like the lunar south pole). These missions utilize deployable mechanisms to pierce the soil and gather uninterrupted data on thermal and physical stratification, pushing the boundaries of spatial science.

- **Way Forward**

- **Enhanced R&D in Material Sciences:** Future funding must be directed toward developing materials that can mimic or utilize the insulative properties of lunar regolith, preparing for the construction of sustainable lunar outposts.
- **Robust Space Debris Management:** As surface operations increase, space agencies must proactively develop technologies and protocols to mitigate dust contamination and manage orbital debris around the Moon.
- **Strengthening International Frameworks:** Nations must move beyond the vague terms of the Outer Space Treaty. There is an urgent need for a comprehensive, legally binding international framework that regulates lunar surface operations, resource utilization, and dispute resolution.
- **Fostering Private Sector Synergy:** Governments should aggressively promote public-private partnerships. Integrating commercial space companies into planetary exploration will accelerate innovation, reduce costs, and democratize access to space technologies.

- **All Previous Years' UPSC Questions**

- **UPSC CSE Mains (GS-3) 2023:** What is the main task of India's third moon mission which could not be achieved in its earlier mission? List the countries that have achieved this task.
- **UPSC CSE Mains (GS-3) 2016:** Discuss India's achievements in the field of Space Science and Technology. How the application of this technology has helped India in its socio-economic development?
- **UPSC CSE Prelims 2018:** Consider the following statements: 1. Mangalyaan launched by ISRO is also called the Mars Orbiter Mission. 2. Made India the second country to have a spacecraft orbit the Mars after USA. Which of the statements given above is/are correct?
- **UPSC CSE Prelims 2016:** With reference to 'Astrosat', the astronomical observatory launched by India, which of the following statements is/are correct?

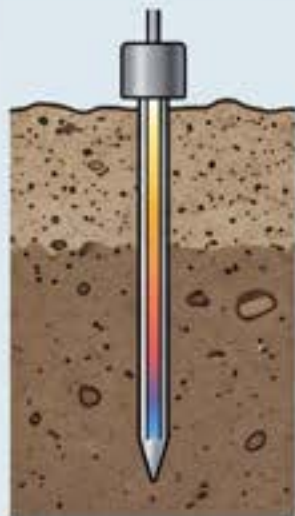


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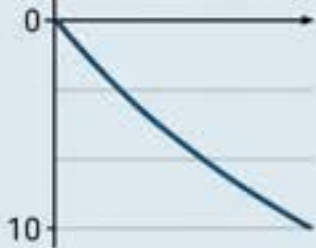
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### CHACIASTE PROBE (Thermal Sensors)



TEMPERATURE DROP  
WITH DEPTH

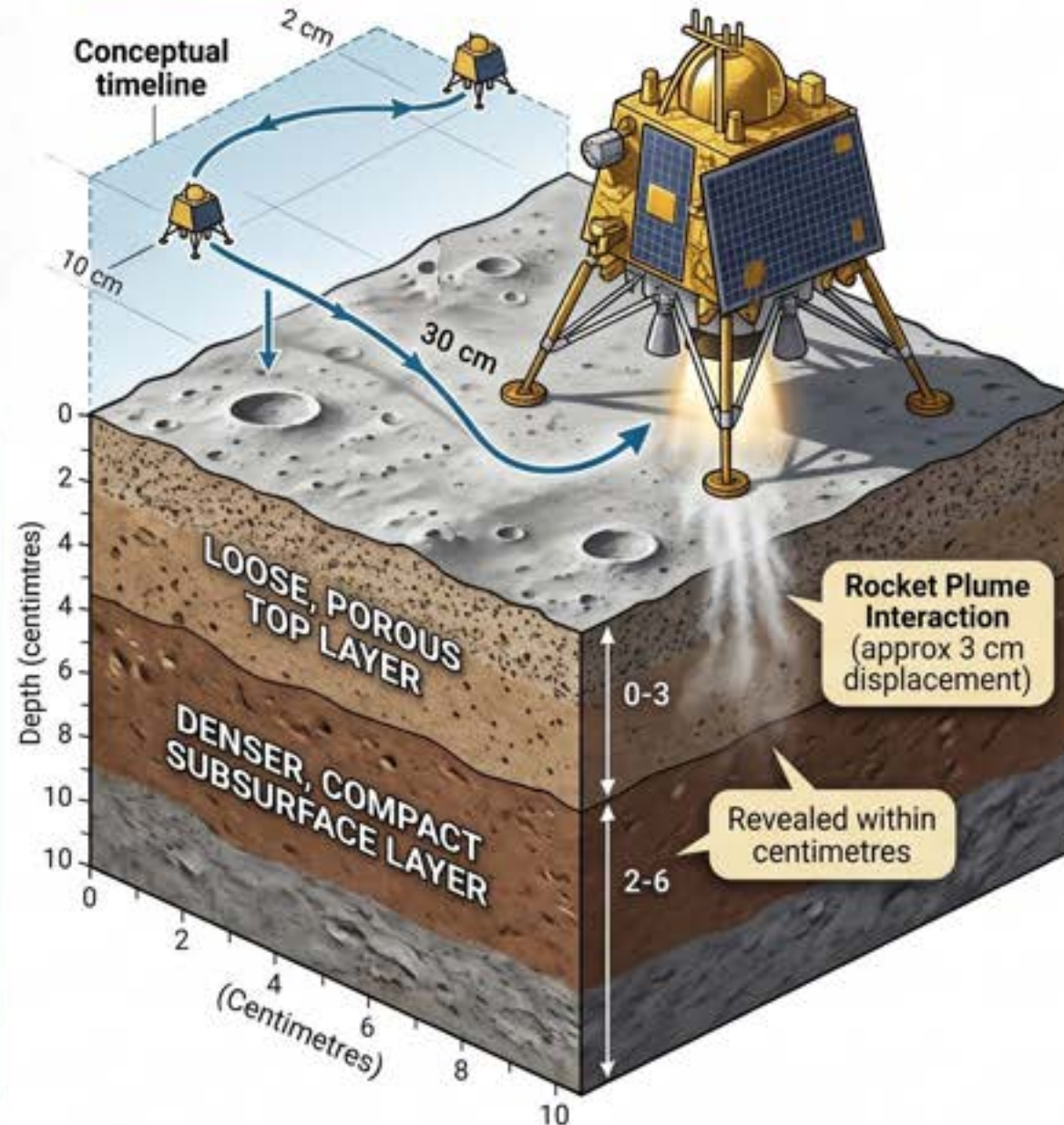


- Depth: ~60°C Colder than surface
- Extreme thermal non-conductivity confirmed



Extreme thermal non-conductivity confirmed

## EXPERIMENT



### KEY FINDINGS SUMMARY

1. **TWO DISTINCT LAYERS**  
(Loose porous top, dense compact below).
2. **SHARP CHANGES** in thermal/physical properties.
3. **PROVEN THRUST** capability to clear top regolith for instrumentation.
4. **POTENTIAL** for water-ice in non-polar regions (citing previous findings)



### FUTURE APPLICATIONS & UPSC RELEVANCE



**THERMAL SHIELDING:**  
Using regolith for temperature-controlled habitats



**SAFE RETURN MISSIONS:**  
Better planning of thruster effects and soil mechanics



**UPSC RELEVANCE:**  
**UPSC PAPER-3** (Space Tech, Science & Technology) - Lunar Stratification Dynamics, In-Situ Resource Utilization

# RBI to align bank disclosure norms with global standards

## Uniform Reporting As Per Basel Framework, More Accountability

TIMES NEWS NETWORK

**Mumbai:** RBI's new disclosure norms will put unlisted banks at par with listed peers, standardise reporting formats and units, and make global comparisons of Indian lenders much easier by mandating uniform, template-driven disclosures.

The new norms prescribe globally aligned reporting architecture that mirrors Basel standards, addressing the third of the three pillars of the globally accepted Basel Accord Framework. RBI has invited comments on the draft "Reserve Bank of India (Capital Adequacy) Amendment Directions, 2026" by June 2, 2026. The new norms will formally take effect from the second quarter of FY 2026-27.

Instead of dense textual explanations embedded in annual reports, banks will

### NEW NORMS TO KICK IN FROM Q2FY27

➤ RBI's globally-aligned reporting architecture to act as **"financial health dashboards"** for banks

➤ Key metrics such as capital composition and risk-weighted assets to be **disclosed consistently and transparently irrespective of banks' listing status**



➤ Whole-time directors to attest to disclosure accuracy and robust internal controls, increasing **legal & reputational stakes for misreporting**

➤ Template structures to be followed for uniformity, **regulatory disclosure records going back 10 yrs to be available** on bank websites

now be required to publish clearly defined templates such as those for key metrics, capital composition and risk-weighted assets, enabling analysts and depositors to assess financial strength at a glance.

Hitherto smaller or unlisted institutions faced relatively lighter public disclosure requirements, the proposed rules ensure that all banks expose their capital position and risk profile in a

consistent and transparent manner regardless of their listing status.

The draft norms also introduce stronger accountability by requiring whole-time directors to formally attest to the accuracy of disclosures and the robustness of internal controls governing them. This elevates disclosures from being just a compliance exercise to a board-level responsibility.

To improve clarity and

eliminate inconsistencies, the RBI has proposed strict standardisation rules, including mandatory reporting of all figures in crores and a prohibition on altering template structures. Even where a particular disclosure item is not applicable, banks must retain the row and indicate its absence rather than removing it, ensuring that the visual layout remains identical across institutions and time periods.

Further, banks will be required to maintain a dedicated regulatory disclosure section on their websites, with archives of such disclosures preserved for at least ten years. This creates a long-term digital trail of financial data, enabling stakeholders to track how a bank's risk profile evolves across economic cycles and preventing the disappearance of historical information.

- **Key Terms and Explanations**

- To truly grasp the dynamics of banking sector reforms, it is essential to build a strong foundational vocabulary. These terms frequently appear in economic discourse and are crucial for both Prelims and Mains.
- **Basel Framework:** This is a set of international banking regulations developed by the Basel Committee on Banking Supervision (BCBS). Its primary goal is to ensure that financial institutions have enough capital to absorb unexpected losses. The framework rests on three pillars: Minimum Capital Requirements (Pillar 1), Supervisory Review (Pillar 2), and Market Discipline through Disclosures (Pillar 3). \* **Market Discipline (Pillar 3):** This concept operates on the premise that a well-informed market will naturally penalize excessively risky banks and reward stable ones. When banks publicly disclose their risk profiles and capital positions, investors and depositors can make informed decisions.
- **Risk-Weighted Assets (RWA):** Not all assets held by a bank carry the same risk. A government bond is safer than an unsecured personal loan. RWA is a system where a bank's assets are multiplied by a risk factor. The Capital Adequacy Ratio (CAR) is derived using this concept:
  - $CAR = (Tier\ 1\ Capital + Tier\ 2\ Capital) / (Risk\ -Weighted\ Assets)$
- **Fiduciary Duty:** The legal and ethical obligation of an entity (like a bank's Board of Directors) to act in the best financial interest of another party (the depositors and shareholders).
- **Information Asymmetry:** An economic condition where one party in a transaction has more or better information than the other. In banking, management knows the true health of the bank, while depositors are often kept in the dark without standardized disclosures.

- **2. Main Arguments and Substantive Parts**

- The contemporary push toward globally aligned, standardized banking norms rests on a few core conceptual pillars that aim to overhaul financial accountability.
- **Eradicating Information Asymmetry:** Shifting from dense, narrative-heavy annual reports to uniform, data-driven templates ensures that stakeholders are not buried under financial jargon. Standardized layouts allow a layperson or analyst to compare a small regional bank directly with a massive national entity without confusion.
- **Convergence of Regulatory Scrutiny:** Historically, unlisted banking entities enjoyed a lighter regulatory touch compared to listed peers, creating a shadow of opacity. Applying uniform global standards regardless of listing status ensures that all entities handling public deposits are held to the same rigorous benchmark of transparency.
- **Elevating Board-Level Accountability:** By mandating that whole-time directors personally attest to the accuracy of financial health dashboards, the regulatory landscape shifts compliance from a mere administrative checklist to a severe legal and reputational liability for top management.
- **Preserving Institutional Memory:** Financial crises often build up over economic cycles. Mandating a permanent, decade-long digital trail of regulatory disclosures prevents institutions from "wiping the slate clean" or quietly restructuring past data to hide historical risk accumulation.

- **Historical Evolution of the Issue**

- The trajectory of banking transparency in India has evolved from an era of state-led opacity to the current push for global integration.
- **Pre-1991 Era (Nationalization and Opacity):** Following the nationalization waves of 1969 and 1980, the focus was entirely on social banking and credit expansion. Profitability and transparent risk disclosure took a backseat, leading to a massive buildup of hidden Non-Performing Assets (NPAs).
- **The Narasimham Committee Era (1991 & 1998):** The post-liberalization period introduced prudential norms for income recognition and asset classification. For the first time, Indian banks were forced to recognize bad loans objectively rather than hiding them under accounting technicalities.
- **Global Financial Crisis (2008):** The collapse of Lehman Brothers exposed the dangers of complex, opaque banking structures. This triggered the creation of the Basel III norms globally, which heavily emphasized not just capital, but extreme transparency (Pillar 3) to prevent contagion.
- **Asset Quality Review (2015) to Present:** The Reserve Bank of India's Asset Quality Review forced banks to stop "evergreening" loans. The current regulatory trajectory is the logical next step: institutionalizing this transparency through strict, template-based global architectures to prevent a relapse into opacity.

- **Way Forward**

- **Tiered Implementation and Capacity Building:** The central regulator must recognize the varied capacities of different banks. Providing a structured transition period, along with financial and technical assistance for smaller, unlisted banks, will ensure smooth compliance without breaking their operational backs.
- **The "Citizen's Dashboard":** While Basel-aligned templates are excellent for analysts, regulators should mandate a simplified, localized summary. A standardized color-coded system (Green for highly capitalized, Yellow for average, Red for stressed) could make financial literacy accessible to the common depositor.
- **Strengthening Independent Auditing:** Templates are only as good as the data fed into them. Regulatory authorities must severely penalize statutory auditors who sign off on falsified data, ensuring the "garbage in, garbage out" phenomenon does not compromise the new framework.
- **Embracing RegTech (Regulatory Technology):** Banks should be encouraged to automate these disclosures using Artificial Intelligence and real-time Application Programming Interfaces (APIs), reducing human error and the administrative burden of compliance.

- **All Previous Years' UPSC and APSC Questions**

- **UPSC Prelims:**

- *2015:* With reference to 'Basel III Accord', which of the following statements is/are correct? (Focus on capital adequacy and risk).
- *2018:* Which of the following is/are the aims of "Digital India" Plan of the Government of India? (Tangentially related to digital record keeping).
- *2019:* The economic cost of food grains to the FCI is Minimum Support Price and bonus (if any) paid to the farmers plus... (Shows UPSC's love for exact definitions of economic terms).
- *2020:* If another global financial crisis happens in the near future, which of the following actions/policies are most likely to give some immunity to India?

# COMPREHENSIVE U.P.S.C. ANALYSIS: RBI'S NEW BANKING DISCLOSURE NORMS (GS-II & GS-III FOCUS)



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Aligning Indian Lenders with Global Basel Framework for Greater Accountability

## I. CORE CONCEPTS & CONTEXT



Aligns norms with **Global Basel Standards**.

**Main focus:** Basel III Pillar 3 (Market Discipline).

**Core Problem:** Information Asymmetry (uneven access to financial health info).

**Solution:** Structured Disclosures as 'Financial Health Dashboards'.



## II. HISTORICAL EVOLUTION



**Pre-1991:** Social banking, low transparency.

**1991/1998:** Narasimham Cmt: Asset Classification Norms.

**2008 Crisis:** Exposed dangers of opacity -> Basel III norms.

**2015-Present:** RBI's Asset Quality Review (AQR) -> current push.

## III. THE NEW RULES & INNOVATIONS



**Uniform, data-driven templates.**

'**Empty Row Mandate**' (visually indicates applicability, no deletion allowed).

**Strict Standardisation** (mandatory crores reporting).



**Long-term (10-year) Digital Archives.**

**Elevated Board Liability** (Whole-time Director attestation).

## IV. PHILOSOPHICAL & ETHICAL BASE



**Principal-Agent Problem** resolved (depositors vs. management).

**Utilitarian Philosophy** (protecting public savings is key).

**Behavioral Nudges:** Making omissions visually clear.

**Checks on Crony Capitalism.**



## V. MULTIDIMENSIONAL IMPACTS



## VI. PREPARATION LINKAGES & WAY FORWARD



**NCERT LINKAGES:**

Class 11 Indian Econ (Liberalisation)  
Class 12 Macro (Money/Banking)

**UPSC GS Papers:** 2 (Regulatory Bodies)  
3 (Economy/Banking)  
4 (Corporate Governance/Ethics)



**WAY FORWARD:** Tiered implementation for smaller banks, real-time RegTech adoption, Citizen's Dashboard.

# China's new worldview and the future of global politics

Through its initiatives and its critique of the current order, China is seeking to lead multilateralism

**Avinash Godbole**

**U**.S. President Donald Trump completed his visit to the People's Republic of China on May 14 and 15, 2026, a first in nine years. The entire world watched this visit with great anticipation. However, it appears that the visit was a stalemate and little was achieved by way of progress, and the two sides are not even closer to returning to the state of managed rivalry. China frames it as "constructive strategic stability", but it seems to be unwilling to make any concessions to achieve that and puts the burden of instability squarely on the U.S.

## China's strategic outlook

One of the expressions used by Chinese President Xi Jinping right at the start of his readout, that the "transformation not seen in a century is accelerating across the globe", merits special attention. While

this is not the first time Mr. Xi has used this expression in front of the U.S. President, its last usage led to a binary in which the ball was in the American court to choose whether they wanted confrontation or cooperation. This time, it's a choice on whether or not the two sides can avoid a Thucydides' trap that would eventually lead them towards conflicts or confrontations.

This term made its first appearance in December 2017, during China's ambassadorial work conference, when Mr. Xi said that the world is undergoing "profound changes unseen in a century". It reflects China's assessment that the global power transition has entered its most decisive stage and China's eclipsing of the U.S. is a matter of time. Chinese analysts have assessed that China's GDP is set to bypass the United States by 2030.

The reference to a century is what makes it especially curious. China seems to be thinking that a century ago, driven

by the decline of Europe across two world wars, global power made a transatlantic shift, making the U.S. the most powerful country in the world, and made liberalism its most central standpoint. Before that, the 19th century saw a different form of globalisation in the rise of colonialism and imperialism. In a similar fashion, China's rise is projected as inevitable and its rise as a norm-building power even more certain. It underpins China's confidence in ascending to what it calls its rightful place in the international system.

It seems that China views Brexit and the first election of Donald Trump as U.S. President – driven by a conservative, insecure, to a large extent supremacist and deglobalisation-driven agenda as signs of the inevitable decline of the West, the roots of which were seen in the 2008 financial crisis. After this, China emerged as a new voice of globalisation and began strongly criticising the West for its withdrawal from globalisation, just as the

prosperity was beginning to spread away from traditional centres of power.

## Reshaping global dynamics

Towards the goal of its rise, China has accelerated its assault on the current international order through initiatives like the Global Development Initiative (GDI) and the Global Security initiative (GSI). China is using these to discredit the U.S. led order by portraying it to be divisive and disruptive, while presenting its own approach to global security as driven by "common, comprehensive, cooperative and sustainable" security. Through its initiatives and critique of the current order, China is seeking to and in some cases is, leading multilateralism and south-south cooperation, while undercutting norms of the liberal order.

For countries like India, this increased power rivalry makes life more difficult. In the phase where there was a managed competition between the U.S. and China, other countries worked their way to hedge their bets between the two. However, now they are facing trade wars and tariffs, supply chain volatilities, the risks arising from the U.S.-Israel war on Iran and overall strategic instability. Add to it the rapid rise of artificial intelligence and its potential impact on the job markets, and the result is a volatile mix. *(Avinash Godbole is a Professor and Associate Academic Dean, JSLH, JGU. Views expressed are personal.)*

## THE GIST

China has accelerated its challenge to the current international order through initiatives such as the Global Development Initiative and the Global Security Initiative

During the phase of managed competition between the U.S. and China, many countries sought to hedge their bets between the two powers. However, they now face trade wars, supply chain volatility and risks from the West Asia crisis, among other factors; creating a volatile mix.

- **Key Terms and Explanations**

- **Thucydides' Trap:** A core international relations theory describing the severe danger that emerges when a rising power threatens to displace an established ruling power. The term originates from the ancient Greek historian Thucydides, who observed that the Peloponnesian War was inevitable because of Athenian growth and the fear it caused in Sparta. Today, it describes the structural friction between emerging eastern powers and the established Western hegemony.
- **Constructive Strategic Stability:** A diplomatic state where rival superpowers manage their intense competition without letting it escalate into armed conflict. It involves maintaining open channels of communication and establishing baseline guardrails, even while fiercely competing in trade, technology, and military posturing.
- **Alternative Multilateralism:** The creation of new, parallel global frameworks (focused on security, development, and infrastructure) designed to bypass or challenge traditional Western-led institutions like the World Bank or the UN. These frameworks emphasize state sovereignty and non-interference over liberal democratic values.
- **Strategic Hedging:** A foreign policy approach adopted by middle powers (like India) to avoid being forced into a rigid alliance with a single superpower. It involves maintaining diverse economic and defense relationships across competing power blocs to maximize national interest and absorb global shocks.

- **Main Arguments and Substantive Parts**

- The shifting global order is not just a political event; it is a structural transformation altering the fabric of global governance.
- **The Inevitability of Power Transition:** A central thesis in modern geopolitics is that the unipolar world order, dominated by the West since the end of the Cold War, is ending. The economic center of gravity is rapidly shifting back to the East, fundamentally altering global power dynamics.
- **Discrediting the Liberal Order:** Rising powers increasingly view the established rules-based international order as inherently biased, divisive, and designed to perpetuate Western supremacy. They argue that this system no longer reflects modern economic realities and actively seek to dismantle its norms.
- **The Weaponization of Interdependence:** In the current era, economic ties are no longer just tools for peace; they are leverage points. Dominance over critical supply chains, technology standards, and critical minerals is being used to exert geopolitical pressure, leading to intense trade wars and protectionist policies.
- **The Squeeze on Middle Powers:** For countries navigating this transition, the environment is becoming hostile. They face severe collateral damage from superpower trade wars, volatility in global supply chains, and the pressure of choosing sides in a rapidly bifurcating world.

- **Historical Evolution of the Issue**
- To understand the current great power rivalry, one must look at the cyclical nature of historical global dominance.
- **The Era of Imperialism (19th Century):** Global power was concentrated across the Atlantic. The industrial revolution fueled European colonialism, leading to a transatlantic power structure that marginalized Asian economies, a period often remembered in the East as a century of historical humiliation.
- **Post-WWII and the Liberal Consensus (Mid 20th Century):** The United States emerged as the preeminent global architect, establishing the Bretton Woods institutions, the United Nations, and a global security architecture that championed free markets and democratic governance.
- **The Asian Economic Miracle (Late 20th Century):** Following significant market reforms in the late 1970s, major Asian economies integrated deeply into the global capitalist system. They leveraged vast demographic dividends and manufacturing capacities to achieve unprecedented, rapid economic growth.
- **The Turning Point (2008 Financial Crisis to Present):** The 2008 Western financial crisis exposed the vulnerabilities of the liberal economic model. This gave rising powers the confidence to assert themselves more aggressively on the global stage, transitioning from a policy of "hiding strength" to active norm-building and systemic competition.
  
- **Way Forward**
- Practical, balanced, and forward-looking policy recommendations are essential for administrative thinking.
- **Aggressive Economic De-risking:** Nations like India must actively diversify their economic dependencies. This requires fostering domestic manufacturing capabilities in critical sectors (APIs for pharma, semiconductors, rare earths) and building resilient supply chains with trusted, democratic partners.
- **Reforming Multilateralism:** Middle powers must form strong, issue-based coalitions to drive reform within the UN and WTO. If traditional institutions remain paralyzed, democratic nations must build robust parallel frameworks that emphasize transparency and sustainability.
- **Strengthening Strategic Deterrence:** Diplomacy must be backed by hard power. Modernizing military capabilities, securing maritime chokepoints, and deepening interoperability with strategic partners (like the Quad) are non-negotiable to deter unilateral alterations to the geopolitical status quo.
- **Norm-Setting for Emerging Technologies:** The global community must urgently draft treaties and ethical frameworks governing the use of Artificial Intelligence and autonomous weapons in statecraft, preventing technology from becoming the catalyst for an unintended global conflict.
  
- **All Previous Years' UPSC Questions**
- **UPSC Mains 2020 (GS 2):** "The USA is facing an existential threat in the form of a China, that is much more challenging than the erstwhile Soviet Union." Explain.
- **UPSC Mains 2019 (GS 2):** "The time has come for India and Japan to build a strong contemporary relationship, one involving global and strategic partnership that will have a great significance for Asia and the world as a whole." Comment.
- **UPSC Mains 2017 (GS 2):** "China is using its economic relations and positive trade surplus as weapons to develop potential military power status in Asia." In the light of this statement, discuss its impact on India as her neighbour.
- **UPSC Prelims (Various Years):** Conceptual questions regarding the Thucydides Trap, geographical locations of contested maritime islands, the functioning of alternative financial mechanisms (like the BRICS bank), and major regional trade agreements.



# UPSC Comprehensive Strategic Analysis: China's New Worldview & the Future of Global Politics

## 1 Key Terms & Definitions

**THUCYDIDES' TRAP**  
War between rising and established powers

**HEDGING**  
Multi-directional alignment to converge and ecology

**GDI/GSI**  
China's new initiatives with nature, own knowledge and published powers

**ALTERNATIVE MULTILATERALISM**  
Processes and comparism

**GLOSSARY**

## 2 China's Strategic Outlook

- Xi Jinping views as the first: Transformation not seen in a century
- eclipsing of U.S. GDP
  - Projection shows to the U.S. GDP
  - Projection aims at China passing US by 2030
- Critique of share concentration the conveyor of the current order

## 3 Historical Evolution

Pre-19th C. Asian power → 19th C. Western Colonialism/Industrialism → 20th C. US Hegemony/Liberal Order → 21st C. Rise of Asia/Alternative Models

## 4 Philosophical Base

- Beliefs in Western decline: Referencing influences association in orders: recommendation (e.g. Brexit, Breasil, Trump)
- Correct the Century of Humiliation' to conscious to correct the Century of Humiliation

Contradictory security concepts

Common vs. involving security ← Contradictory → Dividing security

## 5 New Features & Innovations

**GDI** Global Development Initiative

- China leading in patterns: parallel institutions

**GSI** Global Security Initiative

- China leading parallel movers
- South-South cooperation

China as parallel institutions

South-South cooperation

## 6 Challenges & Risks

**Risks for China:**

- Domestic issues, domestic problems)
- Room amounts domestic proerriems)

**For global community:**

- Supply chain volatility (coest conversions)
- Trade wars (concepter volatility)
- Conflict (conceptually West Asia, conflict)
- AI's impact on labor in labour onework

## 7 Multidimensional Analysis Chart

Multidimensional	<b>Social</b>	<b>Political</b>	<b>Legal</b>
	<ul style="list-style-type: none"> <li>Nationalism vs. solinwvo</li> <li>Soft power</li> </ul>	<ul style="list-style-type: none"> <li>Authoritarian vs. democracy</li> <li>Democracy</li> </ul>	<ul style="list-style-type: none"> <li>Norm building comignto</li> <li>Cnical politics</li> </ul>
	<b>Ethical</b>	<b>International</b>	<b>Economic</b>
	<ul style="list-style-type: none"> <li>Sovereignty</li> <li>Reform global institutions</li> </ul>	<ul style="list-style-type: none"> <li>Forums, international of complew</li> </ul>	<ul style="list-style-type: none"> <li>Interdependence</li> <li>Rtraitional economy</li> </ul>

## 8 UPSC Syllabus & NCERT Linkages

**NCERT Class XII Pol Sci**

**history**

**NCERT**

- End of Bipolarity
- End of Hiistov
- End of Inolarity
- End of Bipolarity

End of Bipolarity

GS Papers 1-4

## 9 Philosophy & Epistemology

**Different ways of Measuring Power**

- Traditional GDP
- Traditional and power
- Supply chain and roonnacry
- Critical tech dominance
- Mation philodview

**Different Worldview Philosophies**

Hobbesian Thinkers

## 10 Way Forward & Key Takeaways

**Solutions:**

- Cultivate Strategic Self-Reliance (Atmanirbhar Bharat)
- Multi-alignment
- Resilient supply chains
- Resilient supply chains
- Reforming global institutions

Innovative ideas

## UPSC CSE PYQs & Model Answers

- What is the nIQs in China?
- What is thousandoro of crom a rampaldeims iof maamdulen al in U.S pareific for BRI?
- How to rant braemd remartins for China in 2020?

- What less Indo-Pacific BRI?
- What ita Indo-Pacific on Chirama for BRI?
- What is the omation of rialization of the Comba are won-srorios China and two Serats?

**Example**

Intro → Body → Body Points → Conclusion

## UPSC Relevance

APSC relevansed somunary studinu telicsterned by comprenent in upsc competitly sethne for measuring, renounced roldational thinkers, reforms, intrioningriure of a summary.

# Revealed: how humans evolved in the past 10,000 years alone

Even though some of the human remains the scientists examined were 18,000 years old, they were able to obtain enough genetic material to meaningfully calculate gene frequencies for the last 10 millennia alone; the study is in fact the largest survey of ancient human genomes to date

By E. Riechler

**P**eople who lived and died thousands of years ago have left behind their skeletal remains as a legacy. In recent years, scientists have isolated and sequenced the DNA from more and more of these remains.

A team of researchers led by scientists at the Harvard Medical School in the U.S. has compared 14,626 ancient DNA sequences from across Western Eurasia with the sequences of 6,428 modern people from the same countries. (Western Eurasia includes Europe, Russia, Central Asia, the Middle East and Iran.)

The comparison revealed evidence that for many genes for which two sequence variants have been known, one variant had undergone a sustained increase or decrease in frequency relative to the other over the past eight to 10 millennia.

Using new statistical methods coupled with computer simulations, the team found that these changes in frequency can be attributed in many cases to natural selection rather than to processes like genetic drift and population migration. The findings were reported on April 15 in *Nature*.

The oldest remains examined were dated to 18,000 years ago – yet the scientists were able to obtain enough genetic material to meaningfully calculate gene frequencies for the last 10 millennia alone. The study is, in fact, the largest survey of ancient human genomes to date.

## Carbon dating

Scientists figure out how ancient a skeleton is by measuring the relative amount of carbon 14, also known as radioactive carbon, in its bones and teeth. Carbon 14 is a carbon isotope generated when cosmic rays collide with nitrogen atoms in the earth's upper atmosphere. Its chemical properties are identical to that of the non-radioactive isotope carbon 12 and carbon 13.

When an individual is alive, the fraction of carbon 14 in the body is the same as that in the carbon dioxide in the atmosphere, and in the plants and animals consumed as food. This level begins to drop after death. Radioactive decay turns carbon 14 back into nitrogen and there is no way to replenish its level.

Carbon 14 decays with a half-life of 5,730 years. That is, the fraction of radioactive carbon relative to non-radioactive carbon halves every 5,730 years. So after 50,000 years, the fraction of radioactive carbon 14 remaining in the bones and teeth is only two-thousandths that at the time of death.

An instrument called a mass



Around 8,000 years ago, humans began to select for gene variants in several genes that produce lighter skin tones and pigmented hair. (istock/2012080404)

spectrometer is used to measure the relative amounts of each carbon isotope, then estimate the age of its source.

## Blood types, gluten, colour

The human body has two copies of a gene called ABO. Each copy codes for three variants, called A, B, and O. Which combination of variants we have determines our blood type. These blood types appeared very early in evolution and we share them with other great apes.

The researchers found that over the last 6,000 years, the B variant has been occurring more commonly among the West Eurasians, with a concomitant decrease in the A variant. The A and B variants are associated with opposite effects with respect to many traits. Therefore, it may be that a population benefits by maintaining an optimal balance to respond to changing pathogenic exposures.

Similarly, a variant of the MTHFR gene makes people susceptible to celiac disease. In individuals with two copies of this variant, the gluten in wheat, barley, and rye triggers the immune system to attack the small intestine, leading to diarrhoea, vomiting, and abdominal pain.

In the past 6,000 years, the frequency of occurrence of the disease-causing variant has increased from 0% to 20%, since agriculture also began 10,000 years ago, the researchers have clarified that the increase was "not a phenomenon only or largely of the rise of agriculture".

Perhaps the most interesting signals of ancient selection were found in the gene combinations today associated with 'modern' traits such as performance on intelligence tests, household income, years of schooling, and healthy lifestyle

even as they admit what could have driven the increase remains unknown.

Also around 6,000 years ago, humans began to select for gene variants in several genes that produce lighter skin tones and pigmented hair. The researchers have suggested this was an adaptation in response to having to synthesize more vitamin D in regions with low sunlight, especially among farmers whose diets supplied little of it.

Ancient genes, modern traits. Possessing two copies of the C32 variant of the CCR5 gene makes an individual completely resistant to HIV infection. The frequency of this variant among Western Eurasians increased from 2% to about 8% between 6,000 and 2,000 years ago. This produced the origin of 50%, however, which happened only in the early 20<sup>th</sup> century. Put another way, other unknown ancient pathogenic must have driven this increase, as scientists have previously hypothesized.

Perhaps the most interesting signals of

ancient selection were found in the gene combinations today associated with 'modern' traits such as performance on intelligence tests, household income, years of schooling, and healthy lifestyle (e.g. faster walking pace). Smoking was ubiquitous to Eurasia and Christopher Columbus introduced tobacco from the Americas less than 600 years ago. The study found that the gene variants associated today with smoking were selected against even in these ancient times. However, it is not clear what traits governed the selection in that time.

As the researchers write: "It will be of interest to apply similar approaches to ancient DNA time series from longer times and to other world regions. This would allow more generalizable insights by identifying which patterns of selection are shared and which are distinctive to Holocene West Eurasia."

South Asians have genetic contributions from ancestors from Iranian Neolithic Farmers and western apple herders from indigenous Eastern Eurasian ancestors, including ancient ancestral South Indians, and East and Southeast Asian and Australian ancestors. A comparable ancient DNA study of our ancestors is likely to be just as fascinating. But we need to first start assembling our own legacy: the remains of our ancestors from thousands of years ago.

(E. Riechler is a retired scientist. riechler@pobox.com)

## THE GIST

A team of researchers led by scientists at the Harvard Medical School in the U.S. has compared 14,626 ancient DNA sequences from across Western Eurasia with the sequences of 6,428 modern people from the same countries.

The comparison revealed evidence that for many genes for which two sequence variants have been known, one variant had undergone a sustained increase or decrease in frequency relative to the other over the past eight to 10 millennia.

The researchers found that over the past 6,000 years, the B variant of the ABO gene has been occurring more commonly among the West Eurasians, with a concomitant decrease in the A variant.

- **Key Terms and Explanations**
- To truly grasp the mechanics of evolutionary genetics, we need to break down the scientific jargon into digestible concepts.
- **Ancient DNA (aDNA):** This refers to genetic material recovered from biological remains (like bones or teeth) that are thousands of years old. Unlike modern DNA, it is highly degraded. Think of it like reading an ancient, weathered manuscript where many pages are torn, requiring advanced technology to piece the story together.
- **Natural Selection vs. Genetic Drift:** Natural selection is the process where traits that improve survival or reproduction become more common over generations (e.g., lighter skin in low-sunlight areas for Vitamin D synthesis). Genetic drift, conversely, is the random fluctuation in gene frequencies, driven purely by chance rather than environmental advantage. \* **Carbon-14 Dating (Radiocarbon Dating):** A method used to determine the age of an object containing organic material by using the properties of radiocarbon, a radioactive isotope of carbon.
- Since the half-life is 5,730 years, measuring the remaining C-14 via a mass spectrometer allows scientists to date fossils up to 50,000 years old.
- **Gene-Culture Co-evolution:** The concept that human cultural practices (like inventing agriculture) directly drive changes in our biology. For example, cultivating wheat introduced gluten into diets in massive quantities, which in turn triggered evolutionary pressures related to genes controlling the immune response in the gut.

- **Main Arguments and Substantive Parts**

- The central thesis of modern paleogenomics is that human evolution did not stop in the Paleolithic era; it has been a rapid, ongoing process, particularly over the last 10,000 years (the Holocene epoch).
- **Ongoing Genetic Adaptation:** Recent scientific consensus highlights that humans are actively adapting to their environments. The transition to agricultural societies drastically altered human diets, living conditions, and population densities, acting as a massive catalyst for natural selection.
- **The Disease Factor:** A major driver of recent human evolution is pathogen exposure. For instance, specific blood types (A, B, O) have been maintained in populations because different variants offer distinct advantages against various infectious diseases, ensuring the population's overall survival.
- **Pre-adaptation and "Ghost" Pathogens:** Sometimes, a genetic mutation is selected for reasons we don't fully understand, only to provide a massive benefit centuries later. The *CCR5-Delta32* mutation is famous for providing resistance to HIV today, but its frequency increased drastically thousands of years ago in Eurasia—suggesting it originally protected against an entirely different, unknown ancient pathogen.

- **Historical Evolution of the Issue**

- Understanding genetic evolution requires looking at both the biological timeline of humanity and the historical timeline of scientific discovery.
- **Pre-20th Century:** The understanding of evolution was dominated by Charles Darwin's theory of natural selection (1859), based on phenotypic (observable) traits and fossil records. The mechanisms of inheritance were unknown.
- **Mid-20th Century:** The discovery of the DNA double helix (1953) by Watson, Crick, and Franklin shifted the focus to molecular biology, bridging the gap between Darwinian evolution and genetic inheritance.
- **Late 20th to Early 21st Century:** The Human Genome Project (completed in 2003) mapped modern human DNA. However, the true breakthrough for understanding *past* evolution came with the advent of Next-Generation Sequencing (NGS).
- **Present Day (Paleogenomics Era):** Spearheaded by scientists like Svante Pääbo (who won the 2022 Nobel Prize), we can now extract and sequence ancient DNA from fossils. This shifted the historical narrative from relying solely on archaeological artifacts (pottery, tools) to reading the biological diaries embedded in our ancestors' bones.

- **Way Forward**

- To maximize the benefits of evolutionary genetics while mitigating its risks, a balanced approach is necessary.
- **Promoting Regional Genomic Projects:** India must heavily invest in projects like the GenomeIndia initiative and establish specialized aDNA labs capable of handling degraded samples from tropical climates to uncover South Asian ancestral history.
- **Interdisciplinary Frameworks:** Archaeological excavations must integrate geneticists from day one to ensure biological samples are preserved without modern contamination.
- **Strict Ethical Guidelines:** International bodies need to draft binding frameworks preventing the commercial exploitation of ancient genomic data and ensuring respectful treatment of indigenous remains.
- **Public Science Communication:** Scientists must communicate genetic findings carefully to the public, actively debunking pseudoscientific claims that misuse genetic data to justify discrimination.

- **All Previous Years' UPSC Questions**

- **Prelims 2019:** The word 'Denisovan' is sometimes mentioned in media in reference to— (a) fossils of a kind of dinosaurs (b) an early human species (c) a cave system found in North-East India (d) a geological period in the history of Indian subcontinent. (*Theme: Human Evolution*)
- **Prelims 2020:** With reference to agriculture in India, how can the technique of 'genome sequencing', often seen in the news, be used in the immediate future? (*Theme: DNA Sequencing/Biotech*)



# HUMAN EVOLUTION & PALEO-GENOMICS: A COMPREHENSIVE UPSC ANALYSIS

## Foundational Concepts

**ANCIENT DNA (aDNA)**

Degraded, piece-together → Next-Gen Sequencing

**CARBON-14 DATING**  
(Formula model and curve)

C-14

$$N(t) = N_0 e^{-\lambda t}$$

**NATURAL SELECTION**

Sun and pathogen icon

**GENETIC DRIFT**

Random chance and population bottleneck

## Multidimensional Analysis

**ETHICAL & LEGAL**

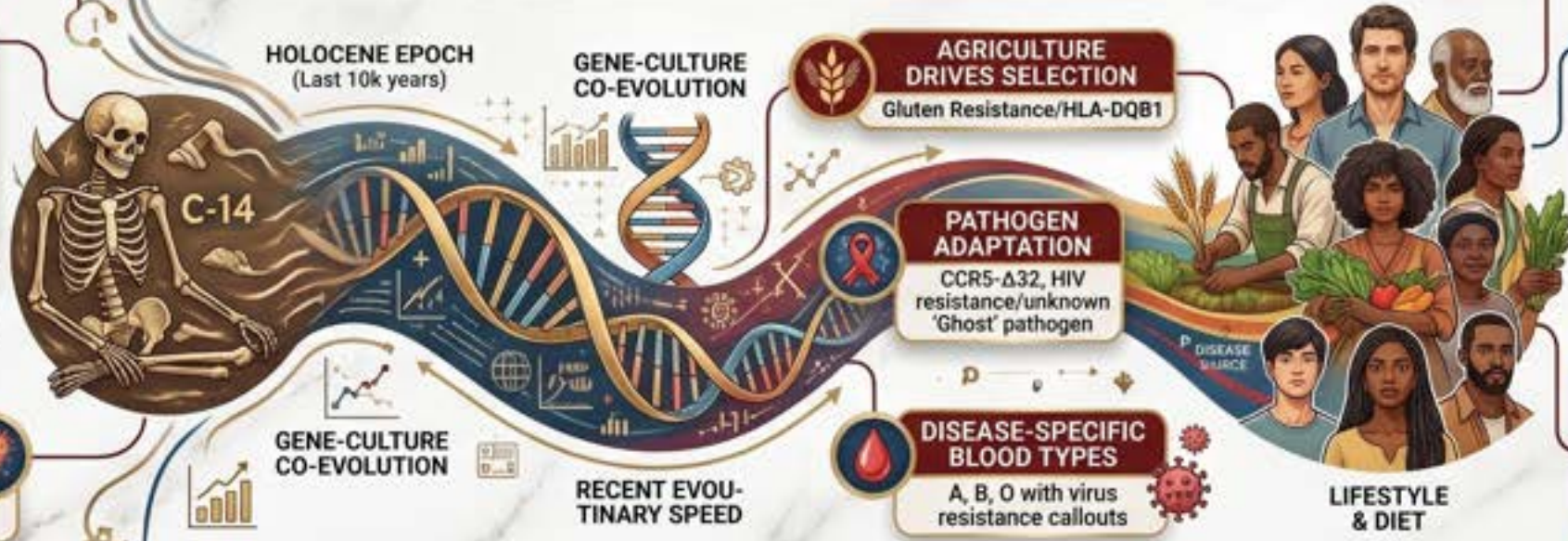
- Ancestor Rights
- Data Privacy

**SOCIAL & POLITICAL**

- Identity Re-shaping
- Indigeneity Claims

**ECONOMIC**

- Pharma
- Healthcare Policy shift



## Linkages & Action Map

**UPSC SYLLABUS LINKAGES**

GS Paper 1:	Society, Diversity
GS Paper 3:	S&T, Biotech
GS Paper 4:	Ethics
	Anthropology Optional

**NCERT LINKAGES**

Class 11 History:	Theme 1&2
Class 12 Biology:	Evolution, Molecular Basis

## WAY FORWARD - ACTION MAP



● ECONOMICS

# US extends sanctions waiver for Russian crude: What it means

**Sukalp Sharma**

*New Delhi, May 19*

THE US has extended by another month its sanctions waiver on the purchase of Russian crude oil already loaded on tankers. The move is aimed at allowing more oil to reach the international market and exerting downward pressure on elevated oil prices due to the effective closure of the Strait of Hormuz, through which about a fifth of global crude oil used to pass.

Washington had earlier allowed the sanctions waiver on importing Russian oil already at sea to expire on May 16, with no clarity on whether the waiver would be extended. However, late Monday, US Treasury Secretary Scott Bessent announced that it was being extended by another month. This is the second extension of the waiver,

which was first issued in March as the West Asia war squeezed global oil supply.

Notably, earlier on Monday, India — a top destination for Russian crude — had said that it had been buying Moscow's crude irrespective of the US waiver, and would continue to import it with commercial viability and energy security being the primary considerations.

## *Stabilising the market*

This waiver has now been extended till June 17 through a revised General License by the US's Office of Foreign Assets Control. The initial waiver had expired on April 11, but the US then extended it to mid-May after a few days, that too after initially announcing that it won't be renewed. According to industry experts, the decision likely came after pressure from countries buying Rus-

## **Critical chokepoint**

● Around 2.5-2.7 million barrels per day of India's crude imports — accounting for around half of its total oil imports — have transited the Strait of Hormuz in recent months.

● Most of that supply is effectively offline as vessel movements have reduced to a trickle due to the West Asia war.

sian crude to partly offset the loss of Gulf barrels due to the Strait of Hormuz closure. It could have been the case this time too.

Experts see such waivers as part of the Donald Trump administration's effort to prevent a sustained spike in international oil prices — and the consequent rise in domestic fuel prices in the US — given the mid-term elections later this year.

But this has attracted criticism from various sections in the US, who argue that it is leading to a windfall for Moscow, which would fund its war effort in Ukraine. Such arguments were also made against the similar waiver for the purchase of Iranian oil and fuel, after which the US didn't renew that.

## *India's Russian oil imports*

While government officials consistently maintained that India didn't require a US

waiver to buy Russian oil, industry experts said that the waiver actually helped. It enabled Indian refiners to be able to take deliveries of Russian oil even on tankers sanctioned or blocked by the US, and they could deal directly with sanctioned Russian companies like Rosneft and Lukoil. Moreover, it temporarily removed the friction between Washington and New Delhi over the latter's hefty purchases of Moscow's crude.

Although India was buying significant volumes of Russian crude even before the West Asia war began, the quantity had reduced notably in the months that preceded the war, evidently due to the US imposing sanctions on Rosneft and Lukoil, and amid India-US trade negotiations. Washington made a meaningful reduction in New Delhi's Russian oil imports a prerequisite for scrapping its 25% additional penal tariff.

- **Key Terms and Explanations**

- **Sanctions Waiver:** This is essentially a temporary permission slip granted by a sanctioning country (like the United States). It allows certain countries or businesses to continue trading with a sanctioned nation without facing "secondary sanctions" (punishments for doing business with the target). These are often used as safety valves to prevent global markets from crashing.
- **Strategic Chokepoint:** A narrow, highly congested waterway through which a massive volume of global maritime trade must pass. The Strait of Hormuz is a classic example. If a conflict closes this strait, a significant percentage of the world's oil supply is instantly cut off, sending prices skyrocketing.
- **Energy Security:** This refers to a nation's ability to ensure an uninterrupted availability of energy sources at an affordable price. For a developing, energy-hungry economy, securing this is often prioritized over ideological alignment or foreign geopolitical conflicts.
- **Extraterritorial (Secondary) Sanctions:** When a country leverages its dominance in the global financial system (like the US Dollar) to penalize foreign entities that trade with a sanctioned country, even if those entities are outside its legal jurisdiction.

- **Main Arguments and Substantive Parts**

- The core thesis of this geopolitical scenario revolves around the tension between diplomatic posturing and economic pragmatism. When global energy supplies are squeezed—often by regional conflicts affecting critical shipping routes—nations are forced to make hard choices.
- The primary argument is that economic realities and domestic political pressures (such as keeping inflation low before elections) frequently compel major powers to relax their own sanctions regimes. By allowing waivers, they ensure that enough crude oil reaches the international market to prevent a sustained spike in global fuel prices.
- Furthermore, the situation highlights the doctrine of strategic autonomy. Developing nations, heavily dependent on energy imports, will act in their own commercial and national interests. They will secure affordable energy to fuel their growth, irrespective of the geopolitical pressure or sanctions regimes established by Western powers. The counterargument, often raised by critics, is that such pragmatism inadvertently funds the war machineries of sanctioned, aggressive states, creating a profound moral hazard.

- **Historical Evolution of the Issue**
- The weaponization of economic trade, particularly energy, has a long and complex history that has drastically reshaped international relations over the decades.
- **The OPEC Era and Oil Shocks (1970s):** The realization that **energy** could be used as a geopolitical weapon truly crystallized during the 1973 oil crisis, when an embargo by Arab oil producers caused severe global economic shocks. This forced importing nations to rethink their vulnerabilities.
- **The Rise of Financial Sanctions (Post-9/11):** The United States began heavily leveraging its control over the global financial system (SWIFT, dollar hegemony) to isolate adversaries like Iran and Venezuela. However, the resulting supply shocks often required the issuance of "waivers" to stabilize global markets.
- **The Modern Multipolar Shift (2022-Present):** With the onset of major European conflicts and subsequent comprehensive Western sanctions against major energy exporters, the global supply chain fractured. Instead of absolute isolation, we saw the emergence of a "shadow fleet" and a complex system of price caps and waivers, demonstrating that isolating a major global commodity producer is practically impossible without severe self-inflicted economic damage.

- **Way Forward**

- To navigate this volatile geopolitical environment, a multipronged, proactive approach is necessary for energy-dependent nations.
- First, there must be an aggressive acceleration toward **renewable energy transition**. Reducing the overall percentage of fossil fuels in the energy mix is the only permanent shield against global oil shocks. Second, governments must rapidly expand their **Strategic Petroleum Reserves (SPR)** to create a massive buffer capable of absorbing sudden chokepoint closures or sanction realignments. Third, diplomacy must focus on **diversifying supplier bases**—no nation should rely on a single geographical bloc for its energy survival. Finally, the institutionalization of **local currency trade mechanisms** must be prioritized to bypass the vulnerabilities associated with dollar-hegemony and extraterritorial sanctions.

- **All Previous Years' UPSC Questions**

- **UPSC Mains GS 2 (2022):** Discuss the impact of the Ukraine crisis on global energy and food security.
- **UPSC Mains GS 2 (2021):** "If the last few decades were of Asia's growth story, the next few are expected to be of Africa's." In the light of this statement, examine India's influence in Africa in recent years. (*Theme: Diversification of energy and resources*).
- **UPSC Prelims (2020):** The term 'West Texas Intermediate', sometimes found in news, refers to a grade of? (Answer: Crude oil).
- **UPSC Prelims (2019):** Map-based question identifying the correct location of the Strait of Hormuz and surrounding countries.
- **UPSC Mains GS 2 (2018):** In what ways would the ongoing US-Iran Nuclear Pact Controversy affect the national interest of India? How should India respond to this situation? (*Theme: Sanctions, waivers, and strategic autonomy*).





## COMPREHENSIVE ANALYSIS: US-RUSSIA CRUDE SANCTIONS WAIVER & GLOBAL ENERGY GEOPOLITICS

### HISTORICAL EVOLUTION TIMELINE

- 1970s OPEC Era & Oil Shocks
- Post-9/11 Financial Sanctions Rise
- 2022-Present Multipolar Shift (shadow fleet, price caps)

### LOGICAL & PHILOSOPHICAL BASE



### NEW FEATURES & UNIQUE IDEAS



### MODEL ANSWER EXCERPT

★ ★ ★  
(e.g., Crisis catalyzed strategic autonomy, balancing survival and ethical posturing while accelerating green transition.

### KEY CHALLENGES

- Implementation
- Chokepoint Vulnerability
- Diplomatic Tightrope
- Payment Hurdles

### WAY FORWARD (SOLUTIONS)

- Renewables Transition
- SPR Expansion
- Diversify Suppliers
- Local Currency Trade

### MULTIDIMENSIONAL ANALYSIS



### UPSC CSE & NCERT LINKAGES

- GS-II** effect of developed countries' policies (estil)
- GS-III** energy/infrastructure and energy supplied
- GS-IV (ethics)**

**UPSC Relevance: Critical Intersection of IR & Economy. Strategic Autonomy in action.**

RISE ABOVE THE REST

# In stray dogs case in SC, questions of right to life, compassion to living beings

Amaal Sheikh

New Delhi, May 19

THE SUPREME Court on Tuesday dismissed all challenges on stray dog management and warned that the state cannot remain a "passive spectator" to the threat of dog attacks in public spaces.

The Bench, comprising Justices Vikram Nath, Sandeep Mehta and N V Anjaria, said the stray dog crisis had reached alarming proportions because of poor implementation of the Animal Birth Control (ABC) framework.

Linking the issue to Article 21 of the Constitution, the court held that the right to life includes the right to move freely in public spaces without fear of attack. "The Constitution does not envisage a society where children and elderly citizens are left to survive on the mercy of physical strength or chance," it held.

## What triggered the case?

The SC stepped into the stray dogs issue last July after taking suo motu cognizance of a news report about a six-year-old girl in New Delhi dying after a dog bite.

The case came before a Bench of Justices JB Pardiwala and R Mahadevan, who in August 2025 directed civic authorities across Delhi-NCR to pick up stray dogs from public places and move them to shelters. It also said the dogs should not be released back onto the streets.

This triggered protests, with animal welfare groups and others arguing that the directions were contrary to the ABC Rules. The rules require stray dogs to be sterilised and vaccinated before being released into the same area from where they were picked up.

Applications were filed in the SC seeking to have this order recalled. The matter was eventually placed before a larger three-judge Bench led by Justice Vikram Nath. The court



The SC said last year that the stray dog issue had become a public safety concern.

MAGNIFIC

softened the earlier directions and restored the sterilisation and release policy, while allowing authorities to keep rabid or aggres-

sive dogs in shelters. It also barred feeding in public spaces outside designated zones.

## What was argued earlier?

Resident groups and families of dog bite victims argued that authorities had failed to control rising attacks, especially near schools, residential colonies, etc. They told the court that the issue could no longer be treated only as an animal welfare concern.

Animal welfare groups took the opposite view, arguing that mass removal of dogs was neither sustainable nor effective. As dogs are territorial animals, removing sterilised dogs from an area would only create space for unsterilised dogs to move in, which would worsen the problem.

Gradually, the hearings broadened into a review of how municipal bodies and states were implementing sterilisation, shelter and vaccination policies.

In November 2025, the SC passed another

interim order directing states and the National Highway Authority of India to remove stray animals from highways and institutional premises such as schools and hospitals. It also directed fencing of such premises.

## What SC has now directed

The court directed every district to establish at least one fully functional ABC centre and asked states and Union Territories to expand infrastructure depending on population density and local requirements.

The court further held that authorities may take legally permissible measures, including euthanasia, in cases involving rabid, incurably ill or demonstrably dangerous and aggressive dogs posing a threat to human life, strictly in accordance with the Prevention of Cruelty to Animals Act and the ABC Rules. The court also directed all High Courts to register suo motu proceedings to monitor the implementation of its directions.

## What do the ABC Rules say?

The Animal Birth Control Rules, 2023, issued under the Prevention of Cruelty to Animals Act, 1960, treat sterilisation and anti-rabies vaccination as the primary way to control stray dog populations. They also require dogs to be released back into the same locality after sterilisation, recognising that stray dogs are territorial by nature.

The Rules do not permit indiscriminate killing or relocation. Euthanasia is allowed only in limited situations involving rabid, terminally ill or fatally injured animals.

The case also raised constitutional concerns. Animal welfare groups relied on Article 51A(g), which asks citizens to show compassion towards living creatures. Petitioners representing residents and bite victims argued that unchecked stray dog populations affected citizens' rights under Articles 19 and 21, including the right to move freely and live safely.

- **Key Terms and Explanations**

- **Article 21 (Right to Life):** A fundamental right in the Indian Constitution guaranteeing life and personal liberty. In this context, the judiciary interprets it broadly to include the right of citizens—especially vulnerable groups like children and the elderly—to move freely in public spaces without the fear of physical attack or injury.
- **Article 51A(g) (Compassion for Living Creatures):** A Fundamental Duty under Part IVA of the Constitution. It mandates every citizen to protect and improve the natural environment and to have compassion for living creatures. It forms the constitutional basis for animal welfare.
- **Animal Birth Control (ABC) Rules, 2023:** Statutory guidelines framed under the Prevention of Cruelty to Animals (PCA) Act, 1960. They mandate the "Catch-Neuter-Vaccinate-Release" (CNVR) method as the primary tool for population control, recognizing that dogs are highly territorial and indiscriminate culling is ineffective.
- **The "Vacuum Effect":** An ecological concept explaining that if stray dogs are permanently removed or culled from an area, the sudden surplus of resources (food, shelter) simply attracts unsterilized and unvaccinated dogs from neighboring territories to fill the void, thereby worsening the problem. \* **Suo Motu Cognizance:** A Latin term meaning "on its own motion." It refers to a court taking up a case on its own initiative without a formal petition being filed, usually triggered by matters of grave public interest or safety.

- **Main Arguments and Substantive Parts**

- The discourse revolves around finding a constitutional and administrative equilibrium between human safety and animal welfare.
- **The Primacy of Public Safety:** The core argument is that the State cannot remain a passive spectator when civic infrastructure fails, leading to loss of human life. The constitutional framework does not envision a society where survival in public spaces is left to physical strength or chance.
- **Failure of Civic Bodies:** A major substantive point is that the crisis has reached alarming proportions not because of the animals themselves, but due to the poor implementation of the ABC framework by local municipal authorities.
- **Inefficacy of Mass Removal:** Animal welfare groups successfully argue that mass culling, relocation, or endless sheltering is scientifically unviable. Because dogs are territorial, removing them only triggers the "vacuum effect."
- **Scientific and Legal Mandate:** The only legally permissible and scientifically backed method is strict adherence to the ABC Rules. Euthanasia or permanent removal is strictly limited to dogs that are rabid, terminally ill, or demonstrably aggressive and posing an immediate threat, governed tightly by the PCA Act.

- **Historical Evolution of the Issue**
- The approach to urban stray animal management has shifted drastically over the decades, reflecting changing societal values and legal frameworks.
- **Pre-1960s (The Culling Era):** Historically, civic bodies managed stray populations primarily through lethal means, including mass culling or poisoning, treating them solely as a public nuisance.
- **1960 (Legislative Landmark):** The enactment of the Prevention of Cruelty to Animals Act, 1960, marked a philosophical shift, criminalizing unnecessary pain or suffering inflicted on animals.
- **2001 (The First ABC Rules):** A paradigm shift occurred with the introduction of the first ABC Rules, which formally outlawed mass culling and adopted sterilization and vaccination as the official state policy.
- **2023 (Strengthening the Framework):** The government notified the updated ABC Rules, 2023, strictly prohibiting the relocation of dogs and laying down detailed procedures for immunization, recognizing the territorial nature of community dogs.
- **Present Day (Judicial Balancing):** The current phase is defined by intense judicial scrutiny, where the Supreme Court and High Courts are actively intervening to mandate infrastructure (like district-level ABC centers) and balance conflicting constitutional provisions.

### • **Way Forward**

- To move beyond the current deadlock, a multi-pronged, systemic approach is required.
- **Aggressive ABC Implementation:** Municipalities must view ABC not as an animal welfare project, but as a critical public health infrastructure. PPP models with reputed animal welfare NGOs can bridge the capacity gap.
- **Scientific Waste Management:** Strictly enforcing the Solid Waste Management Rules, 2016. Eliminating open garbage dumps directly reduces the food supply, naturally capping the stray population.
- **Designated Feeding Zones:** To minimize friction between residents and feeders, municipalities should demarcate specific feeding spots away from residential high-traffic areas, ensuring dogs are fed and easily monitored/caught for vaccination.
- **Community Education:** Launching mass awareness campaigns about dog behavior, rabies prevention, and how to avoid provoking street dogs, particularly targeted at school children.

### • **All Previous Years' UPSC Questions (PYQs)**

- **GS 2 (2022):** "The jurisdiction of the Central Bureau of Investigation(CBI) regarding lodging an FIR and conducting probe within a particular state is being questioned by various States. However, the power of Supreme Court to direct CBI to investigate is absolute." (Theme: Judicial overreach/Suo Motu powers).
- **GS 3 (2020):** "How does the draft Environment Impact Assessment (EIA) Notification, 2020 differ from the existing EIA Notification, 2006?" (Theme: Environmental laws and public welfare).
- **GS 4 (2019):** "What is meant by 'environmental ethics'? Why is it important to study? Discuss any one environmental issue from the viewpoint of environmental ethics." (Directly applicable to this issue).
- **GS 2 (2018):** "Assess the importance of the Panchayat system in India as a part of local government. Apart from government grants, what sources the Panchayats can look out for financing developmental projects?" (Theme: Failure of local body funding).



## COMPREHENSIVE ANALYSIS: US-RUSSIA CRUDE SANCTIONS WAIVER & GLOBAL ENERGY GEOPOLITICS

### HISTORICAL EVOLUTION TIMELINE

- 1970s OPEC Era & Oil Shocks**
- Post-9/11 Financial Sanctions Rise**
- 2022-Present Multipolar Shift (shadow fleet, price caps)**

### LOGICAL & PHILOSOPHICAL BASE



### NEW FEATURES & UNIQUE IDEAS



### MODEL ANSWER EXCERPT

★ ★ ★  
(e.g., Crisis catalyzed strategic autonomy, balancing survival and ethical posturing while accelerating green transition.

### KEY CHALLENGES

- Implementation
- Chokepoint Vulnerability
- Diplomatic Tightrope
- Payment Hurdles

### WAY FORWARD (SOLUTIONS)

- Renewables Transition
- SPR Expansion
- Diversify Suppliers
- Local Currency Trade

### MULTIDIMENSIONAL ANALYSIS



### UPSC CSE & NCERT LINKAGES

- GS-II** effect of developed countries' policies (estil)
- GS-III** energy/infrastructure and energy supplied
- GS-IV (ethics)**
  - Class 12 PolSci
  - GEOGRAPHY
  - Class 11 Econ

**UPSC**  
UPSC Relevance: Critical Intersection of IR & Economy. Strategic Autonomy in action.

RISE ABOVE THE REST

# FIFA World Cup: How humidity and heat could play spoilsport

Nikhil Ghanekar  
New Delhi, May 19

IN A matter of weeks, the world is set to be gripped by football World Cup fever, as an expanded, 48-team tournament will be played in the North American summer for the first time since 1994. Before the heat rises on the pitch, a new scientific analysis by the World Weather Attribution (WWA), a climate research group, has warned that human-induced climate change has made heat stress at the upcoming World Cup more likely than in 1994.

The study found that more matches will be played under humid heat conditions, which pose health risks not only to athletes, but also to fans, officials and staff. It also mapped city and venue-specific heat stress risks.

## Wet bulb temperature

Researchers from Imperial College London analysed Wet Bulb-Globe Temperature (WBGT) across 16 venues in the United States, Mexico and Canada during the tournament period of June 11 to July 19. WBGT is a composite index that factors in the combined effect of humidity, sunlight and wind to determine how the human body can regulate internal heat and cool itself. It captures heat stress impact, rather than air temperature alone.

The research involved comparing today's climate with that of 1994, which was 0.7°C cooler on average. Using simulations, the researchers assessed how many venues were likely to see WBGT exceed 26°C. To be sure, a WBGT of 26°C translates to temperatures of roughly 30°C with mid to high humidity, or the equivalent of 38°C in dry heat, as per WWA.

The study found that at least 25% of the 104 World Cup matches were likely to be played at 26°C and higher wet bulb

## • SCIENCE OF HUMIDITY

- In humid heat, the body is unable to cool down quickly enough, making it harder to regulate body temperature and raising risks of heat exhaustion.
- With footballers exerting themselves in direct sunlight through high-intensity movements, their performance and endurance could be affected.

globe temperature. "Our research shows that climate change is having a real and measurable impact on the viability of holding World Cups during the northern hemisphere summer. The 1994 World Cup may not feel particularly distant to many adults today, yet half of human-induced climate change has happened since then," said Friederike Otto, one of the study's authors and professor of climate science at Imperial College.

## Health impact

Typically, in humid heat, the body is unable to cool down quickly enough, making it harder to regulate body temperature.

When the body is unable to cool down quickly enough, it increases the risk of heat exhaustion, heat stroke and cardiovascular disease. A landmark 2010 study theorised that sustained six-hour exposure to a wet-bulb temperature of 35°C could prove fatal. A March 2026 study, published in *Nature*, said that risks are rising even at temperatures below this threshold.

With footballers exerting themselves in direct sunlight through high-intensity movements, humid heat is expected to affect their performance and endurance. The FIFPRO, an organisation of professional players, has issued guidance recommending that when WBGT reaches 26°C or higher, heat strain becomes a real risk, which necessitates cooling and drink breaks. At 28°C and above, FIFPRO says it is unsafe for play.

However, FIFA, the global football governing body, will consider postponement only if WBGT levels exceed 32°C. Cooling breaks were first introduced during the 2014 World Cup in Brazil. As the US faced Portugal at Manaus, in the heart of the Amazon rainforest, the conditions were stifling at 30°C and 66% humidity. It prompted referee Nestor Pitana to pause the match for a hydration break in the 39th minute.

Concurrent desert heat prompted FIFA to move the 2022 Qatar World Cup to winter, for the first time.

## Worst-affected matches

Southern, mid-west, and humid coastal venues face the prospect of high heat stress. The study identified six stadiums – New York MetLife Stadium (host of the final), Philadelphia Lincoln Financial Field, Kansas City Arrowhead Stadium, Miami Hard Rock Stadium, Boston Gillette Stadium and Estadio Monterrey in Mexico – as most likely to experience high humid heat.

Miami will likely see multiple games played at temperatures above 26°C WBGT, Dallas and Houston, which have cooled stadiums, face a 30% chance of enduring wet-bulb temperatures above 26°C. Both stadiums have cooling systems.

- **Key Terms and Explanations**
- **Wet Bulb Globe Temperature (WBGT):** A composite measure used to estimate the effect of temperature, humidity, wind speed, and solar radiation on the human body. Unlike a standard thermometer reading (dry-bulb), WBGT captures *heat stress*. For example, a standard air temperature of 30°C coupled with intense humidity can result in a WBGT that feels biologically identical to a lethal 38°C dry heat.
- **Evaporative Cooling:** The primary mechanism by which the human body regulates its internal temperature. As sweat evaporates from the skin, it absorbs heat, cooling the body. High environmental humidity neutralizes this process because the air is already saturated with moisture, preventing sweat from evaporating.
- **Heat Stress:** The total net heat load placed on the human body from a combination of environmental conditions and metabolic heat production (physical exertion).
- **Anthropogenic Climate Change:** Long-term shifts in temperatures and weather patterns driven primarily by human activities, especially the emission of greenhouse gases. This phenomenon is increasing both the baseline global temperature and atmospheric moisture capacity.
  
- **Main Arguments and Substantive Parts**
- **Biological Limits of Physical Exertion:** The core premise is that intense human physical activity—whether for elite sports, agriculture, or construction—is hitting hard biological walls due to rising temperatures and humidity. When the WBGT reaches certain thresholds (e.g., 26°C to 35°C), the human cardiovascular system cannot shed heat fast enough, making sustained exertion lethal.
- **Inadequacy of Traditional Metrics:** Relying solely on dry air temperature to gauge safety is dangerously flawed. High humidity dramatically amplifies the physiological impact of heat. Policy planning must pivot to composite indices like WBGT to accurately predict public health risks.
- **Institutional Inertia vs. Climate Reality:** Global bodies governing labor, sports, and public events are structurally slow to adapt. While some mitigating measures (like cooling breaks or localized air-conditioning) exist, they are often reactionary. Sustained climate shifts require proactive, systemic calendar and infrastructural overhauls rather than ad-hoc postponements.

- **Historical Evolution of the Issue**

- **Pre-Industrial to 20th Century:** Historically, outdoor physical exertion schedules were dictated by seasonal variations that remained highly predictable. Heatwaves were viewed as isolated, anomalous weather events. Dehydration was considered the primary risk, easily mitigated by water intake.
- **Late 20th Century (The Shift):** As greenhouse gas emissions accelerated, the frequency of extreme heat days increased. However, institutional policies (e.g., global sporting calendars, labor laws) remained anchored to mid-century climatic baselines. The focus was still largely on dry-bulb temperatures.
- **21st Century (The Breaking Point):** The realization emerged that rising global temperatures also mean higher atmospheric moisture (a warmer atmosphere holds more water vapor). Landmarks like the 2010 physiological studies pinpointed exact WBGT limits (around 35°C) for human survival. Subsequently, we began seeing unprecedented shifts—such as moving global mega-events out of traditional summer windows to avoid lethal desert heat—marking a new era of climate-dictated human scheduling.

- **Way Forward**

- **Statutory Integration of WBGT:** National labor guidelines and public health advisories must transition from dry-bulb temperature warnings to WBGT-based "Heat Action Plans," triggering mandatory cooling breaks or work stoppages at critical thresholds.
- **Nature-Based Urban Cooling:** Prioritize blue-green infrastructure (urban forests, restoring water bodies, green roofs) to combat the Urban Heat Island effect, which traps humidity and heat in concrete jungles.
- **Chronological Adaptation Strategies:** Institutionalize flexible working hours, shifting high-exertion activities (construction, sports) to early mornings or late evenings during peak summer months.
- **Decarbonization at Source:** Technological adaptations are mere band-aids. The absolute priority remains rapid global decarbonization to prevent average global temperatures from permanently pushing tropical regions into unlivable WBGT zones.

- **All Previous Years' UPSC Questions**

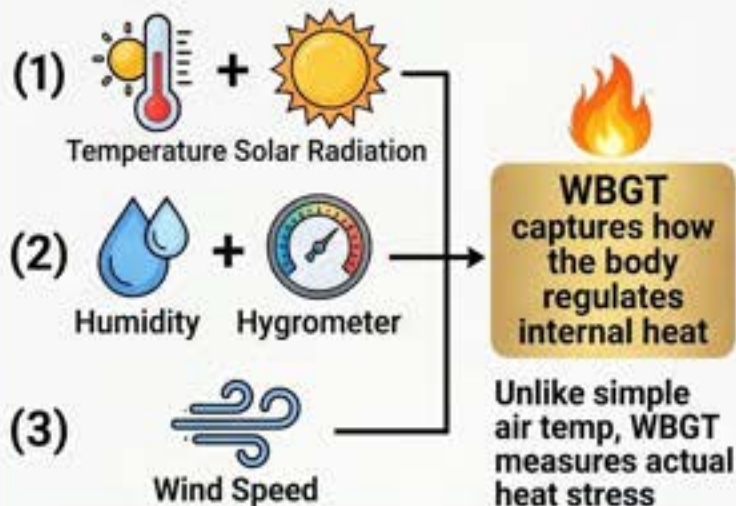
- **UPSC CSE Mains 2021 (GS Paper 3):** Heat waves are among the most dangerous of natural hazards, the frequency and intensity of which will rise in the 21st century due to climate change. Discuss.
- **UPSC CSE Mains 2022 (GS Paper 1):** Bring out the causes for the formation of heat islands in the urban habitat of the world.
- **UPSC CSE Mains 2019 (GS Paper 3):** Vulnerability of India to earthquake, cyclones, floods and heat waves. (Implied in the disaster management overview).
- **UPSC CSE Prelims (Various Years):** Conceptual questions regarding factors influencing humidity, oceanic heat content (e.g., Marine Heat Waves, 2024 trends), and adaptation/mitigation strategies under the UNFCCC.

### 1. THE CORE PROBLEM & CONTEXT



- Human-Induced Climate Change makes heat stress more likely than 1994
- WWA (World Weather Attribution) warning for North American summer World Cup

### 2. UNDERSTANDING WBGT (Wet Bulb Globe Temperature)



Example: 26°C WBGT translates to ~30°C with mid-high humidity OR ~38°C dry heat

### 3. PHYSIOLOGICAL CHALLENGES & PERFORMANCE



#### (A) Athletes

- Reduced performance, endurance, heat exhaustion
- Reduced performance
- Complete rformance, endurance, heat exhaustion



#### (B) General Health

- Heat Stroke, Cardiovascular disease, risk to fans
- Heat Stroke, health membership risk to fans

**Landmark Study:** Sustained 6-hour exposure to WBGT 35°C can be FATAL. Risks rise even below 35°C.

### 4. INSTITUTIONAL POLICIES & CONFLICTS

#### FIFPRO Guidance (Player safety first):

At 26°C WBGT = Cooling breaks  
At ≥28°C WBGT = Unsafe to play

VS

#### FIFA Policy (Governing Body):

Consider postponement ONLY at ≥32°C WBGT.

Cooling breaks in Brazil 2014

Historical context: Qatar nud postponement vs postponement breaks in cooling breaks

Qatar 2022 move to winter.

### 5. MULTIDIMENSIONAL UPSC ANALYSIS

 <b>Social</b> <ul style="list-style-type: none"> <li>• Heat equity. Disproportionate impact on marginalized &amp; outdoor workers.</li> </ul>	 <b>Political</b> <ul style="list-style-type: none"> <li>• International cooperation for climate agreements. Local Heat Action Plans (HAPs).</li> </ul>	 <b>Legal</b> <ul style="list-style-type: none"> <li>• Art 21 (Right to Life) implications.</li> <li>• Constitutional right to a safe environment.</li> </ul>	 <b>Ethical</b> <ul style="list-style-type: none"> <li>• Fairness vs. Economic priorities.</li> <li>• Intergenerational climate equity.</li> </ul>
 <b>Grgml</b> <ul style="list-style-type: none"> <li>• Fairness vs. Economic priorities. climate equity.</li> </ul> <p>NCERT &amp; Syllabus - NCERT Class 11 Indian Economic Development</p>	 <b>International</b> <ul style="list-style-type: none"> <li>• Global North' historic Intergenerational climate equity.</li> </ul> <p>NCERT &amp; Syllabus like: NCERT Economics, GS Paper 3</p>	 <b>Eethomi</b> <ul style="list-style-type: none"> <li>• Global North's historic emissions.</li> <li>• Climate justice for tropical nations.</li> </ul> <p>NCERT &amp; Syllabus - Biology, Economic, GS Paper 3</p>	 <b>Economic</b> <ul style="list-style-type: none"> <li>• Billions of labor hours lost.</li> <li>• Reduced public productivity &amp; GDP.</li> </ul> <p>NCERT &amp; Syllabus like: Class 11/12 Biology, GS Paper 3</p>

### 6. WAY FORWARD: BALANCED SOLUTIONS

 <b>Policy Reform</b> <ul style="list-style-type: none"> <li>• Adopt WBGT standards.</li> <li>• Mandatory health protocols.</li> </ul>	 <b>Infrastructure</b> <ul style="list-style-type: none"> <li>• Stadium cooling (localized).</li> <li>• More urban tree cover.</li> </ul>	 <b>Adaptation</b> <ul style="list-style-type: none"> <li>• Flexibility in event scheduling (night/winter).</li> </ul>	 <b>Systemic Action</b> <ul style="list-style-type: none"> <li>• Urgent decarbonization.</li> <li>• Sustainable event planning.</li> </ul>
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# Why India needs to empower local bodies



**EXPERTS EXPLAIN**  
DIVYESH KAPUR &  
ARVIND SUBRAMANIAN

"WHATEVER THE reasons, the fact remains our local bodies are not, as a rule, shining examples of success and efficiency... That is not a contemporary feature but one traced to 1925 by the Chairman of the committee of the National Council of Educational Research and Training. A hundred years on, little has changed."

The structure of governance — comprising central and urban local bodies — is remarkably absent in the federalism debates, which tend to focus exclusively on the Centre and the states. It is the deep field of dual federalism and the offloading of key part to the second tier, namely state governments, directly above and controlling it.

### Dependence on state governments

Consider the direct transfer of the urban third tier in personnel, finances and responsibilities.

In the United States and China, urban corporations or political systems, nearly two-thirds of government employees work for local governments. In India, but over 90 per cent do not (Figure 1). As a result, most public services are delivered by the third tier in the form, very low in India.

Next, consider finances. Self-generated resources in addition to personnel are critical to efficient delivery. Figure 2 illustrates how poor the performance of urban local bodies (ULBs) has been compared to the other tiers. The Centre and states have been able to increase the resources they provide for ULBs by a factor of 2 and 2.3 respectively over nearly six decades.

In contrast, the urban third tier's value as tax generators has broadly stagnated at a meagre 0.3 per cent of GDP. As a result, expenditures by the third tier are abysmally low (less than 1 per cent of GDP) and the states and Centre spend roughly 15 and 20 times more, respectively. This over-tax generation means that even modest expenditures are funded from outside resources, encouraging any agency that the third tier might have and reducing their dependence on state governments.

This incapacity writing, given rapid urbanisation and the passage of the 73rd and 74th Amendments granting constitutional status to local governments that came into effect in 1994.

### Monetising land

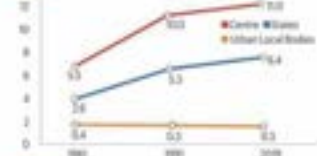
The deficiencies of the third tier have something to do with a deeper pathology

### Where third tier of governance stands

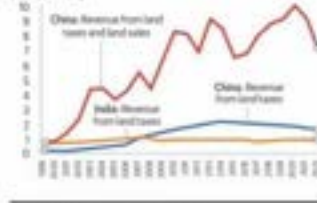
**Figure 1** Structure of employment across three tiers of government: China, India, and the United States



### Over-tax resources (% of GDP)



### Land and non-land revenues from land, China and India, 1980-2010 (% of GDP)



relating to land. One manifestation of this is suggested by a contrast between China and India. In relatively land scarce countries, rapid economic growth leads to rapid increases in land and property values relative to gross domestic product (GDP). This has been true of China and of India. As with land, India provides a potentially hazy source of fiscal revenues.

But as Figure 3 shows, over the period of rapid economic growth in the two countries, China was able to fiscalise rising land values, and monetise from selling land that taxing it. The latter was that a common-sense country provided land to generate some of the revenues. China's land revenues increased from less than 0.2 per cent of GDP to more than 10 per cent at its peak.

In contrast, India's revenues have stagnated at about 1 per cent of GDP through

the entire growth phase. Put differently, the Chinese government's urban taxes have led to more for every urban resident that was available for spending was about 15 times more than India's in 1990, at its peak in 2010, this multiple increased to 225. More rapid growth and the superior ability to fiscalise land values increased the revenue available for China dramatically but by very little for India.

The inability to fiscalise land owners to realise ideology interacting with vested interests, compounded by a controlling second tier and an established tradition, led to a slow-speed acquisition time such as the 1980s Land Ceiling Act of 1980, which simply transferred land to small parcels with little or no identified and a trivial amount acquired by the state for public purposes.

Even allowing for this, several state entities — municipal public sector corporations, ports, the defence department, state managed temples — did have access to unenclosed open land which has never been monetised. The Indian state never had the monopoly on land that China had and hence could never have sold as much land as China's local bodies, but it did not even try. Scarcity in the period of rapid growth, but perhaps the worst outcome of these laws (along with land use controls and 'locking' by laws) were severe distortions in land and rental markets that were a prime driver of "black money". Nowhere in India has there been a concentration with black money in the real estate sector.

The result is that ULBs in India are caught in a low-equilibrium political economy trap. While higher than both Centre and states are their dependence on state control and influence lower levels, the latter are both unable and unwilling to tax their productive citizens. The result is a chronic resource constraint with high dependency: a form of political and administrative control of local governments by states that severely curtails their autonomy.

This affliction has been particularly pernicious for ULBs, where low managerial capacity has been a collateral damage of the stranglehold of state governments on appointments. City governments lack the power to appoint, dismiss or control commissioners and their senior management teams or over appointments, promotions and disciplining their staff. Even where the functions are nominally transferred to local bodies, few of them remain operational in state governments.

**Is there a way forward?**  
Greater financial resources become available to ULBs through Central government schemes for urban development include the Jawahar National Urban Renewal Mission (JANURM) and its successor, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), that has led to state and cities consulting themselves to structural reforms. Successful Finance Commissions have also allocated more re-

sources to the third tier in recent years.

These additional resources are still the fraction of what ULBs need. More importantly, Central schemes are top-down solutions with little citizen participation, and have been unable to address the binding constraint of weak administrative and technical capacity of ULBs and the weakening role of state governments. The truth is that state governments that are notorious victims of over-controlling by New Delhi are themselves perpetrating it to their own detriment. As the economist Raj Chetty has noted, everyone wants decentralisation but only for the higher level.

Even as India is becoming more urban, its urban authorities are putting a brake on a key locus of innovation and growth. The debates on industrial policy, and their role in fuelling China's growth belie the reality that most industrial policies in China are formulated and implemented by its cities and not by businesses in the national or provincial capitals. Fierce competition among cities in China reinforces the fierce competition among firms, driving that country's exceptional dynamism.

In India, the lack of competition drags it down, although that is slowly beginning to happen. As New Delhi gets increasingly polluted and Singapore increasingly congested, people and investors will seek other destinations. The rise of second and third tier cities — Bangalore, Coimbatore, Bhubaneswar, Kolkata, Mumbai, Pune — is encouraging but needs to be supported.

The push and pull dynamic unleashed by competitive federalism has also by competitive sub-federalism could emerge as a promising force for change. Unlike the former, it emerges from the growing weight of the urban population. While this will become manifest in the near future, the resulting inter-state deconcentration will give greater weight to urban issues.

Regardless, debates on Indian federalism can no longer be confined to Centre-state relations. Empowering cities and making their governments more accountable must be integrated into these debates as well. The open air gas chamber that Delhi has remained for decades is a smother and a indication of time being stolen by debates on federalism.

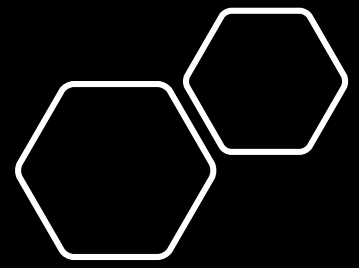
This is the second of two pieces in the federalism debate and also from the authors' recent book, *A Land of Humble Independent India* (Development Dynamics, especially Chapter 16).

**Divyesh Kapur** is a political scientist and the Dean Foundation Professor of South Asia Studies at the Johns Hopkins University School of Advanced International Studies, Washington DC.  
**Arvind Subramanian** is an Indian economist and the former Chief Economic Adviser to the Government of India (2014-16). He is currently a Senior Fellow at the Peterson Institute for International Economics, Washington DC.

### India vs the Big Two

In the US and China, nearly two-thirds of government employees work for local governments.

In India, just over 10 per cent do.



- **Key Terms and Explanations**

- **Third Tier of Governance:** This refers to the local self-government institutions—Panchayats in rural areas and Municipalities (Urban Local Bodies or ULBs) in urban areas—formalized by the 73rd and 74th Constitutional Amendment Acts. Think of them as the government closest to your doorstep.
- **Fiscalization of Land Values:** This is the process of a government converting the rising value of land (often due to urbanization and infrastructure development) into public revenue. Examples include property taxes, land monetization, or value-capture financing.
- **Competitive Sub-federalism:** While federalism is about the Centre and States sharing power, sub-federalism looks at the next level down. Competitive sub-federalism happens when cities or local regions actively compete against one another to attract investment, talent, and resources, thereby driving overall economic growth.
- **Principle of Subsidiarity:** A core philosophical concept in public administration stating that decisions and services should be handled by the lowest, least centralized competent authority. Essentially, if a local council can manage garbage collection better than the state capital, they should be given the power to do so.
- **Intra-state Delimitation:** Delimitation is the redrawing of electoral boundaries. Intra-state delimitation refers to adjusting these boundaries *within* a state to reflect population changes, which typically means giving more political representation (and thus political weight) to rapidly growing urban centers.

- **Main Arguments and Substantive Parts**

- When examining the debate on federalism, a glaring blind spot often emerges: the focus is almost entirely on Centre-State relations, leaving the third tier neglected.
- **The "Stepchild" of Federalism:** Local bodies in India are severely under-resourced compared to global peers. For instance, in nations like the US and China, nearly 70% of government employees work for local governments. In India, that figure is barely hovering around 10%. This drastically limits the delivery of everyday public services.
- **The Paradox of State Governments:** State capitals frequently (and rightfully) demand greater autonomy and financial devolution from the Central government. Yet, they act as over-centralizing authorities themselves, refusing to devolve meaningful power, funds, and functionaries to their own cities and villages.
- **Stagnant Revenue Generation:** Local bodies rely heavily on outside grants because their own tax revenue generation has stagnated at roughly 0.3% of GDP for decades. Without financial independence, political and administrative autonomy remains an illusion.
- **Missed Opportunities in Land Monetization:** Rapid economic growth naturally increases land values. Unlike other rapidly developing nations that successfully captured these rising revenues to fund local infrastructure, India's municipal land revenues have largely stagnated.

- **Historical Evolution of the Issue**

- Understanding how local governance evolved in India provides essential context for why the system functions—or struggles—the way it does today.
- **Pre-Independence Foundations:** The concept of local self-government isn't entirely new. Lord Ripon's Resolution of 1882 is often celebrated as the Magna Carta of local self-government in India, attempting to introduce democratic elements at the municipal level.
- **The Constitutional Mandate (1950):** Initially, the Constitution only included Article 40 under the Directive Principles of State Policy, which urged states to organize village panchayats. Urban bodies were largely left to the whims of state legislatures.
- **The Watershed Moment (1992-1993):** The passage of the 73rd and 74th Constitutional Amendment Acts provided formal constitutional recognition to Panchayats and Municipalities, mandating regular elections and reserving seats for women and marginalized communities.
- **The Contemporary Era:** In recent decades, the focus has shifted toward capacity building and financial incentivization. Central schemes like JNNURM, AMRUT, and the Smart Cities Mission have attempted to force urban reforms by tying central funding to specific local governance improvements.

- **Way Forward**

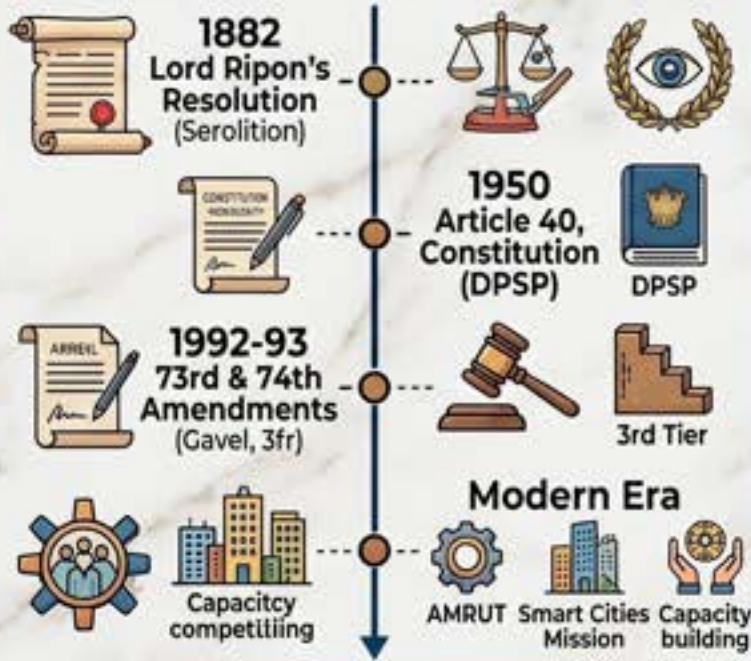
- **Empowering the Mayor:** Transition towards a system of directly elected Mayors with fixed tenures and real executive authority (often called the "Strong Mayor" model), reducing their dependence on state-appointed bureaucrats.
  - **Enforcing Finance Commissions:** State Finance Commissions (SFCs) must be constituted regularly, and their recommendations regarding revenue sharing should be made binding, or at least heavily incentivized by the Central Finance Commission.
  - **Creating Dedicated Cadres:** Establish dedicated, professional municipal administrative and technical cadres. City planning requires specialized urban skills, not generalist administrators on short deputations from state departments.
  - **Subsuming Parastatals:** Ensure that all city-level parastatals (water, transport, development authorities) report directly to the elected local government, eliminating fragmented governance.
  - **All Previous Years' UPSC Questions**
  - **Mains 2018 (GS 2):** "Assess the importance of the Panchayat system in India as a part of local government. Apart from government grants, what sources the Panchayats can look out for financing developmental projects?"
  - **Mains 2017 (GS 2):** "Local self-government system in India has not proved to be effective instrument of governance. Critically examine the statement and give your views to improve the situation."
-



AXIA COMPETITIVE EXAM CENTRE

# COMPREHENSIVE ANALYSIS: DECENTRALIZATION OF POWER & LOCAL BODY EMPOWERMENT IN INDIA (UPSC STANDARD)

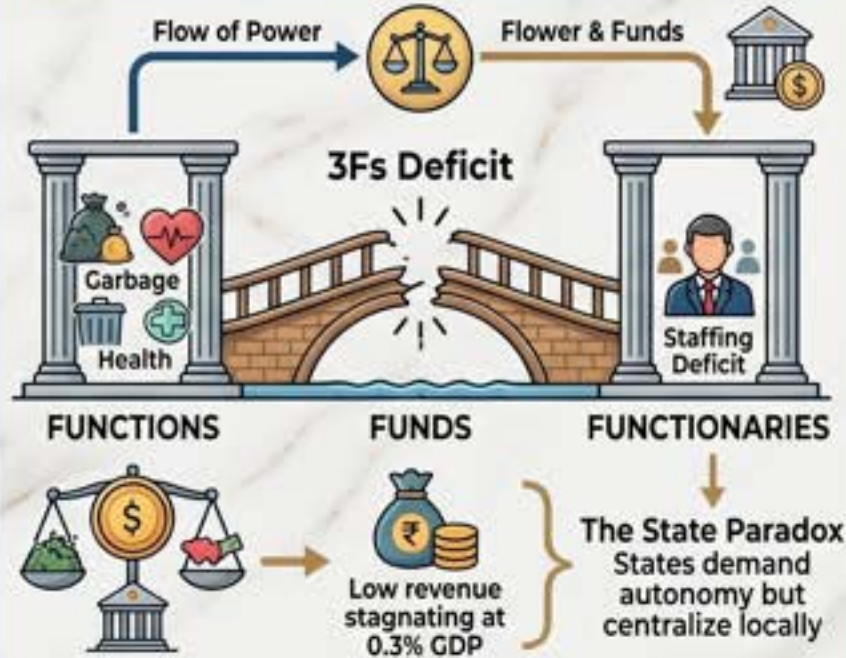
## HISTORICAL EVOLUTION & KEY TERMS



### KEY TERMS EXPLAINED



## THE LOCAL GOVERNANCE ECOSYSTEM & CHALLENGES



## UPSC MAINS PERSPECTIVE: PREVIOUS YEARS QUESTIONS

- 2017:** effectiveness of LSG; summary of anomalies at the national level
- 2018:** Panchayat finance mechanism and participation of markets of the ISSD
- 2017:** Panchayat representation of land use and naturalization; decentralization of LSG
- 2020:** Panchayat municipal economic; participation for local government

## STRATEGIES FOR EMPOWERMENT: THE WAY FORWARD



## MULTIDIMENSIONAL IMPACT



# Delhi Police ask SC to review UAPA bail terms

Delhi Police say jailing under UAPA may warrant a larger Bench in view of 'conflicting' judgments

Under the UAPA's provision on bail, presumption of innocence takes a 'backseat', the govt. states

On May 18, the court said that the principles laid down by a three-judge Bench were not followed

Aaratrika Bhaumik  
NEW DELHI

The Delhi Police on Tuesday told the Supreme Court that the question of whether prolonged incarceration and delay of trial could override the statutory restrictions on bail under anti-terror laws such as the Unlawful Activities (Prevention) Act, 1967, may warrant consideration by a larger Bench in view of two "conflicting" judgments rendered by coordinate Benches.

The oral submission was made before a Bench of Justices Aravind Kumar and P.B. Varale at the hearing of bail petitions filed by the 2020 Delhi riots accused Abdul Khalid Saifi and Tasleem Ahmad, challenging the September 2, 2025, order of the Delhi High Court denying them bail. Referring to a judg-

Under UAPA's statutory bail bar, the presumption of innocence of the accused takes a backseat. I am not opposing the interim plea, but the issue of statutory restrictions on bail under anti-terror laws requires consideration by a larger Bench in view of the two conflicting judgments



ADDITIONAL SOLICITOR-GENERAL S.V. RAJU  
appearing for the Delhi Police

ment delivered a day earlier by a Bench of Justices B.V. Nagarathna and Ujjal Bhuyan, which held that "bail is the rule and jail is an exception" even in prosecutions under the UAPA, Additional Solicitor-General S.V. Raju, appearing for the Delhi Police, submitted that the ruling may not have laid down the correct position in law.

"...when there is a presumption in law, as con-

tained in Section 43D(5) of the UAPA, which is a mandatory presumption, and the word used is 'shall', then the presumption of innocence of the accused takes a backseat...that aspect has been lost," he said.

During the hearing, Justice Kumar asked Mr. Raju whether his position was that the coordinate Bench had committed an error.

"That is going to be my

## Umar Khalid's petition on bail for 15 days dismissed

Ishita Mishra  
NEW DELHI

A Delhi court on Tuesday dismissed Umar Khalid's 15-day interim bail plea to attend bereavement rituals for his uncle and to

care for his ailing mother. This came a day after the top court voiced "reservations" about its January decision denying him bail.

FULL STORY ON  
» PAGE 6

submission, provided I read the judgment. I have not read the judgment because I did not have time," Mr. Raju responded. He submitted that while he was not opposing interim bail for the two accused, the broader legal issue required consideration by a larger Bench in light of the "conflicting" rulings.

"My Lords may consider interim bail, I am not opposing that...but the issue

requires consideration by a larger Bench in view of the two conflicting judgments," he added.

The judgment by the Bench headed by Justice Nagarathna was delivered on May 18 while granting bail to Jammu and Kashmir resident Syed Iftikhar Andrabi in a narco-terror case investigated by the National Investigation Agency (NIA). In its ruling, the Bench voiced "serious re-

servations" about the January 5 judgment denying bail to Jawaharlal Nehru University scholars Umar Khalid and Sharjeel Imam in the alleged larger conspiracy case linked to the 2020 Delhi riots, including the foreclosure of their right to seek bail for a year.

The Bench underscored that the January 5 verdict had failed to correctly apply the binding principles laid down by a larger three-judge Bench in *Union of India v. K.A. Najeed* (2021), which held that prolonged incarceration and delay in trial can override the statutory restrictions on bail under Section 43D(5) of the UAPA.

Taking note of the submissions, the top court posted the matter for hearing on May 20 to consider the interim bail plea.

**'Bail is the rule'**

Justice Bhuyan, who auth-

ored the May 18 judgment, had observed that the phrase "bail is the rule and jail is the exception" was not merely an empty slogan but a constitutional principle flowing from the fundamental rights to life, speedy trial, and freedom from arbitrary arrest and detention. He also expressed concern over certain verdicts "hollowing out" larger Bench rulings such as *K.A. Najeed*, which championed personal liberty against state excess.

The Delhi High Court on September 2, 2025, had dismissed Mr. Ahmed's bail plea, saying "delay in trial" cannot be the sole ground for consideration. It had said that except in cases of palpable violation of fundamental rights or breach of constitutional rights, bail cannot be granted on the sole factor of long incarceration or delay in trial.

- **Key Terms and Explanations**

- **UAPA (Unlawful Activities Prevention Act, 1967):** India's primary counter-terrorism law. Initially designed to target secessionist movements, it has evolved into a stringent anti-terror framework. Unlike standard criminal law, it places severe restrictions on the granting of bail.
- **Section 43D(5) of UAPA:** The specific statutory provision that creates a high bar for bail. It mandates that a court shall not grant bail if it believes the accusations against the person are "prima facie" (on the face of it) true.
- **Presumption of Innocence:** A foundational pillar of standard criminal law, which asserts that an accused is innocent until proven guilty. Under stringent laws like UAPA, this principle effectively takes a backseat, shifting the burden onto the accused to prove they are *not* guilty to secure bail.
- **Coordinate Bench:** A bench of a High Court or the Supreme Court comprising the same number of judges as another bench. When two coordinate benches give conflicting judgments on the same law, the matter must be referred to a larger bench for authoritative clarification.
- **"Bail is the Rule, Jail is the Exception":** A landmark legal principle established by Justice Krishna Iyer, rooted in Article 21 of the Indian Constitution. It implies that depriving a person of liberty pending trial should be a rare exception, not the standard practice.

- **Main Arguments and Substantive Parts**

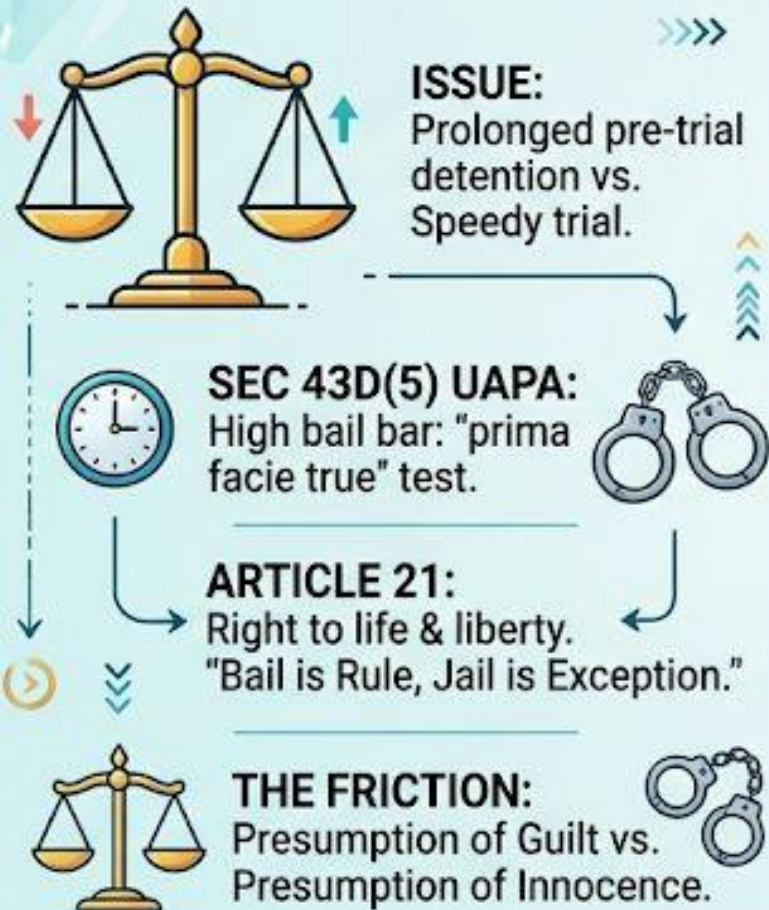
- The central legal debate revolves around the friction between national security imperatives and the fundamental right to life and liberty.
- **The Constitutional Mandate vs. Statutory Bars:** There is a profound tension between Article 21 (which guarantees the right to a speedy trial and protection from arbitrary detention) and stringent anti-terror laws that mandate prolonged incarceration. When a trial takes years to even begin, the detention transforms from preventive to punitive.
- **The Doctrine of Prolonged Incarceration:** A progressive legal argument suggests that an unconscionable delay in trial effectively overrides statutory restrictions on bail. If the state cannot ensure a speedy trial, it loses the moral and legal authority to keep an accused indefinitely jailed without conviction.
- **The State's Perspective on National Security:** Conversely, the state argues that terrorism is an extraordinary crime requiring extraordinary measures. The presumption of innocence is intentionally diluted to prevent individuals who pose a severe threat to the sovereignty and integrity of the nation from returning to society while under investigation.
- **The Problem of Conflicting Jurisprudence:** The legal landscape is currently fragmented. Some judicial interpretations heavily favor the literal reading of anti-terror laws (denying bail strictly), while others invoke constitutional morality to grant bail due to trial delays, creating unpredictability in the justice system.

- **Historical Evolution of the Issue**
  - The trajectory of preventive detention and anti-terror laws in India reflects the evolving nature of internal security threats.
  - **Pre-Independence Era:** The concept of detaining individuals without standard trial procedures traces back to colonial tools like the Rowlatt Act (1919), which sparked massive national outrage because it bypassed due process.
  - **First Generation Anti-Terror Laws (1980s-1990s):** The Terrorist and Disruptive Activities (Prevention) Act, or TADA (1985), was enacted in response to the Punjab insurgency. It introduced the concept of reversed burden of proof but was eventually allowed to lapse in 1995 due to widespread allegations of misuse against minorities and political opponents.
  - **Second Generation (Early 2000s):** The Prevention of Terrorism Act (POTA, 2002) followed the Parliament attack. Like TADA, it contained strict bail conditions and allowed confessions made to police officers as evidence. POTA was repealed in 2004 amidst similar controversies regarding human rights violations.
  - **The Modern Paradigm (2004-Present):** Instead of drafting a new law, the government amended the existing UAPA (1967). Significant amendments in 2008 (post-Mumbai attacks) introduced Section 43D(5), making bail exceptionally difficult. The 2019 amendment further allowed the government to designate individuals, not just organizations, as terrorists.
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- **Way Forward**
- **Statutory Timelines and Sunset Clauses:** Parliament should consider amending special laws to include strict timelines for the completion of investigations and trials. If the trial is not concluded within a specified number of years, standard bail provisions should automatically kick in.
- **Capacity Building of Investigative Agencies:** Delays are often caused by poor investigative capacity. Shifting reliance from custodial interrogations to advanced digital forensics, cyber analysis, and robust intelligence gathering will speed up the charge-sheet process.
- **Dedicated Fast-Track Anti-Terror Courts:** Establish genuinely exclusive, well-funded courts where judges only hear specific special-law cases on a day-to-day basis, with no other administrative or judicial burdens, ensuring rapid disposal of cases.
- **Authoritative Judicial Clarification:** The Supreme Court must constitute a larger Constitutional Bench to definitively settle the interplay between statutory bail restrictions and Article 21, thereby eliminating bench-hunting and providing clear, uniform guidelines for lower courts.
- **All Previous Years' UPSC Questions**
- **UPSC Mains GS Paper 2 (2021):** "The jurisdiction of the Central Bureau of Investigation (CBI) regarding lodging an FIR and conducting probe within a particular state is being questioned by various States. However, the power of Supreme Court for transferring cases to CBI remains intact. Discuss." (*Contextual link: Federal friction in investigative agencies*).
- **UPSC Mains GS Paper 3 (2020):** "Analyze internal security threats and transborder crimes along Myanmar, Bangladesh and Pakistan borders including Line of Control (LoC). Also discuss the role played by various security forces in this regard." (*Contextual link: The necessity of strict laws to handle such complex threats*).
- **UPSC Mains GS Paper 2 (2019):** "What are the methods used by the Farmers organizations to influence the policy-makers in India and how effective are these methods?" (*Contextual link: Differentiating between legitimate protest/dissent and unlawful activities*).

## A Comprehensive UPSC CSE Analysis (GS Paper 2 & 3)

### THE CORE CONFLICT



### MULTIDIMENSIONAL IMPACT



### THE WAY FORWARD



# Besides Hormuz, two more straits in Indian Ocean are vital for global trade

While Bab-el-Mandeb forms the western gateway, the Malacca Strait forms the eastern opening to the Indian Ocean, which annually carries nearly 80% of the world's sea-borne oil trade. UNCTAD data shows 8.7% of global sea-borne trade by volume transited the former and 24% the latter in 2023.

## NEWS ANALYSIS

Aniket Singh Chaudhan

**H**ead of the Iranian Parliament's National Security Committee, Ebrahim Amini, on Saturday (May 10) announced on X that Iran "has prepared a professional mechanism to manage traffic in the Strait of Hormuz." This announcement came just a few days after reports indicated that Iran had set up a new body, the Persian Gulf Strait Authority, to oversee vessel movement through the strait.

With these two developments, Iran has effectively formalised a toll system for the vessels transiting the Strait of Hormuz, the sole maritime gateway for one-fifth of global oil and LNG supplies, as per U.S. Energy Information Administration (EIA) data. As the world still grapples with the energy crisis brought on by this stranglehold, these developments have exposed the Achilles' heel of global trade - the critical chokepoints that connect the world's chief maritime mercantile routes.

While Hormuz remains a global flashpoint, the Indian Ocean is also home to two of the world's most crucial straits on which the global economy hinges, the Straits of Malacca and Bab-el-Mandeb.

### A closed ocean

As per C. Raja Mohan, visiting professor at the National University of Singapore's Institute of South Asian



A file photo shows Yemeni fishermen passing a commercial ship in the strategic Bab-el-Mandeb, which means 'Gate of Tears', suggestive of the navigational dangers it poses to mariners, AP

Studies, "Unlike the Atlantic and Pacific oceans, the Indian Ocean is closed, that is, a few straits control its access. This makes these straits immensely important for international trade."

By any measure, the Indian Ocean is at the centre of global trade. Each year, the Indian Ocean sees around 1,00,000 ships transit its waters, accounting for roughly 30% of global container traffic. Moreover, the Indian Ocean region annually carries nearly 80% of the world's sea-borne oil trade and about 9.84 billion tonnes of cargo.

While Bab-el-Mandeb and the Suez Canal form the western gateway to the Indian Ocean, the Malacca Strait forms the eastern opening. Professor Raja Mohan adds, "Unlike the Strait of Hormuz, which serves as the gateway to the Persian Gulf, the Malacca Strait and Bab-el-Mandeb work as links between larger sea routes."

Whereas Bab-el-Mandeb connects the Mediterranean Sea to the Indian Ocean via the Suez Canal, the Strait of Malacca links the Indian Ocean to the South China Sea.

### Gate of Tears

Located between the Arabian Peninsula and the Horn of Africa, Bab-el-Mandeb links the Red Sea and Suez Canal to the Gulf of Aden. The Strait is 26-kilometre-wide at its narrowest and is around 50 km in length. Literally meaning the 'Gate of Tears', it got its name due to the navigational dangers it presents to mariners.

As per EIA data, 9.3% of global crude oil and petroleum liquids shipments were transported through this route in 2023. UN Conference on Trade and Development (UNCTAD) data

suggests that 8.7% of global sea-borne trade by volume transited the Strait in 2023. As a crucial link between Asia and Europe, Bab-el-Mandeb, along with the Suez Canal and Suez-Mediterranean pipeline, is the third busiest maritime chokepoint in global energy trade, according to EIA data.

On April 18, Houssein al-Ezzi, Deputy Foreign Minister of the Houthis in Yemen, in a social media post, threatened to block Bab-el-Mandeb if U.S. President Donald Trump did not cease hostilities in Iran. Though the Iran-backed Yemeni militant group has not acted on these threats, it has disrupted maritime traffic through the strait in the past. In response to the Israeli attack on Gaza in 2023, the group attacked several vessels passing through the Bab-el-Mandeb. Though the attacks subsided by late 2023, the

traffic recovered only marginally by 2024.

### Gooseberry Strait

Named after the Malay name of the Indian Gooseberry tree, the Strait of Malacca is the shortest sea route connecting the Indian Ocean to the South China Sea and the Pacific Ocean. Stretching roughly 500 km, the Strait is just 2.8 km at its narrowest. Indonesia, Singapore, and Malaysia are its littoral states.

According to the UNCTAD, 24% of global maritime trade passed through this strait in 2023. 45% of global oil shipments, 26% of all cars traded internationally, and 23% of dry bulk cargo shipments use it each year. A majority of consumer and industrial goods from the manufacturing hubs of East and Southeast Asia rely on this route to reach the rest of the world.

Nearly all of East Asia is heavily dependent on the Malacca Strait to meet its energy needs. China, for example, relies on it for 75% of its oil needs. In 2003, the then-President of China, Hu Jintao, coined the term "Malacca Dilemma", describing the strategic exposure the strait presents for China.

On April 22, the Indonesian Finance Minister floated the idea of imposing a levy on ships passing through the Malacca Strait. However, just a day later, Foreign Minister Sugiono backtracked on the idea and reinforced Indonesia's commitment to freedom of navigation under interna-

tional law. Barring these statements, the strait has remained peaceful and has, in fact, never been formally closed in recorded history.

### No alternatives

What makes Bab-el-Mandeb and Malacca strategically crucial is their geography. Though alternatives to these routes exist, they either involve circuitous routes that increase shipping costs or are not suited for high-volume global traffic due to shallow depths or lack of infrastructure.

The Strait of Malacca, for instance, is home to the world's second-busiest container port, the busiest container transshipment hub, and the world's largest ship refueling hub in Singapore. While alternatives to Malacca, like Lombok and the Sunda Straits, do exist, they can potentially add 1,000-1,500 nautical miles - around three to five extra days at sea. This results in higher fuel costs and loss of Singapore's port infrastructure.

Similarly, for Bab-el-Mandeb, the only viable alternative is going through the Cape of Good Hope at the southern tip of Africa, which adds 10-14 days and approximately an additional \$2 million to costs.

Professor Raja Mohan adds, "The scale of commerce that goes through these chokepoints is unprecedented. From stores in our houses to world economies, everything depends on these chokepoints. It is very important that these trade routes remain operable."

- **Key Terms and Explanations**

- **Maritime Chokepoints:** These are narrow, highly congested maritime routes that act as bottlenecks for global sea traffic. Think of them like a toll plaza on a major highway; if a lane closes, traffic backs up for miles. Examples include the Strait of Malacca, Bab-el-Mandeb, and the Strait of Hormuz.
- **The Malacca Dilemma:** A term popularized to describe China's deep strategic vulnerability. Because a vast majority of its energy imports must pass through the narrow Strait of Malacca, any blockade there by a hostile power (or naval coalition) could cripple its economy.
- **Transshipment Hub:** A massive port facility where cargo is moved from one vessel to another to complete a journey. Singapore is a prime example, thriving because of its location right on a major chokepoint.
- **Freedom of Navigation:** A principle of customary international law stating that ships flying the flag of any sovereign state shall not suffer interference by other states, ensuring global trade flows freely.
- **Littoral States:** Countries that have a coastline on a particular sea, ocean, or strait. For instance, Indonesia, Malaysia, and Singapore are the littoral states of the Malacca Strait.

- **Main Arguments and Substantive Parts**

- The core conceptual argument surrounding maritime chokepoints is that the global economy hangs by a remarkably thin, geographically constrained thread.
- **Vulnerability of Global Trade:** An overwhelming percentage of global trade, particularly energy resources like crude oil and LNG, transits through just a handful of narrow straits. The Indian Ocean effectively functions as a "closed ocean," accessible primarily through these specific gates.
- **Weaponization of Geography:** State and non-state actors alike can exert disproportionate global influence by threatening these routes. A local conflict in the Middle East or the Horn of Africa instantly transforms into a global economic crisis if a chokepoint is threatened.
- **The Illusion of Alternatives:** While alternative routes exist (like navigating around the Cape of Good Hope instead of using the Red Sea), they are often commercially unviable for regular transit. They add thousands of nautical miles, dramatically increase fuel and insurance costs, and ultimately result in inflation for the end consumer.

- **Historical Evolution of the Issue**

- The struggle to control these narrow waterways is not a modern phenomenon; it is a foundational theme of human history.
- **Ancient and Medieval Trade:** The spice and silk routes historically relied on safe passage through the Malacca Strait and the Red Sea. Empires rose and fell based on their ability to tax and protect these waters.
- **The Colonial Era:** European powers, particularly the British Empire, recognized that controlling the seas meant controlling the world. The creation of the Suez Canal (1869) and the establishment of strongholds like Singapore and Aden were deliberate moves to secure the lifelines of the empire.
- **The Cold War:** The focus shifted to energy security. As the Middle East became the world's primary oil pump, the Strait of Hormuz and Bab-el-Mandeb became critical chess pieces in the US-Soviet rivalry.
- **Modern Day:** With the economic rise of Asian giants like India and China, the volume of traffic through the Indo-Pacific has exploded. Today, the focus is on asymmetric threats—such as piracy, militia attacks, and "lawfare" (using international law as a weapon) over territorial waters.

- **Way Forward**

- **Infrastructure Diversification:** India must champion projects like the IMEC (India-Middle East-Europe Economic Corridor) to create multi-modal transport networks that bypass traditional maritime bottlenecks.
- **Naval Modernization:** Enhancing the blue-water capabilities of the Indian Navy is non-negotiable. India must project power as a net security provider in the Indian Ocean Region (IOR).
- **Strategic Reserves:** Building up immense Strategic Petroleum Reserves (SPRs) to insulate the domestic economy from sudden supply shocks caused by chokepoint disruptions.
- **Diplomatic Hedging:** Maintaining strong, multi-aligned diplomatic relationships with both littoral states (like Oman, Indonesia, and Djibouti) and major global powers to ensure favorable transit terms.

- **All Previous Years' UPSC Questions (PYQs)**

- *2015:* Which one of the following countries of South-West Asia does not open out to the Mediterranean Sea? (Tests regional geographic awareness).
- *2018:* Consider the following pairs: Sea / Bordering Country. (Often tests Red Sea, Black Sea, etc., heavily linked to chokepoint awareness).
- *2022:* Map-based questions frequently test the exact location of straits like Bab-el-Mandeb and Hormuz.

# Decoding the Musk vs. Altman verdict

OpenAI was founded as a nonprofit aiming to build ethical, open-source artificial general intelligence. Years later, Elon Musk filed a lawsuit accusing CEO Sam Altman, OpenAI president Greg Brockman, and Microsoft of manipulating him into donating to a public-interest organisation which later created a for-profit subsidiary.

## EXPLAINER

Azeema Arora

In 2015, a small group of researchers and technology entrepreneurs gathered in San Francisco to create what they described as a gift to humanity, eventually to turn into enemies defining the future of artificial intelligence (AI) in a courtroom.

OpenAI was founded on the premise that if artificial general intelligence (AGI) was coming regardless, it was better to have safety and ethics-conscious researchers build it. AGI is the kind of AI that can match or surpass human cognition. The group decided to create the initiative as a nonprofit and if the technology ever arrived, it would belong to everyone, as open source. OpenAI's CEO Sam Altman even went as far as to design the company's board such that it could fire him too if he ever came in the way of its core mission. That founding promise, to build ethical AGI, years later brought Elon Musk and Mr. Altman to a federal courthouse in California.

Mr. Musk brought forward the lawsuit against Mr. Altman, accusing him, OpenAI president Greg Brockman, and Microsoft, of manipulating him into donating to a public-interest organisation only for it to later attach a for-profit subsidiary and accept billions from Microsoft.

On May 18, a nine-person jury took less than two hours to throw out Mr. Musk's case against Mr. Altman. The verdict did not settle the question of whether OpenAI broke faith with its founding mission but instead, it was settled on a procedural issue - that Mr. Musk had waited too long to sue. In the American legal system, civil claims must be filed within a fixed window of time, crossing which the claim becomes invalid. The jury said Mr. Musk's claim fell outside the statute of limitations. The judge concurred, but Mr. Musk's lawyers have signalled that they might appeal. The merits of the case were



Elon Musk's attorney Marc Toberoff outside the federal courthouse in California on May 18, 2024.

never discussed.

### The nonprofit debate

Trial testimony and evidence showed OpenAI's leadership had anxiously tracked Google's acquisition of another AI research giant DeepMind in 2014.

OpenAI's executives argued that the nonprofit structure was not sufficient to compete with bigshots like Google.

Mr. Musk was the company's biggest early donor, contributing around \$38 million. But, the economics of building AGI turned out to be brutal. Training large models requires computing infrastructure that costs billions of dollars. By 2019, a year after Mr. Musk's departure from the OpenAI board, the company decided it could not remain competitive as a pure nonprofit. It attached a for-profit subsidiary to the existing organisation, with the nonprofit retaining oversight and a capped return structure for investors.

Microsoft came in with an initial investment that year, and kept coming, eventually investing more than \$135 billion and holding a significant share in

OpenAI. This is the transformation Mr. Musk's lawsuit sought to attack, from nonprofit to a commercially driven AI laboratory he had set out to oppose.

### Claims that did not make it to trial

The bit that went to trial eventually was a much smaller subset of the original claims Mr. Musk had filed in 2024. Several of his claims were dropped or narrowed before the trial even began.

Mr. Musk claimed that Microsoft's investment in OpenAI had aided it to breach its charitable mission. But, despite a Microsoft executive testifying that the company had invested billions in OpenAI, the jury dismissed the claim.

Mr. Musk also filed an antitrust claim against OpenAI and Microsoft, alleging that the two companies were colluding to dominate the AI market. This claim has not reached the jury yet. Judge Gonzalez Rogers heard arguments and signalled she was sceptical, noting the aggressive competition already playing out across the AI industry. OpenAI on its part filed a countersuit accusing Mr. Musk of running

a years-long harassment campaign against the company. That case is separate and still ongoing.

### Key takeaways from the proceedings

The legal question the jury resolved was procedural. But the three weeks of testimony preceding the verdict were pure Silicon Valley tech theatre.

Mr. Musk's lawyers assembled a long roster of witnesses who testified that Mr. Altman is not trustworthy. Mira Murati, who served as OpenAI's chief technology officer, told the court that Mr. Altman had lied about a safety review in the past. Ilya Sutskever, one of the company's founding researchers, had spent more than a year building a case for Mr. Altman's removal from the company, assembling a 52-page memo that described a pattern of dishonesty and internal manipulation.

In November 2023, OpenAI's board briefly fired Mr. Altman and reversed course within days. Mr. Altman returned and Mr. Sutskever eventually left the company.

OpenAI's lawyers demonstrated that while still on the board in 2007, Mr. Musk himself had pushed to restructure OpenAI as a for-profit entity, including an attempt to fold it into Tesla under his control.

Mr. Musk's argument that he had always opposed commercialisation now sat awkwardly alongside evidence that he had sought to commercialise the company himself, especially on the condition that he be in charge.

The immediate winner from the latest verdict is OpenAI. The lawsuit had cast a shadow over the company's plans for its upcoming IPO that could value it at close to a trillion dollars. There is a larger question the verdict leaves entirely unanswered. The trial showed how OpenAI's founding principles were abandoned in pursuit of competition. The nonprofit structure still exists, and the OpenAI nonprofit now controls assets of more than \$200 billion. But what that oversight means in practice was not explored in court.

## THE GIST

By 2023, OpenAI decided it could not remain competitive as a pure nonprofit and attached a for-profit subsidiary to the existing organisation. This was the transformation that Elon Musk sought to challenge in court.

The verdict did not determine whether OpenAI had abandoned its founding mission, but instead rested on the procedural finding that the lawsuit fell outside the statute of limitations.

- **Key Terms and Explanations**

- **Artificial General Intelligence (AGI):** Unlike current AI (like chatbots or recommendation engines) which are "narrow" and designed for specific tasks, AGI refers to a hypothetical AI that can match or surpass human cognition across a wide range of tasks. Imagine a system capable of learning, reasoning, and solving problems in any domain exactly like a human would.
- **Open-Source vs. Closed-Source AI:** Open-source technology is made available for anyone to use, modify, and distribute (democratizing access). Closed-source means the underlying code and mechanics are kept secret, usually controlled by a single corporation for commercial or safety reasons.
- **Capped-Profit Structure:** A hybrid corporate model where a non-profit organization creates a for-profit subsidiary, but caps the maximum financial return investors can make. The idea is to balance the need for massive capital investment with a public-interest mission.
- **Statute of Limitations:** A foundational legal principle dictating the maximum time after an event within which legal proceedings may be initiated. Once this period expires, a claim is generally considered invalid.
- **Antitrust Laws:** Regulations designed to promote fair competition for the benefit of consumers. They prevent companies from forming monopolies, colluding to dominate a market, or engaging in anti-competitive behavior.

- **Main Arguments and Substantive Parts**

- The core debate centers around a fundamental clash: the idealistic pursuit of technology for the public good versus the harsh economic realities of developing it.
  - **The Capital Imperative:** Developing advanced technology requires billions of dollars, primarily for massive computing infrastructure. A purely non-profit model often struggles to attract this level of funding, forcing organizations to pivot toward commercialization to remain competitive against industry giants.
  - **Mission Drift vs. Pragmatism:** There is a constant tension between original founding principles (like keeping technology open and safe) and the demands of massive investors who expect returns. The argument here is whether a corporate shift is a betrayal of public trust or a pragmatic necessity for survival.
  - **The Procedural vs. The Meritorious in Law:** Often, major corporate disputes are settled on procedural grounds (like filing too late) rather than addressing the actual ethical or substantive merits of the case. This leaves massive questions about accountability unanswered in the legal system.
  - **Monopolization and Control:** A major underlying concern is that a handful of tech giants, through massive financial investments, are effectively capturing the future of advanced technology, potentially turning what was meant to be a "gift to humanity" into an oligopoly.
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- **Historical Evolution of the Issue**

- The trajectory of technological development has drastically shifted from state-sponsored research to private corporate dominance.
- **Early Days (Academic & State-Led):** In the mid-20th century, foundational computing and early AI research were driven by universities and government defense budgets (like DARPA in the US). Profit was not the primary motive.
- **The Software Boom (1980s-2000s):** The rise of personal computing saw the birth of tech behemoths. The era established the "Silicon Valley" model: rapid scaling fueled by venture capital.
- **The Deep Learning Era (2010s):** The realization that massive data sets and immense computing power could lead to breakthroughs in neural networks changed the game. Suddenly, AI wasn't just a research topic; it required industrial-scale data centers.
- **The Hybrid Era (Present):** We are now seeing the emergence of complex corporate structures trying to navigate the immense capital requirements of modern tech while attempting to retain ethical oversight—often leading to severe internal and legal friction.

- **Way Forward**

- **Agile and Adaptive Regulation:** Move away from static laws to dynamic regulatory sandboxes. Governments need to create frameworks that evolve alongside the technology.
- **Strengthening Global Antitrust:** Competition commissions worldwide must collaborate to scrutinize the complex web of investments and partnerships that tech giants use to bypass traditional monopoly definitions.
- **Promoting Public-Funded Compute:** Just as nations invest in highways and power grids, there needs to be an investment in sovereign, public-access computing infrastructure to allow academic and non-profit researchers to innovate without relying on corporate benevolence.
- **Mandatory Algorithmic Audits:** Institute independent, third-party ethical and safety audits for foundational technologies before they are released to the public, similar to FDA trials for pharmaceuticals.

- **All Previous Years' UPSC Questions (PYQs)**

- **GS 3 (2023):** Introduce the concept of Artificial Intelligence (AI). How does AI help clinical diagnosis? Do you perceive any threat to privacy of the individual in the use of AI in healthcare?
- **GS 4 (2020):** What do you understand by the term 'corporate governance'? How does it ensure the ethical conduct of a business entity?
- **GS 3 (2020):** What do you understand by nanotechnology and how is it helping in the health sector? (Theme: Emerging tech applications and implications).

# Modi and Meloni outline road map for India-Italy strategic partnership

The Hindu Bureau  
NEW DELHI

Prime Minister Narendra Modi and Italian Premier Giorgia Meloni, in a joint op-ed across several news platforms, outlined an expanded road map for cooperation between the two countries across sectors, including trade, technology, energy, space, and security, against the backdrop of an emerging "Indo-Mediterranean" corridor.

"The relationship between India and Italy has now reached a decisive stage. In recent years, our ties have expanded with unprecedented momentum, evolving from a cordial friendship into a special strategic partnership grounded in the values of freedom and democracy and a common vision for the future," said Mr. Modi and Ms. Meloni in the op-ed titled "A Strategic Partnership for the Indo-Mediterranean".

"Both India and Italy are located at the very heart of two crucial hubs of the global economy - the Indo-Pacific and the Mediterranean - regions that cannot be viewed as separate spheres, but instead as increasingly interconnected spaces," it said.

"As a matter of fact, we are witnessing the emergence of what might be termed the Indo-Mediterranean, an important corridor for trade, technology, energy, data and ideas tying the Indian Ocean to Europe. It is precisely within this interconnected space that our bond naturally evolves into a special strategic partnership - one that bridges two continents and shapes new global dynamics," said the op-ed.

In this context, it added, the India-Middle East-Europe Economic Corridor



Giorgia Meloni

(IMEC) represents a vision aimed at connecting the regions through modern transport and infrastructure, digital networks, energy systems, and resilient supply chains, and that India and Italy are also committed to working together with other partners to make this vision a reality.

"Our cooperation mirrors our shared awareness that prosperity and security in the 21st century will be shaped by the ability of nations to innovate, manage energy transitions, and strengthen strategic sovereignty. To this end, we have committed to deepen and diversify our bilateral relationship with a view to pursuing new objectives and pooling our complementary strengths," said Mr. Modi and Ms. Meloni.

Stating that India and Italy want to reach and exceed the €20-billion bilateral trade target by 2025, the leaders said the free trade agreement between the European Union and India paves the way in the same direction. It focuses on defence and aerospace, clean technologies, machinery, automotive components, chemicals, pharmaceuticals, textiles, agri-food, tourism, and other sectors.

"We aim to forge a powerful synergy between Italian design, manufacturing excellence, and world-class supercomputers - re-

flecting Italy's position as an industrial powerhouse - and India's rapid economic growth, engineering talent, scale, and innovation and entrepreneurial ecosystem with over 100 unicorns and 200,000 start-ups," said the op-ed, adding that it would lead to the co-creation of value.

"The growing interest of Italian businesses in the production for India and the increasing presence of Indian industries in Italy - numbering over 1,000 from both sides now - is a positive sign that will strengthen the integration of our supply chains," it said.

The op-ed also highlighted cooperation in digital infrastructure and AI.

"India's Digital Public Infrastructure is already finding resonance with a large number of countries, particularly in the Global South. Italy and India have long been collaborating to ensure that AI development is responsible and human-centred," it said, emphasising that both countries see AI as a powerful instrument for inclusive development, particularly for the Global South.

"Our approach combines India's digital scale with Italy's ethical and industrial expertise, ensuring technology serves human dignity. By sharing best practices in secure digital cooperation, capacity building and resilient cyber infrastructure, we aim to create an open, trustworthy and equitable digital space in which every nation can shape and benefit from AI," said Mr. Modi and Ms. Meloni.

They said the perspective forms the core of Italy's G7 Presidency and outcomes of the AI Impact Summit 2026, held in Delhi.

- **Key Terms and Explanations**

- **Indo-Mediterranean Corridor:** A geopolitical and geo-economic concept that views the Indo-Pacific and the Mediterranean Sea not as isolated zones, but as deeply interconnected maritime and trade spaces. It acts as a bridge spanning two continents, fundamentally altering traditional supply chain routes.
- **IMEC (India-Middle East-Europe Economic Corridor):** A proposed massive infrastructure network aiming to connect India to Europe via the Middle East. It comprises railway networks, ship-to-rail transit networks, digital cables, and clean energy pipelines, designed to foster economic integration and reduce transit times.
- **Digital Public Infrastructure (DPI):** Refers to foundational, population-scale digital systems that enable essential services. India's UPI (Unified Payments Interface) and Aadhaar are prime examples. The global export of DPI has become a major soft-power tool for India, especially in the Global South.
- **Strategic Sovereignty:** The capacity of a state to act independently in the international arena, particularly concerning critical supply chains, energy transitions, and technological innovation, without being overly reliant on single, potentially hostile nations.
- **Global South:** A term used to describe developing, less developed, and underdeveloped nations, primarily located in Africa, Latin America, and Asia. Championing the causes of the Global South is a cornerstone of contemporary Indian foreign policy.

- **Main Arguments and Substantive Parts**

- The discourse surrounding this bilateral relationship hinges on the transition from a cordial friendship to a deep-rooted strategic partnership. It is built on recognizing mutual complementarities.
- **Geopolitical Convergence:** The central thesis is that the global economy's center of gravity requires fluid connection points. By viewing the Indo-Pacific and the Mediterranean as a single contiguous theater, nations can pool resources to secure trade, energy, and data flows against rising hegemonies.
- **Economic and Industrial Synergy:** There is a natural marriage between European industrial prowess—characterized by high-end manufacturing, design, and machinery—and India's massive scale, which includes a booming start-up ecosystem, vast engineering talent, and rapid economic growth.
- **Technological Diplomacy and AI:** Governance of emergent technologies is taking center stage. Both regions agree that Artificial Intelligence must be human-centric and responsible. They aim to prevent digital divides by ensuring that AI development is inclusive, particularly benefiting developing nations rather than exploiting them.
- **Supply Chain Resilience:** Recognizing the vulnerabilities exposed by recent global crises, there is a unified push to integrate supply chains, aiming for ambitious bilateral trade targets and expediting broader frameworks like the India-EU Free Trade Agreement.

- **Historical Evolution of the Issue**

- Understanding the current warmth in these relations requires looking back at the trajectory of the ties, which have seen ancient beginnings, post-independence consolidation, and periods of severe diplomatic friction.
- **Ancient and Medieval Trade:** The linkages date back to the Roman Empire, where robust maritime trade in spices and textiles flourished between Indian ports and Roman outposts, laying the very first "Indo-Mediterranean" routes.
- **Post-Independence Diplomacy (1947 onwards):** Formal relations were established in 1947. For decades, ties were cordial but lacked deep strategic engagement, largely revolving around cultural exchanges and basic trade.
- **The Period of Friction (2012-2015):** The relationship hit a historic low point during the Enrica Lexie case (the Italian marines issue), leading to severe diplomatic standoffs, stalled European Union negotiations, and vetoes on multilateral platforms.
- **Strategic Resurgence (2020-Present):** The relationship experienced a rapid thaw and subsequent acceleration, driven by shifting global realities. Agreements on defense, mobility, and clean energy culminated in the elevation of ties to a "Strategic Partnership," marked by unprecedented momentum and alignment in forums like the G20 and G7.

- **Way Forward**

- **De-Risking Connectivity:** While IMEC is visionary, India and Europe must develop contingency routes and focus on the less volatile segments of the corridor, such as enhancing direct maritime port linkages and fast-tracking the digital cable networks which are less impacted by ground conflicts.
- **Institutionalizing Tech Dialogues:** Establish a permanent, joint task force dedicated solely to AI and Cyber governance. This body should actively work to align India's DPDP Act (Digital Personal Data Protection) with the EU's frameworks to ensure friction-free tech collaboration.
- **Expediting the Broad-based Trade and Investment Agreement (BTIA):** Both nations must expend political capital to break the deadlock on the India-EU FTA. Compromises on tariffs for European machinery and automobiles, in exchange for easier visa access for Indian service professionals, should be prioritized.

- **All Previous Years' UPSC Questions (Themes of IR, Europe, and Corridors)**

- **UPSC Mains GS 2 (2023):** "Virus of Conflict is affecting the functioning of the SCO. In the light of the above statement point out the role of India in mitigating the problems." (*Contextual parallel: Managing regional conflicts to secure connectivity*).
- **UPSC Mains GS 2 (2021):** "Evaluate the economic and strategic dimensions of India's Look East Policy in the context of the post-Cold War international scenario." (*Contextual parallel: Similar evaluation needed for India's "Look West" and Mediterranean outreach*).
- **UPSC Mains GS 2 (2020):** "Critically examine the role of WHO in providing global health security during the COVID-19 pandemic." (*Contextual parallel: Global governance, similar to the needed global governance in AI*).



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